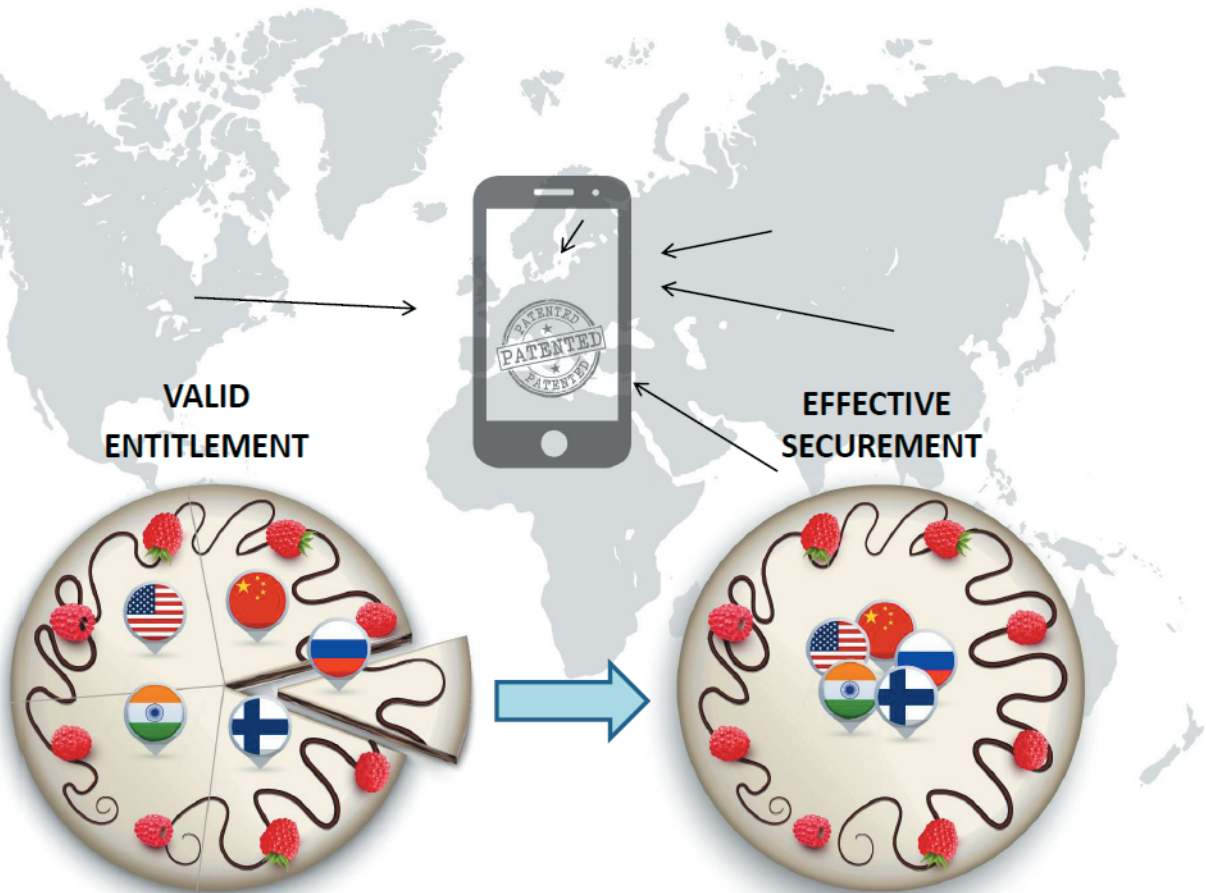




**UNIVERSITY
OF TURKU**



COMPLEX OF LAWS

Interfacing different employment and patent regimes in global inventions – a piece of cake?

Anne-Mari Lummevuo



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ABSTRACT

This doctoral dissertation explores complexity of the international legal system related to interfacing different employment and patent regimes, from the point of view of a multinational company. The starting point for this thesis is a technology company operating in a global business wherein patents play a significant role and inventions made by employees (and subcontracted inventors) are valuable assets for the company. The relevant question in this respect is, how the international legal system affects the company when it comes to managing rights to employees' inventions and creating a patent portfolio to protect company assets globally?

One research question, explored from a comparative perspective, is valid entitlement to employee inventions. The different kinds of mechanisms for transferring the rights to inventions made by employees in the different employment regimes cause *challenges in addressing the variety of country-specific differences in a company's invention management procedures*, with additional complexity resulting from third party collaboration. A specific aspect constituting valid entitlement in certain regimes is the *compensation to be paid for the rights to the inventions*, and *how to manage disharmonized compensation systems* when the inventors originate from different jurisdictions.

Company's patents need to be truly valid, for them to be capable of being utilized in value creation processes such as licensing. In order to achieve a sustainable competitive advantage, it is not sufficient for a company to merely ensure the necessary rights to inventions made by company employees. In addition, inventions also need to be secured, in this thesis using patent protection, in a valid manner. The validity explored in this thesis refers to compliance with special national security provisions, through which individual countries control, and in some cases can even prohibit, the export of certain technologies in the form of patent filings outside their national boundaries. Not complying with these provisions can affect the patent's validity, which is not a risk any technology company wants to be taking.

This thesis is particularly focused on how to deal with all of the aforementioned legal issues in the *complex of laws -situations taking place in cross-border collaboration within a multinational company* where an invention is the joint effort of multiple contributors originating from different jurisdictions. In respect of a single invention, the laws of the different countries regulating valid entitlement and national security simultaneously apply and need to be complied with, in order to

secure valid entitlement to and global patent protection for the invention in relevant markets.

This thesis addresses the *company as a legal organization*, needing to cope with the complexity – the *legal governance*. This concerns first of all the legal status of patent portfolio of a company, in terms of patent validity. However, it is also a question of company's legal mechanisms and tools, such as contracts, and whether for example employment or subcontracting agreements sufficiently address the issue of rights to inventions made by employees or subcontracted inventors. Third dimension relates to organizational mechanisms within a company, such as policies. The analysis thus explores also issues beyond the law.

This thesis provides a comprehensive overview of the legal aspects and potential pitfalls of cross-border operations of a multinational company, during the process from an invention to a patent. The case examples in this thesis provide a valuable practical insight into recognizing potential conflicts beforehand as well as examples of solutions assuring compliance. The approach is thus proactive as it attempts to identify and solve potential conflict situations beforehand, in order to avoid any future disputes.

Finally, since disharmonized employment and patent regimes create complex compliance obligations for companies, the thesis explores whether it would be possible to come up with a holistic approach to comply with the differing laws, preferably by company policy or absent of that alternative, in form of future harmonization.

KEYWORDS: compliance, employee inventions, entitlement, innovation management, intellectual property, IPR, legal governance, multinational company, national security provisions, patents, securement

TURUN YLIOPISTO

Oikeustieteellinen tiedekunta

Immateriaalioikeus

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TIIVISTELMÄ

Tämä väitöskirja tarkastelee kansainvälisen oikeusjärjestelmän ja eri työsuhde- ja patenttilainsäädäntöjen rajapinnoilla toimimisen haasteellisuutta monikansallisen yrityksen näkökulmasta. Tutkimuksen lähtökohtana on teknologiayritys, jonka liiketoiminta on maailmanlaajuista, jossa patentit näyttävät merkittävää roolia ja jolle työntekijöiden (ja alihankkijoiden) tekemät keksinnöt ovat arvokkaita. Tutkimus pyrkii vastaamaan kysymykseen, kuinka kansainvälinen oikeusjärjestelmä vaikuttaa yrityksen toimintaan liittyen työsuhdekeksintöoikeuksien hallinnoimiseen ja patenttiportfolion luomiseen, suojattaessa yrityksen innovaatioita globaalisti?

Yksi tutkimuskysymys, vertailevasta näkökulmasta tarkasteltuna, on työsuhdekeksintöjen oikeuksien tehokkuus. Erilaiset oikeuksiensiirtomekanismit työntekijöiden tekemiin keksintöihin aiheuttavat haasteita yrityksen keksintöjen hallinnoimisen prosesseihin, joissa pitää huomioida maakohtaiset erot. Lisähaasteita tähän tuo yhteistyö kolmansien osapuolten kanssa. Yhtenä erityiskysymyksenä tarkastellaan tietyillä lainsäädäntöalueilla oikeuksiensiirron tehokkuuteen vaikuttavaa keksintökorvausta ja sitä, miten yritys hallinnoi toisistaan eroavia korvausjärjestelmiä silloin kun keksijät ovat kotoisin eri lainsäädäntöalueilta.

Yrityksen patenttien pitää olla päteviä, jotta niillä voitaisiin luoda taloudellista arvoa esim. lisensoimalla. Kestävään kilpailukykyyn ei riitä, että yritys on turvannut oikeudet työntekijöiden tekemiin keksintöihin. Keksinnöt pitää myös suojata, tässä tutkimuksessa patentein, juridisesti pätevällä tavalla. Tutkimuksessa suojauksen pätevyyttä tutkitaan erityisten kansallisten turvallisuussäännösten noudattamisen näkökulmasta. Kansallisilla turvallisuussäännöksillä yksittäiset valtiot kontrolloivat, ja joissakin tapauksissa voivat jopa kieltää, tiettyjen teknologioiden viennin maasta patenttihakemusten muodossa. Näiden säännösten noudattamatta jättäminen voi vaikuttaa patentin pätevyyteen, mitä riskiä yksikään teknologiayritys ei halua ottaa.

Tutkimuksen erityisenä tarkastelukohteena on edellä mainittujen oikeudellisten kysymysten hallitseminen ”complex of laws” -tilanteissa, kansainvälisen yrityksen rajat ylittävässä yhteistyössä, jossa keksintö on usean eri lainsäädäntöalueelta lähtöisin olevan keksijän yhteisesti tekemä. Tällöin yhteen keksintöön soveltuu samanaikaisesti eri maiden oikeuksienottoa ja kansallista turvallisuutta sääteleviä lakeja, joita kaikkia yrityksen tulee noudattaa, turvatakseen keksinnön tehokkaan oikeuksienoton ja globaalisti pätevän patenttisuojauksen relevantteilla markkinoilla.

Väitöskirjassa yritystä käsitellään oikeudellisena organisaationa, jonka tulee selviytyä tästä kompleksisuudesta juridisen hallinnointinsa avulla. Tämä käsittää

ensinnäkin yrityksen patentt portfolios oikeudellisen aseman, patenttien pätevyuden muodossa. Kyse on kuitenkin myös yrityksen juridisista mekanismeista ja työkaluista kuten sopimuksista, ja esimerkiksi siitä kattavatko työ- tai alihankintasopimukset riittävän hyvin oikeudet työntekijöiden tai alihankkijoiden keksintöihin. Kolmas ulottuvuus liittyy yrityksen organisatorisiin mekanismeihin, kuten ohjesääntöihin. Tutkimuksessa analysoidaan siten myös lain ulkopuolisia tekijöitä.

Tämä väitöskirja tarjoaa perusteellisen kuvauksen oikeudellisista näkökohdista ja mahdollisista sudenkuopista kansainvälisen yrityksen rajat ylittävässä toiminnassa, prosessissa keksinnöstä patentiksi. Väitöskirjan tapausesimerkit tarjoavat arvokasta käytännön näkemystä potentiaalisten konfliktitilanteiden tunnistamiseen etukäteen ja ratkaisumalleja, jotka takaavat lainmukaisuuden. Lähestymistapa on siten proaktiivinen, sillä tavoite on tunnistaa ja ratkaista mahdolliset konfliktitilanteet jo ennakolta, riitojen välttämiseksi tulevaisuudessa.

Koska epäyhtenäiset työsuhde- ja patenttilainsäädännöt luovat yrityksille monimutkaisia compliance-velvoitteita, väitöskirjassa tutkitaan myös olisiko mahdollista luoda holistinen lähestymistapa, eri lakien noudattamiseksi, ensisijaisesti yrityksen omien ohjesääntöjen avulla, tai vaihtoehtoisesti tulevaisuudessa lakien harmonisoinnilla.

ASIASANAT: immateriaalioikeudet, IPR, kansainvälinen yritys, kansalliset turvallisuus -säännökset, patentit, työsuhdekeksinnöt

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This has been a long journey. It was initiated somewhat 20 years ago, when I started to work at the patent department of a multinational telecommunications company in Finland. It was then when the field research for this thesis begun, even if I didn't know that yet. At that time, I didn't know much about patents, but I soon learned. I didn't know anything about international business, but I soon learned. I also learned that knowing the law does not always help you to overcome legal challenges faced in real-life. This became especially true in handling multinational inventions, where there were contributors from different jurisdictions, meaning that multiple national laws in respect of a single invention applied. This, in turn, led to sometimes challenging situations which required creativity and problem-solution approach.

During these years, in my daily work and in discussions with colleagues, also from other companies, it became evident that I might have come up with a dilemma where there is no ready-made guidance how to proceed, and created a problem-solution approach which could be useful for other practitioners, too. This in mind I had a short study leave in autumn 2009, to initiate a project where I would wrap this experience and findings of mine to a book, in a form of licentiate thesis. However, because of a later degree reform with too short a transition period for me, I ended up converting my research plan to much more ambitious doctoral thesis, even if never planned to write an academic dissertation. Conveniently, I had just decided to resign from my work after 14 years, and I planned to start writing this thesis full-time. But sometimes when one door closes, another opens, and plans changed. This meant that it took longer time to wrap-up this project than I had anticipated.

The journey is now coming to an end, and it is time to give acknowledgements for those who have made this possible, in one way or the other. First of all, I want to thank my main mentor and supervisor, Professor *Katja Lindroos*, who has always had trust in me and whose guidance has been of valuable help. Every time we've met, instead of being frustrated of the (constructive) critic, I've been inspired to start implementing her suggestions, even if it has meant starting over again and abandoning lot of ready-made text. I also owe thanks to my other supervisors: *Jukka Mähönen* was the dean of the faculty of law and professor of commercial law at the time I initiated this project, and it was from the very beginning that he insisted that

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I also need to express my gratitude to my current employer *Salmela-Yhtiöt Oy* (and *Gurulogic Microsystems Oy*) for letting me have my study days when needed, for so (unexpectedly) many years. *Heikki Salmela*, given your work-oriented

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St. Karins 4 November 2019

Anne-Mari Lummevuo

Table of Contents

Acknowledgements	7
Preface	19

PART I NORMATIVE CONTEXT FOR SECURING PATENTS FOR GLOBAL INVENTIONS

1 Introduction	23
1.1 Research framework.....	23
1.1.1 Legal innovation management.....	23
1.1.2 Innovation management research and synergies with this thesis	26
1.1.3 Pitfalls in the patent management process from beginning to end	30
1.1.4 Multi-regime intellectual property management.....	33
1.1.5 Positioning of this thesis in global innovation management research.....	35
1.2 Managing inventions in a multinational company	37
1.2.1 Multinational company as an innovation ecosystem	37
1.2.2 Scenario for the multinational company in this thesis.....	39
1.2.3 Case examples.....	42
1.3 Research strategy and methodological choices	43
1.3.1 Objectives and scope of this thesis.....	43
1.3.2 Research methods and tools	44
1.3.3 Research questions.....	52
1.3.4 Structure of the thesis.....	54
2 Protecting IP as Company Assets	56
2.1 Why patenting?.....	56
2.2 Who owns the invention?.....	61
2.3 From conflict of laws to complex of laws	63
2.3.1 Conflict of laws from the property aspect	63
2.3.2 Conflict of laws from the patenting aspect.....	64

2.3.3	Complex of laws in securing global patent protection for inventions	65
2.3.4	Complex of laws in securing patent protection for global inventions	69
2.4	Hasn't harmonizing the patent system solved these conflicts?	71
2.5	Managing the complex of laws – a piece of cake, or not?	77
3	Validity of Patents as a Foundation for Effective Utilizing of Rights	81
3.1	Applying a patent	81
3.2	Requirements of patentability.....	82
3.3	Patent restrictions	88
3.4	Patent validity and possibilities to utilize the patent.....	90
3.4.1	Post-grant validity – the rebuttable presumption of patent validity.....	90
3.4.2	National security provisions affecting the validity of patent	92
3.4.3	Property aspect – transition to valid entitlement.....	93
4	Valid Entitlement.....	94
4.1	Ownership as a property right.....	94
4.2	Statutory regimes.....	98
4.2.1	Employee invention laws (FI & DE).....	98
4.2.1.1	General	98
4.2.1.2	Scope of rights	99
4.2.1.3	Time requirement.....	103
4.2.1.4	Form of acquisition.....	106
4.2.2	Equivalent regulations in patent law (HU & RU).....	109
4.2.2.1	General.....	109
4.2.2.2	Scope of rights	109
4.2.2.3	Time Requirement.....	113
4.2.2.4	Form of acquisition of patent rights – case example: Russia	115
4.2.3	Managing inventions in statutory regimes	119
4.2.3.1	Acquisition as individual action – same law, different outcome	119
4.2.3.2	Addressing country-specific differences in company procedures.....	121
4.2.4	Summary and transitional thoughts.....	122
4.3	Contractual regimes.....	123
4.3.1	Introduction.....	123
4.3.2	Employed to invent	124
4.3.3	Shop right	125
4.4	External collaboration	128
4.5	Assignment of rights	132
4.5.1	Acquisition vs assignment.....	132
4.5.2	Form of assignment	133

4.5.3	Scope of assignment	138
4.5.4	Time of assignment	140
4.5.4.1	Time of invention.....	140
4.5.4.2	Pre-assignment.....	141
4.5.4.3	Post-employment assignment.....	141
4.5.4.4	Substantive effect of timing on the validity of patent.....	148
4.5.5	Unbroken chain of assignment	153
4.5.6	Confirmatory assignment.....	154
4.6	Compensation for rights.....	157
4.6.1	Consideration and encouraging inventions	157
4.6.1.1	Consideration impacting validity of assignment..	157
4.6.1.2	Different ways of crediting employed inventors ..	158
4.6.1.3	Incentivizing inventions	161
4.6.2	Legal basis for compensation	163
4.6.2.1	General about duty to pay compensation.....	163
4.6.2.2	Acquiring the rights to a patentable invention (Finland)	165
4.6.2.3	Patent grant (China).....	166
4.6.2.4	Utilizing the patent (China & Hungary)	169
4.6.2.5	Valuable patent (UK).....	173
4.6.3	Level of compensation.....	176
4.6.3.1	General.....	176
4.6.3.2	Reasonable remuneration (FI, JP)	177
4.6.3.3	Statutory amount (CN, RU).....	181
4.6.3.4	Using license analogy (HU).....	183
4.6.3.5	Statutory calculation scheme (DE)	184
4.6.4	Agreeing on compensation	186
4.7	Managing inventions in a disharmonized compensation system.....	194
4.8	Summary and transitional thoughts.....	196
5	Effective Securement.....	198
5.1	Strategies for protecting global inventions	198
5.2	Different grounds for national security provisions.....	202
5.2.1	Criteria.....	203
5.2.2	Provisions based on the relevance to national security...	204
5.2.3	Security provisions based on the place of the invention..	207
5.2.4	Security provisions based on residency	215
5.2.5	Security provision based on the nationality of inventor...	218
5.2.6	Alternatives to complying with provisions.....	220
5.2.6.1	First filing	220
5.2.6.2	Restriction period	222
5.2.6.3	Security clearance	223
5.2.6.4	Secret inventions	225
5.2.7	Sanctions for the non-compliance with the provisions....	227
5.2.7.1	Invalidation of the patent (China)	227
5.2.7.2	Criminal consequences (India).....	228
5.2.7.3	Liability under the civil law (Russia)	229

5.2.8	Different interpretations of the criteria	230
5.3	Managing national security provisions in a multinational company	237
5.3.1	Addressing differing and conflicting requirements	237
5.3.2	Contradictory filing requirements resulting in catch 22 situation?	237
5.3.3	Summary and transitional thoughts.....	239

PART II COMPLEX OF LAWS – PROBLEMS AND SOLUTIONS

6	Acquisition of the Rights to Global Inventions	243
6.1	Regulating the rights to inventions at a national level.....	243
6.1.1	Addressing country specific regulations in the global inventions	243
6.1.2	Choice of law – what laws apply to expatriates?	245
6.1.2.1	Mobility of employees within the EU	247
6.1.2.2	The at-will dilemma in the U.S.....	251
6.1.2.3	Comparison of EU and US limitations on the choice of law	257
6.2	Relevance of several national laws in the same invention.....	258
6.2.1	Contribution to an invention – a piece of cake?.....	258
6.2.2	Case examples	260
6.2.2.1	Mobility of employees.....	260
	<i>Case example 1: Finnish expatriate in the US</i>	<i>261</i>
	<i>Case example 2: US expatriate in Finland</i>	<i>263</i>
6.2.2.2	Timing of rights	267
	<i>Case 3: Pre-assignment vs. post-invention acquisition of the same invention.....</i>	<i>267</i>
	<i>Case 4: Post-employment assignment of an invention.....</i>	<i>269</i>
	<i>Case example 4a: Post-employment assignment of an invention in Finland</i>	<i>270</i>
	<i>Case example 4b: Post-employment assignment of an invention in the U.S.</i>	<i>273</i>
	<i>Case example 4c: Post-employment assignment of an invention in China.....</i>	<i>276</i>
	<i>Case 5: Conflict of entitlements in a joint invention</i>	<i>278</i>
	<i>Case example 5a: Invention involving a Finnish inventor having been employed under six months</i>	<i>279</i>
	<i>Case example 5b: Invention involving a U.S. inventor having been employed less than two years</i>	<i>282</i>
	<i>Case example 5c: Invention involving a Chinese inventor having been employed under one year</i>	<i>285</i>
	<i>Case example 5d: Invention subject to multiple conflicting post-employment assignment duties.....</i>	<i>285</i>
6.2.2.3	Scope of rights	287
	<i>Case 6: No rights to some part of the invention.....</i>	<i>287</i>

Case example 6a: Partial entitlement of other employer(s)	288
Case example 6b: Invention partly owned by the inventor(s)	290
(i) Employer having failed to acquire the rights (Finland).....	291
(ii) Employer not entitled to rights from an inventor (China)	292
Case 7: Partial rights to at least some part(s) of the invention ..	293
Case example 7a: Employer entitled only to partial rights to some part(s) of the invention (Finland)	294
(i) Employee given permission to patent the invention	294
(ii) Employer not entitled to all rights	296
Case example 7b: Employer having a shop right to the invention (US).....	297
6.2.2.4 Summary and transitional thoughts	298
Case 8: Discrepancy of rights in case of cross-border inventions	298
Case example 8a: No rights to some part(s) of the invention	299
(i) No rights to one part of the invention due to a post-employment assignment duty (FI & US)	299
(ii) No rights to one part of the invention – no entitlement initially or due to an omission (FI) ...	302
Case example 8b: Partial rights to some part(s) of the invention	305
(i) Employer only entitled to partial rights (FI law) ...	306
(ii) Employer only entitled to a shop right (US law)	308
6.2.2.5 Special issues when sub-contracted inventors involved	309
Case 9: Subcontracted inventor.....	309
6.3 Striving for a holistic approach – does one size fit all?	314
6.4 Summary and transitional thoughts.....	317
7 Compensation – Balancing Between Legality and Equality	320
7.1 Country-specific regulations regarding compensation.....	320
7.1.1 National differences in respect of the duty to pay compensation	320
7.1.2 Compensation for global inventions subject to national laws	322
7.2 Relevance of several laws in the same invention.....	323
7.2.1 Different pricing for different pieces of the same cake?...	323
7.2.2 Case examples.....	325
7.2.2.1 Mobility of employees	325
Case example 10: Finnish expatriate in the US	326
Case example 11: US expatriate in Finland	327

Case example 12: Employees who have left the company	329
7.2.2.2 Discrepancy in pricing the cake.....	330
Case 13: No compensation to all parts of the invention.....	331
Case example 13a: Compensation for partial rights paid only for part of the invention (FI + CN)	331
Case example 13b: Compensation for all rights paid only for part of the invention	332
(i) Invention not patented (FI + US).....	333
(ii) Invention patented (FI + UK).....	333
Case 14: Different compensation for different parts of the invention	334
Case example 14a: Different basis for determining the compensation (FI + HU)	334
Case example 14b: Different level for determining the compensation (FI + CN)	336
7.2.2.3 Different timing of the payments.....	338
Case 15: Addressing country-specific differences in respect of the timing of compensation	338
Case example 15a: Employer taking the rights to the invention and potentially applying a patent - FI.....	338
Case example 15b: Patent granted for the invention – CN + FI.....	339
Case example 15c: Patented invention utilized – CN + FI + HU.....	340
Case example 15d: Valuable invention - UK.....	343
7.3 Trying to create a holistic approach - does one size fit all?	344
7.3.1 Is the holistic approach feasible?	344
7.3.2 Can an adopted approach affect arranging inventive activities?.....	350
7.3.3 Viewpoint: statutory bonus system for professional innovators?	352
7.4 Summary and transitional thoughts.....	354
8 Patenting Inventions Made in Cross-border Collaboration.....	356
8.1 National security provisions in cross-border collaboration.....	356
8.1.1 National security provisions vs. Preceding conflicts of laws	356
8.1.2 Managing simultaneously applicable national security provisions	357
8.2 Relevance of several national security provisions in same invention	358
8.2.1 Multiple reservations for the same cake.....	358
8.2.2 Case examples	359
8.2.2.1 Multiple places of invention for the same invention	359
Case example 16: Invention made in the US and China	359
8.2.2.2 Multiple residences of relevance for the invention	362

<i>Case example 17: Invention made by a resident of UK and India</i>	362
8.2.2.3 Conflicting rules of place of invention and residence	366
<i>Case example 18: Invention made in the U.S. and by a resident of India</i>	366
8.2.2.4 Deliberate risk of non-compliance with the provisions?.....	370
<i>Case 19: US vs. China</i>	370
<i>Case example 19a: Filing a patent application in China without a foreign filing license from the U.S.</i>	371
<i>Case example 19b: Filing a patent application in the U.S. without a foreign filing license from China</i>	372
<i>Case example 19c: Filing a provisional patent application without a foreign filing license from China</i>	373
<i>Case 20: India vs. UK</i>	375
<i>Case example 20a: Filing a patent application in the UK without a foreign filing license from India</i>	376
<i>Case example 20b: Filing a patent application in India without a foreign filing license from the UK</i>	376
<i>Case 21: US vs. India</i>	377
<i>Case example 21a: Filing a patent application in the U.S. without foreign filing license from India</i>	378
<i>Case example 21b: Filing a patent application in India without a foreign filing license from the U.S.</i>	378
8.2.2.5 Post-correction of non-compliance	379
8.3 Managing national security provisions – does one size fit all? ..	381
8.3.1 Viewpoint: do provisions still serve to protect security interest?.....	381
8.3.2 Suggestions for harmonizing and some practical insights	383
8.4 Summary	391
9 Does One Size Fit All?	392
9.1 Challenges in interfacing different employment and patent regimes.....	392
9.2 Is a holistic approach feasible?	394
9.2.1 Addressing national differences in invention management	394
9.2.2 Compensating the rights to multinational inventions	395
9.2.3 Managing multiple national security requirements	396
9.3 Could harmonizing be a solution to overcome these challenges?	396
9.3.1 Earlier attempts at the regional level.....	396
9.3.1.1 Harmonization of rights to employee inventions – European proposal.....	396
9.3.1.2 Proposal for compensation for patented inventions	398

9.3.1.3 Harmonization regarding national security interests	400
9.3.2 Challenges, future prospects and practical insights	402
9.3.2.1 Entitlement to employees' inventions	402
9.3.2.2 Compensating the rights to inventions.....	404
9.3.2.3 National security provisions.....	405
9.4 Concluding remarks	406
Bibliography.....	414

LIST OF FIGURES

Figure 1	A multinational company for this thesis, the basis for the case examples	40
Figure 2	Pitfalls in seeking global patent protection for employee inventions (“simple complex of laws”)	67
Figure 3	Pitfalls in seeking patent protection for global inventions in MNCs (“complex complex of laws”)	70
Figure 4	Complex of laws in securing patent protection for global inventions in MNCs	78
Figure 5	Acquisition vs. Assignment in the terminology of this thesis.....	133
Figure 6	Contribution to an invention – a piece of cake?.....	259
Figure 7	Mobility of employees – exchanging expatriates between statutory and contractual regimes.....	261
Figure 8	Pre-assignment vs. post-invention acquisition of the same invention	269
Figure 9	Post-employment assignment duty according to Finnish law	271
Figure 10	Post-employment assignment duty by virtue of a contract in the U.S	276
Figure 11	Post-employment assignment duty based on Chinese law	277
Figure 12	Conflict of entitlements to the same invention	279
Figure 13	An invention subject to multiple conflicting post-assignment duties.....	286
Figure 14	Partial entitlement to the invention of other employer(s)	288
Figure 15	An employee invention partly owned by one of the inventors	291
Figure 16	Partial rights to at least some part(s) of the invention.....	294
Figure 17	No rights to one part of the invention due to post-assignment duty of the FI inventor	299
Figure 18	No rights to one part of the invention due to post-assignment duty of the U.S. inventor	301
Figure 19	No rights from one co-inventor of the joint invention due to non-entitlement or omission	303
Figure 20	Partial rights to one part of the joint invention due to restrictions of entitlement.....	306
Figure 21	Subcontracted inventor involved in a joint invention.....	309
Figure 22	Different pricing for different pieces of the same cake?.....	323
Figure 23	Mobility of employees - compensating rights for the expatriates?	326
Figure 24	Timeline illustrating the different points of time triggering duty to pay compensation	338
Figure 25	Multiple places of invention for the same invention	359
Figure 26	Problem-solution approach for complying with multiple national security provisions - place of invention	362
Figure 27	Multiple residences of relevance for the same invention	364
Figure 28	Problem-solution approach for complying with multiple national security provisions - residency.....	366
Figure 29	Conflicting rules of place of invention and residence.....	367
Figure 30	Exemplary problem-solution approach to comply with conflicting national security provisions	368

Preface

In the late 90s I started my IPR career at a multinational telecommunications company in Finland. Back then, in my daily work dealing with employee inventions I only needed to be familiar with the Finnish legal framework, as all the inventions made in the company were handled locally. The Finnish-based inventors submitted their invention reports to the local patent departments at the respective R&D site and the rights to the inventions were acquired according to the requirements of the Finnish employee invention law. Further, the subsequent patent prosecution was handled by the Finnish patent professionals located in Finland. The legal framework regulating the rights to inventions by Finnish employees was very much Finland-based, even if patent protection extended also outside Finland via patent applications filed in foreign countries by patent attorneys qualified within the respective countries.

In mid-2000, during an organizational re-structuring, the *local patent departments* were changed into *global virtual teams*. This rational move towards technology-based divisions meant that all inventions falling within the same technology would be handled by the team which had the best expertise regarding the technology in question. Previously, the local patent departments had handled all kinds of inventions created by the local R&D units. Thus, the very same technologies and relevant prior art had been studied by several patent engineers at different sites. This resulted in double work, which was highly inefficient. As inventions related to the same technologies were handled by many sites, sometimes different teams filed separate patent applications for two related inventions without knowing of each other's actions. Combining the separate patent applications into a single application could have been more cost effective and optimal for patent protection. Despite this, the local ways of working were common in early 2000, and the situation was most probably the same at all other multinational companies. However, the creation of global virtual teams meant that the local knowledge needed to also be leveraged to foreign teams as a patent engineer could now receive an invention report from any part of the world. Thus, it was no longer sufficient to be merely aware of the requirements of the domestic law but also of the relevant rules in all other countries where the company had R&D activities. Further, as the globalizing trend was not

restricted to patent teams – in fact the whole change of the IPR organization was a logical consequence of a similar re-organization having taken place in R&D – inventions soon started to appear from cross-border collaboration projects, in which multiple different national laws were relevant.

Perhaps the most efficient approach to ensuring that inventions are handled according to the relevant national laws and rules is to create global guidelines, and to adopt *a holistic approach* which addresses issues related to employee inventions so that the procedure fulfills the legal requirements of all the countries in which inventive activities may occur. This enables *efficient management of inventions*, as the procedure is identical for all inventions made by employees, irrespective of the legislation applied to the individual inventors. It also removes the need for patent professionals to have a detailed understanding of every national regulation related to handling inventions within the company, as these are already addressed in the company policy. As a result, patent engineers can focus on their primary duties evaluating inventions from the point of view of patentability. It is then the duty of lawyers to ensure that the company procedures for these inventions comply with all the relevant laws and rules. It became my task to create such global guidelines.

The topic of this thesis evolved while attempting to create and implement a holistic approach to *managing inventions* made at a company so that the rights were duly secured to the employer and the resulting patents were truly valid and thus enforceable. The aim was to address legal issues related to employee inventions so that the company policy would apply to inventions made anywhere in the world. However, national laws greatly differ, and such a holistic approach in a multinational company is difficult to manage, even when inventions are made by inventors who originate from the same country. Soon after the new global organization was implemented, real-life scenarios emerged where inventions were the joint efforts of multiple inventors originating from different parts of the world. This resulted in challenging situations where the object of the rights from the employer's point of view was a single invention, yet the multiple national laws related to the invention needed to be applied simultaneously. A further challenge was caused by the different national mechanisms for compensating the rights to the inventions, which placed the company in an awkward situation when it needed to balance the legal duty to pay compensation with treating all employees equally. It soon became clear that in the changed company environment *a strategy for global innovation management* addressing the jungle of national laws regulating the rights and securing the inventions within the company needed to be created, and this task eventually evolved into this research project after I had left Nokia.

**PART I – NORMATIVE CONTEXT FOR
SECURING PATENTS FOR GLOBAL
INVENTIONS**

1 Introduction

1.1 Research framework

1.1.1 Legal innovation management

Innovation Management as an emerging field of study has lured scholars from many disciplines to write their contributions on the subject from a variety of perspectives.¹ It is an important area of study because the differing abilities of organizations to obtain benefits from innovations depend on how well the process is managed. Although innovation creates widespread social and economic benefits, the organizational returns are skewed towards those better at managing its risks and complexities.² However, legal and regulatory aspects are often overlooked when discussing how innovation activities are managed.

In the legal field, on the other hand, a crowded and emerging area of contributions has already been for some time the current global era for the mobility of goods, ideas and people and the challenges that working and leveraging ideas globally can cause in a form of choice of the relevant law. This applies to many different phenomena of the so-called internet age. In addition, it is relevant to the context of innovation management at multinational companies where inventions from the research and development (R&D) function can be the joint effort of multiple employees from different jurisdictions.

One area of legal discourse during the last decade has been the rights to inventions made by employees and the rights to other intellectual property. Regulations vary from country to country, which is challenging for multinational companies to manage. The employer, for example, may own the results of some contributors based on their employment, yet for other contributors, certain activity may be required in accordance with the relevant law(s). This becomes increasingly complex when an invention results from collaboration between third parties.

¹ See for example Mark Dogdson, David M. Gann, and Nelson Phillips, 'Perspectives on Innovation Management' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014).

² Ibid., p. 2.

Furthermore, with employee inventions, contrary to other intellectual property rights (such as a copyright) there is an additional dimension to the discussion which focuses on the compensation payable to the inventor for assigning the rights to the invention to the employer, something that is also a very country-specific issue.

“*Business is global, but laws are local.*”³ Indeed, in the globalized world the objects of intellectual property rights can also be the result of cross-border collaboration. Yet the laws applicable to the individual contributors are national laws. This applies both to acquiring rights to the invention from the co-inventors originating from different jurisdictions as well as compensating such rights. The law which is applied to the individual inventors is the law of their employment, but rules vary between different regimes. Further, in securing inventions via patenting, specific provisions exist in national patent laws (so called national security provisions) that may define the place for filing the first patent application for the invention.

Global inventions, where the co-inventors originate from different jurisdictions, give rise to a doctrine that is very relevant to the topic of this thesis. Essentially, managing global inventions pertains to conflict between the different national laws applicable to the invention in question. However, arising *conflicts of laws* are not traditional conflicts of law, where ultimately one law applies to the invention. Instead, the company must comply with all the conflicting or mutually exclusive national laws to secure the rights to and global patent protection for the invention in relevant markets.⁴ Due to the different nature of most (but not all) of the situations where there is a conflict of laws, in this thesis I introduce a new term and refer to the dilemma as *complex of laws*, which could be considered to be derived from “compliance” and “conflict of laws”. This term was coined in 2012 by a colleague and a highly recognized expert in the field of employee inventions in Finland, Mrs. Ella Mikkola, who proposed it at the very beginning of my research. It was already then, when I had only just started with my research, that she captured the essentials of this thesis. I am indebted to her for creating the term.

From a legal point of view, employee inventions involve a mixture of *contract law*, *employment* (or *labor*) *law*, national *employee invention laws* and *patent laws*, as well as *private international law*. This gives rise to a variety of questions related to the ownership of the invention, the transfer of rights from the inventor to the employer, the duty of action by the employer to obtain the rights, and the inventor’s right to

³ Lawrence T. Welch, ‘Workshop V: ‘Multinational Inventions – How to Reconcile IP Issues’, AIPPI Forum & Exco 2011, 13-18 Oct 2011, s. 2.

⁴ Katja Weckström (ed.), Chapter 1, Introduction of “Governing Innovation and Expression: New Regimes, Strategies and Techniques”, Publications of the Faculty of Law at the University of Turku, Private Law Series A:132 (2013).

compensation for assigning the rights.⁵ When protecting R&D investments by patenting innovations, the company needs to act in accordance with the *international patent treaties* and the national patent laws and, for example, specific *national security provisions* therein. In global inventions, multiple laws to a single invention apply. Yet, multinational companies need to be able to comply with them all. “*Compliance*” can mean different things.⁶ In this thesis the term refers to simply complying with laws, namely acting in accordance with the requirements of the respective laws. In some cases, however, it is uncertain which national law should be complied with for a particular case, especially when it is a question of work originated from cross-border collaboration. Private international law, also referred to as “conflict of laws”⁷, has traditionally been used as a problem-solution approach in a variety of situations where the legal problem at hand involves two or more relevant jurisdictions. Private international law seeks to determine which nation’s laws should be applied to govern the substance of legal relationships involving a foreign element. Nevertheless, its rules do not furnish a direct solution to the dispute. In fact, this area of law has been likened to an information desk at a railway station where passengers can find out which platform their train departs from.⁸ Does this then mean that private international law does not actually touch how to deal with situations where there is more than just one train to catch, and several platforms to follow simultaneously? The question is as absurd as asking how can a person catch several different trains at the same time? However, multinational companies need to be able to do this with global inventions involving contributors from different jurisdictions.

Currently, the global world of mobility and private international law faces a dilemma with cases involving a foreign element; it is no longer straightforward to determine the applicable law. “In an era of global interaction – with its rapid movements of people, money, ideas, goods and services - a conflicts jurisprudence based solely on the territorial location of key events is unduly limited and cannot hope to capture the variety of nonterritorial affiliations people and corporations actually form.”⁹ Such a *cosmopolitan conception of jurisdiction* recognizes the

⁵ Anne-Mari Lummevuo, ‘Conflict of Laws when Handling Employee Inventions in a Multinational Company with Global R&D and Cross-Border Collaboration’ in Katja Weckström (ed), *Governing Innovation and Expression: New Regimes, Strategies and Techniques*, Publications of the Faculty of Law at the University of Turku, Private Law Series A:132 (2013).

⁶ See for example M. Sc. Francesco Galietti, ‘Compliance in cross-border Corporate Groups’, Department of Law and Economics of Technische Universität Darmstadt, Date of defense: July 14, 2015.

⁷ Other terms which have been used to describe the branch of law are for example “International Private Law”, “Intermunicipal Law”, “Comity”, and the “Extra-territorial Recognition of Rights”. *Private International Law* by Cheshire, North & Fawcett, 14th Edition, OUP 2008, p. 18.

⁸ *Ibid.*, p. 8.

⁹ Paul Schiff Berman, ‘Towards a Cosmopolitan Vision of Conflict of Laws: Redefining Governmental Interests in a Global Era’ (2005) 153 *University of Pennsylvania Law Review*, p. 1880.

possibility that people hold multiple, sometimes nonterritorial community affiliations. Yet, it can also be easily adopted in the context of company expats, for example, where an employee has some form of employment relationship with both the host country and the home base. In this thesis, global inventions hold multiple affiliations, namely the inventors who have contributed to the conception of the invention. As a result, legal questions directly related to the contributors, and not to the invention as a result of their joint inventive efforts, cannot be solved based on the traditional choice-of-law approach where only one law is chosen and applied to the case at hand. Instead, several laws simultaneously apply. In fact, “[o]ver the course of the Twentieth century, international law lost its privileged place as the primary conceptual framework for understanding the cross-border development of norms.”¹⁰ The context is again different but the message very relevant: “Yet, sometimes a change in the overarching theoretical framework can help to re-orient an emerging discourse, accentuating important points of contact among scholars with different disciplinary backgrounds and methodological commitments. It is my hope, therefore, that the idea of law and globalization encourages international law scholars to conceive of their work more broadly and to engage in a dialogue with those working in related fields both within law and elsewhere in academia.”¹¹

With this thesis, I hope to enter the discourse that was started by scholars from a variety of disciplines in the area of innovation management. This thesis aims to present the dilemma of compliance with the “complex of laws” pertaining to innovation management within a multinational company. It does so by describing the entire invention process from creating inventions to effectively securing them with patents and by introducing the variety of different laws, the “complex of laws”, confronted by multinational companies in their daily management of the inventions. The case examples then provide a valuable practical insight into recognizing potential conflicts as well as examples of solutions assuring compliance, which ultimately ensures that the fruits of a company’s main endeavor are protected.

1.1.2 Innovation management research and synergies with this thesis

“*Innovation* contributes centrally to economic performance, corporate competitiveness, environmental sustainability, levels and nature of employment, and, in the final analysis, overall quality of life. There are widespread social and economic benefits from innovation, but *the organizational returns from it are*

¹⁰ Paul Schiff Berman, ‘From International Law to Law and Globalization’ (2005) 43 Columbia Journal of Transnational Law, p. 555.

¹¹ Ibid., pp. 555-556.

skewed towards those better at managing its risks and complexities."¹² This quote originates from the Oxford Handbook of Innovation Management, which comprises a collection of diverse articles related to *managing innovations* facilitated by six broad processes, each of which require different underlying management capabilities. The first process, *research and technology*, supports the use of science, research and technology as a stimulus to innovation in an organization.¹³ One related aspect is R&D as an increasingly globalized activity.¹⁴ Secondly, the *market-facing* process, tries to understand the nature of market demand and the organization of resources in response to market opportunities.¹⁵ The third process, *internal coupling*, values for example the ability of people to combine their deep expertise in particular areas, with a capacity to work effectively across different aspects of an organization's activities, including for example intellectual property protection.¹⁶ Without a doubt, in managing global inventions the importance of managing the organizational context cannot be underestimated.¹⁷ *External collaboration* connects organizations with external parties as they search for, choose, and implement innovations. The management of innovation in such a process additionally involves the ability to search for ideas within wider innovation ecosystems, to select from them judiciously, to manage the potentially increased contest over intellectual

¹² Mark Dogdson, David M. Gann, and Nelson Phillips, 'Perspectives on Innovation Management' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 2.

¹³ Ibid., p. 18.

¹⁴ See Lars Håkanson, 'Internationalization of Research and Development' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014). Håkanson identifies managerial systems, procedures, and practices, for coordination and control of internationally decentralized R&D, along with mechanisms promoting knowledge management, problem solving, and innovation.

¹⁵ See for example Jaideep Prabhu, 'Marketing and Innovation' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014). Prabhu examines how marketing influences innovation both as a source of and location for innovation, and how marketing is a crucial element of the cross-functional coordination needed for successful innovation. This thesis explores then those legal challenges that arise from the cross-border inventions resulted from such a coordination.

¹⁶ Mark Dogdson, David M. Gann, and Nelson Phillips, 'Perspectives on Innovation Management' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 20.

¹⁷ See for example Nelson Phillips, 'Organizing Innovation' and Keld Laursen and Nicolai J. Foss, 'Human Resources Management Practices and Innovation', both in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014). Phillips discusses how different aspects of organizations affect innovation and argues for the importance of managing the organizational context when managing innovation. Laursen and Foss argue the need for "modern" HRM practices valuing e.g. the use of reward systems that may positively influence creating the innovations. This aspect is reflected also in this thesis when discussing incentivizing inventions.

property rights, and to ensure good information flow and cooperation within the broad ecology.¹⁸ *Strategic integration* provides the strategic overview for all other innovation processes. This involves decisions about how innovation supports the overall organizational objectives and what innovations to pursue. The ability to formulate and implement innovation strategy and encourage highly coordinated internal and external organizational support for innovation and overall corporate objectives is a key management capability.¹⁹ Finally, *Future ready* processes prepare organizations for the future, by building their awareness of, and responsiveness to, changing business models and disruption in technologies, markets, regulations, demands for sustainability, and in general business circumstances.²⁰ What could be a more “future ready” approach than ensuring compliance when managing inventions within a legal environment with multiple national laws?

The topic of this thesis has several synergies with the above six processes for managing innovations. Research and technology processes relate to the internationalization of R&D in multinational companies. In addition, internal coupling explicitly links intellectual property protection to working effectively across the organization. In the innovation ecosystem of this thesis, namely a multinational company, it is vital to leverage the local legal knowledge throughout the global organization. This thesis also has synergies with external collaboration, bringing a further dimension to the process of managing inventions. Strategic integration is reflected in striving for a holistic approach in a company’s intellectual property policies. Furthermore, the approach of this thesis is very ‘future ready’, since ultimately the aim is to identify a “future-proof” solution where a company’s inventions are proactively managed to ensure true validity for a company’s intellectual assets, that is, become a truly “durable asset”²¹.

¹⁸ See for example Mark Dogdson, ‘Collaboration and Innovation Management’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014). According to Dogdson, collaboration contributes to an organization’s ability to attain complementarities, encourage learning, develop capabilities, and deal with uncertainty and complexity. As such it is often a challenging process and managing the inherent instabilities and tensions in collaboration requires careful partner selection and effective structuring and organization. However, there are challenges in the innovation management process also after the successful partnering and creation of innovations in such collaboration. This thesis sheds light also on those situations where the joint invention is a result of the collaboration with third parties.

¹⁹ Mark Dogdson, David M. Gann, and Nelson Phillips, ‘Perspectives on Innovation Management’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), pp. 21-22.

²⁰ *Ibid.*, p. 23.

²¹ This term is used by Ulf Petrusson, ‘*Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*’, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 29.

According to another categorization, coordinating the strategic activities of complex innovation ecosystems takes place on at least four levels: *technological strategies* involve technology architectural decisions as well as, for example, standardization strategies, open-source strategies, and patenting and licensing strategies.²² The patenting strategies in this context however, do not mean compliance with the requirements of the patent laws. Instead, decision making is based on the field of the invention and the markets of the relevant technology, in other words related to the previously defined research and technology-led processes and the market-facing processes. *Economic strategies* involve the choice, access, and promotion of complementary assets and associated investment strategies.²³ These strategies are reflected in this thesis through the discussions related to compensating the rights to inventions and forming company policies encouraging inventions. The emerging stream of *behavioral strategies* involve, for example, persuasion and influencing strategies.²⁴ In this thesis, these strategies relate to discussions on how compensation policy can impact the arrangement of inventive activities within a company. *Institutional strategies* cover the creation of – and connection with – the requisite institutional structures for coordinating the ecosystem and establishing an institutional and regulatory framework to ensure it operates smoothly.²⁵ One example of such a regulatory framework is the standardization of technologies. However, typically standardization decisions are more technology-based than based on any legal issues.

In addition to the innovation management processes and coordinating strategic activities five recurrent challenges inherent to Innovation Management have been identified in the Oxford Handbook of Innovation Management: 1) Dealing with disruption, 2) Balancing portfolios, 3) Integrating the Innovation Process, 4) Managing Intangibles and 5) Encouraging Creativity and Play.²⁶ Out of these, at least the three last challenges are highly relevant to the topic of this thesis. “In practice, ideas for innovations emerge from multiple sources and it often requires the collision and blending of many diverse insights into possibilities and opportunities. Encapsulating and focusing that diversity requires high levels of organizational,

²² Erkkö Autio and Llewellyn D. W. Thomas, ‘Innovation Ecosystems: Implications for Innovation Management?’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 26.

²³ Ibid., p. 26.

²⁴ Ibid., pp. 25-26.

²⁵ Ibid., p. 26.

²⁶ Mark Dogdson, David M. Gann, and Nelson Phillips, ‘Perspectives on Innovation Management’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), pp. 13-18.

technological, and commercial integration.”²⁷ In this thesis the attempt to achieve a holistic approach in acquiring the rights to inventions and compensating them is one way of *Integrating the Innovation Process* within a company. *Managing Intangibles* in the quoted article relates to measuring the intangible results of work, such as software or services.²⁸ In this thesis, the management of intellectual property refers to *managing the rights* to such. *Encouraging Creativity* refers to alternative ways and means for stimulating creativity and creating inspiring environments to enable the creation of innovations.²⁹ In other words, encouraging is directed to activities in the future. In this thesis the aspect is also discussed in the context of incentivizing inventions that have already been made.

It is relatively straight-forward to map any innovation-management related topic to the aforementioned umbrellas of the six processes, the four strategies or the five challenges. However, despite the artificial synergies between the discourses of the articles and the topic of this thesis, this thesis does not claim to be Innovation Management research. Rather it complements the existing discourses by introducing further elements and attempting to fill the gap therein of a topic the size of this thesis.

1.1.3 Pitfalls in the patent management process from beginning to end

Other scholars have also acknowledged that there is lack of a certain kind of IP research. For example, a recent literature review stated: “[t]he IP management field has had an overweight of studies utilizing quantitative secondary data, such as patent statistics, where many relevant strategy- and management-related variables are missing. Many of these requests for additional research call for studies where in-depth primary data is collected, for example with case study research designs or with new survey designs focusing specifically on IP management. There is here large potential in collaborations between practitioners and researchers that can move the field of IP management forward.”³⁰ This research responds to the call by adopting a comprehensive approach to global IP management, by utilizing case examples derived from challenges in practice providing an insight into the research questions. A further limitation highlighted in the literature review is that earlier literature predominantly focuses on single types of IPRs, typically patents. That is, IP management is substituted with patent management and relatively little attention is

²⁷ Ibid., p. 15.

²⁸ Ibid., pp. 16-17.

²⁹ Ibid., p. 17.

³⁰ Marcus Holgersson and Sarah Van Santen, ‘The Business of Intellectual Property: A Literature Review of IP Management Research’ (2018) 1(1) Stockholm Intellectual Property Law Review, p. 62.

paid to other IPRs.³¹ This is also true with this research, as other forms of IP do not provide such a complex legal framework for the research questions than patenting. A further conclusion in the mentioned literature review is that the research needs to be integrated with general management and business strategy.³² As such, in this thesis integration is inevitable as it specifically focuses on the management of inventions in such a manner that business strategies in patenting meet with the legal compliance.

The review goes further by stating that while there are huge differences between firms in terms of how well-integrated their IP functions are, they are most often involved in the front-end of patent applications and the backend of IP enforcement. “In between is a range of strategic issues relating to IP, where the IP (law) function is however often less involved despite its relevance for such decisions”.³³ This thesis is positioned precisely in-between, starting from the creations of inventions, following their road to protection and becoming a durable company asset, and focusing on the legal aspects which closely align with the multiple decisions along the way.

Many studies have focused on different aspects of employee inventions and the related pitfalls. In Scandinavia, for example, *Wolk* has written promising articles and books on issues related to the ownership and remuneration of employee inventions. In addition, earlier articles have been written about the pitfalls of protecting inventions in multinational markets, namely the potential problems that may arise when seeking patent protection in foreign countries.³⁴ However, currently no research has addressed the pitfalls encountered during the process of securing innovations as a whole, from the very beginning of the process to the end. Admittedly, some attempts to provide a comprehensive approach to the patenting

³¹ Ibid., p. 60.

³² Ibid., p. 57 and 60. Reference in the article (fn 128) to Ove Granstrand, ‘Corporate Management of Intellectual Property in Japan’ (2000) 19(1-2), *International Journal of Technology Management*. Granstrand’s paper describes how large Japanese corporations organise and manage their IP operations quite differently from the traditional patent organisation in Western companies. The typical IP department in a large Japanese corporation has evolved into a department which is comprehensive regarding IP responsibilities, relatively large, engineer dominated, embedded in a corporate patent culture, and of strategic concern to business, technology and top managers. This thesis does not address the actual practices of the companies but provides an approach that could be adopted in any multinational company.

³³ Ibid., p. 62.

³⁴ For example, Michael K. Bosworth, ‘Pitfalls of Foreign Patent Filing’ (1976) 7(2) *Loyola University Chicago Law Journal* and David S. Safran, ‘Protection of Inventions in the Multinational Marketplace: Problems and Pitfalls in Obtaining and using Patents’ (1983) 9(1) *North Carolina Journal of International Law and Commercial Regulation*.

process have been presented, such as in a study by *Hurmelinna-Laukkanen*.³⁵ However, she also acknowledges that measuring the efficiency of the entire patenting process has not been a topic for very extensive study. This is the observation in this thesis, too, when the patenting process is interpreted as covering the process from the conception of an idea to an invention all the way to a valid patent. It should be noted that the aforementioned study specifically carves out the external factors that can affect “availability” and “efficacy”. As far as the IPR strategy regarding patenting is concerned, the *availability* of legal protection is subject to meeting the requirements of patentability. Even if a patent is granted, its protective power, *efficacy* (or strength) may be inadequate.³⁶ This is also the core finding of this thesis; despite the patent fulfilling the general requirements of patentability, there can still be pitfalls affecting the effective use of the patent and its territorial validity. However, instead of discussing the availability of protection, this thesis discusses the *validity* of patents. Regarding the other term, “efficacy”, Hurmelinna-Laukkanen transforms the efficacy of appropriability mechanisms to *effective* appropriability mechanisms.³⁷ This term is also adopted in this thesis, for example, in connection with effectively securing inventions and effectively utilizing the resulting patent rights. The external factors carved out from the scope of the earlier study include the resources and capabilities of the company, and the limitations and requirements set by society, governments and legislators.³⁸ In contrast, this thesis specifically aims to provide a comprehensive overview of the aspects related to the variety of requirements set by the legislators affecting the validity of patents and the subsequent possibilities to efficiently utilize them in the legal framework, namely normative context for securing global patent protection.

The research project “Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain”, led by *Ulf Petrusson* sought an operational theory

³⁵ Pia Hurmelinna-Laukkanen, ‘Dynamics of Appropriability – Finding a Balance between Efficiency and Strength in the Appropriability Regime’, *Acta Universitatis Lappeenrantaensis* 228, Diss. Lappeenranta University of Technology 2005. One of the publications, “Measuring the Performance of Patenting Activity”, covers all the functions from the mere idea in an employee’s head to the valid patent. It further addresses the actions thereafter, from defending an existing patent and collecting licensing revenues to abandoning the patent. See Hurmelinna, Pia and Silventoinen, Marko, ‘Measuring the Performance of Patenting Activity’, published at the GCBE Conference 2004, 9-11 July, Amsterdam, The Netherlands and then in *International Journal of Business & Economics*.

³⁶ Pia Hurmelinna-Laukkanen, ‘Dynamics of Appropriability – Finding a Balance between Efficiency and Strength in the Appropriability Regime’, *Acta Universitatis Lappeenrantaensis* 228, Diss. Lappeenranta University of Technology 2005, p. 35.

³⁷ *Ibid.*, p. 47.

³⁸ Hurmelinna, Pia and Puumalainen, Kaisu, ‘The Dynamics of Appropriability Regimes’, published at the DRUID Tenth Anniversary Summer Conference 2005, 27-29 June, Copenhagen, Denmark, fn 5 (there are no page numbers in the article).

on entrepreneurship and intellectual property management capturing the complex creation of wealth in an intellectualized economy.³⁹ This thesis however does not focus on how to create value out of innovations. Instead, it addresses any potential pitfalls that may endanger obtaining value from inventions once patented.

1.1.4 Multi-regime intellectual property management

Of the many challenges for the IPR institution, *Granstrand* has identified a challenge that is highly relevant to this thesis, namely how to interface or harmonize different intellectual property regimes.⁴⁰ Harmonization is not the focus of this thesis, although the need for it is clearly addressed too, as a result of the challenges in interfacing different patent regimes in certain situations. Indeed, the challenge of interfacing directly relates to the complexity of different national laws conflicting, or existing in parallel, in global inventions. In this context Granstrand questions “whether there exists a single superior IP regime or a superior mix of complementary IP regimes for different economic and quasi-economic sectors of society, which tend to gather creative and knowledge-producing people with different motivation structures and different propensities to be incentivized by standard utilitarian-based IPRs”. He calls this the IP-regime fitness problem.⁴¹ Given that in this thesis the interfacing takes place within the same sector of society, a multinational company, it is not relevant here.

Nevertheless, Granstrand also raises the fascinating issue of the *IP assembly problem*: “As new technologies are interacting with each other and with old technologies in more complex and interdependent ways, products and services become not only increasingly based on new technologies but increasingly based on many different technologies. The products and services become more multi-technological, or “mul-tech”.”⁴² In this thesis, the difficulty of interfacing different intellectual property regimes is linked to another kind of assembly problem, not related to multi-technological but *multi-regime* – or multinational – inventions. In

³⁹ Ulf Petrusson, ‘*Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*’, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004.

⁴⁰ Ove Granstrand (ed), *Economics, Law and Intellectual Property, Seeking Strategies for Research and Teaching in a Developing Field*, Center for Intellectual Property Studies, Department of Industrial Management and Economics, Chalmers University of Technology, Göteborg, Sweden, 2003, p. 230.

⁴¹ Ibid.

⁴² Ove Granstrand and Salvatore Torrisi, ‘Technological and business diversification: a survey of theories and empirical evidence’ in John Gantwell, Alfonso Gambardella and Ove Granstrand (eds), *The Economics and Management of Technological Diversification* (first published 2004 by Routledge), p. 30.

this thesis, joint inventions where there are contributors from different jurisdictions are however called global inventions.

Granstrand has studied convergences within multinational technology and also more generally within intellectual property management, addressing the various dimensions of convergence in a global context – market, technology, management, legal, and economic convergence.⁴³ Out of these, the market, technology, and IP legal convergences imply the increased convergence of multinational technology management, and IP management as an increasingly important part thereof. As a managerial implication, global developments of the sort discussed in the study call for increasing skills in managing multinational intellectual property, which is increasingly becoming a core skill in multinational technology management.⁴⁴ This thesis tries to respond to the call.

An earlier study focusing on property rights and ownership, addresses one type of multi-regime object and the pitfalls in a globally distributed work environment.⁴⁵ In addition to ownership, which is a prerequisite when applying for a patent for an invention, the article discusses authorship related to copyrighted work which has resulted from cross-border collaboration. “In a multinational context, the differences impact ownership and control of the work in an unexpected ways. Thus for a multinational corporation with employees and contractors located across more than one country, determining who may claim authorship and who owns rights to the work becomes exponentially more complex.” The article provides an example of a new smartphone game application (“app”), consisting of software, graphic art and music, the app being created by a team including individuals located in the United States, France and India. Depending on the country in which a particular task is performed, the rights of the company based in the U.S. and the individuals hired to complete the work vary considerably. Failing to understand and address these complexities prior to commissioning the copyrighted work can result in substantial economic impact, if a U.S.-based multinational wrongly assumes that other countries have authorship and ownership rules similar to those in the United States or that U.S. law will apply.⁴⁶ Some idea of the complexity of managing inventions arising in cross-border collaboration can be illustrated by this example, albeit directed to a

⁴³ Ove Granstrand and Marcus Holgersson, ‘Multinational technology and intellectual property management – is there global convergence and/or specialization?’ (2014) 64(2/3/4) *International Journal of Technology Management*, pp. 117-147.

⁴⁴ *Ibid.*, pp. 26-27.

⁴⁵ Susan J. Marsnik and Romain Lorentz, ‘Who Owns Employee Works? Pitfalls in a Globally Distributed Work Environment’ (2015) in Lynda J. Oswald & Marisa Pagnattaro (eds), *Managing the Legal Nexus Among Intellectual Property, Employees, and Global Trade*, Edward Elgar Publishing 2015.

⁴⁶ *Ibid.*, pp. 226-228.

different type of intellectual property right, copyright. Copyright is a rather different form of protection than a patent, since it is automatically created when a person creates a copyrightable work. It is not regulated by multiple laws with different functions and does not involve such a variance of rules as patenting the employees' inventions does. Therefore, copyrighted works do not provide an equally complex environment and a legal framework for the research questions of this thesis.

"IP litigation is local, but those who litigate are global."⁴⁷ This phrase resembles the previously quoted "Business is global, but the laws are local."⁴⁸ Indeed, there are some earlier studies also related to multi-regime intellectual property litigation. These studies are closer to the topic of this thesis, even if they relate to litigation which is the subsequent phase of the management of innovations subject to this thesis. However, without the preceding management process subject to this thesis being handled in a proper manner, there would be no durable assets with which to litigate. Similarly, there would be no need to identify litigation related problems with "potential pitfalls in coordinating discovery in multiple jurisdictions"⁴⁹ without first recognizing and overcoming the pitfalls in the invention management.

1.1.5 Positioning of this thesis in global innovation management research

The study of innovation and innovation management has drawn on a wide range of academic disciplines. Regarding studies related to innovations in general, for example, *The Oxford Handbook of Innovation*⁵⁰ includes twenty-one carefully selected contributions, each focusing on a specific aspect of an innovation, by economists, geographers, historians, psychologists and sociologists. The purpose of this book, however, is to contribute a holistic understanding of innovation as a phenomenon, whereas in *The Oxford Handbook Book of Innovation Management* innovations were discussed from their management point of view.⁵¹ The authors in the latter book also have diverse backgrounds: scientists, engineers, economists, historians, geographers, psychologists, sociologists, and students of management and organizations. But where are all the lawyers? In the literature on creativity and

⁴⁷ See Karin Beukel and Minyuan Zhao, 'IP litigation is local, but those who litigate are global' (2018) 1(1-2) *Journal of International Business Policy*, pp 53-70.

⁴⁸ Lawrence T. Welch, 'Workshop V: 'Multinational Inventions – How to Reconcile IP Issues'', AIPPI Forum & Exco 2011, 13-18 Oct 2011, s.2.

⁴⁹ See Jordana Sanft and Amy Grenon, 'Evidentiary and Procedural Issues in Multi-jurisdiction Intellectual Property Litigation' (2010) 25(2) *Canadian Intellectual Property Review*, p. 331.

⁵⁰ Jan Fagerberg and David C. Mowery (eds), *The Oxford Handbook of Innovation* (OUP 2006)

⁵¹ Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014).

innovation management the role of law is often peripheral, and there is a call for a greater dialogue between creativity management and legal establishments.⁵²

The aim of this thesis is to respond to the call. However, it does not claim to be an independent innovation management study but rather an approach within the framework of Innovation Management; the actual topic and research questions belong to a strictly legal framework. Admittedly, there have also been other responses to the call. In 2007, a conference was organized to examine various facets of the international protection of intellectual properties, and various inter-disciplinary views on the global scenario of intellectual property law and policies were presented. The fields of law, business and economics provided diverse contributions which analyzed and clarified the problems and promise of IP policy from a global perspective.⁵³ The topics addressed, for example, specific cross-national intellectual property perspectives which initially appeared to be topical for this thesis. However, after closer review none were relevant. Perhaps closest to this thesis was a study, in which the purpose was to include the strategic R&D organization of firms into policy considerations, and to analyze how national IPR policies may change in the presence of multinational R&D activities.⁵⁴ However, in contrast, this thesis is essentially exploring the opposite direction, namely forming policies in multinational companies due to the national legal requirements.

Despite the extensive discourse focusing on global innovation management and the challenges identified therein, this thesis attempts to situate itself within a variety of perspectives and to complement the ongoing discourse. It does so by providing a comprehensive overview of the legal aspects and potential pitfalls which may confront a multinational company in its cross-border inventive activities, during the process from an invention to a patent. It seems that most of the versatile viewpoints offered by the discourse on Innovation Management has focused primarily on aspects that are essentially non-legal. Nevertheless, this is a law thesis although the scope of the subject is highly likely to extend beyond the interest of only legal scholars.

⁵² James Tunney, 'The Problematic Role of Lawyers in the Creativity and Innovation Process' (2000) 9(4) *Creativity and Innovation Management (CIM)*, Abstract.

⁵³ The by-invitation-only conference in spring 2007 was organized by the University of Connecticut Center for International Business Education and Research (CIBER). 23 scholars from academic and international organizations such as OECD and WTO participated in the conference and 13 of them wrote the paper to the conference book: Robert C. Bird and Subhash C. Jain (eds), *The Global Challenge of Intellectual Property Rights*, Edward Elgar Publishing 2008.

⁵⁴ Minyuan Zhao and Bernard Yeung, 'National IPR Policies and Multinational R&D Strategies: an interactive perspective' in Robert C. Bird and Subhash C. Jain (eds), *The Global Challenge of Intellectual Property Rights*, Edward Elgar Publishing 2008, p. 195.

1.2 Managing inventions in a multinational company

1.2.1 Multinational company as an innovation ecosystem

This thesis is written from a *management perspective*. The viewpoint is that of an *employer* since the challenges related to the transfer of the rights to an invention do not exist if the inventor is an individual without a duty to assign the invention rights to anyone, such as to an employer. Further, even though natural persons can also act as employers, for the purposes of this thesis the employer shall be a *company* involved in an innovative business field. To explore the research questions of this thesis, the employing company here is a *multinational company* which has employees in multiple jurisdictions. In addition, to be able to describe the “complex of laws”, the perspective of this thesis needs to be that of an *employing multinational company*. Only the viewpoint of a multinational company acting as an employer can offer a research angle for exploring the conflict -scenarios topical in this thesis. By adopting the perspective of an employing company, the issue can be analyzed “from a bird’s-eye view”, as opposed to the viewpoint of an individual inventor, which would merely focus on the national legislation to be applied to the inventor. From the multinational company’s point of view the perspective is also truly global. As a result, it provides a good basis for the discourse and a strong foundation for the case examples that are provided in this thesis.

The multinational company constitutes an “innovation ecosystem” for the purposes of this thesis. The concept of an innovation ecosystem has been defined for example as *a network of interconnected organizations, connected to a focal firm or platform, that incorporates both production and use side participants and creates and appropriates new value through innovation*. The explicit inclusion of use side participants differentiates the ecosystem construct from other network-centric constructs handled in management literature, such as, for example, clusters, innovation networks and industry networks, that all tend to focus on the production side.⁵⁵ As such, the concept “innovation ecosystem” as defined in traditional innovation management studies, does not correspond to the “ecosystem” explored in this thesis. However, some synergies can again be identified. According to another definition, “[t]he multinational corporation occurs as a real global economic system, a complex mechanism that has dispersed components all over the world, but which

⁵⁵ Erkkö Autio and Llewellyn D. W. Thomas, ‘Innovation Ecosystems: Implications for Innovation Management?’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), pp. 2-4.

are *interconnected*, evolving and transforming themselves permanently.”⁵⁶ A multinational company can also be seen as “*a differentiated network*”. The starting point for this analysis is that a multinational company consists of a number of diverse subsidiaries operating in distinct national environments. The structure of a multinational firm can be understood as distributed resources linked through different types of relations: 1) the local linkages within each national subsidiary, 2) linkages between headquarters and the subsidiaries and 3) linkages between the subsidiaries (inter-subsidiary relation). It is argued that any such network forms a complex structure. All attempts which ignore the complexity and heterogeneity inherent in these organizations is referred to as “reductive fallacy”, the failure related to “reducing complexity to simplicity or diversity to uniformity”.⁵⁷ *External collaboration* was said to connect organizations also with external parties. Of the many kind of identified challenges related to global convergence, Granstrand also acknowledges the challenges of internationalizing R&D as well as the increasingly interdependent agents in a mixture of competition and co-operation, or as Granstrand puts it, “coopetition” or “competeration”.⁵⁸ However in the context of this thesis and the research questions, collaborators are the most relevant external parties, and competitors play a minor role. A multinational company consisting of subsidiaries and also subcontractors, that operate in different national environments provides an excellent starting point for the topic of this thesis. As previously mentioned, the viewpoint of an individual inventor would only offer insight into the relevant national law(s). Furthermore, this would likewise be applicable to a single company as well as a group of companies if operating only in domestic markets. Operating in different countries is essential to adequately explore the research questions, but it is also sufficient criteria. In other words, for the purpose of this thesis, the company does not also need to operate in different fields of industry, namely, to be a “conglomerate”, which is the term generally used in innovation management discourse. Moreover, even though different kinds of joint ventures between companies would certainly add further complexity to legal innovation management, it is not addressed specifically herein.

⁵⁶ Rosalia Kicsi and Simona Buta, ‘Multinational Corporations in the Architecture of Global Economy’ (2012) 12(2/16) *The USV Annals of Economics and Public Administration*, p. 145.

⁵⁷ Mats Forsgren, *Theories of the Multinational Firm – A Multidimensional Creature in the Global Economy*, Edward Elgar Publishing 2008, p. 12 and Nitin Nohria and Sumantra Ghoshal, *The Differentiated Network: Organizing Multinational Corporations for Value-Creation*, San Francisco: Jossey-Bass 1997.

⁵⁸ Ove Granstrand (ed), *Economics, Law and Intellectual Property, Seeking Strategies for Research and Teaching in a Developing Field*, Center for Intellectual Property Studies, Department of Industrial Management and Economics, Chalmers University of Technology, Göteborg, Sweden, 2003.

Attempts to ignore the complexity of a multinational company is said to be a failure of reducing complexity to simplicity. This thesis by no means ignores the complex innovation environment, provided by a multinational company. On the contrary, it deliberately attempts to simplify the complex compliance of the complex of laws. Perhaps the most efficient way to ensure that all inventions are handled according to the relevant laws and rules throughout a company is to create global guidelines, namely, to adopt *a holistic approach*. As such, issues regulating employee inventions could be addressed in a manner that fulfills the relevant legal requirements of all the countries in which inventive activities may occur. A globally harmonized innovation policy would enable an efficient procedure for managing employee inventions, as it would be the *same for all inventions* irrespective of the legislation to be applied, and it would also be the *same for all the inventors*. In this thesis, the feasibility of such a holistic approach to managing inventions, namely whether “one size fits all”, needs to be discussed separately for each of the research questions.

1.2.2 Scenario for the multinational company in this thesis

Throughout the thesis the topic will be explored through the lens of a hypothetical multinational company. The company’s headquarters are located in Finland but employees from its R&D units are based in subsidiaries which are spread across a wide range of countries. Company A has global markets and it also operates on a global basis in respect to other activities. This means that there are many on-going cross-border projects in the area of research where inventions are typically made. In addition, company A has collaboration with third parties, such as subcontracting company B. This wider, yet very restricted “innovation ecosystem” for this thesis, nonetheless, provides a good basis for the research questions:

CASE SCENARIO

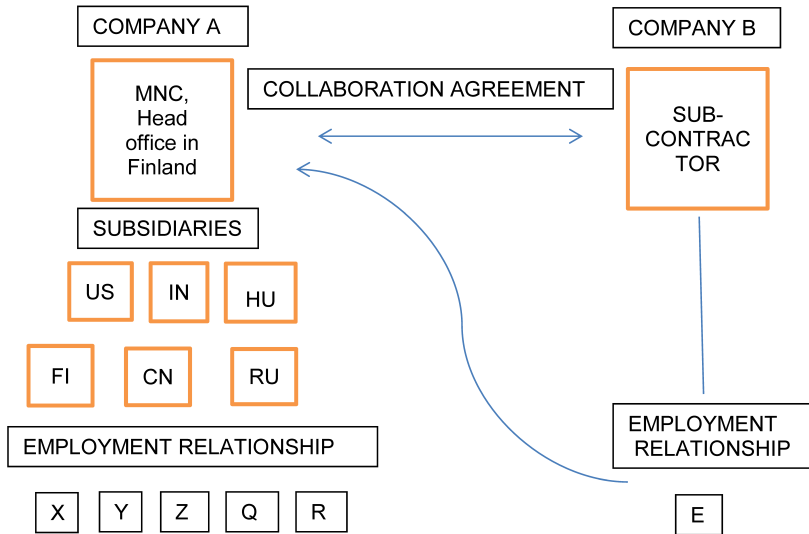


Figure 1. A multinational company for this thesis, the basis for the case examples.

The employees working in Finland are employed directly by parent company A. However, the employees working in other countries are in an employment relationship with the local subsidiaries of the company. In joint inventions, resulting from third-party collaboration, company B employees are also involved. In other words, company A needs to address a variety of different requirements and rules in its innovation management procedures to ensure sufficient rights to the inventions from all the inventors involved. Discrepancies in the rules may cause challenges in monitoring compliance of all of them, and when compensating inventors for assigning their rights they may lead to unequal treatment of co-inventors. To avoid any pitfalls potentially affecting the validity of the entitlement and the effective securing of inventions, and to try to apply a compensation policy encouraging inventions irrespective of the employment regime, it would be in the interest of company A to strive for a holistic approach, in the form of a globally applied IPR policy.

Company A is a technology company. Thus, it is important to secure investments in R&D and the new innovations raised therein by patenting them. Further, for a multinational company operating within global markets it is important to seek global patent protection. This in turn may result in challenges in certain situations where there are several national security provisions applicable to the invention at hand, which all require filing the first patent application in the country of such provision.

The research questions in this thesis are global. However, in practice there is a need for some restrictions in selecting the countries to be presented. The natural

choice regarding the issue of transferring the rights to the inventions made by the employees is *Finland*, the home country of the author. It is also one of the traditional statutory regimes regulating the issue in detail. Another statutory regime that is introduced here is *Germany*, which has traditionally had the strictest jurisdiction in this respect and has also served as a basis for Finnish law. German law has since then been modernized and for this reason it is included in the comparative review, but in the case examples Finland is used as an example of the statutory regimes. Further, in the review some national peculiarities are introduced from a few countries, such as *Hungary* and *Russia*. The purpose is to give an extended overview of variations in regulations. Finally, *the U.S.* has been selected as the most appropriate example for presenting the contractual regimes and as one of the most important markets in the world. With regard to compensation, the different bases for such are presented from Finland, *China* and Hungary. Further, the compensation system of the UK is presented with the help of case law. The different ways to define the level of compensation are introduced using exemplary countries including Finland, *Japan*, China, Russia and Hungary as well as Germany, where once again there are very detailed rules in this respect.

Countries with national security provisions have been selected so that different criteria for the requirements therein are sufficiently introduced. The countries of relevance include, but are not limited to, the U.S, UK, China, *India* and Russia. These countries also present a good overview of the most important business markets, namely Europe, USA and Asia, without underestimating the market potential of other continents. As an example of presenting a marginal criterion, *Greece* is introduced as a special case. In addition, issues related to defining residency are presented using the context of legislation in *Singapore*. The last countries mentioned are only referred to because of their peculiar or special regulations that either contribute more variety to regulations on a global scale or provide some guidance on aspects that lack clear definitions elsewhere.

The selected countries represent different kinds of mechanisms for the acquisition of rights to inventions made by employees and compensating these rights, as well as the criteria in their national security provisions. Therefore, complex case examples can be drawn based on them, in the context of the complex of laws when managing joint inventions resulted from cross-border collaboration within a multinational company.

1.2.3 Case examples

The case examples illustrate the complex legal environment that a multinational company operates within when managing inventions globally. The invention management procedure becomes challenging and difficult to control when a variety of different requirements in the national laws are relevant to the company. These challenges occur especially in joint inventions which involve co-inventors originating from different jurisdictions. The aspects to be considered are not restricted to merely legal compliance but can also contain ethical questions such as whether co-inventors in joint inventions should be compensated equally, or whether a strictly legal approach is applied to the respective inventors. The case examples related to national security provisions add further complexity due to a company's obligation to simultaneously comply with conflicting provisions. The case examples provide a practical problem-solution approach to these situations.

The case examples present pitfalls related to *valid entitlement*. The case examples contain problems related to, for example, employee mobility and differences in respect to the timing of the assignment of rights and the mechanisms for acquiring the rights to inventions made by employees as well as regarding the scope of rights the employer may be entitled to in different jurisdictions. The confrontation between the statutory and contractual jurisdictions in the case examples offers an insight into the challenges experienced when managing innovations in a disharmonized system with a variety of rules. In the case examples related to *compensating inventors for the rights* assigned to the employer, the exemplary scenarios focus mainly on managing disharmonized compensation systems between the statutory jurisdictions and managing the different bases, timing and level of payment in the joint inventions. It is considered to offer a more complex jungle of regulations for the employer to address in striving for a holistic approach than the traditional confrontation between the contractual "paid-to-invent" and the statutory regimes. The case examples related to the *effective securement of inventions by patenting* provide a variety of scenarios where the conflicting requirements derived from national security provisions are applied to the very same invention. These case examples differ from the previous case examples in that the acquisition and compensating of rights can be conducted individually for each of the co-inventors, whereas in patenting the invention this is not possible. Instead, the invention is always filed as one entity, and only one (first) patent application can be filed.

The case examples also address the further dimension of *third-party collaboration*. For example, the transfer of rights from third-party inventors within the statutory jurisdictions is initially an issue between the inventor and the third-party employer. Before any of the rights can be transferred based on the co-operation contract between the companies, the rights need to be acquired by the

third-party employer first. In fact, this “unbroken chain of title” is also relevant in the context of a multinational company. Namely, the employees of the subsidiaries first need to assign their rights to their local employers, who then transfer the rights further to the parent company, in case company patent applications are filed in its name.

According to the definition of this thesis, a global invention is a joint invention where the co-inventors originate from different jurisdictions and thus, different national laws apply. However, there are a few case examples where a conflict of laws takes place between the different provisions of the same national law. This relates to a post-employment assignment duty in certain countries where the previous employer may have some rights to the inventions made after the termination of employment. The case examples are relevant for all companies but can cause challenges especially in multinational companies where the parent company is unfamiliar with the applicable law. Further, in the case examples related to national security there may be situations where the co-inventors work in the same jurisdiction, yet different national security provisions apply. This is because some national security provisions are based on the residency of the inventor.

As a final note, even if the topic of the thesis is essentially about managing global inventions, for the sake of simplicity, the case examples are mainly based on scenarios where two different jurisdictions and laws are applicable, even if much more complex cases could be created based on scenarios where multiple laws apply. However, an exception proves the rule and one case example is presented, related to the aforementioned post-employment assignment duty, where more than two conflicting national laws and obligations are applicable in the same case. In all the other case examples, the confrontation between two different national laws should provide an adequate overview of the challenges, and to help to picture how the different scenarios could also occur in combination.

1.3 Research strategy and methodological choices

1.3.1 Objectives and scope of this thesis

The starting point for this thesis is a multinational company that relies on patents as a tool of protection. The main aim of this thesis is to present the relevant legal framework and shed light over some key problems that the complex of laws may cause in relation to operations of a multinational company. In other words, the legal analysis conducted in this thesis is related to *complexity of the legal system related to different employment and patent regimes, from the point of view of a company*. The relevant question in this respect is, how the international legal system affects the company when it comes to

managing rights to employees' inventions and creating a patent portfolio to protect company assets globally? It is one objective of this thesis to answer to this question.

In responding to this question, the thesis further addresses the *company as a legal organization*, needing to cope with the complexity – the *legal governance*. From the governance point of view, the topic of this thesis concerns first of all the legal status of patent portfolio of a company, in terms of patent validity. In the thesis patent validity is two-dimensional, related to patentability requirements and specific requirements in national security provisions. Secondly, it is a question of company's legal mechanisms and tools, such as contracts, and whether for example employment or subcontracting agreements sufficiently address the issue of rights to inventions made by employees or subcontracted inventors. This affects the validity of entitlement to inventions. Third dimension relates to organizational mechanisms within a company, such as policies. The policy aspect is discussed when exploring whether the complexity of the legal system could be overcome by adopting a holistic company policy addressing the country-specific differences.

According to Petrusson and Glavå, one of the major challenges in a knowledge- and information-oriented economy is to collectively understand and govern those processes that generate the conceptualization of legal persons, legal objects, legal relations and legal transactions on an international market.⁵⁹ It is an overall objective in this thesis to overcome this challenge. It requires lot of knowledge of how companies operate and build their patent portfolios, to achieve that. The main objective of this thesis, to provide a comprehensive overview of the legal aspects and potential pitfalls of cross-border operations of a multinational company, during the process from an invention to a patent, is very important and valuable in practice. But practice and academia are interlinked, and analyzing the abovementioned scenario requires legal approach.

1.3.2 Research methods and tools

This thesis does not claim to be an Innovation Management research, namely a method that traditionally includes a great amount of empirical and statistical research. Rather, it brings a complementary angle to the studies conducted on Innovation Management, by introducing thereto elements and dilemmas from the legal framework. Accordingly, the overall approach could be called *Legal Innovation Management*. The term may be interpreted to mean either managing “legal innovations”, namely such innovations that aim to enhance or improve for

⁵⁹ Ulf Petrusson and Mats Glavå, 'Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociolegal Theory' © Scandinavian Studies in Law 1999-2012, p. 96.

example the tools used in legal work⁶⁰, or managing innovations from the legal point of view. In this thesis it refers to the latter aspect, namely addressing the variety of different laws and rules, the *complex of laws*, that a multinational company confronts when securing its innovations by patenting, in order to manage the process in such a way that the rights to the inventions are duly secured to the company and the resulting patents are truly valid. In doing so, the thesis provides an in-depth analysis of the relevant legal issues and sheds light over the practical challenges that a multinational organization needs to navigate in order to operate into global markets. The analytic approach continues then in striving for a holistic approach to comply with the differing laws, preferably by company policy or absent of that alternative, in form of future harmonization.

The *legal analysis* conducted in this thesis is related to complexity of the international legal system regarding interfacing different employment and patent regimes, from the point of view of a multinational company. It aims to study how that complexity is legally governed within a company. It should be noted that the approach for a technology company in a process of creating a global patent portfolio needs to be international from day one.⁶¹

The analysis also concerns the company as a legal organization, namely the *legal governance*. In that sense, the analysis goes also beyond the legal rules, in exploring the innovation management processes within companies. This follows from the notion that IP law does not consist only of state of law but to really understand intellectual property and the related mechanisms, one also need to understand legal construction of legal governance.

The *multidisciplinary analysis* of this thesis combines distinct fields of employment and patent law with business and organizational management disciplines. The research has been done by utilizing various legal sources, such as legislators, courts and authorities. The literature covers a diverse array of subject matter from legal literature to business, innovation and management studies. Indeed, the analysis is conducted also very much beyond the legal sources. This makes the research resemble *socio-legal research*. Socio-legal researchers increasingly

⁶⁰ Indeed, “[t]he legal landscape and its practice is undergoing a transformation because of technology’s infiltration into all aspects of legal services.” This includes for example automation of repetitive tasks, gaining additional insights from artificial intelligence and availability for providing legal services on demand. “By virtue of tech like this, lawyers now get more time to focus on more productive aspects of legal work and a whole lot of firms are already subscribing to technology of this sort.” Alexandro Pando, ‘Innovation in the Legal Landscape’, *Forbes* (July 13, 2018): <https://www.forbes.com/sites/forbestechcouncil/2018/07/13/innovation-in-the-legal-landscape/#26c38d735b6d>.

⁶¹ Ulf Petrusson and Mats Glavå, ‘Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociolegal Theory’ © Scandinavian Studies in Law 1999-2012, p. 95.

recognize the need to employ a wide variety of methods in studying law and legal phenomena. “Too great a concern with following a prescribed method can limit creativity in research by imposing a standard way of investigating law and legal institutions.”⁶² This describes the *interdisciplinary approach* of this thesis very well. It should be clarified that the “socio” does not refer to sociology or social sciences. Instead, it represents “an interface with a context within which law exists”.⁶³

There is no single methodology that could address the complex and multinational topic entirely. This is acknowledged also by Petrusson and Glavå: “[t]here is an increasing need for legal methodology that enables us to take on the challenges related to law as business structures, e.g. law in the form of property, rights, associations, contractual relations, transactions and platforms. These challenge become much more explicit when one is confronted with internationalization and the increasingly knowledge oriented nature of modern business.”⁶⁴ The *Sociolegal Theory* to govern structural tools and building blocks as described by them might capture the spirit of this thesis best: Legal rules as constitutive norms confer a specific legal status qualifier on intellectual phenomena.⁶⁵ In this thesis, the complex of laws (norms) determine legal status of a company patent portfolio in terms of validity of patents as well as regarding proprietorship. The usage of legal constitutive norms then enables the usage of other constructive tools, such as models on how to organize and govern business activities.⁶⁶ When one understands how legal constructions de facto consist of power processes within and outside the legal machinery where different values and interests are provided for, one’s prerequisites for arguing how different conflicts should be handled are improved.⁶⁷ In this thesis, it is a question of balancing between interests of an employer and an employee having made an invention. It is in the employer’s interest to acquire rights to the invention whereas the inventor may be entitled to be compensated or seek for an additional incentive for assigning the rights to the employer. On the other hand, when discussing national security provisions in patenting inventions, requirements of the provisions address interests of the relevant countries. These conflicting interests provide a fruitful playground for the multidisciplinary analysis of this thesis.

⁶² Reza Banakar and Max Travers, Introduction to Theory and Method in Socio-Legal Research in Reza Banakar and Max Travers (eds), *Theory and Method in Socio-Legal Research*, Oxford, Hart 2005, p. x.

⁶³ Ibid., p. xii and fn 11 (reference therein to Sally Wheeler and Phil Thomas, “Socio-legal studies” in DJ Hayton (ed), *Law’s Future(s)*, Oxford, Hart, 2002, p. 271).

⁶⁴ Ulf Petrusson and Mats Glavå, ‘Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociolegal Theory’ © Scandinavian Studies in Law 1999-2012, p. 94.

⁶⁵ Ibid., p. 124.

⁶⁶ Ibid., p. 125.

⁶⁷ Ibid., p. 104.

Due to the nature of the topic, it is necessary for this thesis to use a comparative research approach to some extent. *Comparative law* is broadly defined as the comparison of the world's different legal systems.⁶⁸ Even if intellectual property law is one of the most internationally and regionally harmonized fields of the law, there is no uniform legislation that would cover employee invention issues. This makes it even more important to explore the differences between the different jurisdictions, especially as many of the regulations regarding employee inventions are of mandatory nature. It is therefore crucial for multinational companies as employers and as assignees to successfully comply with all the relevant regulations, in order to avoid a loss of rights to the inventions made by their employees and to ensure that their patents in the end are truly valid.

The methodological “tool” related to comparative law or the comparative research in this thesis could best be described as a *comparative review*. I do not even attempt to provide an exhaustive overview of all the different jurisdictions – there are very good books on this subject already.⁶⁹ Instead, it is sufficient for the purposes of this thesis topic to give a general overview, containing specific examples, of the variety of the different laws and regulations concerning the rights to employees' inventions and the pitfalls in securing the inventions. Scholars have argued whether comparative law should focus on comparing the written law or also consider the cultural differences. In this thesis, the main focus in the comparative review is on *written law*, and *case law* in the common law⁷⁰ countries. Indeed, the focus is on the compliance with the requirements of the law, be it a statute or a binding court case. However, some *linguistic differences in terms* will also be addressed, subject to interpretations pursuant to the relevant national laws. Moreover, with regard to the different mechanisms for compensating inventors for assigning the rights to their inventions to the employer, some *cultural differences* between the statutory regimes and the “paid-to-invent” countries are roughly addressed, to try to identify the justification for the different rules in these jurisdictions.

The relationship between comparative law and *conflict of laws* has always been close. Both doctrines owe their existence - or at least their importance - to the same basic root cause, namely the long-existing pluralism or diversity among national laws. If these laws were not diverse, there would be no reason to compare them and thus, there would be no need for comparative law. Neither would there be conflicts

⁶⁸ Graeme B. Dinwoodie (ed), *Methods and Perspectives in Intellectual Property*, ATRIP Intellectual Property Series, Edward Elgar 2013, wherein this definition is associated with a reference to Konrad Zweigert & Hein Kötz, *An Introduction to Comparative Law: The Framework*, 7' (1977). In the later edition from 1992 the definition is found at page 37.

⁶⁹ See for example Sanna Wolk and Kacper Szkalej (eds), *Employee's Intellectual Property Rights*, AIPPI Law Series, Kluwer Law International 2015.

⁷⁰ Also called the Anglo-Saxon system.

between the laws and thus, no need for conflicts of law -doctrine. Moreover, both the doctrines deal with actual - or potential - problems that this legal diversity interposes on trans-border contacts or the movement of people or goods. According to one definition, comparative law seeks to prevent these problems by advocating and working toward international unification or harmonization of the national laws, while conflicts law seeks to resolve them after they have occurred by deciding which of the conflicting national rules should be applied to the particular problem at hand.⁷¹ This definition, however, does not fit to the context of this thesis very well where the purpose is to try to recognize potential conflicts beforehand, and to prevent them. Admittedly, in this thesis it is also a question of determining which law applies to the case at hand. However, the approach is proactive as it attempts to recognize and solve potential conflict situations beforehand, in order to avoid any disputes.

The challenges of interfacing different employment and patent regimes is demonstrated with help of numerous hypothetical case examples presenting those challenges and providing solutions to overcome them. In that sense, a methodological approach in this thesis resembles greatly that of *case study research*. According to Yin it is considered the preferred method in situations when research questions “how” or “why” are being asked about a contemporary set of events, over which the researcher has little or no control.⁷² The research questions in this thesis specifically ask how are rights effectively transferred from the inventor to the employer, whether it needs to involve compensation for the rights, and how is the validity of entitlement and the effective securement of inventions ensured globally, especially in a context of complex of laws where different national laws simultaneously apply. However, a case study to Yin is an empirical study that investigates a contemporary phenomenon (the “case”) in its real-world context.⁷³ Since the case examples in this thesis are hypothetical (albeit derived from real-live challenges) and not based on empirical or statistical research, the methodology cannot be considered as a traditional case study research.

Certainly, the methodology employed in this thesis is somewhat unusual for legal dissertations – the use of a business-school case style. “A business school case in essence is ‘a *description of a management situation*, or perhaps, a ‘*management story*’”.⁷⁴ In the U.S. the case method used in law schools has been subject to criticism over the years because of its heavy reliance on litigated cases. Accordingly,

⁷¹ Bénédicte Fauvarque-Cosson, ‘Comparative Law and Conflict of Laws: Allies or Enemies? New Perspectives on an Old Couple’ (2001) 49(3) *The American Journal of Comparative Law*, p. 407.

⁷² Robert K. Yin, *Case study research: designs and methods*, Fifth edition. Thousand Oaks, CA: Sage 2014, p. 2.

⁷³ Ibid.

⁷⁴ George J. Siedel, ‘Legal Complexity in Cross-Border Subsidiary Management’ (2001) 36 *Texas International Law Journal*, p. 615.

more recently commentators have noted that the focus on cases already decided does not prepare for handling practical problems that are not related to litigation.⁷⁵ Indeed, the nature and use of cases in the two schools are said to be fundamentally different.⁷⁶ While law schools analyze the decision of judges in cases that typically involve a cluster of legal issues related to a specific dispute in an attempt to derive legal principles, in business schools cases are often designed to cover a range of concerns that may relate to several business functions and disciplines. The latter cases are more action-oriented, and business school students are placed in the role of a manager who must make decisions that will impact the success of the enterprise. They are placed in the role of decision makers, in contrast to law students who focus on the analysis of decisions made by judges.⁷⁷ This also captures the methodological “spirit” of this thesis, where the purpose is to proactively recognize potential conflicts and to prevent them occurring, in scenarios where there might not be any court decisions yet, nor harmonized legislation. The outcomes of the “cases” presented in this thesis also very much depend on the individual circumstances which means that any precedents would be very difficult to issue. Therefore, it is in the interest of multinational companies, and of this thesis, to identify the potential pitfalls in advance and to manage inventions in such a way that there will be no problems for the business of the companies.

Indeed, business strategies could significantly benefit from understanding the legal environment in which the business operates, and law may in fact be a source of *a sustainable competitive advantage*.⁷⁸ Yet, management scholars have rarely included legal and regulatory factors in their discussions of organizational assets that drive effective strategy.⁷⁹ Recently *Bird* did this when writing about the legal environment as a significant source of disruption to business.⁸⁰ In doing so he used the trendy managerial acronym VUCA⁸¹ to describe four distinct types of legal challenges for companies: 1) Legal volatility, which companies can manage with agile organization that is able to exploit new regulatory opportunities before competitors, 2) Legal uncertainty, which companies can overcome by harmonizing

⁷⁵ Ibid., p. 613.

⁷⁶ Ibid., p. 614.

⁷⁷ Ibid., pp. 614-615.

⁷⁸ Robert C. Bird, 'Law, Strategy, and Competitive Advantage' (2011) 44(1) Connecticut Law Review, p. 71.

⁷⁹ Robert C. Bird, 'The Many Futures of Legal Strategy' (2010) 47(4) American Business Law Journal, p. 577.

⁸⁰ Robert C. Bird, VUCA (2018) 12(3) Virginia Law & Business Review.

⁸¹ The term is an acronym for Volatility, Uncertainty, Complexity and Ambiguity and derived from military education. For more information about history and current relevance for business strategy and development, see for example Kirk Lawrence, 'Developing Leaders in a VUCA Environment' (2013) UNC Kenan-Flagler Business School © UNC Executive Development.

their legal and business functions and embracing lawyers as a source of value, 3) Legal complexity, a very relevant aspect for this thesis, effective management of which eliminates unnecessary confusion and optimizes the diffusion of legal knowledge to better respond to legal challenges, and 4) Legal ambiguity which can be managed through pluralistic governance, self-regulation or careful experimentation and learning. According to Bird, “[l]aw remains one of the last great sources of untapped competitive advantage and managing legal VUCA successfully can keep a company ahead of its rivals and promote innovation in the organization”.⁸² Also, according to *Siedel* and *Haapio*, “[l]aw is perhaps the most hidden of all competitive strategy tools. It is sometimes complex, and not all managers like to deal with it - or with lawyers.”⁸³

The approach has also synergies with *Legal strategy* since, for example, the relevant legal requirements in patent laws, so called national security provisions, affect the filing strategy for patenting inventions involving inventors from certain jurisdictions. Even if “strategy” is certainly something more than merely compliance with laws, there is admittedly some room for also strategizing in making decisions regarding where to file the first patent application. Similarly, striving for a holistic approach, for example in compensating the rights to the inventions throughout the company beyond the legal duty, is undoubtedly a strategic, and even ethical, decision. Nonetheless, in this thesis it is not possible to discuss the variety of other factors impacting legal strategy beyond legal requirements.⁸⁴ Therefore, the approach in this thesis is not referred to as legal strategy.

Law and strategy research examines the ability of managers to extract competitive advantage in a legal environment that is already established.⁸⁵ Indeed, this thesis provides an attempt to proactively educate and to enable management to deal with the already existing complex of laws in such a way that the company’s intellectual property rights result in “durable assets” of which a sustainable competitive advantage can subsequently be gained and value creation achieved. *Proactive law* is based on a strong belief that legal knowledge is at its best when applied before things go wrong. It seeks to promote and strengthen ways to use the

⁸² Robert C. Bird, VUCA (2018) 12(3) Virginia Law & Business Review, pp. 367-368.

⁸³ George J. Siedel and Helena Haapio, *Proactive law for managers, A hidden source for competitive advantage*, Gower Publishing 2011, p. 16.

⁸⁴ “This limited perspective of the law, however, does not explain how some leading companies have managed to deploy their legal departments to shape the legal environment in order to secure long-term competitive advantage.” For various ways in which legal strategies can be used to gain competitive advantage and value-creating opportunities are provided see for example Robert C. Bird and David Orozco, ‘Finding the Right Corporate Legal Strategy’ (Fall 2014) MIT Sloan Management Review.

⁸⁵ Robert C. Bird, ‘Law, Strategy, and Competitive Advantage’ (2011) 44(1) Connecticut Law Review (2011), pp. 67-68.

law to create value, do what is right, and build a solid foundation for business.⁸⁶ The goal of proactive law is to merge business and legal foresight by stressing inter-professional collaboration.⁸⁷ This is precisely the aim of this thesis.

”There is considerable value in *connecting practice and context*.”⁸⁸ The approach in this thesis is also going to be very practical. Working in a global intellectual property organization of a multinational company for over a decade, dealing with a variety of employee invention issues from handling invention reports to patent prosecution and addressing the various related legal issues proved in practice that legal issues related to employee inventions in a global company are far from simple. They offer a good standpoint to explore this topic that is familiar for all the professionals in the field, struggling with these challenges. Another quote in favor of the benefits of the *practical insight* is from Petrusson, according to whom “in the mode of structural transition in which business currently resides, it is exactly this interaction, between practical and theoretical application, that must be confronted in management literature”.⁸⁹ The research program “Intellectual Property and Entrepreneurship” sought an operational theory on entrepreneurship and intellectual property management to capture the complex creation of wealth in an intellectualized economy. The project team set up a lab to develop an experimental approach, namely an elaborative environment where intellectual property could be deconstructed (evaluated) as building blocks in the construction of firms.⁹⁰ In other words, their approach was to experimentally connect practice and context. In this thesis the approach is the opposite, to connect actual practice to the context and to bring the practical insights to the discourse pertaining to legal innovation management. In either case, the value of practice – be it experimental or based on the actual experiences – cannot be underestimated. Whereas Siedel describes a case in which a human resources manager faces a variety of challenges in her first international assignment, as a coherent management story, the case examples in this thesis could be considered as *a collection of management stories* about different cases between different parties; however, the other party is always the multinational company,

⁸⁶ Haapio, Helena, ‘Introduction to Proactive Law: A Business Lawyer’s View’ in Peter Wahlgren (ed), *Scandinavian Studies in Law, Volume 49: A PROACTIVE APPROACH*. © Stockholm Institute for Scandinavian Law 1957-2010, Stockholm 1999-2010, p. 21.

⁸⁷ *Ibid.*, p. 31.

⁸⁸ Mark Dogdson, David M. Gann, and Nelson Phillips, ‘Perspectives on Innovation Management’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 7.

⁸⁹ Ulf Petrusson, ‘*Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*’, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 7.

⁹⁰ *Ibid.*, preface, p. XIV.

trying to manage the variety of the cases in the context of the complex of laws with respect to global inventions as the focal point of the thesis.

1.3.3 Research questions

The purpose of this thesis is to illustrate the legal framework and the challenges related to the complex of laws in a multinational company operating in a global business wherein patents play a significant role and wherein inventions made by employees (and subcontracted inventors) are valuable assets for the company. This includes a variety of legal questions such as 1) *who owns the invention made by an employee*, 2) *how are rights effectively transferred from the inventor to the employer*, 3) *does the employer have a duty to pay compensation for the rights* and 4) *how is the validity of entitlement and the effective securement of inventions ensured globally?*

This thesis aims to first explore the complexity of a *property aspect related to employees' inventions*, namely the different kinds of mechanisms for transferring the rights to inventions made by employees in the different employment regimes. Since valid entitlement is an essential prerequisite for a company seeking patent protection for inventions made by its employees, it is very important for multinational companies with global operations to be aware of and to comply with the variety of regulations in the different jurisdictions. Further, the movement of employees within the company can cause situations where it is unclear which law should be applied. Peculiarities also exist in certain jurisdictions that are worth exploring in further detail, as some of these junctures may hinder the effective transfer of entitlement from the inventor(s) to the company. This may harm securing patent protection effectively for inventions that they have made. The *challenges of addressing the variety of country-specific differences in a company's invention management procedures* are highlighted and presented with help of case examples, with some added complexity in the context of third-party collaboration. One part of valid entitlement is the *compensation to be paid for the rights to inventions*. Indeed, in contractual jurisdictions an assignment lacking adequate consideration can be considered invalid, thus affecting the employer's rights to the invention. In statutory jurisdictions compensation is an obligation derived from the transfer of rights, the criteria for which varies between statutory countries. This, in turn, causes *challenges in managing inventions in the disharmonized compensation system*.

Secondly, the thesis explores the *effective securement of inventions*. This relates to specific national security provisions that set requirements for the place of filing the first patent application for an invention in certain cases. Non-compliance with these requirements risks the validity of the patent in the respective country. Therefore, it is important for the company operating in countries with such

provisions - and for any applicant seeking patent protection in such a country - to be duly aware of and comply with these specific filing requirements.

The third, and the most prominent, aspect explored is how to deal with all the aforementioned issues in the *complex of laws -situations which take place in cross-border collaboration within a multinational company* where an invention is the joint effort of multiple contributors originating from different jurisdictions. Arising conflicts of law are not traditional conflicts of laws, where ultimately one law applies, but the company must comply with all the conflicting or mutually exclusive national laws in order to secure valid entitlement to and global patent protection for the invention in relevant markets. A further dimension to this is the issue of compensation, which may place the company in an awkward position between legal obligations and equality for employees originating from different countries with different employment laws. Discrepancies in a company's compensation scheme might even affect how innovative activities within the company are arranged.

The research question can be boiled down to *How can the different employment and patent regimes be interfaced when seeking patent protection for global inventions?* For companies seeking global patent protection for inventions made by their employees, it is not sufficient to merely comply with the general requirements of patentability. In order to apply for and to effectively utilize patents the company needs to have valid entitlement to the inventions. Further, to secure valid patent protection globally, the patents also need to comply with the national security provisions of the relevant countries. This scenario which is not in any way restricted to multinational companies could be described as a "simple complex of laws" (see Figure 2). The multinational companies seeking patent protection for global inventions made by their employees in turn need to comply with the simultaneously applicable, sometimes mutually exclusive, requirements of the national laws, in securing their rights to and valid protection for the patents worldwide (a "complex complex of laws", see Figure 3).

Finally, due to challenges related to addressing country-specific differences and managing inventions in a disharmonized system this thesis explores *whether it is possible to adopt a holistic approach which addresses national differences and peculiarities, and to apply the same policy globally to all inventions in a company.* Each of the aspects mentioned are discussed separately regarding *whether one size fits all*, namely whether it is possible to apply a global company policy for acquiring rights and compensating them. Adopting the holistic approach is discussed also in the context of possibly harmonizing the provisions, namely *whether a global approach can be identified that suits all countries.*

1.3.4 Structure of the thesis

This thesis is structured as follows: First, the *Introduction* presents the framework for the thesis. The *research framework* is situated within innovation management, more specifically multi-regime intellectual property management. However, the research questions belong to a *legal framework*. The context, the innovation ecosystem of the thesis, is the corporate environment of a multinational company, a common arena for the discourse on general invention management. The legal framework is presented from the point of view of a multinational company that operates globally and relies on patents as a tool of protection.

The intellectual property in this thesis relates to *patenting employees' inventions*. Chapter two introduces the different means of protecting inventions and especially patenting. It also presents the overall topic of the thesis by giving an overview of the conflict of laws regarding the ownership to inventions, between employment law and patent law, and the conflict of laws when patenting inventions, between the general requirements of patentability and the special national security provisions affecting the patent validity. The chapter also provides a transition from these conflicts of laws to "*complex of laws*" where the invention is subject to multiple laws regulating these aspects. Chapter three provides then the necessary *operational (procedural) framework* for patenting inventions and presents the general requirements for patent validity, which forms the foundation for effectively utilizing patent rights. This aspect of validity is not the focus of the thesis. However, in the event that patents did not fulfil these requirements, there would be no basis for the research questions.

The fourth chapter, *Valid entitlement*, introduces the different employment regimes in further detail. It builds up a comparative overview of the jurisdictions having different mechanisms for the ownership and the transfer of rights as well as for compensating inventors for assigning their inventions to the employer. It addresses specific issues related to the assignment of rights in contractual jurisdictions and presents the different assignment types in terms of time and the substantive effect on the validity of the patent that the timing of the assignment can have in certain situations. The chapter four further presents the challenges addressing country-specific differences in a company's invention management procedures, as well as the challenges inherent to managing inventions in a disharmonized compensation system and the potential implications it may have.

The fifth chapter, *Effective securement*, introduces the concept of national security in the context of patenting inventions. In certain cases, national security provisions set restrictions on a company's filing strategies. Chapter five provides an introduction to the different criteria in the provisions and the related challenges in a global corporation environment, for example, due to the criteria being subject to interpretation based on national laws. The chapter also presents the different national

mechanisms for restricting patenting specific inventions outside national boundaries and alternative methods to comply with the requirements.

Chapters six to eight draw together chapters four and five. The challenge of *interfacing different employment and patent regimes when seeking patent protection for global inventions* is illustrated in the form of practical case examples. The wide range of case examples provide an insight into recognizing the potential pitfalls for a company when ensuring the rights to the invention as well as securing them by patenting. Finally, in chapter nine, due to the challenges in monitoring the compliance of such a disharmonized system containing differing requirements in respect of the explored issues the possibility to create a holistic approach in the form of a global company policy is addressing the national differences is discussed. As a further dimension, it is asked whether harmonizing these issues could bring clarity to these challenges multinational companies need to cope with.

The first part (Chapters 1-5) explores the similarities, differences and peculiarities of different employment and patent regimes. It creates the Normative Context for Securing Patents for Global Inventions. The latter part (Chapters 6-9) then focuses on the Complex of Laws and Problems and Solutions and provides a problem-solution approach in the form of case examples. The first part of the thesis is thus a prerequisite to be able to effectively capture the complex topic in the latter part of the thesis.

2 Protecting IP as Company Assets

2.1 Why patenting?

IP stands for *intellectual property*. Undeniably, proprietary technology and related intellectual property rights have become valuable assets for companies, in addition to traditional material assets. However, these intangible assets are very different from tangible, namely physical, assets. Indeed, as concluded by Petrusson, the foundation of an intellectual property/capital/asset theory is the insight that intellectual property does not have any existence in itself.⁹¹ “When approaching the cognitive complexity of intellectual property management, it becomes obvious that the phenomenon of intellectual property cannot be separated from the actual ongoing communicative usage of *property* and property right concepts in business”.⁹² Yet, according to Petrusson, business actors tend to be trapped into understanding IPRs and intellectual properties as existing objects that are possible to describe and analyze. Most due diligence efforts, for example, visualize intellectual property as *static assets*, in order to create an overview of what can and cannot be claimed.⁹³ The *static intellectual property right* is a legal tool used to invoke unauthorized usage of the property and the claimed static property right is, in many ways, a necessary precondition in order to claim a *dynamic property right*.⁹⁴ The dynamic intellectual property strategy, namely identifying, acquiring, implementing and using IP rights, means adjusting the related strategy over time to take full advantage of the field’s fast-changing circumstances, opportunities and risks, and this makes intellectual property in fact a *flexible asset*.⁹⁵ However, usage of the concept of property on the knowledge process

⁹¹ Ulf Petrusson, ‘Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain’, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 53.

⁹² Ibid., p. 27.

⁹³ Ibid., p. 51.

⁹⁴ Ibid., pp. 118-119.

⁹⁵ John Palfrey, ‘Intellectual Property Strategy’, The MIT Press Essential Knowledge Series 2011, Cambridge.

makes it possible to create the experience of a *durable asset*.⁹⁶ This thesis focuses on managing innovations in such a way that protecting inventions results in durable assets, which is a prerequisite for the subsequent dynamic utilizing of static property rights.

Without a doubt, business today, for technology companies, is very different than previously. In order to be competitive in today's evolving market it is no longer sufficient to develop better technologies or create new products and solutions – one also needs to *protect* them. For example, it is worth protecting the unique appearance of one's products by applying a *design* protection⁹⁷ as well as distinguishing one's goods or services from those of competing companies with a *trademark*⁹⁸. Financial R&D investments made by a company are best secured by protecting technical innovations by applying a *patent*⁹⁹ or a so-called petty patent, a *utility model*¹⁰⁰. All the mentioned intellectual property rights need to be applied for, or at least registered¹⁰¹, whereas a *copyright* is an automatic protection¹⁰² of the intellectual creators' rights over their artistic and literary works, such as books, music, paintings and sculptures.

With proper protection a company can ensure not only its own freedom to act but also to efficiently prevent others from copying and using its brands, designs and inventions and thus protect the investments it has made in the area of industrial design and R&D. In addition to, or instead of, preventing others from using the inventions, the company can also utilize the inventions by licensing out the rights to them, and receiving financial benefits from the patent investments. However, patents

⁹⁶ Ulf Petrusson, '*Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*', CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 29.

⁹⁷ See further Hague Agreement Concerning the International Registration of Industrial Designs, Common Regulations Under the 1999 Act and the 1960 Act of the Hague Agreement (as in force on January 1, 2017): http://www.wipo.int/treaties/en/text.jsp?file_id=429512.

⁹⁸ See further Madrid Agreement Concerning the International Registration of Marks of April 14, 1981, as amended up to September 28, 1979: http://www.wipo.int/treaties/en/text.jsp?file_id=283530.

⁹⁹ Paris Convention for the Protection of Industrial Property of March 20, 1883, as amended up to September 28, 1979: http://www.wipo.int/treaties/en/text.jsp?file_id=288514.

¹⁰⁰ Utility models are listed as one category of industrial property in the Paris Convention, but no international treaty obliges Member States to implement a utility model system under their national laws. In Finland, for example, utility model protection is available and regulated by Act on Utility Model Rights (800/1991, amended up to 1995).

¹⁰¹ In some patent offices, utility models can be obtained by registration without substantive examination, and in some countries (e.g. South-Africa) also patent can be obtained by merely registration.

¹⁰² Berne Convention for the Protection of Literary and Artistic Works of September 9, 1886 as amended up to September 28, 1979: http://www.wipo.int/treaties/en/text.jsp?file_id=283698.

can and are increasingly used, as monetary assets without owning the underlying technology.¹⁰³ Deciding how and whether to protect the creations and innovations that belong to a company is a question of a business strategy and in cases where the company decides to protect them, it needs to decide how to utilize the resulting intellectual property rights. There are many alternatives for doing this. First, it is possible to retain the invention as a *trade secret*¹⁰⁴. Keeping the invention secret may be appropriate for inventions relating to the manufacturing processes of the company's products. Revealing these processes outside the company is typically undesirable as it is usually impossible to detect them from the end-products. Publishing such inventions in the form of a patent application would only inform competitors of the benefits of the patented solutions, yet there would be no possibility to monitor any potential patent infringements, since they would occur within the competitor's closed manufacturing premises. Nevertheless, companies can also choose to publish the invention without any proprietary protection, for the purposes of "defensive publication". In these circumstances the invention is published for example in a scientific article, in order to establish a *novelty-destroying prior art* which prevents patenting the invention.

But companies can also choose a strategy that does not protect their inventions at all, and instead allowing others to freely exploit them, to ensure their technology solutions are implemented more widely. One approach of this kind of strategic choice is *open source*. The open-source model is a decentralized development model that encourages open collaboration, for example in the area of software. The source code of open-source software is published and made available to the public, enabling anyone to copy, modify and redistribute the source code subject to a relevant, typically royalty-free public license. However, patenting software is a highly debated issue at both a national and international level and is not patentable everywhere. Since this thesis focuses on patenting inventions, providing such a complex regulatory framework and variance in the legal schemes employed that the other forms of protection do not, for the purposes of this thesis it is made an assumption that the inventions in the case examples are considered to be duly patentable.

When an invention benefits existing technologies, or provides a completely new kind of innovative technology, namely is a *new and inventive solution to a technical problem*, and can be detected from the end-product visibly or by reverse-engineering,

¹⁰³ One example of this kind of actors is so called non-practicing entities, or "patent trolls", that already by definition lack practicing the patented technologies that they possess. For further information, very good reading of the NPEs and their contribution to the patent ecosystem is Kelli Larson's dissertation thesis "The Exploitation and Enforcement of Patents by Non-practicing Entities: Practices, Developments, and Future Challenges", 15.09.2017.

¹⁰⁴ TRIPS, Agreement on Trade-Related Aspects of Intellectual Property Rights made by World Trade Organization (WTO), Art. 39.

it is in the interest of the company to protect the invention by *patenting* it. This way the company ensures that no third party can benefit from its R&D achievements and investments unless they pay appropriate compensation. But same technical problems and solutions are typically explored simultaneously by many companies operating in the same field of technology. Therefore, by being the *first to file*¹⁰⁵ a patent application a company prevents any competitor from patenting the same invention first, thereby ensuring its own freedom of action.

The patent monopoly system was created to *protect investments* in R&D that led to the creation of an invention. However, the conventional view of the patent system which enables an inventor to capture the returns on their investment in the invention, known as “reward theory”, offers an incomplete view of the functions of the system.¹⁰⁶ Namely, countries have intellectual property laws for two main reasons, one of which is to give *statutory expression to the moral and economic rights of creators* in their creations and the rights of the public to access those creations. The second purpose of the intellectual property system, however, is *to promote the creativity as well as the dissemination* and application of its results and to encourage fair trading, contributing to economic and social development, stated in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)¹⁰⁷, an international agreement administered by the World Trade Organization (WTO)¹⁰⁸:

Article 7

Objectives

The protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological

¹⁰⁵ In a globally adopted first-to-file (FTF) system, the right to the grant of a patent for a given invention lies with the first person to file a patent application for protection of that invention, regardless of the date of actual invention. In the U.S. the earlier first-to-invent system was changed to a first-inventor to-file (FITF) along the America Invents Act (AIA) on March 16, 2013. Some differences exist between the FTF under the European Patent Office (EPO) and the FITF of the United States Patent and Trademark Office (USPTO), as the US system provides early disclosers “a grace period”.

¹⁰⁶ Edmund W. Kitch, ‘The nature and function of the patent system’ (1977) 20(2) *The Journal of Law and Economics*, p. 266.

¹⁰⁷ Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization, signed in Marrakesh, Morocco on 15 April, 1994. It sets down minimum standards for many forms of intellectual property regulation as applied to nationals of other WTO members.

¹⁰⁸ The World Trade Organization (WTO), established on 1st of January 1995, is the only international organization dealing with rules of trade between nations. At its heart are the WTO agreements, negotiated and signed by the bulk of the world’s trading nations and ratified in their parliaments. The goal is to help producers of goods and services, exporters and importers conduct their business (source: https://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm).

knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.¹⁰⁹

By striking the right *balance between the interests of innovators and wider public interest*, the IP system aims to foster an environment in which creativity and innovation can flourish. The TRIPS agreement states:

Article 28

“A patent shall confer on its owner the following exclusive rights:

(a) where the subject matter of a patent is a product, to prevent third parties not having the owner's consent from the acts of: making, using, offering for sale, selling, or importing for these purposes that product;

(b) where the subject matter of a patent is a process, to prevent third parties not having the owner's consent from the act of using the process, and from the acts of: using, offering for sale, selling, or importing for these purposes at least the product obtained directly by that process.”

Even if patents are frequently referred to as a “monopoly”, a patent does not give the right to the inventor or the owner of a patented invention to make, use or sell anything. In fact, traditionally a patent has been defined negatively, as *a right to prevent third parties to commercially exploit the invention* without the patent owner's consent. The most important right granted to the patent owner is the right to take action against any person exploiting the patented invention without their agreement. This allows the patent holder to derive the material benefits it is entitled to as a reward for their intellectual effort and work, as well as compensation for any expenses which the research leading to the invention has incurred. While the patent authority may grant patent rights, it does not in any way enforce them, and therefore it is always up to the owner of the patent to take action, usually under civil law, for any *infringement* of their proprietary patent rights.¹¹⁰ But in addition to, or instead of, enforcing the patent rights in the court to receive compensation for the use of the patented invention, the applicant can also utilize patents in a positive manner, by *actively granting others the right to use the inventions by licensing*. In other words, patents provide different kind of rights to the owner of the patent. Who is then the owner?

¹⁰⁹ TRIPS, Art. 7.

¹¹⁰ The patentee must therefore be his own “policeman”. WIPO Intellectual Property Handbook. WIPO PUBLICATION No. 489 (E), 2nd Edition, 2004 (Reprinted 2008), p. 17.

2.2 Who owns the invention?

IP is a *property right*. In order to protect an invention, the applicant needs to have the rights to it. For example, according to the Finnish Patents Act, “*Anyone who has, in any field of technology, made an invention which is susceptible of industrial application, or his or her successor in title, is entitled, on application, to a patent and thereby to the exclusive right to exploit the invention commercially, in accordance with this Act.*”¹¹¹ This principle, that the rights to the invention belong initially to the *inventor*, is essentially the same in patent laws throughout the world. However, inventors are always natural persons, not companies. In creating a portfolio of proprietary rights companies typically need to rely on the innovativeness of research engineers and technology specialists working for them as *employees*. Initially, employees have the same right to their inventions as other inventors.¹¹² But the fundamental principle in employment law is that the employer, who pays for the work, should receive the benefits of it and without a doubt, inventions made by employees are the results of inventive work.¹¹³ However, as the initial rights to the invention belong to the employee-inventor, to be able to patent any *employee inventions* the company first needs to secure the rights to them according to the relevant laws. For a company to seek patent protection for a specific invention, there needs to be a *valid assignment* in place between the employee-inventor and the employer. Rules regarding the assignment are determined by the laws regulating the respective employment relationship, and these vary depending on the jurisdiction.

There are two different types of mechanisms based on which rights can be vested in the employer. In *contractual regimes*, also called “employed-to-invent”, “hired-to-invent” or “paid-to-invent” -countries, agreeing on the transfer of rights for inventions made in the course of the employment relationship is a matter of contract law. The employee has been hired for the inventive activities that he or she is also paid for. Therefore, in order to ensure that the rights to inventions made by employees belong to the employer, the issue of transferring rights should be sufficiently addressed already within the employment agreement with the employee. Otherwise, in these regimes it is the inventor who by default owns all the rights to

¹¹¹ Patents Act No. 550 of December 15, 1967, Section 1 as amended on 30.6.2000/650. Unofficial translation by Ministry of Trade and Industry of Finland in Finlex Data Bank (www.finlex.fi) used here and for all paragraphs cited in this thesis.

¹¹² For example, Finnish Act on the Right in Employee Inventions, 3§.

¹¹³ There is also a third view that is presented. “An alternative solution to the ownership issue may be to give the right neither to the employer nor to the employee; (–) the open innovation model may show several characteristics capable to push investment and innovation diversely from monopolies, for instance with the creation of industrial districts.” See C.M. Fileccia, ‘Intellectual Property Rights: The Ownership conflict between employee and employer’, Economic Organization and Theories of the Firm, p. 8.

the invention, even if it was made during the employment relationship. It should be noted that there can be country-specific differences in national labor laws about how to address the issue of employee inventions in an employment agreement, to make the assignment clause effective and executable. In the U.S., which is one of the countries where the rights to inventions made by an employee is a matter falling within contractual freedom, there are also differences between the different states in this respect.

Statutory regimes are jurisdictions where there is specific employee invention legislation in place, such as for example in Scandinavia and in Germany. The issue of the rights to inventions made by employees in these countries is a matter of law. It is not an issue to be agreed upon, as in the U.S. for example. The transfer of rights requires certain actions from employees, but usually also from the employer, in order to ensure that all the rights to the inventions are vested in and can be fully utilized by the employing company. This is the case even if employee inventions by definition are made in an employment relationship, typically taking advantage of the experience and knowledge gained from working for and/or utilizing the equipment provided by the employer, and usually also in connection with those regular duties that the employee has been hired to do and is paid for. A number of different kinds of country-specific legal requirements in the national employee invention laws need to be addressed to ensure that the rights to inventions made in an employment relationship are duly transferred from the inventor to the employer. These requirements are, for example, *timely action* and the *form of acquisition*.

Inventions made within the company can also be the result of *co-operation with third parties*. “Not all smart people work for you”, as Bill Joy, the co-founder of Sun Microsystems once said.¹¹⁴ Indeed, companies are also increasingly using external sources to enrich and increase the level of innovativeness in their businesses. For example, there are collaboration arrangements in place with other companies, subcontractors, research centers and universities. In addition, new types of ways of working have also emerged, so called *atypical employment* relationships, even if by the definition the person is not employed by the company for whom the actual work is done. In atypical employment the employee works for company A, typically even on the premises of the company, but is employed by a third company B. Examples of these kind of atypical workers are, for example, different types of temporary agency workers¹¹⁵, called for in situations that require extra labor force. In the event that this kind of atypical worker comes up with an invention in connection with the

¹¹⁴ Joy’s law is the principle that “no matter who you are, most of the smartest people work for someone else.” For further information see Karim R. Lakhani and Jill A. Panetta, ‘The Principles of Distributed Innovation’ (2007) 2(3) *Innovations: Technology, Governance, Globalization*.

¹¹⁵ Directive 2008/104/EC, Art. 3.1c.

work conducted for company A, the situation is peculiar in that the relationship with such an inventor and the company A is contractual via the collaboration agreement between the companies A and B. The rights to the inventions during collaboration are typically agreed to be vested in company A, having funded and ordered the work. However, before the rights can be transferred to company A in accordance with the collaboration agreement there needs to be a transfer of the rights from the initial rights owner, namely the inventor, to the employing company B, before the subsequent transfer of the rights to company A. This, in turn, needs to be done according to the requirements of the relevant law, even if the rights to the invention are contractually agreed to belong to company A.

For the purpose of this thesis the focus is on inventions made by company employees. However, the aspect of non-employee inventors cannot be left totally unhandled because inventions are nowadays increasingly the result of collaboration with third parties, which are in the position of employer in respect to some of the inventors. Therefore, inventions resulting from collaboration with third parties will be handled where the issue is relevant for the subject matter being handled.

2.3 From conflict of laws to complex of laws

2.3.1 Conflict of laws from the property aspect

From the property aspect point of view there is a conflict of laws in respect of ownership to the inventions made by employees from the perspective of the *patent law* and from the point of view of the *employment law*. As a main rule, according to the patent laws worldwide, the rights to an invention belong to the person who created the invention, namely to the employee-inventor. However, the general legal principle of employment legislation is that by virtue of the employment agreement it is the employer who shall own the results of the work done by its employees. Since the employees are hired to work for the employer, who pays a salary for their work, the results of the innovative activities by employees are deemed to belong to their employer. Employee invention statutes are national laws which try to balance this disparity in rules. In some countries specific employee invention legislation exists wherein the criteria and the requirements for the transfer of the rights from the employee-inventor to the employer are defined in detail. In certain countries lacking a dedicated employee invention law the equivalent regulations are located in the national patent laws. In countries lacking any special regulations balancing the rights is taken care of by virtue of contractual freedom and is thus subject to the contract law.

In the above conflict it is a question of a *conflict taking place between the laws of the same nationality*, regulating the very same subject matter but from different

points of view, namely laws with different functions. Such a conflict is also solved by the relevant national legislation, facilitated by either the contract law, the employee invention law or the patent law, depending on the jurisdiction and the employment regime to be applied. The conflict of laws described herein is relevant for every company within any business of potential new inventions, regardless of whether the company operates within a national or international market or whether it employs only domestic or also foreign employees. The need to balance between the rights of the inventor – who cannot be the company - and the employer always exists. But besides the property aspect, the conflict of laws in intellectual property needs to be explored from the patenting aspect as well.

2.3.2 Conflict of laws from the patenting aspect

A normative global consensus exists for the criteria and the *requirements relating to the validity of the patent in the international patent system*. In order for the patent to be truly valid, the invention disclosed in the patent application needs to fulfill all the *patentability requirements* of the relevant patent laws and treaties. These requirements are novelty, inventive step and industrial applicability. All applicants – whether an inventor or an assignee to whom the rights to the invention have vested – are obliged to follow the same rules and fulfil the same requirements, in order to obtain a valid patent. All employers, including multinational corporations, seeking patents for the inventions made by their employees or collaboration partners are bound by the same patentability criteria as well as the procedural rules.

However, there are certain specific provisions in the national patent laws that can affect the validity of the patent within a country subject to such a provision, irrespective of the validity from the point of view of the formal patentability requirements. These *national security provisions* set a requirement for the place of the first filing of a patent application in certain cases. These filing requirements are justified by national security and implemented by monitoring publishing patent applications outside the country for such inventions that can be detrimental to national security. In other words, once again there are two different rules relevant to the validity of the patent, which both have different functions, and need to be complied with. Even if the patent is duly granted after being deemed to fulfil all the patent requirements it can still be invalidated based on non-compliance with the national security provision. This kind of *conflict of laws between the internationally harmonized patent system and the national security provision(s)* is relevant for every kind of applicant, irrespective of the status of the applicant – be it an inventor or an employing company having rights to the invention made by the employee-inventor. Whenever the applicant seeks patent protection in such a country where there is a national security provision relevant to the case at hand, then the patent application

needs to comply with both the patent validity requirements and the requirement of the relevant national security provision, in respect of filing the first application. However, the focus in this thesis is to explore the more complex cross-border conflicts of laws between different national security provisions, something that occurs in connection with patenting global inventions.

2.3.3 Complex of laws in securing global patent protection for inventions

The conflicts of laws presented in the preceding chapters were the national conflicts of laws having different functions. However, where rules with different functions are in conflict, the general conflict of rules are of limited use.¹¹⁶ Indeed, the aforementioned conflicts are not traditional conflicts of laws, where ultimately only one law applies. Instead, in order to secure valid entitlement to and global patent protection for inventions in relevant markets, the applicants need to comply with the conflicting laws simultaneously. Since in most cases this is possible, even if not always easy, as shown in the case examples of this thesis, this does not constitute a real conflict here. Therefore, the term adopted in this thesis for the situations where the multiple different laws in the invention apply is called *complex of laws*. The term “complex” as a noun is defined as “a group or system of different things that are linked in a close and complicated way; a network”.¹¹⁷ The definition of the term as an adjective, “consisting of many different and connected parts” and “not easy to analyze or understand; complicated or intricate” also well captures the complexity of the scenarios presented here. In the context of this thesis, the network of laws and rules is associated with the object of those laws, an invention, to which the different rules regarding ownership, patentability and national security apply.

There are many ways to secure inventions. However, for the purposes of this thesis the focus is on patenting inventions. A patent gives the patent owner a right to prevent others from commercially exploiting the patented invention as well as a right to seek for monetary compensation both for authorized and unauthorized use. Of these, authorized use is where the patent owner has specifically granted the user the right to utilize the invention, against payment. By licensing rights to the patent, the patent-right holder receives compensation for the costs of the research and development that were needed to make the invention, and some reward for

¹¹⁶ As an example, rules of intellectual property may conflict with rules of antitrust law. Intellectual property rules give the owner a monopoly over a certain intangible good, whereas antitrust law sets out to combat monopolies. See Ralph Michaels and Joost Pauwelyn, ‘Conflict of Norms or Conflict of Laws?: Different Techniques in the Fragmentation of International Law’ (2012) 22 *Duke Journal of Comparative & International Law*, p. 354.

¹¹⁷ <https://en.oxforddictionaries.com/>.

intellectual efforts and performance. In the event of employee inventions, the monetary investments resulting in the creation of the invention have been made by the employer and it is also the employer who receives the royalties for the patent licenses. However, in order to act as a licensor, namely as the patent right holder, the employer needs to possess the rights to the patent, in other words to have *a valid entitlement* to the invention.

Valid entitlement to a patented invention, however, is only one prerequisite for effectively utilizing the patent. The patent as such also needs to be valid. So that the patent would be truly valid, the invention disclosed in the patent application needs to fulfill all the *general patentability requirements* of the relevant patent laws and treaties, the requirements being novelty, inventive step and industrial applicability. These requirements are duly examined at the patent offices in the patent prosecution process, albeit in certain situations they can also be disputed after the patent has already been granted. Validity in this sense is a crucial aspect for patents and without fulfilling these requirements there would be no patent at all. However, this aspect of patent validity is not the focus here because these requirements are internationally harmonized, and this aspect does not present such a diversity of national rules than those regulating, for example, valid entitlement.

In addition to the general patentability requirements that are essentially the same in all the jurisdictions throughout the world, there are also some *specific filing requirements affecting the validity* of patents. These country-specific national security provisions define the place for filing a patent application in certain situations, justified by monitoring the publishing of patent applications outside the country for such inventions that can be detrimental to national security. The requirements of these *national security provisions* also need to be complied with to ensure a valid, enforceable patent in a country with such a provision.

The aforementioned three aspects form the complex of laws and a normative foundation for the validity of a patent and for effectively utilizing the patent in the context of this thesis. Companies seeking global patent protection for inventions made by their employees cannot rely on merely complying with the general requirements of patentability. In order to be able to apply for and effectively utilize the patents a company needs to have valid entitlement to the inventions. Further, to secure valid patent protection globally, the patents also need to comply with the national security provisions of the relevant countries. Figure 2 illustrates the legal framework for ensuring compliance of these requirements and the potential pitfalls.

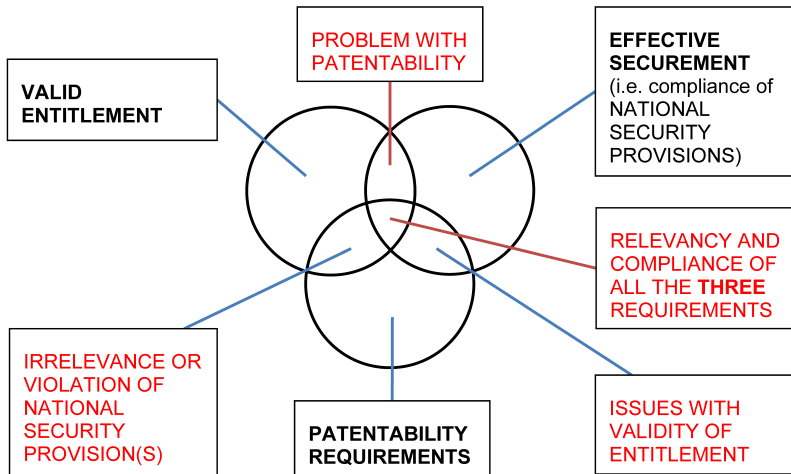


Figure 2. Pitfalls in seeking global patent protection for employee inventions (“simple complex of laws”).

The lowest circle describes the international patent system, where the patentability requirements are essentially the same for all applicants, irrespective of their applicant status as an assignee or as an inventor, of the number of inventors, or of the nationality of the applicant or the inventors. The invention needs to consist of a patentable subject matter and to be novel, inventive and industrially applicable. There are some differences in interpreting these requirements between different jurisdictions, but they apply to *any* applicant seeking a patent in a certain jurisdiction. This circle forms the basis and the foundation for the validity of patents as well as for their effective utilization. However, even though these requirements are fundamental to the validity of patents, they do not comprise different rules which are as wide ranging as the other two circles, and therefore will not be the focus here. Nevertheless, due to their importance they cannot be omitted as they provide the necessary procedural framework, or the administrative arena¹¹⁸, for the case examples in thesis.

¹¹⁸ Ulf Petrusson, ‘*Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*’, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, pp. 104-105. According to Ulf Petrusson, there are three structural arenas, where the recognition of intellectual property and IPRs as normative claims are recognized: a) an administrative arena, b) a judicial arena, and c) a business arena. “Both the administrative and the judicial arenas are structural platforms that are based on the integration into national legal systems.” A general problem is that both these arenas are, to a large extent, national whereas “the business arena, for most firms in the knowledge-oriented sphere, is international.” Thus, Petrusson acknowledges the problem introduced in this thesis that the laws are local, but the business is global. In the context of this thesis the administrative arena acts as a basis for exploring the topic from the business point of view, namely as to how to manage the process of creating the durable assets in a context of complex of laws. Judicial arena is then a subsequent arena to this thesis, when there are already the durable assets to be used as monopoly rights.

The upper circle on the left reflects the validity of entitlement to the invention and is relevant mainly in situations where the applicant is *not* the inventor of the patented invention and thus needs to have the rights assigned from the inventors. The said applies except to the company's own employees, also to the inventors involved in collaboration projects wherein the rights have agreed to be vested to the company, and there needs to be unbroken chain of rights from all the inventors. Admittedly, the valid entitlement to the invention is also relevant to applicants that claim to be the inventor(s) of the patented invention, but issues related to determining inventorship cannot be addressed in this thesis. Instead, it is assumed here that the named inventors are the true inventors in the invention and the focus is therefore on the transfer of the rights from those inventors to their respective employer(s).

The third circle, on the upper right, addresses national security provisions, for which non-compliance can affect the possibilities to get a patent or the validity of an already existing patent, and thus the possibilities to utilize the patent within the jurisdiction in question. These provisions also apply to applicants of *all* kinds, if only the applicant in question fulfils the criteria defined in the relevant provision. If the patent application has been filed contrary to the relevant provision(s), then there is a risk that the patent in the respective jurisdiction will not be granted, or that a granted patent will be invalidated.

In addition to the three circles representing the requirements related to the validity of the patent and their effective use, there are four areas in the figure, where two or more circles overlap. The areas reflected in the respective circles represent the requirements that should be simultaneously applied. Three of the areas are such where only two of the three requirements are applied and depending on the case there may be a validity problem involved. For example, the area where the two upper circles overlap is located outside the circle of the patentability requirements, which means that even if the applicant is entitled to the invention and a first patent application has been filed in compliance with the relevant national security provision(s), the patentability requirements for the case at hand are not met and thus there is no patent to be utilized. However, the lack of patentability requirements can be also territorial, as there is some room for interpretation in the patenting criteria for different jurisdictions even if the criteria is the same. In the overlapping area on the left, the invention fulfils the patentability requirements and the applicant is duly entitled to file a patent application for the invention, but it has been filed without addressing the national security provision(s). It could be that in the case there are no relevant national security provisions to be complied with. In the worst case a relevant national security provision exists but the patent application has been filed in violation of the provision. In the overlapping area on the bottom right, the application duly fulfils the patentability requirements, and in addition complies with the relevant national security provision(s) but there is no valid entitlement to the invention. In

other words, the applicant is not in a position to hold the rights to the patent resulting from the invention. Typically, this situation becomes relevant already before any patent application has been filed, but a discrepancy in entitlement can become an issue also at later phase. Therefore, it is very important to address the issue of assignment and the transfer of rights properly already at the time of acquiring the rights to the invention, prior to filing any patent applications. The area in the middle of the figure, where all three circles overlap, reflects a situation where applicants confront all three requirements simultaneously. An example of such a scenario is where an applicant is a company patenting an invention assigned to it, either by its own employee or a third-party inventor, in a jurisdiction having a national security provision in place and relevant to the situation. In order for the patent to be valid, and in order for the applicant to be able to effectively utilize it, all the three aforementioned requirements need to be fulfilled and complied with.

The situation becomes more complex when a company is a *multinational corporation* with global operations and thus employees and collaboration partners in a wide range of countries. Typically, in truly global companies R&D where innovations are usually made, often also involves *cross-border* type of project work where even *a single invention can be the jointly made effort of multiple contributors, originating from different countries*. Therefore, in respect of a single invention, the laws of the different countries regulating valid entitlement and national security simultaneously apply, resulting in a cross-border *complex of laws* that needs to be resolved.

2.3.4 Complex of laws in securing patent protection for global inventions

“Business is global, but laws are local.”¹¹⁹ Indeed, in the case of global inventions the laws of the different countries simultaneously apply to the ownership and transfer of rights from each of the individual co-inventors to their respective shares of the same invention. Similarly, there can also be multiple national security provisions relevant to the invention. The conflicts of laws in these situations are *the conflicts between the laws of the different nationality*, where the laws – be they contract laws, employee invention laws or patent laws – apply in respect of a single invention.

Figure 3 illustrates a situation where a company applying a patent for an invention made by its employee or assigned to it by a third party inventor, needs to simultaneously apply the laws affecting the validity and effective utilizing of the patents, of multiple countries, regarding one and the same invention.

¹¹⁹ Lawrence T. Welch, ‘Workshop V: ‘Multinational Inventions – How to Reconcile IP Issues’, AIPPI Forum & Exco 2011, 13-18 Oct 2011, s.2.

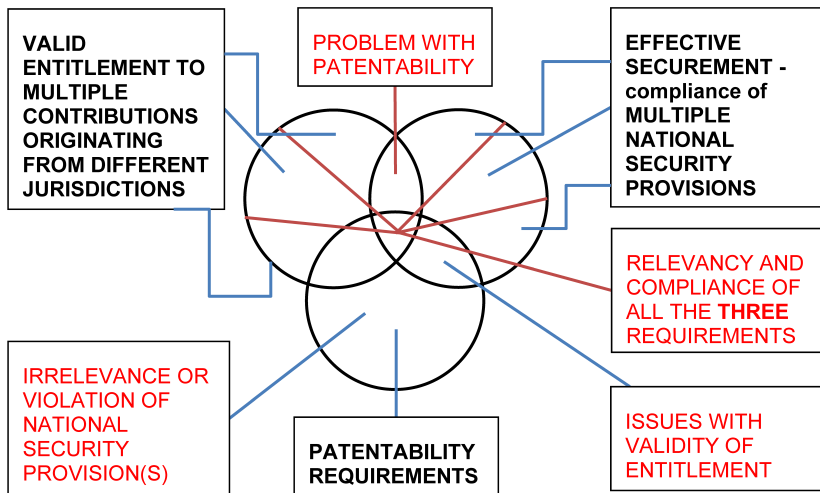


Figure 3. Pitfalls in seeking patent protection for global inventions in MNCs (“complex complex of laws”).

The upper circles again address the valid entitlement to an invention and the effective securement, the latter in terms of complying with the relevant national security provisions. The circles have been divided into three segments to reflect that there are three different contributors for the invention in question, or even if more contributors, from three different jurisdictions. This means that the applicant company needs to separately address each of the national laws subject to the invention, in respect of the individual inventors, and to comply with them all.

Regarding valid entitlement, there could be one inventor from a jurisdiction belonging to a contractual regime, where the rights to the invention may belong to the employer based on the employment relationship already. Further, one of the inventors could originate from a statutory jurisdiction, and the rights from such an inventor need to be acquired according to the relevant law. Yet further, one of the inventors may be employed by a third-party company, as part of a collaboration arrangement with the applicant company. This means that in some jurisdictions there could be a chain of entitlement required for the effective entitlement, first in relation to the third-party inventor and the respective employer, and then to the applicant company. However, a multinational company as such is also a differentiated network consisting of a parent company and the subsidiaries and similarly, there needs to be an unbroken chain of rights from the inventors to the subsidiary employing companies and subsequently to the parent company, often acting as an applicant.

Regarding effective securement, when inventions are made in cross-border collaboration projects there can be several national security provisions, that are relevant to the invention. For example, the place of the invention could be a

country which has a national security provision that requires the first patent application in respect of the invention to be filed in that country. It could also be that the work resulting in a joint invention has been carried out at several different research sites. Further, it may be that the inventors involved are residents in countries where the requirement is to file the first application in the country of the residence. In other words, there can be several national security provisions, the criteria of which are fulfilled, and they all need to be complied with to ensure the validity of the patent and to avoid potential consequences. The situation is peculiar in the sense that there is only one invention to which the employer takes the rights to, for which the employer after the valid entitlement can seek patent protection. However, in respect of the individual co-inventors, different rules for the transfer of the rights and the national security provisions apply.

2.4 Hasn't harmonizing the patent system solved these conflicts?

Extensive harmonization work has been carried out in the area of patenting, for example in the form of a variety of international patent law conventions, such as the *TRIPS agreement*¹²⁰, the *Paris Convention*¹²¹ and the *Patent Cooperation Treaty (PCT)*¹²². The TRIPS agreement was the first to introduce intellectual property law into the international trading system and remains the most comprehensive international agreement on intellectual property to date. However, the Paris Convention was the first major international treaty designed to help the people of one country to obtain protection in other countries for their intellectual creations in the form of industrial property rights. The PCT provides a unified procedure for filing patent applications for protecting inventions in each of the contracting states whereas the *European Patent Convention (EPC)*¹²³ regulates the centralized procedure for applying for European patents for inventions. In addition to the EPC,

¹²⁰ Agreement on Trade-Related Aspects of Intellectual Property Rights made by World Trade Organization (WTO); TRIPS is an international agreement administered by the World Trade Organization (WTO) and it sets down minimum standards for many forms of intellectual property (IP) regulation as applied to nationals of other WTO members. WTO established 1.1.1995 is the only international organization dealing with the global rules of trade between nations.

¹²¹ The Paris Convention for the Protection of Industrial Property signed in Paris, France, on March 20, 1883.

¹²² The Patent Co-operation Treaty is an international patent law treaty by WIPO, concluded in 1970 in Washington.

¹²³ The European Patent Convention, also known as the Convention of the Grant of European Patents of 5 October 1973, is a multilateral treaty instating the European Patent Organization (EPO) and providing an autonomous legal system according to which European Patents are granted. The revised text, EPC 2000, entered into force 13.12.2007.

there are also other regional patent conventions, such as IP treaties administered by the African Regional Intellectual Property Organization (ARIPO)¹²⁴ and the international patent law treaty of the Eurasian Patent Organization (EAPO)¹²⁵, the Eurasian Patent Convention (EAPC). Indeed, it should be noted that the harmonization effect achieved by all these agreements and conventions is only territorial, namely applicable only to the member states or the states having ratified the conventions in question. Thus, despite this harmonization there are always some countries that are left beyond the scope of the harmonization and where the national regulations in respect of the harmonized issues can be different.

However, despite all this harmonization of issues related to patenting, these treaties do not really contain regulations on employee inventions. For the time being, there is no uniform legislation covering employee inventions nor is it likely that harmonization in this area will take place in the near future.¹²⁶ Thus, issues related to the rights to employee inventions, including the right to resulting patents, are still regulated at national level, and has been specifically acknowledged e.g. in the EPC:

Article 60

Right to a European patent

The right to a European patent shall belong to the inventor or his successor in title. If the inventor is an employee, the right to a European patent shall be determined in accordance with the law of the State in which the employee is mainly employed; if the State in which the employee is mainly employed cannot be determined, the law to be applied shall be that of the State in which the employer has the place of business to which the employee is attached.

The right to a patent, such as a European patent, made by an employee is determined in accordance with the law of the country in which the employee is mainly employed (*lex loci laboris*), or the law of the country in which the employer has the place of business to which the employee is attached. Essentially, it is a question of regulating an issue related to an employment relationship here, and thus it is worth also exploring the choice of law in the employment contracts.

¹²⁴ The African Regional Intellectual Property Organization, formerly African Regional Industrial Property Organization, is an intergovernmental organization for co-operation among African states in patent and other intellectual property matters, established by the Lusaka Agreement in 1976.

¹²⁵ The Eurasian Patent Organization is regional organization set up in 1995 by the Eurasian Patent Convention.

¹²⁶ There has been at least one attempt within EU (at the time EC, European Community) to do this: Bernhard Villinger composed an own concept for European rules regarding this subject matter and as of 1989 provided an extensive “Proposal for European Directives on Rights in Inventions of Employees and their Compensation therefor”, It was published first in German in 1991 and later, in 1994, in English.

The first branch of the international private law determines which court is competent to decide the case at hand and is regulated within the EU by the Brussels Regime¹²⁷. However, it is the second branch, namely the one which determines which law in the court or in private relationships should be applied, that is more relevant for this thesis and that branch of private international law is regulated first of all by the *Rome I Regulation* (Rome I).¹²⁸ Rome I replaced the earlier “Rome Convention”, namely the Convention on the Law Applicable to Contractual Obligations 1980. The Rome II Regulation¹²⁹ (Rome II) governs the choice of law in civil and commercial matters concerning non-contractual obligations and thus it is not applicable in situations where there is already a contract, such as an employment contract, in place between the parties. However, it should be noted that the common purpose of all these conventions is merely to determine which nation’s law should be used in conflict of laws -situations falling within the scope of the conventions. That is, neither these conventions have aimed to harmonize the actual substance of the national laws.

The Rome I Regulation determines which law is applied when interpreting contracts involving an international element. As a starting point in the convention for this is the freedom of choice:

Article 3

Freedom of choice

1. A contract shall be governed by the law chosen by the parties. The choice shall be made expressly or clearly demonstrated by the terms of the contract or the circumstances of the case. By their choice the parties can select the law applicable to the whole or to part only of the contract.

¹²⁷ The Brussels Regime is a set of rules regulating which courts have jurisdiction in legal disputes of civil or commercial nature between the individuals that are resident in different member states of the European Union (EU) and the European Free Trade Association (EFTA). The first treaty in this respect was Brussels Convention in 1968, followed by the Lugano Convention in 1988 and finally the Brussels I Regulation of 2001 that replaced the Brussels Convention and then the Recast Brussels Regulation of 2012 that replaced the Brussels I Regulation with effect from 10 of January 2015.

¹²⁸ Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations.

¹²⁹ Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations.

The convention then contains specific regulations in respect of certain kinds of contracts, such as contracts of carriage¹³⁰, consumer contracts¹³¹, insurance contracts¹³² and employment contracts:

Article 8

Individual employment contracts

1. An individual employment contract shall be governed by the law chosen by the parties in accordance with Article 3. Such a choice of law may not, however, have the result of depriving the employee of the protection afforded to him by provisions that cannot be derogated from by agreement under the law that, in the absence of choice, would have been applicable pursuant to paragraphs 2, 3 and 4 of this Article.

2. To the extent that the law applicable to the individual employment contract has not been chosen by the parties, the contract shall be governed by the law of the country in which or, failing that, from which the employee habitually carries out his work in performance of the contract. The country where the work is habitually carried out shall not be deemed to have changed if he is temporarily employed in another country.

3. Where the law applicable cannot be determined pursuant to paragraph 2, the contract shall be governed by the law of the country where the place of business through which the employee was engaged is situated.

4. Where it appears from the circumstances as a whole that the contract is more closely connected with a country other than that indicated in paragraphs 2 or 3, the law of that other country shall apply.

Even if the contractual freedom of choice prevails according to the Rome I Regulation in the employment relationship, the choice of law cannot overrule the mandatory regulations of the national law that would, in the absence of choice, be applied according to the other paragraphs of Article 8. Some of these mandatory regulations might concern the rights to employee inventions. For example, in Finland some of the regulations in the national Employee Invention Act are indeed mandatory, namely such that cannot be agreed otherwise between the employer and the inventor.

What was said above about the rights to employee inventions, applies also to national security provisions. Harmonizing has not been extended to the national security provisions of the national patent laws; there have not been attempts to unify the national security regulations in different countries, nor remove the existing provisions or suggest such to countries not having them.

The TRIPS agreement contains a non-discriminatory clause, though.

¹³⁰ Rome I, Art. 5.

¹³¹ Rome I, Art. 6.

¹³² Rome I, Art. 7.

Article 27**Patentable Subject Matter**

1 “Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. *Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.*”¹³³

The TRIPS Member countries shall make patents available for any inventions fulfilling the criteria for patenting, whether products or processes, in all fields of technology without discrimination. This requirement is derived from the general rule of patentability and it is subject to the normal criteria of novelty, inventiveness and industrial applicability. The second sentence however adds that while patent rights need to be recognized in all fields of technology, this should be done without discrimination regarding the place of invention and whether products are imported or locally produced. Thus, one could question whether the national security provisions affecting the validity, thus availability, of the patents filed contrary to filing requirements therein could in fact be considered as discrimination based on the place of the invention?

It should be noted that the TRIPS also contains an article providing exceptions based on security issues:

Article 73**Security Exceptions**

Nothing in this Agreement shall be construed:

- (a) to require a Member to furnish any information the disclosure of which it considers contrary to its essential security interests; or
- (b) *to prevent a Member from taking any action which it considers necessary for the protection of its essential security interests;*
 - (i) relating to fissionable materials or the materials from which they are derived;
 - (ii) relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment;
 - (iii) taken in time of war or other emergency in international relations; or

¹³³ TRIPS Art. 27.1; Emphasis added.

(c) to prevent a Member from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.¹³⁴

The preparatory work for the subject matter of this article was already completed in connection with draft Treaty Supplementing the Paris Convention as far as Patents are Concerned,¹³⁵ which however was not adopted as a new treaty. Many provisions of the Basic Proposal¹³⁶ were incorporated into the TRIPS Agreement, including inter alia those relating to the term of patent protection, the rights conferred by a patent, and non-discrimination regarding the field of technology. In the draft Treaty, alternative A of Article 10¹³⁷ had the following language with regard to the national security exceptions:

(2) “Contracting states may, on grounds of public interest, national security, public health, nutrition, national development and social security, exclude from patent protection, either in respect of products or processes for the manufacture of those products, certain fields of technology, by national law.”

Except for national security, which in the TRIPS agreement is covered by Article 73, the exclusions based on technology listed in the above paragraph 2 of Alternative A have not been retained by the TRIPS agreement. Thus, public interest or health, nutrition, national development and social security are not issues which according to the TRIPS agreement would justify making patentability unavailable for certain fields of technology, other than those explicitly mentioned in Articles 27.2 and 27.3:

2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.

3. Members may also exclude from patentability:

¹³⁴ TRIPS Art. 73; Emphasis added.

¹³⁵ A century after adoption of the Paris Convention, in 1983, discussions began on the legal effects of an international grace period on patent law. The scope of that work was gradually expanded and evolved, through the efforts of the Committee of Experts, into a draft Treaty Supplementing the Paris convention as far as Patents are Concerned.

¹³⁶ Text of the Basic Proposal for the Treaty and the Regulations as Submitted to the Diplomatic Conference for the Conclusion of a Treaty Supplementing the Paris Convention as far as Patents are Concerned, The Hague, June 3 to 28, 1991: http://www.wipo.int/meetings/en/doc_details.jsp?doc_id=1511.

¹³⁷ Article 10, Fields of Technology of the Basic Proposal for the Treaty and the Regulations (document PLT/DC/3), dated December 21, 1990, submitted, under rule 29(1) of the Draft Rules of Procedure, by the Director General of WIPO.

(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals; (b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.¹³⁸

Exclusion from patent protection can be made on the basis of the field of technology, but not based on the place of the invention. In some countries the national security provisions apply accordingly, only restricting the place of filing for certain kinds of inventions, such as those related to military technology or containing information which might be prejudicial to national security, or the safety of the public. However, there are also countries where filing restrictions are linked to the place of invention only, and in some countries to the residence of the inventor having contributed to the creation of the invention, irrespective of the field of technology, and where non-compliance of the provision can lead to invalidation of the patent for the invention. The question remains as to whether this is discrimination with regard to the availability of patent rights based on the place of invention if an invalidation takes place irrespective of the field of the technology?

2.5 Managing the complex of laws – a piece of cake, or not?

The conflict of laws -doctrine is also referred to as *private international law*. It is used as a problem-solution approach in a variety of situations where the legal situation to be solved involves two or more relevant jurisdictions, and it is supposed to define which jurisdiction should be applied in each case. The function of private international law is said to be complete when it has chosen the appropriate system of law. However, this thesis aims to explore such scenarios where two or more laws regulating the rights to and patenting of inventions made in an employment relationship simultaneously apply, and do not necessarily lead to an actual conflict of laws. Does private international law, which is meant to assist in determining which law to apply in cases involving a foreign element, provide answers also in situations where several different laws need to be complied with, without an option to choose only one law to apply? The answer is no. Private international law may direct the applicant to choose the correct laws to be applied to the case at hand but leaves open how to comply with them all simultaneously. This thesis introduces one possible

¹³⁸ TRIPS, Art. 27(2)(3).

approach to consider an invention to consist of several parts, the contributors of which are separate parties to the legal dispute in question. The employer, or several of them in the case that the invention has been made in collaboration with a third party or parties, is the counterparty to whom the rights will eventually be vested from the inventors. Private international law shall then determine the law to be applied separately for each part of the invention, in the relationship between the respective employer and the inventor. The choice of law is made based on alternative options such as the domicile of the employing company, the nationality of the employment relationship of the inventor in question, or other relevant factors. By using this approach, namely dividing the invention into several parts even if it is a question of only one invention to which the employer would acquire rights to and seek patent protection for, it is more appropriate to apply private international law in determining the relevant laws to be applied. However, when it comes to patenting inventions and trying to comply with several national security provisions at the same time, the invention cannot be patented in pieces, based on individual contributions.

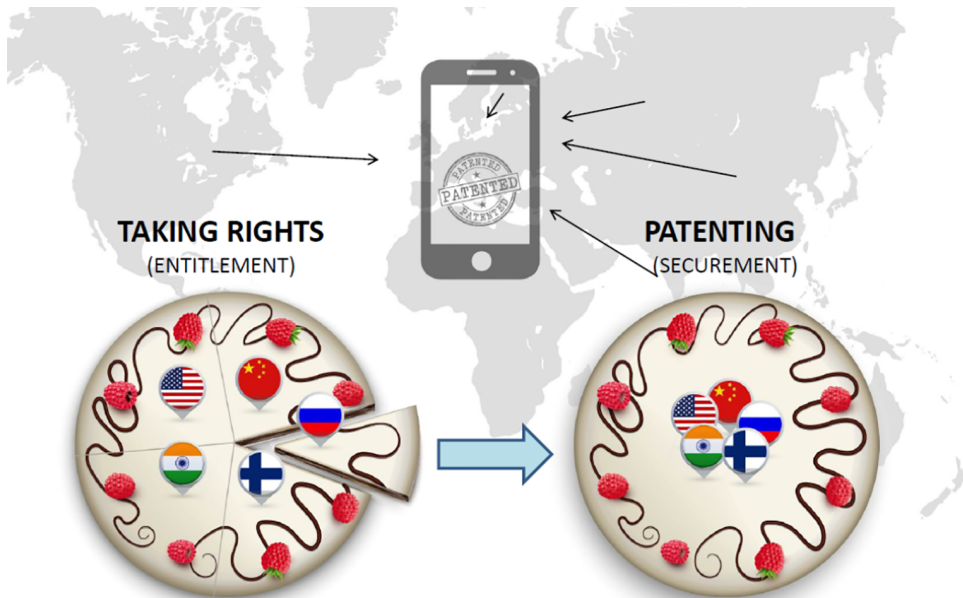


Figure 4. Complex of laws in securing patent protection for global inventions in MNCs.

Indeed, as illustrated in the Figure 4, the global invention could be imagined as “a cake” where the contributions by the individual inventors are the pieces of the cake to which the employer should acquire the rights. Acquisition of the rights to an employee invention is an individual action. When the invention is a joint effort of

two or more inventors, the employer needs to act according to the requirements of the law in respect of each of the individual inventors. This makes it possible to simultaneously apply the different laws and rules applicable to the inventors, in theory. In practice applying different mechanisms in acquiring the rights to the very same invention requires careful coordination and knowledge of the different regimes, which is not necessarily the case with local patent engineers handing the invention reports at the patent department. Therefore, there needs to be a monitoring system or policies guiding the procedures in order to ensure compliance with all the relevant laws. The optimum would be to achieve *a holistic procedure* which would sufficiently address the national differences and requirements in such a way that the procedure in acquiring the rights would comply even with the strictest legal requirements that may be applicable to the individual co-inventors.

Acquisition of rights is an individual action but when protecting the “cake”, it cannot be sliced and patented in pieces, according to each applicable national security provision. The invention, even if the compliance of several national security provisions is required, needs to be patented as an entity, yet without violating any of the provisions. In situations where multiple national security provisions apply, it may be required that the first patent application is to be filed in multiple places. This, in turn, requires some legal strategy as the first patent application can be filed only once, and only in one place. The case examples in this thesis are based on established industry practice and provide a problem-solution approach to this dilemma, too.

Petrusson writes about monitoring systems in the context of value creation. The discourse and creative efforts to grasp the complexity of intellectual capital has resulted in a number of monitoring systems, such as “intangible asset monitor” and “balance scorecard”. These models have the purpose of helping the firm understand and follow the processes that generate their assets.¹³⁹ The aforesaid relates to the context of value-based management with pre-existing intangible assets, for example, in the form of intellectual property. However, similarly in the context of this thesis, the *monitoring of compliance* is necessary to create intellectual property in such a way that the resulting intangible assets end up being truly valid, namely durable assets. Without this prerequisite no value can be created out of the assets, as the static property right is a necessary precondition in order to claim *a dynamic property*

¹³⁹ Ulf Petrusson, *Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 51. In connection of the first term Petrusson refers to e.g. Kar Erik Sveiby, ‘The New Organizational Wealth’ (1997) and regarding the latter term to Robert S. Kaplan and David P. Norton, ‘Why Does Business Need a Balanced Scorecard?’ (1996) 1(1) *Journal of Strategic Performance Management* (Feb-March 1997), pp. 5-11.

right.¹⁴⁰ This thesis aims to build such a procedure to the management of the complex of laws that ensures subsequent value creation out of IPR. Company management quantifies the time and the economic resources to be spent in protecting its IP, in order to define the entity of the rights relating to the assets, regardless of the strategy of use to be created. Companies that classify, protect and assess their IP are able to implement strategies to achieve their objectives in shorter periods of time.¹⁴¹

¹⁴⁰ Ibid., p. 119.

¹⁴¹ Rosa Lombardi, et al., 'Modern Trends for Strategic Use of Intellectual Property Rights: Dynamic IP Portfolio Management, Open Innovation and Collaborative Organizations', in Demetris Vrontis (ed), *Managing Globalisation: New Business Models, Strategies and Innovation*, Edition: Cambridge Scholars Publishing 201, p. 119.

3 Validity of Patents as a Foundation for Effective Utilizing of Rights

3.1 Applying a patent

Unlike for example copyright which is created at the time of creating a piece of work subject to the right, a patent needs to be applied for, and the right to it registered. There is a certain procedure established for this, and for the most part it is globally harmonized. This means that a patent is applied for in a similar way all over the world. However, a patent only provides a *territorial* protection. Thus, a patent needs to be applied for in all the countries where the protection is needed. This can be done by filing separate *national* patent applications in each country. Alternatively, one can use a wide range of international filing routes established via a variety of *international* patenting treaties, such as PCT, or *regional* patent treaties, such as EPC and ARIPO. In this way it is possible to file only one patent application based on the relevant patent treaty, and to designate therein the member states that are relevant in respect to the company's scope of business and the invention in question. Depending on the treaty to be applied, the patent prosecution is continued as national applications, such as in PCT, or the patent is granted centrally via the treaty, such as in EPC, and the patent can be registered (validated) in all the designated member states. Therefore, the outcome of these two treaties can be different. In PCT, where the patent prosecution continues after the *central filing* and examination procedure at the national patent offices, the national patents can result in a different scope of protection whereas in EPC where the granted EP patent is registered in the designated states the content and scope of protection is the same.¹⁴² In cases where a patent is needed in a country that does not belong to any international patent treaty, the only possibility to apply for a patent is to file a national patent application.

The Paris Convention was the first major international treaty designed to help the businesses of one country to obtain protection in other countries for their

¹⁴² It is possible to have different scope of protection in some country for a patent granted via EPC, too. Namely, invalidation process of the European patent takes place at national level, and thus it is possible that in some country, some of the claims have been removed due to the national invalidation procedure while being valid in others.

intellectual creations in the form of industrial property rights. Unlike the TRIPS agreement, the Paris Convention is administered by the World Intellectual Property Organization (WIPO)¹⁴³. One of the most substantial provisions in the Convention is the *Right of Priority*. It only applies to the contracting states of the Paris Convention which, however, is one of the most widely adopted treaties in the world, currently having 177 contracting parties.¹⁴⁴ After the first patent application for the invention has been filed, the applicant still has one year, called a priority year, to make the decision about the desired territorial scope of protection for the invention. The subsequent applications filed within the priority year enjoy priority, and the patent protection starts from the first filing date.¹⁴⁵

Of course, in order to provide appropriate protection, the patent needs to be valid. This requirement is represented by the lowest circle in the figure(s) describing the complex of laws, “Patentability requirements”. However, should the first patent application be filed in violation of the national security provisions, which aspect relates to another circle and the second research question of the thesis, Effective securement, then the resulting patent can end up being invalid despite fulfilling the general patentability requirements that will be introduced next.

3.2 Requirements of patentability

After the patent application has been filed – whether a priority application or a subsequent application filed within a priority year - the application is examined. A desirable result of this *patent prosecution* is that the patent will be granted, in the requested or in a more restricted form. In order to be granted a patent, an invention disclosed in the patent application needs to fulfill certain requirements set for the patentability. In order to be patentable, the invention needs to consist of *patentable subject matter*. Further requirements are *novelty*, *inventive step* (or non-obviousness) and *industrial applicability*. These are defined in the TRIPS:

¹⁴³ The World Intellectual Property Organization (WIPO) is one of the 17 specialized agencies of the United Nations and it was established in 1967 “to encourage creative activity, to promote the protection of intellectual property throughout the world”, according to the Article 3 (i) of the Convention Establishing the World Intellectual Property Organization.

¹⁴⁴ WIPO-Administrated Treaties: Contracting Parties of Paris Convention; Total Contracting Parties: 177. World Intellectual Property Organization: <http://www.wipo.int/treaties/en/ip/paris/>.

¹⁴⁵ Paris Convention, Art. 4.

Article 27

Patentable Subject Matter

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are *new*, involve an *inventive step* and are capable of *industrial application*. Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.¹⁴⁶

Because of global adoption¹⁴⁷ of the TRIPS agreement in the national patent laws, the criteria for patentability are essentially the same in jurisdictions all over the world. However, interpretations as to how criteria are evaluated vary in different jurisdictions. In the following chapters, the aforementioned patentability requirements will be shortly introduced in further details:

An invention is considered new if it does not form a part of the state of the art. This has been defined for example in the European Patent Convention:

Article 54

Novelty

- (1) An invention shall be considered to be new if it does not form part of the state of the art.
- (2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.¹⁴⁸

The definition for state-of-the-art in the EPC reflects the principle of *absolute novelty*. That is, the state of-the-art comprises everything made available to the public anywhere in the world by means of a written or oral description, by use, or in any other way, before the date of filing or priority.¹⁴⁹ The requirement of absolute novelty also implies that it is not a requirement that such a publication would have taken place for a wide audience. Indeed, the case law of the European Patent Office

¹⁴⁶ TRIPS Art. 27.1; Emphasis added.

¹⁴⁷ Total amount of contracting parties in the TRIPS agreement is 164 countries, namely all WTO members, as of 29th of July, 2016.

¹⁴⁸ EPC, Art. 54.

¹⁴⁹ Guide for applicants: How to get a European patent, June 2018 (18th Edition), B. Patentability, II. Novelty, Basic Principles 32.

(EPO)¹⁵⁰ accepts that information is deemed to be “available to the public” if only a single member of the public is in a position – even theoretical - to gain access to and understand it, and there is no obligation to maintain secrecy.¹⁵¹ Novelty is also referred to as *global novelty*. In other words, there are no geographical restrictions in respect of where – or in which language – the relevant information was made available to the public.¹⁵² In practice this means that a document written in any language can constitute a novelty objection, namely novelty-destroying prior art, in any part of the world. The ways for an invention to become public have not, however, been restricted to written publications, even if this is certainly the most reliable means to prove the publication.

The time of availability to the public is relevant only before the date of filing the patent application. EPC mentions filing the European patent application but for the purposes of novelty, any prior application is applicable. However, EPC contains two exceptions, where prior publications are not taken into consideration when assessing novelty: an evident abuse in relation to the applicant or his legal predecessor or the invention having been displayed at an officially recognized international exhibition falling within the terms of the Convention on international exhibitions.¹⁵³ This *grace period* is an exception to the absolute novelty and such a concept exists also in other jurisdictions. Generally, it allows six or twelve months for filing a patent application after a disclosure.¹⁵⁴ In most countries, grace periods only apply to disclosures by the inventors or the person who is entitled to apply for the patent, not to independent disclosures by third parties. EPC provides an exception to this based on an evident abuse.

It should be noted that novelty can be prejudiced only by something which is clearly disclosed to a skilled person in a *single* source of prior art.¹⁵⁵ If different elements of the invention are combined from several documents, it is not anymore a

¹⁵⁰ The Boards of Appeal of the European Patent Office have developed a substantial body of case law over the past ~40 years. They have settled more than 40.000 cases. In addition, more than 90 decisions or opinions of the Enlarged Board of Appeal have clarified legal points of fundamental importance in order to ensure uniform application of the law. Taken from foreword to the 8th edition of Case Law of the Boards of Appeal of the European Patent Office, July 2016.

¹⁵¹ EPO Board of Appeal decision T1081/01, Reasons for the Decision, State of the art, nr. 5.

¹⁵² Guidelines for Examination in the European Patent Office, November 2018, Part G: Patentability, Chapter IV: State of the art, 1. General remarks and definition.

¹⁵³ EPC, Art. 55, Convention on international exhibitions signed at Paris on 22 November 1928 and last revised on 30 November 1972.

¹⁵⁴ Countries or patent conventions that operate with a six-month grace period include but are not limited to Eurasian, Japan and Russia. Countries that operate with a twelve-month grace period include for example Australia, Brazil, Canada, South Korea, Mexico and United States of America.

¹⁵⁵ Guide for applicants: How to get a European patent, B. Patentability, II. Novelty, Basic Principles 32.

question of a novelty-destroying prior art but a non-obviousness objection, meaning that the invention is deemed to lack *inventive step*:

The requirement for an inventive step is defined in EPC as follows:

Article 56

Inventive step

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art.¹⁵⁶

Evaluating the inventive step concerns considering whether the disclosed solution would have been “obvious” to the *person skilled in the art*. Indeed, in the U.S. the requirement is called “*non-obviousness*”.¹⁵⁷ The “person skilled in the art” is presumed to be a skilled practitioner in the relevant field of technology, in a possession of average knowledge of what was common general knowledge in the art at the relevant date.¹⁵⁸ Thus, inventive step is an objective concept and not a question of a subjective achievement of the inventor.¹⁵⁹ The concept is subject to different interpretations depending on jurisdiction, and the threshold of whether a particular invention contains an inventive step can be met in some country while not in other country. In evaluating whether the invention disclosed in a patent application contains an inventive step, EPO applies so called “problem-solution” approach.

Objectivity of the assessment of inventive step is achieved by starting out from the objectively prevailing (closest) state of the art, in light of which the technical problem is determined which the invention addresses and solves from an objective point of view.¹⁶⁰ In order to determine whether the claimed invention would have been obvious to the skilled person, the EPO’s Boards of Appeal apply the so-called “could-would approach”. It is not relevant whether the skilled person *could* have carried out the invention but whether he *would* have done so.¹⁶¹

Requirement for *industrial applicability* is defined for example in PCT regulations:

¹⁵⁶ EPC, Art. 56.

¹⁵⁷ 35 U.S.C. §103.

¹⁵⁸ EPO Board of Appeal Decisions, T4/98, T 143/94 and T426/88.

¹⁵⁹ EPO Board of Appeal Decision T0024/81 (Metal refining) of 13.10.1981, Reasons for the Decision, nr. 4.

¹⁶⁰ The first EPO decision, T1/80 (Carbonless copying paper), headnote I: “Assessment of the inventive step of a (chemical) invention...has to be preceded by determination of the technical problem based on objective criteria.”

¹⁶¹ Case Law of the Boards of Appeal of the European Patent Office, Seventh Edition, September 2013. I. Patentability, D. Inventive step, 5. “Could-would approach”. See also: T 2/83, OJ 1984, 265; T 7/86, OJ 1988, 381; T 200/94, T 885/97.

Rule 5

The Description

5.1 Manner of the Description

(a) The description shall first state the title of the invention as appearing in the request and shall:

(vi) indicate explicitly, when it is not obvious from the description or nature of the invention, the way in which the invention is capable of exploitation in industry and the way in which it can be made and used, or, if it can only be used, the way in which it can be used; the term "industry" is to be understood in its broadest sense as in the Paris Convention for the Protection of Industrial Property.¹⁶²

The invention is considered industrially applicable when it is capable of being exploited in industry. It is not relevant what the underlying industry is but what is the nature of the activity in connection with the exploitation of the invention within that industry.¹⁶³ An invention provides a new and inventive solution to a technical problem. Thus, for an invention to be capable of exploitation in industry it needs to have a *technical effect*. Accordingly, sometimes this requirement is referred to as "technical feasibility". The invention needs to work in practice, in other words produce the protected solution to the technical problem. In the U.S. the term is "utility". If the applicant has asserted that the claimed invention is "useful" for any particular practical purpose and such an assertion would be considered credible by a person of ordinary skilled in the art, the utility requirement is met.¹⁶⁴ There are differences between different jurisdictions as to what type of inventions can be considered to be of technical nature or as assessed by the EPO, whether the invention has "technical effect".¹⁶⁵ This is especially relevant question with regard to so called computer-implemented inventions, or *software patents*, a highly debated subject at national and international level.¹⁶⁶ There is no requirement of technicality in the U.S. wherein also business method inventions, for example, can be patented. In other words, in addition to some of the requirements of patentability being subject to the different interpretations depending on jurisdiction, there are also territorial differences in what kind of inventions can be granted a patent.

¹⁶² Regulations under the Patent Cooperation Treaty, Part B: Rules concerning Chapter I of the Treaty, Rule 5.

¹⁶³ "Industrial applicability" and "utility" requirements: Commonalities and differences. Document prepared by the International Bureau on March 17, to the WIPO Standing Committee on the Law of Patents, Ninth session, Geneva, May 12 to 16, 2003, p. 8.

¹⁶⁴ The Guidelines for Examination of Applications for Compliance with the Utility Requirement, Manual of Patent Examination Procedure (MPEP), Chapter II (B)(1).

¹⁶⁵ EPC, Rule 29(1) and EPO Board of Appeal decisions T 27/97, T 643/00, T 1177/97, T 1194/97, T 424/03, T 336/07 & T 12/08.

¹⁶⁶ Under EPC, a computer program claimed "as such" is not a patentable invention, EPC Art. 52(2)(c).

In case the invention disclosed in the patent application fulfills the patentability requirements, the patent is granted. Thereafter the patent holder is entitled to prevent others from exploiting the invention. It is certainly possible to enter into licensing agreements already before the patent is granted. However, until the patent application process has been completed there is always uncertainty of whether the patent will be granted. This applies also to the final scope of the protection. The applicant is not guaranteed to get the desired scope of protection defined by the filed patent claims. Indeed, even if the claimed invention would not fulfill the patentability requirements in the very beginning of the process, it is possible that eventually it will. Namely, a patent application procedure, or *patent prosecution*, is a gradual process where a suggestion for a patent goes in, but the outcome can be different, and it can differ even between different patent offices.

The prosecution contains for the most part correspondence between the patent office and the applicant, in a form of a dialogue concerning whether the patentability requirements of the invention disclosed in the application are fulfilled. In this dialogue the patent examiner of the respective patent office is examining the patentability of the invention according to the relevant laws and rules and reports the results to the applicant.¹⁶⁷ The applicant is permitted to have differing views on the objections and also opportunity to argument against them. Certainly, the applicant can also agree – wholly or partially - with the examiner’s view for example in respect of the cited prior art disclosing certain elements of the invention and amend the patent claims to differentiate them from the prior art. The dialogue continues until there is a consensus of the scope of protection. In case the dialogue does not result in a positive outcome within the limits, the applicant may continue prosecution, depending on jurisdiction, for example by filing an appeal or a divisional application or by requesting continued examination.¹⁶⁸ This way the case remains pending.

¹⁶⁷ These reports can be called for example Search Reports, Examination Reports, Office Actions and Written Opinions, depending on the jurisdiction. For example, EPO issues first an Extended European Search Report (EESR), based on prior art search regarding the invention. It contains all the prior art documents found by the examiner to be relevant for the invention in question. After responding to the EESR different communications based on different EPC provisions follow, based on examination of the patentability. In GB, the search and examination are typically combined in a Combined Search and Examination Report. PCT examining authorities issue first an International Search Report (ISR) and Written Opinion, then Written Opinion and finally, in the end of the PCT prosecution International Preliminary Report on Patentability (IPRP). In the U.S., the official actions are non-final Office Action and Final Office Action (or Final Rejection), and in some cases Advisory Action can be issued to help the applicant to avoid further rejection by responding to such. Some patent offices, such as that of Russia, issues a separate report of completing the formal examination, namely an examination concerning the formal requirements.

¹⁶⁸ For example, in the U.S. the applicant can file RCE after final rejection, 37 C.F.R. §1.114.

There are several alternative outcomes of the patent prosecution. A patent application can be faced an immediate rejection in a form it was filed, unless the applicant can provide amendments or arguments overcoming the objections. The objections can relate to the formal requirements set for patent applications or to unclarity of the claims. Usually, however, the objections relate to patentability of the claims, namely to their novelty and inventive step. But it is also possible that a patent application is allowed, after which a *patent is granted*, without any objections, in a desired form.¹⁶⁹ In a most typical case, however, a patent is granted in a more restricted form than it was applied for. Such restrictions to the claim scope of a patent are a part of a normal prosecution and should be distinguished from patent restrictions which relate to the *territoriality of the patent protection* and providing a *timely limited protection*.

3.3 Patent restrictions

Patent provides only *territorial protection* for the invention. The patent holder can prohibit the use of a patented invention only in those countries where there is a granted patent in place. In order to protect the invention in all countries that are relevant to the company's business, a separate national patent application needs to be filed in each of them or one application can be filed based on one of the international patent treaties, in case the coverage of the relevant member countries is sufficient for the business interests in respect of the invention.

Within EU, there have been negotiations, for over several decades, of so-called *unitary patent*. The aim of the member states has been – and continues to be - to create a European patent with unitary effect, together with a unified European Patent Court. The European unitary patent would guarantee *supranational protection* for inventions in 25 countries across Europe. The system would not replace the current European Patent Convention, but the idea is that unitary patent would co-exist with national patents as well as with classical European patents. The difference compared to the EPC is that the patent granted via the unitary patent system would come into force in all the member states at the same time, without designating the specific countries and paying for the individual validations. No longer would there be the translation requirement which in case of European patents causes most of the expenses as currently the applicants shall translate the patent to the languages of each

¹⁶⁹ It should be noted that there are also such patent offices that do not examine the patentability of the invention contained in the application but merely register the patent after filing the application. An example of a patent office where the patentability is not examined is South-Africa. Certainly, these patent offices grant a patent quickly, but when no examination in respect of prior art has been conducted, the value of the patent is questionable.

of the validated countries. Thus, the unitary patent would bring clear cost benefits for the applicants seeking patent protection in Europe. But there are also drawbacks associated with such a centralized system for example in respect of enforcement; when the patent is invalidated, it will lose its effect in all the member states unlike in the EPC where each national patent needs to be separately invalidated. However, the situation with the unitary patent system is still very much open as to whether - or when - it will enter into force.¹⁷⁰

In addition to patent providing only territorial protection, the patent protection for the very same invention can also be different in different jurisdictions. These *territorial differences in the scope of protection* are due to the different interpretations of the inventive step, for example, and the differences of the local patent laws. That is, even if during the prosecution the desired scope of protection typically needs to be restricted due to the prior art common to each jurisdiction, the claims might need to be restricted further in some jurisdictions because of the different threshold for inventive step. As a result, the patent may protect the invention with different scopes, depending on the jurisdiction. It is also possible that while a patent is granted in some jurisdictions, in one jurisdiction no patent is granted, which reflects the principle of territorial protection.

Patent provides *timely limited protection* for the invention. The term of a patent is 20 years from the filing date of the application.¹⁷¹ Even if the patent is granted typically years after the patent applications in respect of the invention were filed, the term of a patent still begins from the priority date. In the U.S., where the patent term was not brought into conformity with the term defined in the TRIPS agreement until

¹⁷⁰ The unitary patent will only come to effect together with the centralized enforcement system, i.e. the unitary patent court (UPC), and non-consensus of that is the reason why the unitary patent has not yet come into the force. One big step towards the acceptance was taken when UK ratified the UPC Agreement on 26 April 2018. Since then, UK has left EU (Brexit). However, even if the Unitary Patent System has been set up for member states, Unitary Patents are going to be administered by the European Patent Office, and not EU. Notably, EPO is not an EU agency but an independent international organization, of which the UK is a founding member. Thus, in theory it is possible that UK will still be able to participate in the Unitary Patent system after Brexit. Nevertheless, the UPC is presently on hold due a German constitutional challenge against its ratification of the Agreement as German (along with French and British) ratification is required for the Unitary Patent system to go ahead.

¹⁷¹ TRIPS, Art. 33.

in 1995¹⁷², the patent term may in some situations be extended from this.¹⁷³ However, for utilizing the patent for example in licensing, it is not sufficient that a term is initiated. Namely, in order to maintain the granted patent in force, and in some countries already the patent application pending, the applicant needs to regularly pay *maintenance fees*, also called renewal fees. In countries where the duty to pay such fees is yearly, the fees are called patent annuities. In case these fees are not paid within the defined time, the granted patent or the patent application will lapse.¹⁷⁴

3.4 Patent validity and possibilities to utilize the patent

3.4.1 Post-grant validity – the rebuttable presumption of patent validity

The most fundamental aspect of the validity of the patent is that patenting requirements are fulfilled. Once a patent is granted, those requirements are deemed to be met and the patent is presumed to be valid.¹⁷⁵ That presumption is, however, rebuttable. Specifically, after the patent grant, the validity of the issued patent can still be challenged in this respect. As a result, the granted patent can be *invalidated* or *revoked*.

For example, the validity of a granted European patent may be opposed by any third party. The post-grant *opposition* against the European patent needs to be filed within nine months from the time the patent grant was published in the European Patent Bulletin EPC.¹⁷⁶ Thus, even after the grant, the applicant still has a nine-month period of uncertainty regarding the final validity of the European patent. It is

¹⁷² Earlier, in the U.S., the patent term was different. For applications filed before June 8, 1995 and for patents that were still in force on that date, the patent term was either 17 years from the issue date of the patent or 20 years from the filing date of the earliest U.S. or international (PCT) application of which priority is claimed, the longer term applying. The term was brought into conformity with TRIPS by the Uruguay Round Agreements Act; Pub L. 103-465, 108 Stat. 4809, enacted December 8, 1994.

¹⁷³ For example, in case the USPTO fails to examine a patent application time, the patent term may be extended. This extension is known as a Patent term adjustment (PTA). Also, the Drug Price Competition and Patent Term Restoration Act (Hatch-Waxman Act) of 1984 provides patent holders on approved patented products with an extended term of protection under the patent to compensate for the delay in obtaining Food And Drug Administration (FDA) approval.

¹⁷⁴ However, Paris Convention provides a *grace period* for the payment of the maintenance fees, during which it is possible to restore the rights in force, subject to the payment of a surcharge. Paris Convention, Art. 5bis.

¹⁷⁵ Cf. 35 U.S.C. § 282(a): “A patent shall be presumed valid. (–)”

¹⁷⁶ EPC Art. 99.

not until after this period has elapsed, without any opposition filed, that the European patent is valid. In cases where one or more oppositions are filed, the applicant needs to go through opposition proceedings¹⁷⁷ before it is finally determined as to whether the invention is granted a European patent. The opposition can be filed based on a limited number of grounds specified in the EPC.¹⁷⁸ Notably, the grounds are essentially the same aspects which are examined in the prosecution, which confirms that the presumption of the validity of the patent is rebuttable.

In the U.S., the so-called America Invent Act (AIA)¹⁷⁹ brought a number of changes to the previous U.S. patent system, the most significant changes to the post-grant proceedings. AIA introduced three new proceedings to challenge the validity of claims in the already issued U.S. patents: *post-grant review*¹⁸⁰, *inter partes review*¹⁸¹ and *covered business method review*¹⁸², and they complement the *re-examination* that in the past was the only procedure for challenging the validity and which remains in force in an *ex partes* form.¹⁸³ The new post-grant review equals to the opposition proceedings pursuant to the EPC and aligns the earlier very different U.S. rules with the other patent systems of the world also in this respect.

The grounds and mechanisms for disputing the already granted patent vary depending on the country and the proceedings to be used but the essential thing for the patent holders is that it is indeed possible to challenge the validity of the already granted patent based on issues that have not been sufficiently addressed in the prosecution of the patent application. This can be for example a prior art document that the applicant has failed to disclose to the USPTO as part of his IDS duty¹⁸⁴, which is why the examiner has not considered its relevance.¹⁸⁵ Despite the slightly different mechanisms of disputing the validity of a patent there exists a normative global consensus regarding the criteria and the requirements for the validity of patents in the international patent system. All the applicants – whether an individual inventor or an assignee – are obliged to follow the same rules in order to achieve a valid patent. All companies, including multinational corporations, seeking patents

¹⁷⁷ Parties to opposition proceedings are defined in EPC Arts. 99(3) and 105(2).

¹⁷⁸ EPC Arts. 100, 100(a), 100(b) and 100(c).

¹⁷⁹ The Leahy-Smith America Invents Act (AIA), effective as of September 16, 2012.

¹⁸⁰ 35 U.S.C. § 282(b)(2) or (3).

¹⁸¹ 35 U.S.C. § 102 or § 103.

¹⁸² AIA, Section 18.

¹⁸³ AIA, Section 6, Post-grant review proceedings.

¹⁸⁴ 35 C.F.R. § 1.56, Duty to disclose information material to patentability.

¹⁸⁵ It should be noted that certain post-grant proceedings, such as re-examination (35 U.S.C. § 302), can also be utilized by the applicant itself, for example based on some new material found to be relevant, in order to strengthen the patent that is already granted. Ultimately also in such a case it is a question of challenging – or in case of the applicant desiring to confirm – the validity of the already granted patent.

for inventions made either by their employees or collaboration partners are bound by the same rules regarding the patentability and the patent procedure. However, national security provisions can have impact on the patent validity in certain countries, irrespective of the validity of the patent from the point of view of the patentability.

3.4.2 National security provisions affecting the validity of patent

As a general rule, the applicant is free to choose in which country the invention is patented first, namely in which patent office the first patent application for the invention is filed. However, there is an exception to this general rule regarding the freedom of choice. Many of the national patent laws contain specific regulations called *national security provisions* which impose restrictions on the place for filing the first patent application in certain situations, justified by national security. According to these provisions it is required that inventions made within a territory or by residents (or nationals) of the country are first filed locally within that country.

As an alternative to the first filing requirement, national security provisions usually provide an opportunity to obtain special *security clearance*. In order to file the first patent application outside the country, the applicant should seek a special *foreign filing license* from the national patent office. Depending on the jurisdiction, this permission process is not necessarily the most straightforward, nor the fastest, option but it provides applicants with an alternative manner to proceed. In addition, this option enables dealing conflict situations in “global inventions”, when two or more filing requirements are in conflict and should be complied with simultaneously.¹⁸⁶

Failure to comply with national security provisions can lead to invalidation of a later-granted patent. However, the effect of the non-compliance is territorial as is the patent protection. In some countries sanctions for not complying with regulations also include criminal punishment for the attorney who filed - or the person(s) causing a patent application to be filed - contrary to these rules. It is worth noting that such a punishment can apply to *all* persons who are involved in the patenting process in the company and who can possibly affect the place of filing. Therefore, it is very important for companies operating in countries containing these provisions to be aware of, and to comply with, them when patenting inventions made by their employees or subcontracted inventors, in order to avoid any loss of patent rights.

¹⁸⁶ These situations will be handled in this thesis in the chapter 8.

3.4.3 Property aspect – transition to valid entitlement

There is yet an additional aspect affecting the possibilities to utilize a patent. In cases where the applicant is not the inventor, a typical scenario when companies patent inventions made by their employees or subcontracted inventors, there needs to be a *valid assignment* in place from the inventor in order for the applicant to be entitled to act as an assignee in the patent application. The aforementioned applies to assignees of all kinds, both to natural persons and companies. The mechanisms for assigning rights are different in contractual and statutory regimes. In contractual regimes the transfer of rights is a matter of contractual arrangement already included in the employment contract. In statutory regimes there is often a specific employee invention legislation in place, and a number of requirements need to be fulfilled for the assignment from the inventor to the employer to be valid. The assignment of rights can sometimes involve multiple parties and in such a situation there needs to be an *unbroken chain of title* originating from the inventor to the applicant assignee. For example, at multinational companies having global R&D and thus employees all over the world, employed by the subsidiaries of the parent company, the rights in the first place are vested in the employing subsidiary whereas patent applications are typically filed in the name of the parent company. Thus, there needs to be a chain of title from the inventor to his or her own employer and then subsequently to the applicant company. The same applies to inventions made in collaboration in those jurisdictions where the invention first needs to be assigned to the inventor's employer, company B, prior to assigning to company A.

Moreover, for the assignment of the invention made in the course of the employment to be valid, there needs to be some sort of *consideration* from the employer-assignee to the employee-assignor. This can be a specific monetary payment or a part of the normal salary. However, it is a very country-specific issue as to whether the employer needs to compensate the employee-inventor for taking the rights to the invention. In so-called "paid-to-invent" –countries, as the name of the doctrine might imply, employees are considered to have been compensated also for their innovative activities in the form of their normal salary. Thus, the employer is not obliged to pay any extra for the rights to inventions made by them. In contradistinction, the countries with employee invention (or equivalent) legislation often provide obligatory, usually "fair and reasonable" compensation, remuneration, for the employee-inventor but the criteria and level of the compensation differ from one country to another.

4 Valid Entitlement

4.1 Ownership as a property right

Ownership is seen as the primary and predominant issue for property rights, including patent right. However, utilizing patents does not necessarily require ownership to them. In order to utilize a patented technology for one's own products it is sufficient to have the right to use the patent, namely a license. However, applying for a patent and gaining monetary benefits from patents by providing others the right to use one's own patented technology requires ownership to the patents, namely to the patented inventions. According to patent laws worldwide the initial rights to an invention, including ownership, belong to the *creator* of the invention. The inventor has the right to possess their own invention, namely a proprietary right, in the first place. In cases of multiple inventors, inventors have the right jointly, as co-owners.

How to then define who is the *inventor*? When an invention is created by a sole inventor, the identity of the inventor should be clear. It is assumed that the individual named as the inventor in the patent application is also the sole creator of the invention. However, when multiple persons have jointly contributed to the conception of an invention it is not necessarily straightforward that all of them are considered and designated as inventor(s). A lack of clarity in this respect can arise for example when the invention in question results from a brainstorming meeting where one person has come up with an idea which has then been further developed in discussions with the others. After the meeting, it may be unclear who contributed which elements to the invention. The concept of inventorship is defined in the national patent laws. However, as a general rule, becoming an inventor from the point of view of the patent law requires that a certain level of contribution to the patentable elements of the invention have been met. The patentable invention in a patent application is determined by the patent claims.¹⁸⁷ Thus, the contribution typically must have been made in respect of one or more aspects defined in the claims. This means that the inventorship can also evolve during the patent

¹⁸⁷ The substantial norm is that the patent claims define the scope of the patent. In the EPC, this is expressed in the articles 69 & 84, in the U.S. in 35 U.S.C. § 112 and in Finland in the Finnish Patent Act, 8§.

prosecution, should for example the claim(s) by a specific inventor later be considered to be of a non-patentable nature.¹⁸⁸ Further, as the patent provides territorial protection, and could in different countries be granted in a different form and with slightly different claims, the inventors in the different countries can also differ. For the purposes of this thesis, an assumption needs to be made that in the global inventions subject to this thesis the contributors involved are considered as inventors according to the national laws applicable to them and remain inventors during the entire process.

Inventions are the result of intellectual activities. In other words, inventors are always natural persons. Their moral rights include the right to be designated in a patent application concerning the invention.¹⁸⁹ In situations where there is a lack of clarity regarding inventorship, these moral rights can be subject to a violation by not acknowledging all the persons who have contributed to the patentable invention as the inventors in the patent application. But in addition, there can also be consequences for the validity of the patent if the inventors are not named properly. Namely, in the U.S. there is a doctrine referred to as the “True Inventors -doctrine” according to which failing to list all the true - and only the true - inventors in a patent application can render a patent invalid and enforceable.¹⁹⁰ However, even if issues

¹⁸⁸ As an example, there is case law from Japan, Tokyo District Court, 26 January 2006, Hanrei Jihō No. 1943, 85 – ‘Konika-Minolta’. In this case, which was about demanding remuneration for an employee invention, the court held that “the inventorship and the rates of contribution of joint inventors should be found with respect to each claim at the time of filing of the application, or at the time of laying open of the application and each claim at the time of registration (if any correction is made, each claim after the correction).”

¹⁸⁹ For example, FI Patent Act, 8§.

¹⁹⁰ The original authority for patent law and inventorship is found from the United States Constitution, Art. 1, S. 8, Cl. 8, often referred to as “Intellectual Property Clause”, which grants Congress the power “[t]o promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” It follows that an incorrect designation of an inventorship can invalidate an otherwise valid and valuable patent. See e.g. *Jamesbury Corp. v. United States*, 518 F.2d 1384, 1395 (Ct. Cl. 1975): “[T]he inclusion of more or less than the true inventors in the patent renders it void.”; *Amax Fly Ash Corp. v. United States*, 514 F.2d, 1041, 1050 (Ct. Cl. 1975). However, a defect in inventorship often may be corrected; it therefore is not absolutely invalidating. See *Monsanto Co. v. Kamp*, 269 F. Supp. 818, 824 (D.D.C. 1967): “A misjoinder or nonjoinder of joint inventions, does not invalidate a patent. An error in that respect may be corrected.” “*However, the question does remain crucial, because invalidation of the patent can only be avoided if correction is allowed by the Commissioner or ordered by the court. Furthermore, correction can only be sought if the correct joint inventors can be determined. If correction is not possible because deceptive intent is found, the result can be severe: The patent is invalidated due to improper inventor designation, and neither the fraudulent parties nor the true inventors obtain enforceable patent rights.*” An excerpt from W. Fritz Fasse, ‘The Muddy Metaphysics of Joint Inventorship: Cleaning up after the 1984 Amendments to 35 U.S.C. §116’ (1992) 5 *Harvard Journal of Law & Technology*, pp. 173-174.

related to inventorship can affect the validity of the patent and are thus relevant to the topic of this thesis, the concept of inventorship cannot be explored in further detail here. Therefore, a further assumption for the purpose of this thesis is that the rights to inventions are assigned to the employer by the true inventors, whose inventorship is not disputed afterwards. In other words, the potential impact of the inventorship possibly evolving during the patent prosecution is not specifically addressed here.¹⁹¹

Inventorship does not always correspond with *ownership*. Indeed, establishing inventorship represents only the starting point for determining patent right ownership.¹⁹² While inventors are always natural persons, the owner of an invention or of a patent can also be an organization, such as a company. As a property right, the proprietary right to an invention can be transferred by the inventor to another party, for example based on a contractual arrangement. The most typical situation of such a transfer is the assignment of the rights to an invention made in an employment relationship. Namely, the general legal principle in the field of employment law is that by virtue of an employment agreement the employer owns the results of the work done by its employees. This principle secures the normative position of the employer when an invention related to its business has been created in an employment relationship, utilizing the experience and the knowledge gained at the employer's service, using the equipment provided by the employer and enabled by the financial investments of the employer.

According to *Wolk*, “[t]he ownership and control of intellectual property rights are crucial to the success of any business, and in order to maximise the value of intellectual property assets, it is necessary to maintain and effectively manage all associated ownership rights as well.”¹⁹³ Nevertheless, at the same time as the importance and value of patents has increased in modern technological society, the legal situation regarding the ownership to inventions has become more obscure. It is no longer straight-forward to determine the owner of an invention as in the ancient industrial society, where making an invention, not to mention patenting it, was rather rare. The inventors at that time were almost always independent individuals, doing research work in their own laboratories and personally protecting their innovations.

¹⁹¹ For example, regarding compensation the changed inventorship could in theory affect the payments to the inventors after the patent has been granted in a complex way, redefining the shares of the inventors from what they had been originally, and possibly even removing some of the inventors' right to receive any compensation, part of which may have already been paid.

¹⁹² Steven Cherensky, 'A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property and Personhood' (1993) 81(2) *California Law Review*, p. 604.

¹⁹³ Sanna Wolk, 'EU Intellectual Property Law and Ownership in Employment Relationships', in *Community Intellectual Property Law and Ownership in Employment Relations* © Scandinavian Studies in Law 2010, p. 420.

Indeed, during the first industrial revolution the invention was the province of the individual.¹⁹⁴ The individual inventors were also typically the owners of their inventions. In contrast, in the contemporary world, the majority of all the research and development is done within companies and research centers by engineers and scientists hired to develop new and innovative product technologies. It is estimated that more than 80% of all inventions are made by the employed inventors in an employment relationship and their ownership usually vests with the employers.¹⁹⁵ In fact, from the yearly statistics for patents filed globally, mostly by corporations¹⁹⁶, an assumption can be made that the vast majority of the underlying inventions are assigned to these companies by their own employees.

The issue of ownership relates to one of the circles in the figure(s) describing the complex of laws. In the following, a variety of different rules regulating the ownership to inventions, as company assets, are introduced to provide an overview of the jungle of requirements that multinational companies in their intellectual property management needs to address. The selection of countries is based on the most differing and peculiar requirements, to illustrate the variety of rules multinational companies need to be aware of, and to comply with, when inventions flow to its centralized intellectual property department from all over the world. One example of the statutory regimes is Germany, even if it is not involved in the case examples where Finland represents the statutory regimes. Germany has been selected to the normative part of this thesis because the mechanism for acquiring the rights in the current German law differs greatly from other employee invention laws, and it is important to reflect that substantial differences can exist even between the statutory regimes. The complexity of cross-border inventions or the dilemma of the choice of law in connection with employee mobility are not yet addressed here. However, monitoring compliance with the different national laws in the company procedures

¹⁹⁴ David J. Teece, *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions*, OUP USA – OSO 2000, p 53.

¹⁹⁵ Rajesh Sagar and Aditya Nagarsheth, 'Ownership of Employee Inventions and Remuneration: A Comparative Overview', Queen Mary Intellectual Property Research Institute, University of London, July 2006, p. 3.

¹⁹⁶ For example, according to publication "World Intellectual Property Indicators 2017" based on WIPO Statistics Database and EPO PATSTAT database, September 2017, the Top 100 list of applicants mainly comprises multinational companies. The top 10 patent applicants worldwide are Asia-based multinationals; Canon Inc. of Japan is the top applicant for the period from 2011-2014, followed by Samsung Electronics of the Republic of Korea. The highest-ranking non-Asian applicant is Robert Bosch of Germany at ranking 12. Interestingly, applicants from 9 origins make up the top 100 list for the relevant period. Further, the list of the top 20 origins predominantly comprises of high-income countries. Nevertheless, regardless of the origin of the countries of the top applicants, it is easy to see that most of the patent applications filed worldwide are filed in the name of the corporations, which means that the inventors most probably are their employees. Figure A27, page 58.

even with sole inventions made in different employment regimes can be challenging. The following comparative review is mostly based on the laws – in the statutory countries written law and in the U.S. case law – as a primary source of directing the managing of company procedures. However, some practical insights will be provided to create value by connecting practice and context.¹⁹⁷

4.2 Statutory regimes

4.2.1 Employee invention laws (FI & DE)

4.2.1.1 General

Employee invention laws are an attempt to balance disparities in the legal rules that exist between employment law and patent law for regulating the rights to inventions made by employees. The definition of an employee invention is determined by national legislation. In general terms, it refers to an invention that is made during an employment relationship, often related to the employer's business. Typically, these inventions have been conceived while taking advantage of the experience and the knowledge gained at the employer's service and utilizing the equipment provided by the employer, usually in connection with the regular duties the employee has been hired for and is paid to do. This is how the concept of an employee invention is defined for example in the Finnish Act on the Right in Employee Inventions.¹⁹⁸

A specific employee invention legislation exists for example in Scandinavia¹⁹⁹ and in Germany²⁰⁰. Sweden and Germany have the longest traditions of introducing the special Acts on Employees' Inventions, and the German law served as a model example, for example for Finland, when drafting their own statute in the 1960s. For

¹⁹⁷ "There is considerable value in connecting practice and context". Mark Dogdson, David M. Gann, and Nelson Phillips, 'Perspectives on Innovation Management' in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 7.

¹⁹⁸ Act on the Right in Employee Inventions, 4.1§ (1078/2000).

¹⁹⁹ Finnish Act on the Right in Employee Inventions (656/1967, amended up to 2013), Swedish Act on the Right to Inventions by Employees (1949:345), "Lag om rätten till arbetstagares uppfinningar", the Consolidated Act on Employee's Inventions (Consolidate Act No. 104 of January 24, 2012), i.e. "Bekendtgørelse af lov om arbejdstageres opfindelser" in Denmark, Act Respecting the Right to Employees' Inventions (Act No. 21 of April 17, 1970) i.e. "Lov om retten till oppfinnelser som er gjort av arbeidstakere (arbeidstakeroppfinnesesloven)" in Norway and Act No 72/2004 respecting Employees' Inventions i.e. "Lögum nr 72/2004 virða Employees' Inventions" in Iceland.

²⁰⁰ Gesetz über Arbeitnehmererfindungen (ArbErfG) of July 25, 1957.

several decades, the underlying German Act remained almost unchangeable, despite numerous attempts to reform it, until in 2009 the Patent Law Modernization Act²⁰¹ introduced some relevant major changes also to the Act on Employee Inventions. The amendments, however, only apply to employee inventions which have been reported to the employer on or after October 1, 2009. This means that the regulations from the old law may still become relevant in respect of some aspects of prior inventions. Therefore, the situation with German employee inventions will be mixed for some time, as the old law may still have some relevance until the very last patents based on the old legislation have expired at some time during 2029.

A variety of requirements in national employee invention laws need to be addressed to ensure that the rights to an invention made in an employment relationship are duly transferred from the inventor to the employer. First of all, employees have certain legal obligations, such as a duty to report their inventions to the employer without delay.²⁰² Secondly, certain actions are also required from the employers to ensure that the rights are vested in and can be fully utilized by the company. These requirements relate to, for example, timely action and the form of the acquisition.²⁰³ However, prior to acquiring any rights the scope of the rights that the employer desires, or is entitled to acquire, needs to be determined.

4.2.1.2 Scope of rights

In the broadest scenario, the employer wants to acquire the rights to inventions made by its employees entirely and exclusively. Having all the rights to an invention is necessary especially when the invention is going to be patented. However, sometimes it may be sufficient for the employer to acquire only partial rights to the invention. In some cases, the employer might not even be entitled to anything apart from the partial rights. The legal framework will be introduced within the context of the *Finnish* and *German* law:

Finland

4.1§: If an invention has ensued from an employee's activity in the performance of his duties or essentially as a result of using his experience gained in the enterprise or institution of his employer or in an enterprise or an institution belonging to the same consolidated corporation, *the employer may acquire the right in the invention, in whole or in part*, if the use of the invention falls within the field of activity of the

²⁰¹ Simplification and Modernization of Patent Act, i.e. "Gesetz zur Vereinfachung und Modernisierung des Patentrechts" of July 31, 2009 which came into force on October 19, 2009.

²⁰² For example, Finnish Act on the Right in Employee Inventions, 5§ (526/1988).

²⁰³ For example, Finnish Act on the Right in Employee Inventions, 6.1§.

employer's enterprise or of an enterprise belonging to the same consolidated corporation. If the invention is the result of a task assigned to him more specifically, the employer may acquire the right even if the use of the invention is not within the field of activity of the employer's enterprise or of an enterprise belonging to the same consolidated corporation.²⁰⁴

The employer is entitled to acquire *all or partial rights* to the invention made by its employee during the course of employment when the invention relates to the business of the employer. Notably, the field of activity is considered to also cover a group of companies the employing company belongs to, namely the same consolidated corporation.²⁰⁵ Even if the invention does not fall within the business field of the employing company, the employer may still be entitled to acquire the rights to it in cases where the invention resulted from a specific task assigned to the employee. An example of such an invention could be a docketing system to keep a record of client files for a company's internal purposes, developed by a person specifically assigned to create it, even if the employer's business does not relate to providing such systems to other companies. In most cases the employer is entitled to acquire all the rights to the invention, including the right to apply for a patent. However, sometimes the employer may be satisfied with only partial rights, such as the right to use the invention. In this situation, it is possible that the employer gives the inventor permission to apply for patent protection for the invention and retains the right to use the resulting patents. It should be noted that in some situations, if the relationship between the conception of the invention and the employment of the inventor is looser than defined in 4.1 § of the Act, the employer is initially entitled to acquire only *the right to use the invention*.²⁰⁶ However, in these situations the employer has *a priority to acquire more extended rights* before any third parties. Finally, for inventions related to the employer's business, albeit created in isolation from the employment, the employer is given priority for negotiating the rights in general before third parties.²⁰⁷

It could be questioned whether in practice an invention falling within the employer's business can ever be conceived totally without *any* connection to the employment, as written in the law. Certainly, the inventor must to some extent have utilized the experience and knowledge gained during the service of the employer when making an invention related to the employer's business, unless having only worked for the company for a limited period. However, in this case creating an invention related to the new employer's business is also less probable. Another

²⁰⁴ Act on the Right in Employee Inventions, 4.1§ (1078/2000); Emphasis added.

²⁰⁵ Act on the Right in Employee Inventions, 4.1§ (1078/2000).

²⁰⁶ Act on the Right in Employee Inventions, 4.2§ (1078/2000).

²⁰⁷ Act on the Right in Employee Inventions, 4.3§ (1078/2000).

relevant question is, if the inventor has previously worked within the same business in a different company, whether the invention in such a case could have been achieved using the experience gained at the service of the previous employer? Namely, the Finnish law has a special provision that secures the position of the previous employer(s) in certain situations.²⁰⁸ However, in general, it is difficult to imagine anyone making an invention related to the employer's business – be it the current or the previous one – without *any* connection to the employment.²⁰⁹

A further observation to be made is that the Act only applies to inventions that are *patentable*.²¹⁰ Should the invention contained in the invention report by the employee be deemed as already known, and thus not patentable, then literally interpreting the Act in question does not apply. These “inventions” shall belong to the employer as a result of normal work based on the employment relationship. However, sometimes the views of the employer and the employee may differ on whether it is a question of an already-known invention or a new, patentable invention. This in turn can lead to different kinds of problems. The employee may challenge the content of the notification by the employer and request permission to personally apply for a patent for the invention, or seek compensation for the missed opportunity, for example. The variety of these kinds of specific conflict situations between the employer and the employee are, however, beyond the scope of this thesis. Instead the focus is on such inventions which are considered duly patentable. A further assumption is made that there is no disagreement in this respect between the employee-inventor and the employer.

Germany

The German Law on Employee Inventions²¹¹ distinguishes between tied (or bound) or *service inventions*²¹² and free inventions.²¹³ Timewise, the service inventions are made during the term of the employment relationship, irrespective of where the invention was made and whether it was made during working hours. From a substantial point of view, service inventions are the result of the obligatory activities

²⁰⁸ Act on the Right in Employee Inventions, 8§; This aspect will be introduced in further details in 4.5.4.3 in connection with post-assignment.

²⁰⁹ Then again, for example in the case of a software engineer who is enthusiastic in coding also during spare time, it is certainly possible that some inventions can be raised also in connection with spare time activities. It is then another issue that it may be difficult to prove that the invention in such a case was not achieved using experience gained during service with the employer.

²¹⁰ Act on the Right in Employee Inventions, 1.1§.

²¹¹ Gesetz über Arbeitnehmererfindungen (ArbErfG) of July 25, 1957.

²¹² ArbErfG 4.2§, “Dienststerfindungen”.

²¹³ ArbErfG, 4.3§, “Freie Erfindungen”.

or tasks of the employee while serving the company. They are also referred to as *object inventions*²¹⁴, or *task inventions*. The implication of the law herein is that the employee has received an order “to invent” the particular subject matter or is “employed to invent”. The inventions can also be made substantially based on the experience of the activities of the company, referred to as *experience inventions*²¹⁵. Inventions not fulfilling the mentioned requirements are *free inventions*. Even if this characterization is not objected to by the employer, the employee nevertheless must offer the employer a non-exclusive license under reasonable terms in case the free invention in question falls within the range of the actual or planned activities of the employer.²¹⁶ This resembles the Finnish provision of the employer’s priority to acquire the rights to an invention which has no connection to the employment.

The employer is entitled to gain the rights to service inventions.²¹⁷ According to the old German law the employer was obliged to actively claim an invention and there was an option to make a limited claim for the invention.²¹⁸ However, under the current law there is no other choice for the employer than to either gain all the rights or no rights whatsoever to the invention. Thus, in Germany the employer cannot choose to retain only a right to use the invention and the patents possibly granted to the employee-inventor. In fact, in Germany the employer has a duty to file a patent application for an invention without delay after receiving the rights to the invention.²¹⁹ Further, the employer is required to allow the inventor to patent the invention in those countries where it does not intend to file itself.²²⁰ It should be noted that irrespective of the employer’s right to acquire the rights to the employee inventions in Finland and in Germany, no rights are transferred automatically on the date of the invention²²¹. Instead, certain requirements need to be complied with first; these are, for example, a timely reaction by the employer in Finland and a lapse of time in Germany.

²¹⁴ ArbErfG 4.2.1 §.

²¹⁵ Defined in ArbErfG 4.2.2 §, requiring inventions to be based on the “inner prior art” of a business establishment.

²¹⁶ ArbErfG, 19.1 §.

²¹⁷ ArbErfG, 6.1 §.

²¹⁸ Old ArbErfG 6.1 §.

²¹⁹ ArbErfG, 13 §.

²²⁰ ArbErfG, 14 §.

²²¹ It should be noted that it is a question of “the date of the invention” now. Even if in Germany, where the rights to an invention are currently transferred automatically to the employer should the employer not explicitly release the invention to the inventor, the ownership initially vests in the employee. Thus, at the time of the invention the rights, even if later vested into the employer, belong to the employee.

4.2.1.3 Time requirement

In patenting it is critical to act quickly to be the first to file a patent application in respect of the invention. However, in order to first be in a position to be able to apply for the patent to an invention, the employer needs to obtain the necessary rights to it. To ensure that the transfer of rights is effective, the employer typically needs to act within a *time limit* defined by the law. The time requirement of the Finnish and the German laws will next be introduced:

Finland

According to Finnish law, the initial rights to an employee invention belong to the inventor.²²² Any contract, according to which all rights to inventions by an employee would automatically vest in the employer already *at the time of a conception*, is void.²²³ Therefore, also a contract where the inventor assigns the rights to all *future inventions* to the employer, so that at the time of their conception the employer would automatically receive the rights to them, is void. Instead, the transfer of the rights is always based on the law:

6.1§: An employer who wishes to acquire the right in an invention in accordance with section 4(1) or (2) shall, *no later than within four months from his receipt of the notification* provided for in section 5, notify the employee in writing that he will claim a specified right in the invention. The employer shall also exercise the priority given to him under section 4(3) within the same period of time.²²⁴

In order to obtain the rights to an invention made by its employee the Finnish employer needs to claim the rights within *four months* of the receipt of an invention report. However, even though many of the provisions in the Act are of a mandatory nature, the notification time set for the employer is deemed to be *extendable with the permission of the employee*.²²⁵ Multiple reasons may require an extension, such as a long backlog of unhandled invention reports within the patent department, or a tight schedule for the experts of the relevant technology area, whose expert opinions are crucial in evaluating the feasibility of the invention and the interest of the company. It should be noted that the time can be extended only if the inventor agrees to such an extension. It cannot be used by the employing company as an automatic

²²² Act on the Right in Employee Inventions, 3§.

²²³ Act on the Right in Employee Inventions, 2§ (526/1988), Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, *Työsuhde ja oikeus keksintöön* (1992), p. 9.

²²⁴ Act on the Right in Employee Inventions, 6.1§; Emphasis added.

²²⁵ Act on the Right in Employee Inventions 2§ (526/1988), see also Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, *Työsuhde ja oikeus keksintöön* (1992), p. 48, fn 59.

mechanism to extend the time to handle the invention report. The reaction time set for the employer is not, however, initiated until the employer has received appropriate notification that contains a description of the invention. The inventor needs to provide the employer with an invention report where the invention is specified in sufficient detail for the employer to understand it.²²⁶ This requirement is justified, since in order for the employer to make a decision as to whether the rights to an invention should be acquired, it needs to understand the invention in question. The provision also prevents any potential mal-behavior by an employee-inventor who can only submit a rough idea to the employer, without any details. It would be impossible for the employer to make any decision based on such an invention report. However, insufficiently describing an invention might also be attributed to an inventor's inability to capture the invention in writing. Indeed, some "nerds" might often be very competent in their work, yet not as effective at documenting it. In both cases, the invention itself might be very valuable but the lack of details may mislead the employer into not recognizing the potential of the invention. Then, after four months, the rights may belong to the inventor. In practice, when the invention has been communicated to the employer with insufficient detail, the employer should request the inventor to provide the necessary details. After this request has been duly received by the inventor, it clearly indicates that the employer has not received an appropriate invention report and that the reaction time shall not be counted from the original report. On a further practical note, in some companies the patent engineers may work within, or at least visit often, the R&D premises, and the inventions are documented in co-operation with them. Such a practice ensures that the invention reports are complete and that all the inventions are duly identified and reported. This enables an efficient company innovation-management strategy in terms of recognizing the most valuable inventions.

However, one situation may in practice *shorten the time within which the employer needs to react* and consider its interest in the invention, from four months in practice to only one month. Namely, when the employee-inventor wants to apply for a patent for the invention they may do so after one month has passed from notifying the employer in writing of the intention.²²⁷ In cases where the employee notifies the employer of the intent to apply for a patent for the invention at the same time with the invention report, in practice the employer who wants to prevent this from happening needs to react within one month. Otherwise, there is a risk that the employee files a patent application. Even if the employer after this still has time to acquire the rights to the invention and the resulting patents, the quality of the patent application may not be as good as with help of the established resources by the

²²⁶ Act on the Right in Employee Inventions (526/1988), 5.1§.

²²⁷ Act on the Right in Employee Inventions (1078/2000), 6.2§.

employing company. For that reason, the employer would be wise to consider its interest in the invention in question efficiently, at least within one month, after having received the notification of the employee's intent to apply for a patent.

It should be noted that earlier, prior to 2000, the employer's position was worse. Namely, the employee was always allowed to file a patent application for the invention and inform the employer one month afterwards. Thus, nothing could be done by the time the employer received notification from the employee of the past filing. The current law better safeguards the rights of employers by providing a real opportunity to prevent the filing by the employee. Nevertheless, even the current legal situation is challenging from the point of view of managing inventions, especially in multinational companies. Should for example a patent engineer at a U.S.-based company, who is unaware of such a provision, receive an invention report with the notification of an intent to apply for a patent from a Finnish employee, there is a risk that the employee, absent of forbidding, files a patent application for the invention.²²⁸ But employees do not typically have the same level of financing and resources available as those of a multinational employer, which has established a global network of competent patent attorneys familiar with the business and technologies of the company. Therefore, the quality of the patent application filed by the employee would most likely be inferior to the quality of the patent applications filed by the employing company, and the situation may be difficult to resolve. In order to recognize pitfalls of this nature, legal knowledge about the array of regulations that may have relevance for a multinational company need to be efficiently leveraged, namely its diffusion optimized throughout the organization.

Germany

Also, according to the old German law an employer had to be active to obtain the rights to an invention made by an employee and claim the service invention in writing within four months.²²⁹ In the event that the employer missed the time to react, the invention became "free", and all the rights to the invention remained with the employee.²³⁰ Given that the service inventions relate to the inventor's employment within the company, the omission of a timely reaction by the employer resulted in an awkward situation where the employee had the rights to an invention related to the employer's business, while the employer did not. Notably, the employer did not

²²⁸ It should be noted that in practice, the inventor has the right to apply for a patent for the invention only when they are a sole inventor, or in cases where the co-inventors are subject to the same law, they too have notified the employer of their intent to file a (joint) patent application. The inventor only has the initial rights to their own share of the invention.

²²⁹ Old ArbErfG 6.2§.

²³⁰ Old ArbErfG, 8.1(3)§.

even have the right to use the invention, without an agreement. Indeed, this “opt-in” approach proved susceptible to errors and in practice, mid-sized companies in particular, often did not observe such formal procedures, leading to a loss of rights.²³¹ Under the new law an invention can no longer “unintentionally become free”. The invention shall be deemed, as a *legal fiction*, to have been claimed unless it is expressly released by the employer within four months following the receipt of the invention report.²³² Thus, the assumption in the revised law is that the employer wants to obtain the rights. Employers not wishing to claim the rights to inventions made by employees are now obliged to react in time, to avoid situations where the rights are claimed automatically. This in turn sets some further obligations for the employer, such as a duty to pay compensation for the rights and to file a German patent application or a utility model application.²³³

The four-month period is initiated from the receipt of an appropriate invention report. The written invention disclosure should describe the technical problem and its solution as well as how the invention was made.²³⁴ Should the invention report be incomplete the law sets a specific reaction time of two months for the employer to request amendments from the inventor. If the request is not made in time, the invention report is deemed to be sufficiently notified.²³⁵ In practice, the employer therefore needs to review the invention report within the two months, to avoid forfeiting the option request that the report is completed with sufficient details. It is another issue if the employer omits such a request and eventually receives the rights to the invention subject to the incomplete invention report that the employee may still be required to provide further information to enable a proper patent application to be filed for the invention.

4.2.1.4 Form of acquisition

In addition to the time limit for acquiring the rights, the employee invention laws also determine the *form for the acquisition*. To ensure valid entitlement to an invention made by its employee, the employer needs to inform its intent not only in a timely manner but also using a certain form, typically “in writing”.

²³¹ Sebastian Wündisch, ‘Employee-Inventors Compensation in Germany - Burden or Incentive?’ (2017) LII(3) les Nouvelles – Journal of the Licensing Executives Society, p. 105.

²³² ArbEG, 6(2),(4).

²³³ ArbEG 13§.

²³⁴ ArbEG §5(1) and (2).

²³⁵ ArbEG §5(3).

Finland

According to Finnish law, the employer shall notify its intentions to the employee *in writing*.²³⁶ At the time of drafting the law in the 1960s, the definition of “in writing” was probably considered to cover the means of writing which prevailed at that time, mainly typing or writing by hand. However, as technology has evolved, new means of communication have replaced the traditional means of writing. Documents are created using computerized word processing programs, such as Microsoft® Word, and e-mails have generally been adopted for communicating and exchanging information. This also applies to reporting inventions and sending notifications by the employer. Such a procedure may even have been explicitly agreed upon in the company guidelines. However, it should be noted that this aspect is not mandatory in the Finnish law.²³⁷ The main function of the requirement is to sufficiently document both the invention report and the employer’s notification, in order to prevent future disputes regarding their contents or the dates of their submission. Removing any such unclarity also ensures efficient company invention management.

Germany

Before default ownership was introduced to the German law in 2009, the employer always had to explicitly claim the invention, *in a written statement*.²³⁸ In practice, however, employers often failed to properly claim the invention, either because of a lack of knowledge about the legal requirements, or simply because no organized process was in place for claiming the rights. On a practical note, in many cases, the failures to transfer the ownership went undetected for years, and it is widely believed that many failures have yet to be discovered. These oversights have caused, and may continue to cause, problems for some time for companies trying to enforce or assign patents that suffer from improper compliance with the prior law. This is particularly critical for employers if the employee left the company in the intervening period. It is indeed possible that the acquisitions of rights made under the old law may still be disputed, for example, in litigation concerning the rights to a patent. A claim by a party alleged to have infringed the patent may be raised as to whether the acquisition of the rights to the invention in the first place was done correctly.

²³⁶ Act on the Right in Employee Inventions (526/1988), 6.1§.

²³⁷ This is explicitly acknowledged in 2§ of the Act. There is also a decision (an opinion) from the Employee Invention Committee, where the Committee states that the transfer of the rights to an employee’s invention can take place in a valid manner except via the reporting procedure defined in the law, also by virtue of a contract – explicit or implicit (concludent) – where the parties agree on the rights transfer to the employer. See Employee Invention Committee opinion 5/2005.

²³⁸ Old ArbErfG 6.2§.

Under the new law, the rights are claimed automatically after four months, unless they are explicitly released. No specific form can be linked to the omission of a notification resulting in a transfer of the rights. On the contrary, it is now the release that needs to be communicated in writing to the employee.²³⁹ However, it should be noted that despite this fundamental change, should the employer want to acquire the rights to an invention, it still usually makes sense to explicitly claim a service invention. This places the invention into a structured invention management process. Further, as already concluded, accurate documentation is the best approach to preventing disputes regarding valid entitlement later. It should be noted that in the new law there is no possibility for a limited claim anymore. Instead, claiming the invention always results in the transfer of ownership and mandatory remuneration to the inventor, as well as in an obligation to file a German patent application. Thus, the form of acquisition in Germany could be considered to include filing the patent application for the invention as a subsequent requirement for the transfer of the rights.

An employee's notification of an invention triggers the employer's obligation to file, without undue delay, a patent application for an invention for Germany, namely a national German patent, or a European, or an international patent with Germany as the designated member state.²⁴⁰ The employer is only allowed to refrain from filing if 1) the invention was released to the employee, 2), the employee gives their consent that no patent application will be filed or 3) the employer wishes to treat the invention as a trade secret and confirms with the employee that the invention is patentable.²⁴¹ Further, in the event that the employer will not file patent applications for foreign countries, it must release the invention to the employee for countries in which it does not intend to file.²⁴² Moreover, if the employer intends to abandon a patent application or a granted patent before the employee has been fully remunerated, it must inform the employee accordingly and, at the employee's request and expense, assign the respective right to the employee.²⁴³

To conclude, even if the actual acquisition of the rights in Germany can currently take place by the passive employer, retaining the rights vested into the employer requires activity, also according to the new law. In practice this means that should the employer decide not to patent the invention, nor declare it as a trade secret, the employer needs to acquire the consent of the employee. It would be prudent to seek this consent, also in cases where the employer duly patents the invention but not in

²³⁹ New ArbErfG 6(2)§, no translation available.

²⁴⁰ ArbErfG 13§, no translation available.

²⁴¹ ArbErfG 17§, no translation available.

²⁴² ArbErfG 14§, no translation available.

²⁴³ ArbErfG 16§, no translation available.

all countries, as the law gives the employee a right to do so instead of the employer. Further, any “trimming” of the portfolio, namely abandoning a patent application or a granted patent, may result in the rights transferring to the inventor. Therefore, it may be worthwhile seeking some form of consent also in cases where the employer is considering abandoning some patent families. Indeed, there are a variety of legal pitfalls in the German employee invention legislation that need to be addressed in the company’s invention management procedures involving German inventors.

4.2.2 Equivalent regulations in patent law (HU & RU)

4.2.2.1 General

Not all countries where the issue of the rights to inventions made by employees is a matter of law, have specific employee invention legislation in place. In some countries, the regulations concerning these issues have been embedded in the national patent laws. Examples of such countries presented in the following are *Hungary* and *Russia*. These countries have been selected because certain peculiar provisions in their patent laws²⁴⁴ may cause challenges to managing invention procedure in these countries. In the following, the relevant national provisions will be introduced in further detail:

4.2.2.2 Scope of rights

Hungary

In Hungary the regulations regarding inventions made by employees and the rights to such are outlined in the Hungarian Patent Act (Act No. XXXII of 1995 on the Protection of Inventions by Patents):

²⁴⁴ Hungary: Act No. XXXIII of 1995 on the Protection of Inventions by Patents; Unofficial translation (consolidated text of June 17, 2017) of WIPO database used in this thesis: http://www.wipo.int/wipolex/en/text.jsp?file_id=443430. Russia: The Civil Code of Russian Federation (as amended up to December 8, 2011), Part IV. Adopted by the State Duma on November 24, 2006. Approved by the Federation Council on December 8, 2006 Section VII: Rights to the Results of Intellectual Activities and Means of Individualisation. Unofficial translation prepared by the Rospatent specialist used in this thesis: <http://www.wipo.int/edocs/lexdocs/laws/en/ru/ru004enpart4.pdf>.

Article 9

- (1) *A service invention* is an invention made by a person who, by reason of his employment, is under the obligation to develop solutions in the field of the invention.
- (2) *An employee invention* is an invention made by a person who, without being under an obligation by reason of his employment, makes an invention, the exploitation of which falls within the field of business of his employer.²⁴⁵

In Hungary a *service invention* is an invention where the inventor has the *duty to develop* solutions in the domain of the invention pursuant to the employment relationship. It is worth noting that the obligation to develop solutions is associated with *the field of the invention*, rather than with the field of the business of the employer. Thus, literally interpreting, if an employee has not been hired to develop solutions within the field of invention, then the invention is not a service invention. This is an entirely different approach than for example in Finland, where an employee invention could also be made outside of the employee's tasks as long as it falls within the field of activity of the employer. Inventions made without such an obligation in Hungary are called *employee inventions*. Thus, the definition of "an employee invention" in Hungary differs from the general definition of the term "employee invention" used in this thesis, where it refers to an invention made by an employee in connection with duties related to the employment relationship. For this reason, the rights to an employee invention as defined in Hungarian law are different than for example in Finland.

Article 10

- (1) The right to a patent for a service invention shall belong to *the employer* as successor in title to the inventor.
- (2) The right to a patent for an employee invention shall belong to *the inventor*, but the employer shall be entitled to exploit the invention. The employer's right of exploitation shall be non-exclusive; the employer may not grant a license to exploit the invention. If the employer ceases to exist or if any of his organizational units are separated, the right of exploitation shall be transferred to his successor in title; it may not be assigned or transferred in any other way.²⁴⁶

The right to a patent for a *service invention* belongs to the employer. Regarding an employee invention, the rights belong to the inventor. It should be noted that the law defines the right as "the right to a patent" and not as "a right to acquire rights to the invention in whole or in part" as in the Finnish law. The explanation for this slightly different language adopted in the Hungarian law is provided in the Article 12:

²⁴⁵ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 9; Emphasis added.

²⁴⁶ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 10; Emphasis added.

Article 12

- (1) *The employer shall file a patent application* within a reasonable time following the receipt of the notification of a service invention; he shall furthermore proceed with all due diligence to obtain a patent.²⁴⁷

In the event that the employer chooses to claim the right to a service invention, the employer is obliged to file a patent application in respect of the invention, similar to German law. In addition, the Patent Act imposes an additional duty on the employer to act with the level of care that is generally expected in acquiring a patent.

- (4) Prior to any act or any intentional omission liable to prevent the obtaining of a patent with regard to a service invention, the employer shall be required – except for the case under paragraph (2) – *to offer to assign to the inventor the right to a patent free of charge*, subject or not to the right of exploitation applicable to employee inventions.²⁴⁸

If the employer omits or commits an act that would result in the rejection of the patent application, then the employer must offer a free assignment of the right to a patent to the inventor. This is a somewhat harsh requirement for employers since in practice it sets them a requirement to always file a patent application when claiming the rights to service inventions, and also a duty to maintain the application, despite the potentially reduced business value. However, there is one exception to the obligation to file an application. If an employer wishes to declare an invention that has been acknowledged to be patentable as a trade secret, then the employer may forego the filing of the patent application. Alternatively, if the application has already been filed but not yet published, the employer may withdraw it.²⁴⁹ It should be noted that the provision in question only concerns inventions which, without them being characterized as trade secrets, would in the employer's view be eligible for a patent protection. In the event of a dispute of the patentability regarding the invention, the burden of proof rests with the employer to prove that the invention is not patentable.²⁵⁰

The right to a patent for *an employee invention* belongs to the inventor. However, the employer is entitled *ex lege* to utilize the invention. Such a right of utilization is non-exclusive nor cannot it be assigned or transferred in other situations apart from an acquisition or a re-organization of the employer.²⁵¹ Given that an employee invention relates to the employer's field of business and could be incorporated into

²⁴⁷ Act No. XXXIII of 1995 on the Protection of Inventions by Patents Art. 12.1; Emphasis added.

²⁴⁸ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 12.4; Emphasis added.

²⁴⁹ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 12.2.

²⁵⁰ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 12.3.

²⁵¹ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 10.2.

the products of the employer, it is again a harsh requirement for the employer. Should the products of the company for example be manufactured by a contractor, then strictly interpreting the utilization right does not apply to the contract manufacturer.

Given the definition of a service invention in the law, being made under an obligation to develop solutions within a field of *invention*, it is recommendable to describe the scope of employee job descriptions in their employment agreements as broadly as possible. This serves efficient invention management and prevents situations where an invention made by an employee, related to the field of the employer's business, falls within the category of employee inventions.

Russia

In Russia regulating employees' inventions takes place in the Russian Civil Code, Part Four:

Article 1370

1. An invention, utility model or industrial design created by an employee in line of his employment duties or of a specific task set by the employer shall be deemed an employee's invention, employee's utility model, or employee's industrial design, respectively.
2. The right of authorship to the employee's invention, employee's utility model or employee's industrial design shall belong to the employee (author).
3. The exclusive right to an employee's invention, employee's utility model, or employee's industrial design and the right to obtain a patent shall belong to the employer unless otherwise provided for by a labor or other contract between the employee and the employer.²⁵²

*An employee's invention*²⁵³ in Russia is something which an employee has created in the course of their regular duties or as a result of a specific task by the employer. Nothing is mentioned about the relationship to the employer's field of activity. However, the terms "employment duties" and "specific task set by the employer" imply that there is a link to the employer's business. The employer has the exclusive right to an invention and the right to obtain a patent. The only exception to this is a contract stating otherwise. Thus, it seems possible to opt out of the presumption set in the law contractually, for example in an employment agreement

When an employee invention is made without a link to the employee's regular duties or a specific task assigned by the employer, albeit utilizing financial, technical and other means provided by the employer, then the invention shall not be deemed to be an employee's invention. The exclusive right, including the right to obtain a

²⁵² Civil Code of Russian Federation, Art. 1370(1-3).

²⁵³ Cf. WTO translation – "employment invention".

patent, to a “non-employee’s invention” is owned by the employee. However, the employer is entitled to claim a free license for the use of the invention for its own needs for the effective term of the patent. Alternatively, the employer may claim the expenses it has invested to create the invention in question.²⁵⁴ Given that the invention may be related to the employer’s business, it would again be wise to draft the employees’ duties in the employment agreements as widely as possible.

4.2.2.3 Time Requirement

In both Hungary and in Russia the law states that the right to obtain a patent for an invention which is linked to employment belongs to the employer. However, this does not mean that the rights would be transferred automatically, or that exclusive rights would remain with the employer without any actions.

Hungary

Article 11

- (1) The inventor shall notify his employer of any service or employee invention immediately following its creation.
- (2) *Within ninety days* from receipt of such notification the employer shall make a declaration to the effect that he does or does not claim title to the service invention, or state his intentions concerning the exploitation of the employee invention.²⁵⁵

In Hungary the time set for the employer to claim the rights to inventions made by employees is only ninety days from the inventor’s notification, and this cannot be extended. Within this time, the employer shall notify whether it does or does not wish to claim title to the service invention. Within the same limit the employer shall state its intentions concerning the exploitation of the employee invention.

Russia

In Russia the law states that the exclusive right to a service invention and the right to obtain a patent is owned by the employer.²⁵⁶ However, of these rights the right to obtain a patent can be lost:

²⁵⁴ Civil Code of Russian Federation, Art. 1370.5.

²⁵⁵ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art 11(1-2); Emphasis added.

²⁵⁶ Civil Code of Russian Federation, Art. 1370.3.

Article 1370

4(2) Where the employer *within four months* from the date of notification by employee fails to file an application for the grant of a patent for the respective employee's invention, employee's utility model, or employee's industrial design with the federal executive authority for intellectual property, fails to transfer the right to obtain a patent for an employee's invention, employee's utility model or employee's industrial design to another person, and fails to inform the employee on keeping the information on the respective result of intellectual activity in secrecy, the right to obtain a patent for such an invention, utility model or industrial design shall belong to the employee. In such case the employer during the validity term of the patent shall have the rights to use the employee's invention, employee's utility model, or employee's industrial design in his own business under a simple (nonexclusive) license and pay remuneration to the patent holder, the amount, terms and method of payment shall be determined by contract between the employee and the employer and in case of dispute settled by a court.²⁵⁷

If the employer within four months from the notification of an invention does not act in accordance with the law, namely either file a patent application, transfer the right to obtain a patent to a third party or notify the employee about keeping the invention secret, the right to obtain a patent for the invention will be held by the employee. However, the employer is still entitled to use the invention within the effective term of the patent in its own business. This right, however, is non-exclusive and the employer needs to pay the patent holder the license rate defined by the contract between the employee and the employer. It should be noted that the law talks about the patent holder and not the employee which seems to imply that even if the employee transferred the rights to the patent to a third party, the employer's license would remain in force and its terms the same. Another limitation for the use of the invention by the employer is that it is restricted to its own business. This implies that the license is not transferrable.

It is worth noting that even if the time set for the employer to act in Russia is time-wise the same as in Finland, in practice the Russian employer who wants to file a patent application for the employee's invention however needs to react faster than the Finnish employers. This is because *the time defined in the Russian law also includes the filing of the patent application*. Thus, it is not sufficient for the Russian employer merely to notify the employee of its intent to file a patent application for the invention in question. Also, a patent application needs to be filed within the defined four months. This means that in practice the employer who wants to patent the invention should act very shortly after having received the invention report by the employee. Namely, drafting a patent application can take several weeks, depending on various issues such as the complexity of the technology in question

²⁵⁷ Civil Code of Russian Federation, Art. 1370.4(2); Emphasis added.

and the desired scope of protection, as well as practical issues such as the availability of competent drafting resources. Further, it is required that the patent application for the relevant service invention is not just drafted but also filed with the relevant Russian federal executive governmental body.

4.2.2.4 Form of acquisition of patent rights – case example: Russia

Unless the Russian employer takes any of the aforementioned actions defined in the law, the right to obtain a patent will be held with the employee. In other words, these are the only options provided by the law for the employer to gain exclusive rights to an employee's invention made in Russia. They can thus be considered to constitute a form of acquisition in Russia, which will be next discussed in further detail.

It should be noted that the Russian Civil Code requires an explicit form only for the notification by the *employee*. The employee shall report the employee's invention to the employer *in writing*.²⁵⁸ There is no explicit requirement for the employer for acquiring the right to obtain a patent for the invention, more specifically for retaining such an initial right the employer is entitled to according to the law.²⁵⁹ However, out of the options for the employer to retain the right to a patent for an employee's invention the filing of a patent application is one which always needs to be done in writing. Also, transferring the right is something that would be wise to document in written form. For documenting purposes and for the sake of efficient invention management, it would be safe to execute all the options in writing. However, despite the title it is not the main purpose of this chapter to explore the strictly formal requirements of the actions required by the employer. Instead, the content of the different options provided by the law to the employer desiring to obtain - or to retain - the right to a patent to an employee's invention is explored in further details.²⁶⁰

Starting from the third option, *notifying the employee that the information related to the invention shall be kept secret*, such a decision may be appropriate with inventions which relate for example to the company's manufacturing processes. They are typically not revealed outside the factory premises nor can use of them normally be detected from the end-products. Thus, protecting such an invention by patenting would only make it public, yet without the possibility to detect potential patent infringements taking place in the closed manufacturing premises of the competitors. However, even if the employer failed to notify the employee about

²⁵⁸ Civil Code of Russian Federation, Art. 1370.4(1).

²⁵⁹ Civil Code of Russian Federation, Art. 1370.3.

²⁶⁰ Just as in Germany the form of acquisition was considered to also include the filing a patent application, as a subsequent requirement for the transfer of rights, in Russia these alternative obligations can also be considered as formal requirements affecting the effective transfer of entitlement.

keeping the invention secret and thus the right to obtain a patent for such an invention is held by the employee, the employer is in any case entitled to use the service invention in question within the effective term of the patent, albeit only in its own business, and subject to a license fee.²⁶¹ It should be noted, however, that also in case of declaring the invention secret, the employer needs to pay the employee compensation for the rights.²⁶² Nevertheless, it is possible that the employer in these cases pays a lower price than for a license for a patent.

In the event that it is important for the employer to ensure its freedom to use the invention and to also gain some revenues from permitting others to use it, *filing a patent application* is the most appropriate option to use. However, not all inventions are necessarily worth investing a relatively high price of a patent application, for example when the invention is a minor improvement to an existing innovation. In this case it may be possible to merge the improvement to a same patent application concerning the related invention in case a patent application for it is still under preparation. Or, if the priority year for the application has not yet expired, then it should also be possible to add it as a further aspect to the foreign patent applications to be filed.²⁶³ It is certainly feasible to combine several inventions regarding the same subject matter to a single patent application already from the very beginning, if they are considered to form a unified inventive entity intended to solve the same technical problem, which is one of the formal requirements for a patent application.²⁶⁴ However, if no option exists for merging a minor invention with an existing patent application or for combining the invention into an application with another invention, which would reduce the costs for patenting, the requirement to file a patent application to avoid losing the right to obtain a patent is quite a harsh requirement for the employer. The situation can also be such that an invention, which at the time of reporting is not considered worthy of patenting even if patentable, appears to be worth protecting later. In countries where the employer is entitled to acquire the rights to inventions only partly, the most appropriate option in these kinds of cases is to reserve all the rights, thus also the right to obtain a patent, without filing a patent application. However, in Russia there is no such an option available. The employer needs to file a patent application within four months from the invention report.

²⁶¹ Civil Code of Russian Federation, Art. 1370.4(2).

²⁶² Civil Code of Russian Federation, Art. 1370.4(3).

²⁶³ It should be noted that in the latter case, the added material receives priority from the date of the submission, and not from the priority date.

²⁶⁴ The concept of *unity of invention* is based on “one patent for one invention”. The “unity of invention” –requirement is defined, for example, in the Patent Co-operation Treaty. Under Rule 13.1, a PCT application “shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept”.

Based on the language of the Article, it seems that the employer would only be required *to file* a patent application.²⁶⁵ Thus, literally interpreting, would it be sufficient for the employer to file a patent application with a very modest content, with reasonable costs, and to withdraw it prior to publication? The article continues as follows:

Article 1370

4(3) If the employer obtains a patent for an employee's invention, employee's utility model, or employee's industrial design, or takes a decision to keep information on such an invention, such a utility model, or such an industrial design in secrecy and informs this to the employee or transfers the right to obtain a patent to another person or *fails to obtain a patent on the basis of the application filed by him due to circumstances for which he is responsible*, the employee shall have the right to remuneration. The amount of remuneration, the terms, and the procedure for payment by the employer shall be determined by a contract between him and the employee and in case of a dispute settled by a court.²⁶⁶

Notably, there seems to be a certain level of duty of diligence set for the employer also in Russia, just as in Hungary. In cases where the employer does not receive a patent for the invention due to circumstances that the employer is responsible for, then the employee is entitled to a fee subject to a contract between the employer and the employee. The reasons under the employer's control imply some sort of omission or negligence from the employer's side which has resulted in the rejection of a patent. Merely the fact that the patent has not been granted, despite the employer having used their best efforts to argue against the objections to the patentability, cannot be deemed to be such reasons.

Yet another option for an employer to retain patent rights to an employee invention is to *assign the right to obtain a patent to another person*. In fact, in this case, the employer does not retain the right itself but transfers it to a third party, and in doing so prevents the right being held with the employee. This option can be used in situations where the employer for some reason does not want to patent the invention. It should be noted that the law only mentions assigning *the right to obtain a patent* which, literally interpreting, means that the other rights, such as the right to use the invention, will remain with the employer. When the invention relates to the employer's field of business, and the right to use the invention needs to be retained, it would be wise to explicitly agree on the right to use it, namely of a license, in the relevant assignment agreement. However, what if the third party to whom the right to obtain a patent has been assigned does *not* file a patent application? The law only talks about *assigning*

²⁶⁵ Civil Code of Russian Federation, Art. 1370.4(2).

²⁶⁶ Civil Code of Russian Federation, Art. 1370.4(3); Emphasis added.

such a right and nothing about filing a patent application. Further, the obligation to pay a fee to the employee when the patent is not received for reasons within the employer's control only refers to a patent application filed by *the employer*. Thus, literally interpreting the Article, this does not seem to apply to situations where the employer assigns the right to obtain a patent to a third party who omits filing an application, or when a patent is not received for the reasons under the third party's control. Therefore, one could question the extent to which the requirement is complied with if the right to obtain the patent for a service invention is formally assigned to a third party, even without knowing whether a patent application will be filed?

A further observation regarding the wording of the Article is that it mentions assigning the right to obtain a patent for a service invention to *another person*. Firstly, assignment of the rights is to *a person*. The definition of a person shall be interpreted in the light of the Russian law. However, it cannot possibly mean only natural persons but any kind of a third party, also including legal persons. A second theoretical question is, whether *another* person, such as another business entity, needs to be wholly unrelated to the employing company? Namely, at multinational companies the inventions made by employees at their subsidiaries are typically assigned to the parent company after the rights have been acquired by the employer company of the inventor. The parent company can then either file a patent application or choose not to, but in both cases the right to obtain a patent for a service invention is assigned by the employer in accordance with the Russian law. Whether this kind of assignment within the same group of companies complies with the requirement of the law is a different issue, and it would need to be explored further in terms of the law and its preparatory work, and possibly also case law. However, this is beyond the scope of this thesis.

Yet further, the wording in the Article, “during the *validity term of the patent*”²⁶⁷, seems to imply that the license applies to the patent, which is indeed a general presumption in licensing; the license is generally defined as the right to use the patented invention, irrespective of whether it has already been granted a patent or not. But what if the employee does not file any patent application nor assign the right to a third party who would do this? In fact, one could ask whether in all cases where the employer for some reason does not want to patent the employee's invention, it would be sufficient to settle for the non-exclusive right to use the invention in the employer's business and omit the actions defined in the law. Of course, there is always the risk that the invention will be patented later, and the employer would then be obliged to pay compensation for its use.

The Article leaves many issues open for interpretation. However, it is not the purpose of this thesis nor is it even possible here to attempt to find answers to all the

²⁶⁷ Civil Code of Russian Federation, Art. 1370.4(2).

specific issues in the individual national laws. Notwithstanding, asking these questions is a key tenet in trying to give a general overview of the variety of different issues that multinational companies confront in ensuring the validity of their entitlement to the inventions made by their employees. Knowledge of this labyrinth which comprises different rules and dilemmas is a prerequisite to introducing the situations where several different national laws conflict and need to be simultaneously complied with.

4.2.3 Managing inventions in statutory regimes

4.2.3.1 Acquisition as individual action – same law, different outcome

All the introduced laws have been written from the perspective of *a single invention*. That is, the respective legal requirements apply to one invention at a time and every time the employer is notified of an invention made by its employee(s), it needs to act according to these requirements. No such an option as a collective assignment to all inventions made by an employee exists in statutory countries. This concept will be introduced in connection with contractual regimes. However, acquiring rights is not performed in respect of a single *invention*. Namely, acquisition of the rights from the inventors is *an individual action*. Should an invention be the joint effort of two or more employees of the company, then the employer needs to act according to the requirements of the law in respect of *each of the individual co-inventors*. Therefore, the employer needs to separately acquire the rights to each inventor's respective share of the invention, even if the shares would not be in any way defined. The situation is peculiar in the sense that the employer needs to acquire the rights to one invention only, yet it must do so separately from the individual contributors.

Even if the same law applies to inventions made by inventors employed in the same country, in the service of the same employer, and with essentially similar employment terms, variations may still exist between applying the regulations to the individual inventors. As such, employees could be working with slightly different job descriptions, and their individual circumstances relating to the inventions can vary. Therefore, it is possible that according to the relevant national law the invention of one inventor is considered an invention to which the employer is entitled to acquire the rights, or where the initial rights already from the very beginning are considered to belong to the employer. In contrast, the other inventor's similar invention may fall outside the scope of the definition of such an invention. Even in joint inventions the employer's position in respect of the co-inventors originating from the same jurisdiction can ultimately differ. To avoid situations where the employer may need to engage in complex joint patent arrangements with one or some of the inventors, or negotiate wider rights to an employee invention than that

provided by the law, it is worth describing the job descriptions of the employees in the employment agreements as specifically, yet broadly, as possible. One example country where the aforementioned scenario could take place is Hungary, where the requirement for a service invention is that it is made under the obligation to develop solutions within the field of the *invention*. In the event that not all the inventors having contributed to the joint invention have been hired to develop solutions within the field of the invention, the invention may not be considered a service invention as a whole. This means that, for example, the right to a patent might belong partly to one or some of the inventors and partly to the employer.²⁶⁸ This also applies to Russia where only inventions which have been created in the line of the employee's duties or as a result of a specific task by the employer are considered to be employee inventions to which the employer initially has the rights to.²⁶⁹ In cases where the co-inventors of a joint invention in Russia are subject to different job descriptions when creating the invention, only part of the invention could be deemed to be an employee's invention. This further strengthens the need to pay close attention to employee job descriptions in the employment contract and to potentially update these descriptions when needed. Indeed, managing innovations cannot be considered to belong merely to the duties of the IPR department. HR, too, needs to be involved already at the early stage of recruiting a potential inventor, in order to draft the scope of the employment agreement to comply with the requirements of the relevant law.

Even if the employer is entitled to get the rights to an invention from the perspective of all the inventors, the employer may still result in having a *different scope of rights to the invention* in respect of the contributions from the different inventors. This is due to the potential variations in circumstances for the individual inventors. For example, in Finland the scope of rights that the employer is entitled to depends on the individual circumstances at the time of making the invention and the extent to which the inventors have used the experiences they have gained during the employer's service when contributing to the joint invention may differ.²⁷⁰ These experiences can vary greatly depending on the inventors' education, the length of their employment relationship and their past experience, for example. Thus, the employer may be entitled to all the rights to the invention for some of the inventors' part whereas for the other part the law provides to the employer only the right to use the invention. This outcome resembles the cross-border scenarios which are explored in the second part of this thesis, except that here the same law is applied in respect of all the co-inventors unlike in global inventions with a complex of different laws.

²⁶⁸ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 10.

²⁶⁹ Civil Code of Russian Federation, Art. 1370.3.

²⁷⁰ Act on the Right in Employee Inventions, 4.1§.

4.2.3.2 Addressing country-specific differences in company procedures

Multinational companies face a wide array of challenges in their invention management procedures. This is due to the many differing requirements of the different national laws, which have been presented in this restricted introduction. *Timewise*, for example, the employer needs to address several different time limits to ensure the rights to inventions and to optimize the quality of patent applications for these inventions. In Finland, the employer needs to notify its interest in the invention within four months of the notification of the invention report²⁷¹; whereas, for example in Hungary the time is only three months²⁷². In Russia, even if the time is equal to the Finnish time, in practice the employer needs to react faster since the time in Russia is deemed to also include filing the patent application²⁷³, the preparation of which takes a considerable amount of time. In other words, in a multinational company several reaction times need to be complied with and monitored, in order to ensure the rights to all valuable inventions and to result in durable immaterial assets²⁷⁴.

However, there may be a need to address *different timelines* even with inventions where the same national law applies. For example, in Finland where the time set by the law for the employer can be extended with the permission of the employee²⁷⁵, it is possible that while some of the inventors, for example in a joint invention, give their permission to extend the timeline, the other co-inventors do not. This leads to a situation where the employer needs to claim the rights to the part of the invention within four months, whereas in respect to the other part more time is provided. Given that in practice the extension is typically sought because the employer needs more time to consider its interest, in such a situation the decision nevertheless needs to be made within the original time frame, to avoid any loss of rights.

National laws may also provide certain *special reaction times* that need to be addressed, for example, to ensure the quality of the patent application. In Finland, an inventor may notify not only an invention, but also their intent to file a patent application for the invention.²⁷⁶ In this case, for the employer to prevent the patent application being prepared with the limited competence and resources of the employee, the employer's interest in the invention in practice needs to be notified within only one

²⁷¹ Act on the Right in Employee Inventions, 6.1§.

²⁷² Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 11.2.

²⁷³ Civil Code of Russian Federation, Art. 1370.4.

²⁷⁴ Ulf Petrusson, *Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain*, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden, 2004, p. 29.

²⁷⁵ Act on the Right in Employee Inventions 2§, Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, *Työsuhte ja oikeus keksintöön* (1992), p. 48, ref. 59 and Kivi-Koskinen 2002, p. 140.

²⁷⁶ Act on the Right in Employee Inventions, 6.2§.

month. In Germany, in the case of an incomplete invention report, the employer needs to request the additional details within two months. Otherwise, the invention report is deemed to be a proper report and the employer loses the right to request completion based on this specific provision.²⁷⁷ These kinds of special reaction times require awareness of the entire global IPR organization, so that the relevant due dates can be docketed to meet the employer's business interests. However, docketing the due dates in these special situations also requires that the content of the invention reports is reviewed, to be able to identify the special reaction times. This, in turn, sets challenges to the typical company procedures where the invention reports are docketed as merely being received by the administrative staff and then added to the backlog of cases to wait for a patent engineer to evaluate their content.

Different obligations can also be set for the employer depending on the law to be applied to the acquisition of the rights to an invention. Of the four countries presented here, the employer is required to file a patent application in Germany²⁷⁸, Hungary²⁷⁹ and Russia²⁸⁰. In Germany, the employer is also obliged to assign the right to obtain a patent for an inventor in those countries where it does not intend to file itself²⁸¹, potentially resulting in patent protection that is divided between the employer and the employee(s). The employer may also have a legal duty to maintain the filed patent applications, which challenges the standard efficient management of patent portfolios, which is typically based on the scope and the value of the patents. The second part of this thesis explores whether it is possible to create a holistic approach addressing all the relevant country-specific requirements in one global policy. This would facilitate monitoring the compliance of the different requirements in multinational companies and make the process more proactive.

4.2.4 Summary and transitional thoughts

A variety of requirements in national *employee invention laws and equivalent regulations in the national patent laws* need to be taken into account to ensure that the rights to an invention made in an employment relationship are duly transferred from the inventor to the employer as, by default, initially the inventor has all the rights to the invention. In a multinational company, complying with all the relevant requirements and addressing special situations requires diligent monitoring and efficient company policies. Further, in statutory regimes every single invention made

²⁷⁷ ArbEG §5(3).

²⁷⁸ ArbErfG 13§.

²⁷⁹ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 12.1.

²⁸⁰ Civil Code of Russian Federation, Art. 1370.4.

²⁸¹ ArbErfG 14§.

by an employee must be claimed individually and separately, namely an invention-by-invention and an inventor-by-inventor. This can result in awkward situations in joint inventions where the employer obtains the rights only to some inventors' part of the invention, or where the scope of the employer's rights in respect of the individual inventors' shares differs. The purpose in the preceding chapters was to present the statutory regimes as an entity where the rights to employees' inventions are regulated in the law, yet the rules in the individual countries can be very different. Nonetheless, there are also jurisdictions where the issue of the transfer of the rights to inventions even in the relation between the inventor and the employer falls within the contractual freedom. These contractual regimes will be introduced next.

4.3 Contractual regimes

4.3.1 Introduction

In so-called *contractual regimes*, the issue of rights falls within a general contractual freedom, namely they can be freely agreed upon. On the one hand this may be liberating for employers as the law does not set any strict requirements for company procedures. However, on the other hand, there is no statutory protection for the rights of the employer when the rights have not been agreed on. Absent of an agreement, the rights to an invention could be solved, for example, based on patent law, in other words in favor of an inventor.

A few examples of jurisdictions where employee inventions are a contractual matter are, for example, Australia²⁸², New Zealand²⁸³ and the U.S. However, for the purposes of this thesis it is enough to acknowledge the existence of contractual regimes in general, by introducing the rules which differ from those of the statutory regimes. The differences between individual contractual countries are not relevant to the research questions or to the case examples where a confrontation takes place between the statutory and the contractual regimes. The reason for the U.S. being

²⁸² In Australia, the entitlement of an employer to a patentable invention made by its employee is governed by the common law and equity. No statute dictates the rules which apply, although the impact of the Corporations Act 2001 has relevance in relation to fiduciary duties. Rodney DeBoos, 'An Employer's Entitlement To An Employee's Invention in Australia' (June 2017) LII(3) *les Nouvelles* – Journal of the Licensing Executives Society.

²⁸³ The New Zealand's Patent Act (Patents Act 2013 No 68 of 13 September 2013) does not set out the criteria for determining the ownership to an invention made by an employee. Instead, the rights will be contained in an employment contract, by express provision or by an implied term which will be read in by the common law in certain circumstances. However, there is a provision regarding "Disputes as to inventions made by employees" wherein it is defined the criteria based on which the Commissioner may determine the matter in dispute (Patents Act, Section 28).

selected as an example of the contractual jurisdictions, apart from it presenting one of the most important market areas for multinational companies, is that there are some peculiar concepts and doctrines in the U.S. legal system, such as the “employed to invent” –doctrine and the “shop right”, introduced in further detail next.

4.3.2 Employed to invent

Unless there is an agreement in place for the transfer of rights to an invention made by an employee, the rights belong to the employee. However, in situations where an employer in the U.S. hires someone to invent, the law considers that they have bought and paid for the invention, and the employer is therefore entitled to keep what they have purchased. There is no statutory legislation in place regulating the subject matter, so the “law” in this context refers to the U.S. case law:

“One employed to make an invention, who succeeds, during his term of service, in accomplishing that task, is bound to assign his employer any patent obtained. The reason is that he has only produced that he was employed to invent. His invention is the precise subject of the contract of employment. A term of the agreement necessarily is that what he is paid to produce belongs to his paymaster.”²⁸⁴

The cited U.S. Supreme Court case established the so called “*employed-to-invent*” doctrine, also referred to as “hired-to-invent” or “paid-to-invent”.²⁸⁵ According to this doctrine, the employee has been hired for inventive activities, which they are also paid for. If the person has been hired to invent, the employer shall own the invention even in the absence of an employment contract provision. The challenge in the absence of any such specific provision is to prove that an employee was hired to invent the kind of invention in question.²⁸⁶ As the contractual regime already by its definition suggests that the rights to inventions made in the course of the employment is a contractual matter, the best way to prove such an intention is indeed to explicitly agree on such a duty or task to invent. In order to ensure the rights to the inventions made by the employees to the employer, the issue of transferring rights should be sufficiently addressed in an employment agreement between the

²⁸⁴ United States v. Dubilier Condenser Corp., 289 U.S. 178, 187, 53 S.Ct. 554, 77 L.Ed. 1114 (1933).

²⁸⁵ See Standard Parts Co v. Peck, 264 U.S. 52 (1924), Syllabus: “One who is employed and paid by another to develop a process and machinery for manufacturing a specified product, and who patents an invention made by him in the course of the employment, holds the patent for his employer.” P. 264. U.S. 58.

²⁸⁶ United States v. Dubilier Condenser Corp., 289 U.S. 178, 187, 53 S.Ct. 554, 77 L.Ed. 1114 (1933).

parties. Otherwise, the rights may result in being with the inventor(s). However, even if the employee eventually owns the invention, there is another doctrine that may still be applicable, called the “shop right”.

4.3.3 Shop right

The very same U.S. Supreme court case as cited above states further as follows:

“Since the servant uses his master’s time, facilities and materials to attain a concrete result, the latter is in equity entitled to use that which embodies his own property and to duplicate it as often as he may find occasion to employ similar appliances in his business. But the employer in such a case has no equity to demand a conveyance of the invention, which is the original conception of the employee alone, in which the employer had no part. This remains the property of him who conceived it, together with the right conferred by the patent to exclude all others than the employer from the accruing benefits.”²⁸⁷

When an invention is made by an employee using information or other resources from the employer or on company time, and the employee was not hired to invent or was not given specific instructions in relation to the invention, then in the absence of a contract to the contrary the U.S. state law may confer on an employer a royalty-free, non-exclusive and non-transferrable personal license to exploit the invention, namely a “*shop right*”, sometimes referred to by courts as an implied license²⁸⁸. The underlying principle is equity, derived from the general doctrine of “*equitable estoppel*”. This is a legal doctrine that prevents a party from asserting a legal claim under the principles of fairness and equity due to failing to assert legal rights for so long that the other party comes to believe its action is permissible and that the claim is waived and will not be asserted.²⁸⁹ Equitable estoppel is usually raised in the

²⁸⁷ United States v. Dubilier Condenser Corp., 289 U.S. 178, 187, 53 S.Ct. 554, 77 L.Ed. 1114 (1933).

²⁸⁸ PPG Industries Inc. v. Guardian Industries Corp., 597 F.2d 1090 (6th Cir. 1979): “A *shop right* is an *implied license* which accrues to an employer in cases where an employee has perfected a patentable device while working for an employer; although the employee is the owner of the patent, he is estopped from claiming infringement by the employer since the patent work has been done on the employer’s time and the employer has furnished materials for experiments and financial backing to the employee.” (Emphasis added).

²⁸⁹ “Vital principle of equitable estoppel is that he who by his language or conduct leads another to do what he would not otherwise have done, shall not subject such person to loss or injury by disappointing the expectations upon which he acted. Such a change of position is sternly forbidden. It involves fraud and falsehood, and the law abhors both. This remedy is always so applied to promote the ends of justice.” *Dickerson v. Colgrove*, 100 U.S. 578, 580 (1880).

context of patent infringement i.e. when the patent holder after a lengthy period of non-action tries to assert their rights.²⁹⁰ However, it can also be applied in the context of employee inventions. If an employee encourages the usage of an invention by the employer and the employer proceeds without any employee claims of compensation or royalties, it would be inequitable to allow the employee later to assert a royalty or compensation claim against the employer.²⁹¹

The shop right is a *personal right*. It permits the employer to use a patented invention for its own business when the inventor uses the employer's resources to develop the invention.²⁹² This is considered to contain also the so-called have made-rights, namely the right to have the invention made for the employer by outside contractors.²⁹³ However, the shop right cannot be assigned or sub-licensed, which significantly diminishes the value of the right. The right might be passed to a corporate successor²⁹⁴ but not to third parties. In practice this restricts the effective use of a shop right to only certain kinds of inventions such as those related to the employer's manufacturing methods, as it is questionable whether the invention to which the company only has shop rights can be incorporated to any end-products that are sold to retailers or directly to consumers. Sometimes, though, in cases where the employer operates in the business of making and selling products of the same kind, the right may include not only the right to make, but also to sell the invention.²⁹⁵ Nevertheless, the use of the invention completely beyond the scope of the employer's

²⁹⁰ A.C. Aukerman Co., v. R. L. Chaides Construction Co., 960 F.2d 1020 (Fed. Cir. 1992).

²⁹¹ Jerome Rosenstock, *Transferring Invention Rights: Effective and Enforceable Contracts* (2009 suppl., originally published 1935), p. 4-48. Ref. to Wommack v. Durham Pecan Co., 715 F.2d 962, 967, 219 U.S.P.Q. 1153, 1158 (5th Cir. 1983) (citing Hobbs v. United States, 376 F.2d 488, 495 15 U.S.P.Q. 378, 384 (5th Cir. 1967)).

²⁹² See Wommack v. Durham Pecan Co., 715 F.2d 962, 965, (5th Cir. 1983) (*dictum*: "A shop right permits the employer to use the subject of the patent for his own purposes, but not to sell or prohibit others from using it. The inventor retains a valid patent.")

²⁹³ See McElmurry v. Arcansas Power & Light Co., 995 F.2d 1576, 1584 27 U.S.P.Q.2d (BNA) 1129 (Fed. Cir. 1993).

²⁹⁴ See California Eastern Laboratories Inc. v. Gould, 896 F.2d 400, 402, 13 U.S.P.Q.2d (BNA) 1984 (9th Cir. 1990): corporation that purchased entire business and assets of employer, succeeded to shop right, despite its distribution of assets to various subsidiaries; contrary result would "make from the formalities of modern business organization a distinction that is unsuited to the equitable origins of the shop right concept", citing, *inter alia*, PPG Industries, Inc. v. Guardian Industries, Corp., 597 F.2d 1090, 1094 (6th Cir.), *cert. denied* 444 U.S. 930 (1979). However, contrary opinion was issued in 2013, when a court in Massachusetts declined to extend shop rights to an entity that purchased the original shop right holder's assets in a bankruptcy proceeding (U.S. Solartech, Inc. v. J-Fiber, GmbH).

²⁹⁵ See Flannery Bolt Co. v. Flannery, 86 F.2d 43, 44 (3d Cir. 1936) (where business of corporation was making staybolts for sale, corporation would have shop right to make, use, and sell improved staybolt, since president of corporation invented it while he was paid as such by corporation, "at whose risk, cost and expense, the entire development and reduction to practice was made").

own business does not fall within the shop right.²⁹⁶ This can cause difficult due diligence issues in the context of investment and M&A (mergers and acquisitions) transactions. If a company merely has shop rights to an invention, an asset sale or other transaction in which the company does not remain intact could extinguish the shop rights. While the right may remain intact in a merger, or a transaction involving the substantial transfer of all assets, the lack of a bright-line rule means that all the relevant facts should be considered in each situation. The nature and scope of the shop rights and the duration²⁹⁷ always depend on the individual circumstances.²⁹⁸

Another weakness with the shop right is that although the employee may be obliged to grant a limited license to the employer, the employee is still free to grant a more attractive license to another party, who could very well be the employer's major competitor.²⁹⁹ Without doubt there are certainly general principles in employment laws and also typically a specific clause in employment agreements that forbids employees from engaging in competing activities or disclosing such information that is considered to be a trade secret. However, for the concept of shop right there is no explicit contract of the use rights to the invention. Some views have been presented that do not consider the shop right to be particularly weak. According to *Hovell*, "[t]he shop right doctrine equitably distributes patent rights between an inventor and his employer – the inventor retains the patent's title and his employer retains the invention's free use. The shop right attempts to divide the patent rights (-) rather than give the rights to one or the other. (--) [t]he shop right doctrine will adequately reflect the parties' presumed intent."³⁰⁰ However, the article in question is 35 years old and the situations related to utilizing inventions made by employees are currently very different. It should be noted that the shop right doctrine does not

²⁹⁶ See *Beriont v. GTE Laboratories Inc.*, (No. 2013-1109, 8/9/13): the doctrine does not extend to an employer's sale of the patented invention to an un-related third party for the latter's unfettered use, since the "shop right" belongs only to the employer.

²⁹⁷ See *Beecroft & Blackman, Inc. v. Rooney*, 268 F. 545, 548, 550 (S.D.N.Y. 1920) (Learned Hand, J.), *rev'd on other grounds* 280 F. 543 (2d Cir. 1922): shop right was limited to term of inventor's employment where he first had offered exclusive license and, six weeks later, wrote that employer would have only shop right during his employment, and in interim employer had marketed no "or very few" products using invention and later without objection allowed employee to apply for patent at his own expense and, after reasserting time limitation, to pay issue fees.

²⁹⁸ See *Flannery Bolt Co. v. Flannery*, 86 F.2d 43, 44 (3d Cir. 1936): "The scope of a shop right must be determined from the nature of the employer's business, the character of the invention involved, the circumstances which created it and the relation, conduct and intention of the parties."

²⁹⁹ Peter Huntsman, 'Shop Right And Joint Ownership Issues' (March 2011) *les Nouvelles - Journal of the Licensing Executives Society*, p. 20.

³⁰⁰ William P. Hovell, 'Patent Ownership: An Employer's Rights to His Employee's Invention' (1983) 58(4) *Notre Dame Law Review*, p. 875.

necessarily depend on an employment relationship. Namely, also an invention by an independent contractor may give rise to shop rights.³⁰¹

4.4 External collaboration

It is common for companies nowadays to collaborate with third parties in creating and developing new technologies. Many companies are specialized in certain technologies and co-operation benefits from the synergy it brings when not all the research and development need to be done, and invested into, by one company. An additional reason for co-operation might be simply the lack of resources within the company that can be solved by utilizing a temporary external workforce, such as rental employees, who are currently easily available. The need for resources might indeed be temporary and thus, it makes sense for a company to use external resources. Co-operation with different kinds of external parties, such as other companies, research centers and universities, in developing new technologies could result in the creation of new and inventive, thus patentable solutions. It is also possible that a person working for the company temporarily makes an invention while being in a so-called atypical employment relationship which by definition means that no employment relationship exists between the person and the company that the person is working for. The inventions resulting from these situations can be created solely by the employee(s) of the collaboration party, or there can be contributors from both the companies. The latter scenario means that employee invention laws and their related rules apply to two relationships, or in the case of contributors from several companies, then in all the employee-employer relationships involved.

From the point of view of the case scenario presented at the beginning of this thesis, the situation could be for example one where a joint invention has been made in collaboration between two Finnish companies A and B, and the inventors who have contributed to the invention are thus employed by both companies. Even if there is an agreement in place between the companies, according to which the rights to these kinds of joint inventions belong to company A, it cannot overrule the regulations of the Finnish law regarding the transfer of the rights. Therefore, both company A and company B needs to act according to the requirements of the Finnish law, and to notify their own employees that they will claim a specific right to the

³⁰¹ See e.g. *Franklyn v. Guilford Packing Co.*, 695 F.2d 1158, 1160-1161 (9th Cir. 1983): employer who furnished boat for clam harvester acting as independent contractor had limited shop rights in improvements for harvesting machine); Federal Circuit: *McElmurry v. Arcansas Power & Light Co.*, 995 F.2d 1576, 1583 n.15, 27 U.S.P.Q.2d (BNA) 1120 (Fed. Cir. 1993), citing *Franklyn*, supra, 695 F.2d at 1160-1162: employer of independent contractor had shop rights; *Neon Signal Devices, Inc. v. Alpha-Claude Neon Corp.*, 52 F.2d 793, 794 (W. D. Pa. 1931): shop right may permit use by nonemployer.

invention.³⁰² It is not until company B has completed the acquisition of the rights from its own employee that it can transfer the rights further to company A. It would be wise to include the need to comply with this requirement already in the collaboration agreements, so that the collaboration party agrees and commits therein to take care that all the rights to the inventions made during the co-operation project can be transferred to the other party in accordance with the agreement. This aspect should be addressed also in the company procedures regulating the reporting of inventions and decision making. In inventions involving external inventors it would be good to have a checkpoint to ensure that the invention report has been duly reported to all the employers involved, and not just to the company taking care of the patenting procedures. Such a procedure would ensure compliance with the law, valid entitlement, and an unbroken chain of rights from the inventors to company A.

The aforesaid also applies to a temporary workforce in so-called atypical employment relationship with a company. Sometimes, in temporary projects extra resources are needed, and while some of the contributors in the project are the company's own employees, others work for the project as a temporary work force employed by a human-resource consulting company offering labor to companies. These rental employees often work within the company premises, in close co-operation with the company's employees. Thus, all the work related to such a project is conducted on the company's own premises unlike in typical subcontracting arrangements. In atypical employment relationships, where the external employee is not in daily contact with their own employer, it is especially important to make sure that any inventions made by such persons are duly reported to their own employers, to ensure that the rights to the inventions are acquired in accordance with the law, so that the subsequent transfer of the rights subject to the collaboration agreement, can duly take place.

Regarding co-operation with universities, in many countries, such as in Finland and Germany, there is a dedicated law regulating university inventions.³⁰³ The regulations therein resemble those of the employee invention acts with some variance. Even if it is not the purpose of this thesis to explore the issue of university inventions further, it cannot be left without mentioning that inventions made in co-operation with universities are subject to the regulations in those specific acts.

³⁰² Act on the Right in Employee Inventions, 6§.

³⁰³ Finnish Act on the Right to University Inventions, or University Invention Act, of 1 of January 2007 and in Germany the 2002 legal IP reform which removed the earlier "professors' privilege" which was an exception to the general rule of the German Employee Invention Act from 1994, according to which any inventions resulting from the employee's work in a private enterprise or public authority were required to be reported to the employer who had the opportunity to claim the service invention within four months of the date of receiving the invention report. From 8 Feb 2002 onwards the professors, lecturers and scientific assistants have had to report any inventions to their university as ordinary employees.

While the statutory countries may have dedicated acts for regulating the inventions made at universities, in the U.S. a law called the Bayh-Dole Act³⁰⁴ governs the disposition of the patent rights developed with federal funding. Any business entity or nonprofit organization that receives federal government funding and has made inventions and patent applications with such funding – even in part – is required to timely disclose and secure ownership to such inventions and patent applications from the funding government agency, with the risk of losing the rights to the government. This can set challenges also to multinational companies in cooperation projects where there is federal funding somehow involved. Thus, the issue needs to be explored further.

The Act permits a recipient of federal funding to retain the ownership of inventions “conceived or first actually reduced to practice” by its personnel in the performance of a government-funded project. The contractor is obliged to comply with certain statutory and regulatory requirements such as disclosing the invention to the government within two months from the disclosure of the invention, electing to retain the title within two years following the disclosure and automatically granting the government a non-exclusive, irrevocable, paid-up license to use the invention. In the case of non-compliance, the government agency can request the title to these inventions and patent applications, in older funding agreements within 60 days after becoming aware of the non-compliance and in the agreements executed after May 14, 2018 without *any* time limits³⁰⁵. Thus, in any new funding agreements, effective after the latest amendments, the non-compliance effectively gives the government agency unlimited time to elect title, placing a cloud over the ownership of the worldwide patent rights for their duration. However, failure to timely comply with the requirements to secure ownership is often discovered at an inopportune time, for example, during due diligence related to a license agreement, or an initial public offering. At the risk that the ownership rights to a patent can be taken away at any time, the patent rights might not attract investment or be effectively licensed, never achieving their full potential value. Therefore, companies should consider reviewing their current procedures to adjust the times for decision-making and to take appropriate follow-up action such as communicating with the government agency.

³⁰⁴ The Patent and Trademark Law Amendments Act of 1980, Pub. L. No. 96-517, Dec. 12, 1980, *as codified* at 35 U.S.C. §§ 200-212, known as the Bayh-Dole Act, and also as the University and Small Business Patent Procedures Act of 1980. The last amendments on May 14, 2018 (37 C.F.R. § 401.1(b)) however modified the regulations to clarify that the presumption of the right to retain title applies to large business contractors as well as small businesses and nonprofit organizations, confirming the definition already provided in Executive Order no. 12591 (in effect since 1987).

³⁰⁵ 37 C.F.R. § 401.14(d)(1) (effective May 14, 2018).

Another change to the regulation was that a contractor must now agree to require, by written agreement, its employees to assign to the contractor their entire rights to each invention made with federal funding.³⁰⁶ However, in today's academic-industry with its collaborative research environment, researchers tend to move back and forth between universities and industry partners, possibly with informal employment statuses, and conduct different aspects of research projects in various locations with different research teams. They could also contract for multiple assignments, which can lead to inconsistent duties. Indeed, it is impossible for contractors such as the universities to conduct due diligence with limited resources on all researchers with respect to their prior assignments.³⁰⁷

The Bayh-Dole Act can be seen to impose a duty on the part of all researchers who have a contract with the government, referred to as grantees or contractors, to pursue the commercialization of government-funded scientific inventions. The duty to commercialize is not explicitly stated within the Act but is formed through the interplay of two key provisions. The result is a "use it or lose it" policy, whereby government contractors must take steps to reach the "practical application" of their inventions and comply with all the requirements under the Act, or be subject to the government's right to intervene and assume ownership.³⁰⁸ Thus, the situation resembles the filing obligation of the employer in Germany, with the difference that the counterparty, to whom the rights may vest due to non-compliance, is now the government, and not the employee.

³⁰⁶ 37 C.F.R. § 401.14(f)(2) (effective May 14, 2018) in response to *Bd. of Trs. of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 131 S. Ct. 2188 (2011), where the Supreme Court held that title to an invention first vests in the inventor(s), despite the invention being made using federal money subject to the Bayh-Dole Act.

³⁰⁷ This was highlighted in the case law *Stanford v. Roche*. Toshiko Takenaka, 'Serious flaw of employee invention ownership under the Bayh-Dole act in *Stanford v. Roche*: Finding the missing piece of the puzzle in the German employee invention act' (2012) 20 *Texas Intellectual Property Law Journal*, p. 306.

³⁰⁸ Jennifer A. Henderson and John J. Smith, "Academia, Industry and the Bayh-Dole Act: An Implied Duty to Commercialize", Henderson Smith, October 2002, p. 4.

4.5 Assignment of rights

4.5.1 Acquisition vs assignment

In contractual regimes the issue of the rights to inventions made by employees is a matter of contractual freedom. However, even in the absence of a specific clause in a contract, such as an employment agreement, the employer may still have some rights based on the doctrines of “employed-to-invent” or “shop right”. Due to difficulties in proving that the inventor, in the absence of a contract, was employed to invent and the shop right being a personal, non-assignable and non-transferable license to merely use the invention in the employer’s own business, it is better to have an explicit provision regarding the rights. Many problems can be avoided if this issue is sufficiently addressed in employment contracts. In practice the issue is addressed in a contract in the form of a specific clause called *an assignment*.

“Assignment of rights” in the context of an agreement between the inventor and the employer, or a non-employer assignee as the case might be, means transferring the rights from the inventor to the assignee. But the term is also generally used in the statutory regimes, where the issue is not a contractual matter, for example when the timing of the assignment is discussed, before the invention is made (a pre-assignment) or afterwards (a post-assignment), and their validity. Further, there typically needs to be a formal assignment document in place for the patent office when the invention is patented, irrespective of the employment regime. Therefore, this chapter is not restricted to merely exploring the validity of the assignment clauses in the employment or equivalent agreements in the contractual regimes but introduces the subject matter more generally. However, certain issues are specific to either the contractual or the statutory regimes, and possibly relevant only in a few countries.

This chapter has so far handled the issue of the transfer of the rights to an invention made by an employee mainly from the viewpoint of an employer. As already concluded, only the viewpoint of an employer offers such a research angle which enables exploring the complex of laws – scenarios that are topical in this thesis. The perspective of an individual employee or a non-employee inventor can never be global, but it is always restricted to the applicable jurisdiction. When looking to the issue of the rights to an invention made by an employee from the viewpoint of an individual inventor, it is essentially a question of *an assignment of the inventor’s rights* to the invention. The employee-inventor, the *assignor*, assigns their rights to the invention to the employer, namely the *assignee*, by virtue of the law – written or case law – or based on the contract. In either case, the assignment, similarly to the acquisition of the rights, can be subject to a variety of restrictions regarding the form, time and scope of the assignment, in order to be valid and enforceable.

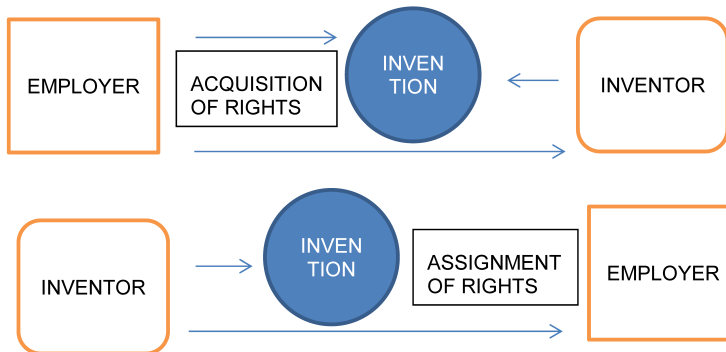


Figure 5. Acquisition vs. Assignment in the terminology of this thesis.

4.5.2 Form of assignment

In statutory regimes the assignment of the rights from the employee to the employer is a counterpart to the acquisition of the rights by the employer based on the requirements of the respective laws. It usually needs to be *explicit* and it is also often in a written form. For example, in Finland the employer needs to notify the employee in writing that it will claim a specified right to the invention.³⁰⁹ In Germany, the situation is the opposite under the current law; the rights are claimed automatically after four months unless explicitly released, and it is now the release of the rights that needs to be communicated in writing to the employee.³¹⁰ It could be said that in Germany the assignment of the rights according to current law is *implicit* as it does not require specific actions, even if an explicit claim still serves for documenting purposes.

In contractual regimes the assignment of rights is a matter of contract. Typically, issues are explicitly agreed on in writing. However, in certain situations, in the absence of a contract an assignment can also be considered to have taken place implicitly, based on the circumstances. Some examples from the U.S. are the doctrine of “employed to invent” where the employer is considered to have purchased the invention by having hired the employee to invent, and the shop right³¹¹ where the scope of the assignment is narrower, permitting the employer only to use the invention in its own business and indeed sometimes by the courts referred to as

³⁰⁹ Act on the Right in Employee Inventions, 6§.

³¹⁰ ArbErfG 6(2)§.

³¹¹ United States v. Dubilier Condenser Corp., 289 U.S. 178, 187, 53 S.Ct. 554, 77 L.Ed. 1114 (1933).

an implied license.³¹² Despite the mechanisms of an implied assignment and a license to an invention, it is always better to explicitly agree on the rights.

In addition to ensuring that the issue of the rights to inventions made by an employee is addressed in the employment agreement, specific attention needs to be paid to the *language* used therein, so that the assignment clause will be truly valid and enforceable and leaves no room for interpretation. The following case law sheds light on the pitfalls of language used in assignments. An infringement case decided before the District Court³¹³ turned into a question of ownership of the patent in the Federal Circuit Court³¹⁴, namely whether the assignment clause in the employment agreement had constituted a present assignment or not.

“Mr. C. Douglass Thomas had for several years been employed by Hewlett-Packard Company as a patent attorney. The Defendants³¹⁵ moved for dismissal on the ground that IpVenture did not have standing to sue because it did not own the entire interest in the '235 patent³¹⁶ based on Mr. Thomas' obligation under his employment contract with Hewlett-Packard. The district court agreed, and dismissed the suit without prejudice. IpVenture appeals the dismissal. We conclude that the dismissal was in error, for Hewlett-Packard had no assignment of an interest in the patent, and had disclaimed any interest therein.

Only the entity or entities that own or control all substantial rights in a patent can enforce rights controlled by that patent, lest an accused infringer be subjected to multiple suits and duplicate liability.³¹⁷ Thus all entities with an independent right to enforce the patent are indispensable or necessary parties to an infringement suit. When such an entity declines to join in the suit it may be joined involuntarily, either as a party plaintiff or party defendant; the purpose is

³¹² For example, PPG Industries Inc. v. Guardian Industries Corp., 597 F.2d 1090 (6th Cir. 1979).

³¹³ IpVenture, Inc. v. ProStar Computer, Inc., No. CV03-5780-DSF (C.D.Cal. Aug. 26, 2005).

³¹⁴ IpVenture Inc., v. ProStar Computer Inc. and Midern Computer Inc., United States Court of Appeals, Federal Circuit, Nos. 2006-1012, 2006-1081, Decided: September 28, 2007.

³¹⁵ Two computer manufacturers ProStar Computer, Inc. and Midern Computer, Inc.

³¹⁶ US 6,216,235, “Thermal and Power Management for Computer systems”, the joint invention of Mr. Thomas and his father, Alan E. Thomas.

³¹⁷ See Independent Wireless Tel Co. v. Radio Corp. of Am., 269 U.S. 459, 468, 46 S.Ct. 166, 70 L.Ed. 357 (1926); Rite-Hite Corp. v. Kelley Comp., 56 F.3d 1538, 1551 (Fed. Cir. 1995) (en banc); see generally Intellectual Property Development, Inc. v. TCI Cablevision of California, Inc., 248 F.3d 1333 (Fed. Cir. 2001).

to ensure that all interested parties are before the court and that their interests are considered.”³¹⁸

In this case, the question pertained to whether the inventor’s previous employer (HP) had an ownership interest in the patent when the infringement suit was filed, and what was the effect of HP’s later statement that it “never had any legal or equitable rights”. The Federal Circuit concluded that HP was not a necessary party, based on the facts of the case, as the employment agreement for Mr. Thomas included the following provision concerning inventions made by him, related to HP’s business:

This agreement also concerns inventions and discoveries (whether or not patentable) (hereinafter called “Proprietary Developments”) that are conceived or made by me alone or with others while I am employed by HP; that relate to the research and development of the business of HP, or result from work performed by me for HP; or that do not qualify under the prevailing provisions of California Labor Code Section 2870. Such Proprietary Developments are the sole property of HP, and I agree:

- a. to disclose them promptly to HP;*
- b. to assign them to HP; and*
- c. to execute all documents and cooperate with HP in all necessary activities to obtain patent, copyright, mask work, and/or trade secret protection in all countries, HP to pay the expenses.*

In the case the Federal Court did not consider the wording “*I agree to assign*” as constituting an actual assignment of rights but merely an agreement to assign the rights, whereas the actual assignment was left to take place later.³¹⁹ It should be noted that the District Court, applying California law, had concluded that the law does not distinguish between an assignment per se and an agreement to assign, and ruled that the employment agreement “constituted an assignment of all Proprietary Developments to HP”. The District Court thus concluded that the provision in the employment agreement served as an immediate assignment.

³¹⁸ IpVenture, Inc. v. Prostar Comput., Inc., 503 F.3d 1324 (Fed. Cir. 2007), pp. 2-3. Reference in the decision to Shields v. Barrow, 58 U.S. (17 How.) 130, 141, 15 L.Ed. 158 (1854).

³¹⁹ “[t]he agreement in this case tracks that of Arachnid, not that of FilmTec.” See Arachnid, Inc. v. Merit Indus., Inc., 939 F.2d 1574 (Fed. Cir. 1991), where the employment agreement used the phrase “will be assigned”. Cf. FilmTec Corp. v. Hydranautics, 982 F.2d 1546, 1554 (Fed.Cir. 1992), where the employment agreement’s use of the phrase “does hereby grant” indicated a present assignment.

In addition to the language of the assignment, the facts of the case contained an agreement between HP and (one of) the defendants. The agreement in question addressed the issue of the patent as follows:

IpVenture is the sole assignee of [the ‘235 patent and other patents]... HP has never asserted any ownership rights to the IpVenture Patents and agrees to forbear from asserting such rights at anytime in the future... [Hewlett-Packard] has no rights...and never has had any legal or equitable rights, including any shop rights, to any of the IpVenture Patents.

The District Court had declined to consider the content and effect of the agreement, because it was executed after the infringement suit was filed. The court ruled that the agreement could not cure a “standing” defect, even if viewed as a retroactive assignment. However, the Federal Circuit also took into account the *intent of the parties*, namely the HP’s statement that they never had any rights to the patent, which further confirmed the interpretation of the language of the assignment clause to only be a promise to assign the rights in the future:

“[t]he Hewlett-Packard agreement says “agree to assign”. This difference is reinforced by the Hewlett-Packard 2005 statement that it “never had any legal or equitable rights” to the ‘235 patent. The DC should have considered this statement, although it was written after the suit was filed, *for it serves to remove any uncertainty arising from the language of the employment agreement*. While that agreement is an agreement to assign, such interest in the ‘235 patent must be implemented by written assignment.³²⁰

The decision by the Federal Circuit seems justified, not only because of the vaguely formulated language in respect of the assignment but also because it could be shown that the party to whom the assignment had supposedly been done, had explicitly expressed no interest in the patent. In disputes related to inventions made by employees, situations are rare where the employer has excluded the rights. Instead, disputes most typically arise in the employee inventions when the employee claims that the rights have not been assigned.

³²⁰ IpVenture, Inc. v. Prostar Comput., Inc., 503 F.3d 1324 (Fed. Cir. 2007), p. 5. Reference in the decision to *Helevering v. San Joaquin Fruit & Investment Co.*, 297 U.S. 496, 499, 56 S.Ct. 569, 80 L.Ed. 824 (1936) (an option in a property right may be an equitable interest in the property but “it would not follow that he acquires property at the date of the option rather than at the date of the conveyance”).

Employment contracts and their interpretation had traditionally been subject to state law. In another case from the same era, however, it was stated that “the question of whether a patent assignment clause creates an automatic assignment or merely an obligation to assign is intimately bound up with the question of standing in patent cases...[and is therefore] treated...as a matter of federal law”.³²¹ This holding in *DDB Technologies v. MLB Advanced Media* was considered to “seemingly enhance[s] the rights of employers by disallowing statute of limitations and laches defenses when there is an automatic assignment under the agreement”³²², which demonstrated a change in the trend for the courts’ protection of employers and employees.³²³ The language of the employment contract in the case granted the employer the rights and ownership of patents which were developed under the agreement and which were “suggested by” or “related to” the employee’s work for the company. While the Federal Circuit admitted that the language in the agreement was *ambiguous*, it nonetheless held that the effect of the language was to automatically assign the ownership of inventions to the employer at the time of making the inventions. The decision not only raises concerns because the employer failed to object to the employee’s full ownership and use of the patents for over a decade³²⁴, but also because it demonstrates a move by the *federal* courts towards a pro-employer approach to patent assignments.³²⁵

In the light of these two cases, it is very important for companies operating in the U.S. to ensure that their employment agreements sufficiently address the issue of transferring the rights to inventions made during the employment relationship from the inventors to the employer in such a way that the assignment is eventually considered valid and enforceable. It makes no sense to invest in patents if, for example in an infringement case, the title of rights can be invalidated because the assignment has originally not been done correctly. The clause in employment agreements should be drafted into a form where the assignment is not agreed to be

³²¹ *DDB Technologies, LLC v. MLB Advanced Media, LP*, 517 F.3d 1284, 1290 (Fed. Cir. 2008).

³²² Mike Baniak & Todd Dawson, ‘Discussion of Employer Assignment Agreements after *DDB Technologies v. MLB Advanced Media*’ (2009) 7(3) *Northwestern Journal of Technology & Intellectual Property*, p. 298.

³²³ Shannon H. Hedvat, ‘A New Age of Pro-Employer Rights: Are Automatic Assignments the Standard?’ (2011) 3(3) *University of Pennsylvania Journal of Business Law*, p. 824.

³²⁴ Mike Baniak & Todd Dawson, ‘Discussion of Employer Assignment Agreements after *DDB Technologies v. MLB Advanced Media*’ (2009) 7(3) *Northwestern Journal of Technology & Intellectual Property*, p. 306.

³²⁵ Shannon H. Hedvat, ‘A New Age of Pro-Employer Rights: Are Automatic Assignments the Standard?’ (2011) 3(3) *University of Pennsylvania Journal of Business Law*, pp. 825-826.

done but is actually executed, for example using expressions “hereby assigned”³²⁶ or “hereby granted”³²⁷.

4.5.3 Scope of assignment

In statutory regimes, the scope of an assignment is equal to the rights that the employer is entitled to acquire and has acquired to the inventions. This issue is determined by the virtue of law. It is not under the discretion of the employer as to what rights are available to the invention. However, even in contractual regimes where the issue of rights is a contractual matter, some restrictions can be imposed on the scope of the rights that the employer is entitled to. In the U.S., variations in this respect can even exist between the states. For example, in California the state law specifies that an assignment provision cannot apply to an employee’s ownership of IP if it has been developed entirely during the employee’s own time, without using the employer’s resources and devoid of a clear link to the employer’s business or the employee’s work, as follows:

2870. (a) Any provision in an employment agreement which provides that an employee shall assign, or offer to assign, any of his or her rights in an invention to his or her employer shall not apply to an invention that the employee developed entirely on his or her own time without using the employer's equipment, supplies, facilities, or trade secret information except for those inventions that either:

1. Relate at the time of conception or reduction to practice of the invention to the employer's business, or actual or demonstrably anticipated research or development of the employer; or
2. Result from any work performed by the employee for the employer.

(b) To the extent a provision in an employment agreement purports to require an employee to assign an invention otherwise excluded from being required to be assigned under subdivision (a), the provision is against the public policy of this state and is unenforceable.³²⁸

Further, any valid IP assignment agreement must contain or shortly follow with a written notification to the employee that it is not extended to the inventions covered

³²⁶ Speedplay, Inc. v. Bebob, Inc., 211 F.3d 1245, 1253 (Fed.Cir. 2000) (the phrase “hereby conveys, transfers and assigns” was a present assignment).

³²⁷ FilmTec Corp. v. Hydranautics, 982 F.2d 1546, 1554 (Fed.Cir. 1992) (the phrase “does hereby grant” indicated a present assignment).

³²⁸ 2011 California Code, Labor Code, Division 3, Chapter 2, Employment relations, Article 3.5. Inventions Made by an Employee, Section 2870, Amended by Stats. 1991, Ch. 647, Sec. 5.

by the referred law section.³²⁹ The laws generally require that employers provide notice to employees of their rights under the laws (notice provisions).³³⁰

Indeed, the scope of an assignment can be explored from the point of view of an individual invention, in other words what rights the employer is entitled to or decides to acquire thereto. However, this can also be explored from the point of view of inventions made by a certain employee as a whole. Namely, in contractual regimes it is possible to agree on a “mass assignment”, or a *collective assignment*, to all the future inventions of an employee within the scope of the employment agreement. *All* of the inventions can be assigned at once if they are considered to fulfill the criteria for inventions that the employer is entitled to get the rights to. It should be noted that such an assignment is also subject to *future* inventions that have not yet been made. This facilitates managing inventions in contractual regimes compared to statutory regimes where this kind of pre-assignment is not allowed. In contractual regimes, inventions can already be assigned immediately in an employment agreement, and with the appropriate language there should no longer be any pitfalls in the validity of the rights later, contrary to the statutory regimes.

However, an assignment, just like the acquisition of rights, is an individual action. Even if in contractual regimes it is possible to collectively assign all the inventions by a certain inventor, within the defined and permissible scope, it is not possible to assign the rights from multiple inventors in a collective manner. In other words, the scope of the rights of the employer to a joint invention involving multiple contributors depends on the validity and scope of the individual assignments. This, in turn, can depend on the language used in the respective assignment clauses, in addition to the timing of the assignment. In the following, the time of the assignment is explored from the point of view of both the statutory and the contractual regimes. The related concepts of “pre-assignment” and “post-assignment” are introduced and the substantive effect that timing can have on the validity and effective utilization of the patent rights discussed.

³²⁹ 2011 California Code, Labor Code, Section 2872, Added by Stats. 1979; Given the date of adding the Section 2872 to the original Labor Code this provision only applies to employment agreements entered into after January 1, 1980.

³³⁰ Parker A. Howell, ‘Whose Invention Is It Anyway? Employee-Invention Assignment Agreements and Their Limits’ (2012) 8(2) Washington Journal of Law, Technology & Arts, p. 91 + fn 55: See *Waterjet Tech., Inc. v. Flow Int’l Corp.*, 996 P.2d 598, 601 (Wash. 2000) (notice may be given by agreement itself).

4.5.4 Time of assignment

4.5.4.1 Time of invention

In contractual regimes it is possible to assign rights to inventions that will be made in the future. As such, this relates to the timing of an assignment. The relevant point of time in this context is *the time of making the invention*. Timewise, in order for an employer to get the rights to an invention, the invention typically has to have been made during the employment relationship, namely after the employment agreement was entered into but before its termination. However, this is not always necessarily the case. Sometimes the employer can be entitled to at least some rights also to such inventions that were made after the employment was already terminated, based on either the provision of the law or a specific contract.

The time of making the invention typically also defines *the time of an assignment*. In statutory regimes, the reaction time for the employer is initiated from the time of being notified of the invention. In addition, the assignment also needs to take place after the invention has already been made. However, in contractual regimes the assignment is also possible in respect of future inventions and thus, prior to any inventions have even been made. As evident from the previous case, the issue of rights can be raised many years after employment, and a long time after the invention was made. This means that the validity of the rights transfer can be disputed in respect of an invention which the employer has already patented. Often the dispute in these cases is raised in cases by the employee who created the invention. However, the issue can also be raised for inventions to which the employer has no rights. Furthermore, defects can also be identified by a third party and used against an employer, for example in a patent infringement case regarding an invention. It should be noted that in the previously referred case law³³¹ it was not only the issue of the rights that was raised many years after the invention having resulted to the patent in question was made. In addition, the assignment was also made afterwards, even after the infringement suit was filed. It was said in the case to be retroactive. This raises a question as to the *correct time-window for an assignment*, in order for it to be valid and enforceable. There are again differences in this respect between statutory and contractual regimes.

³³¹ IpVenture, Inc. v. Prostar Comput., Inc., 503 F.3d 1324 (Fed. Cir. 2007).

4.5.4.2 Pre-assignment

In statutory regimes, every time a new invention is created, a specific assignment or in the case of an implicit acquisition such as in Germany³³², an omission by the employer is required. Any activity or non-activity in respect to a certain invention cannot be considered to have taken place before the invention in question has been made. In statutory regimes a *pre-assignment*, namely an assignment before the invention has been made, is not allowed because of the mandatory regulations in the law which relate to initiating the reaction time. In contrast, in contractual regimes it is possible to agree on the rights in advance, typically already upon hire, in an employment agreement. Indeed, according to Yanisky-Ravid, “[n]ot surprisingly, the prevailing practice is to obtain a signature on an employment contract as early as possible, usually as a prerequisite to employment, requiring the employee to waive all rights to future IP products developed under the same contract”.³³³ This can be done by embedding the assignment clause into the actual employment agreement or into a separate, more detailed “*inventions assignment agreement*” which is appended to the employment agreement, a very typical practice for example in the U.S. In the event that the assignment has not been addressed in the employment agreement or in its appendix upon hire, it can still be done during employment, by amending the employment contract or by entering into an additional agreement regarding inventions, if permitted by the national law. In other words, it is still possible to rectify such an omission during employment. However, the ultimate chance to repair the lack of an assignment is upon the termination of employment. In fact, the employer would be wise to conduct a *pre-termination diligence* to determine whether the employee has created any unreported inventions during their employment and whether any additional steps are required by the employer to ensure that such inventions can be duly exercised in the future by the employer. However, if an assignment is made based on the findings of the pre-termination investigations subject to the creation of previous inventions, then it is not a question of a pre-assignment anymore but rather of a post-assignment.

4.5.4.3 Post-employment assignment

As opposed to a pre-assignment, which takes place before any inventions are made, a *post-assignment* could indeed be considered as an assignment taking place after the invention was made. This is a normal scenario in statutory regimes where a pre-

³³² ArbEG, 6(2),(4).

³³³ Shlomit, Yanisky-Ravid, “‘For a Mess of Pottage’: Incentivizing Creative Employees Toward Improved Competitiveness’ (2013) 43 Cornell HR Review, p. 1.

assignment is not allowed. However, the post-assignment subject of this chapter is not related to the time of the invention but to the time of the relevant employment relationship. The term here refers to an assignment taking place after the employment relationship with the inventor has ended, more specifically *an assignment subject to inventions made after the employment relationship*.³³⁴

Examples of such a post-employment assignment in both the statutory and the contractual regimes will now be introduced, the first of which is *a statutory post-assignment presumption* in the Finnish law:

8§: Where an application for a patent is filed during the six months following the termination of the employment for an invention to which section 4 should be applied if it had been conceived during the course of employment, the invention shall be deemed to have been made during the period of employment unless the inventor can give probable reasons why the invention had been made after the employment had terminated.³³⁵

In the event that a Finnish employee files a patent application for an invention within six months of terminating the employment and the employer would have been entitled to acquire the rights had it been made during the employment, the presumption of the law is that the invention was made during the employment. This presumption can only be reversed if the inventor can provide probable reasons as to why and on what basis the invention was made after the employment had been terminated. The purpose of this *rebuttable presumption* is to safeguard the position of *an employer* in situations where the employee leaves the company, to work for the competitor within the same business, and within a very short time comes up with an invention falling within the field of technology of the previous employer. This raises the question of whether the idea for the invention has already materialized during the previous employment relationship, and whether it should thus belong to the previous employer instead of the current employer of the inventor. The sufficiency of the “probable” reasons needs to be evaluated in the light of individual circumstances; it is always a matter of proof as to whether the idea was conceived already during the employment relationship with the previous

³³⁴ The post-assignment here does not apply to such inventions which the employee has made during the employment but where the employee has left before the employer has notified the inventor about the company’s intents regarding the invention and where the assignment takes place after the employment. In those situations, the invention is duly made in the employment relationship.

³³⁵ Act on the Right in Employee Inventions, 8.1§. Unofficial translation by Ministry of Trade and Industry of Finland.

employer and taken away in the head of the inventor³³⁶, or whether it was indeed made after the employee had already left and started to work for the new company, based on observations made at the service of the new employer. These situations are never black and white, as the process from developing an idea to a patentable invention can often be long, and the exact time of making the invention is not always clear-cut.

Also, in China, the post-employment assignment is a statutory matter:

Article 6 of PRC Patent Law:

An invention-creation that is accomplished in the course of performing the duties of an employee, or mainly by using the material and technical conditions of an employer shall be deemed an employment invention-creation. For an employment invention-creation, the employer has the right to apply for a patent. After such application is granted, the employer shall be the patentee.

For a non-employment invention-creation, the inventor or designer has the right to apply for a patent. After such application is granted, the said inventor or designer shall be the patentee.

For an invention-creation that is accomplished by using the material and technical conditions of an employer, if the employer has concluded a contract with the inventor or designer providing the ownership of the right to apply for the patent or the ownership of the patent right, such provision shall prevail.³³⁷

³³⁶ This issue could be turned into a question “Who own’s your head?” In 2004, the Texas Court of Appeals turned down software programmer Evan Brown's appeal for a jury trial to decide who owned an idea in his head (Brown v. Alcatel USA Inc. Tex App., petition for review denied; original case: Alcatel USA Inc. v. Brown, No. 199-00596-97, Tex Dist. Ct 219th Dist. July 26, 2002): Evan Brown had been working on an idea to convert old computer code to run on a modern machine, an innovation that would enable businesses to run their old software on much faster computers, since 1975. Finally, while on vacation in 1996, he figured out the final 20 % of the puzzle. When Mr. Brown mentioned the idea to his employers while working for DSC Communications Corporation, DSC decided that it owned the rights to Brown’s insight and demanded that he reveal his idea. Brown refused and was fired. DSC then launched legal action against him to gain possession of his thoughts. By 1998, Paris based Alcatel had purchased DSC and continued to assert ownership of Brown’s idea, and after it failed to gain control when Brown filed for bankruptcy, a summary judgement was issued in 2002 in favor of the company. By that time, not only had Brown lost the rights to his idea, but he was also convicted as liable for Alcatel’s massive fees for the attorney. Brown appealed, with no success. “*Brown’s story, although not particularly unique in its legal history, has become a symbol of the moral outrage felt by inventors who are required to hand over their ingenuity to their former corporate employers.*” This quote is from Orly Lobel, *The New Cognitive Property: Human Capital, Knowledge Creation, and the Reach of Intellectual Property*, San Diego Legal Studies Paper No. 14-170, p. 10.

³³⁷ Patent Law of the People’s Republic of China of October 1, 2009, Art. 6; WIPO translation: <https://wipo.int/en/text/178664>.

Rule 12 of Implementing Regulations of the Patent Law

“A service-invention creation made by a person in execution of the tasks of the entity to which he belongs” referred to in Article 6 of the Patent Law means any invention-creation made:

- (1) in the course of performing his own duty;
- (2) in execution of any task, other than his own duty, which was entrusted to him by the entity to which he belongs;
- (3) *within one year after the retirement, transfer from the entity to which he originally belongs or the labor and personnel relationship being terminated*, where the invention-creation relates to his own duty or the other task entrusted to him by the entity to which he previously belonged.

“The entity to which he belongs” referred to in Article 6 of the Patent Law includes the entity in which the person concerned is a temporary staff member. “Material and technical means of the entity” referred to in Article 6 of the Patent Law mean the entity’s money, equipment, spare parts, raw materials or technical data which are not disclosed to the public.³³⁸

The Chinese law defines explicitly that also inventions that are made within one year from the termination of employment, when related to the employee’s duty or other task assigned to them at the service of the previous employer, are deemed to be employment invention-creations (“service inventions”).³³⁹ In other words, the same standard should be adopted in determining the service inventions created *during* employment and those created within one year *after* the termination of employment when the invention is such that the employer would have received the rights should the invention have been made while still working for the company.

In *contractual regimes* the employer’s position in respect of this kind of “idea hijacking” or the “trafficking of ideas” is safeguarded by contractual means. However, some restrictions exist to protect *the employee*. For example, Confidentiality and Inventions Agreements in the U.S. could constitute unfair business practice and thus be non-permissible based on unfair competition rules as in the following case, related to a trade-secret dispute where the Federal Court of the

³³⁸ Rule 12 of Implementing Regulations of the Patent Law of the People’s Republic of China (PRC), Promulgated by Decree No. 306 of the State Council of the PRC on June 15, 2001, amended for the first time in accordance with the Decision of the State Council on Amending the Implementing Regulation of the Patent Law of the PRC on December 28, 2002, amended for the second time in accordance with the Decision of the State Council on Amending the Implementing Regulation of the Patent Law of the PRC on January 9, 2010, and effective as of February 1, 2010; emphasis added. WIPO translation used: <https://wipolex.wipo.int/en/text/182267>.

³³⁹ Implementing Regulations of the Patent Law of the People’s Republic of China, Rule 12.3. It should be noted that different terms are used in WIPO translations of the Patent Law and the Implementing Regulations, but the same source of translation was desired to be used in this thesis.

Northern District of California held that use of inventions agreements constituted unfair business practice under California law.³⁴⁰

Applied Materials (“plaintiff”), a California-based company, brought action against Advanced Micro-Fabrication Equipment and its Asian subsidiaries (“defendants”), for trade secret misappropriation, breach of contract and unfair competition. The litigation between the parties related to the fact that many of the defendants' employees previously worked for the plaintiff. Applied asserted that a number of its former employees had conceived inventions that belonged to Applied pursuant to the assignment clause in their employment agreements:

“In case any invention is described in a patent application or is disclosed to third parties by me within one (1) year after terminating my employment with APPLIED, it is to be presumed that the invention was conceived or made during the period of my employment for APPLIED, and the invention will be assigned to APPLIED as provided by this Agreement, provided it relates to my work with APPLIED or any of its subsidiaries.”

The defendant brought counterclaims for declaratory judgement and unfair competition, arguing that the assignment clauses were unenforceable non-compete agreements under California Business & Professions Code § 16600 because they unlawfully restricted employee mobility. The defendant argued that the assignment clauses merely created a rebuttable presumption that it owned its former employees' inventions conceived in the first year after the end of their employment. The District Court, however, rejected this interpretation, holding that the clauses plainly stated that all such inventions “will be assigned” to the Applied. It further noted that the clauses stated neither that an employee can rebut the presumption nor how an employee would do so. However, the court held that the assignment clauses were unenforceable under California law for the following reasons:

- 1) The clauses were not limited to inventions using AM’s confidential information.
- 2) The clauses were not limited to inventions conceived by former AM employees while employed at AM, but instead extended to inventions conceived up to a full year after the end of employment.

Thus, the reasonability of the assignment clause(s) was evaluated by the court based on the scope of the assignment, both from the point of view of the substance and timewise. The assignment clauses were unenforceable because of how broadly the

³⁴⁰ Applied Materials, Inc. v. Advanced Micro-Fabrication Equip. (Shanghai) Co., 630 F. Supp. 2d 1084 (N.D. Cal. May 20, 2009).

inventions were substantially defined as well as in respect of the time period for making the inventions. The assignment was subject to all inventions, without any reference to using confidential information. Timewise, the assignment extended the duty to disclose inventions made up to one year after employment. Such a practice violated the state law and was contrary to the public policy:

“Ultimately, the court finds that the assignment clause is overly broad with respect to both subject matter and temporal scope. Since the court finds that the assignment clause touches post-employment inventions, regardless of when they were conceived or whether they were based on Applied’s confidential information, the clause necessarily operates as a restriction on employee mobility. Accordingly, the court finds that the assignment clause is post-employment penalty that violates California public policy as codified in Business Professions Code § 16600.”³⁴¹

“Since the Court has found that the Assignment Clause is unlawful under section 16600, it follows that the Assignment Clause constitutes unfair competition under section 17200.”³⁴²

Indeed, in California the law and the public policy strongly favors competition and employee rights to work freely wherever they choose. The policy defined in the referred California Business and Professions Code³⁴³ sets down specific exceptions³⁴⁴, under which a non-competition agreement can be enforceable.

BPC 16600. Except as provided in this chapter, every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void.

17200. As used in this chapter, unfair competition shall mean and include any unlawful, unfair or fraudulent business act or practice and unfair, deceptive,

³⁴¹ Applied Materials, Inc. v. Advanced Micro-Fabrication Equip. (Shanghai) Co., 630 F. Supp. 2d 1084, 1091 (N.D. Cal. May 20, 2009).

³⁴² Applied Materials, Inc. v. Advanced Micro-Fabrication Equip. (Shanghai) Co., 630 F. Supp. 2d 1084, 1092 (N.D. Cal. May 20, 2009).

³⁴³ California Business and Professions Code (BPC), adopted on June 15, 1937.

³⁴⁴ Sections 16601, 16602 and 16602.5 of the BPC, Amended by Stats. in 2002 and 2006.

untrue or misleading advertising and any act prohibited by Chapter 1 (commencing with Section 17500) of Part 3 of Division 7 of the BPC.³⁴⁵

A *non-competition agreement*, also called a *non-compete covenant*, or a *restrictive covenant*, must be conducted between the former employee and the purchaser of the equity interest, typically the employer. The employee may be prohibited from carrying on in a business that is similar to the business of the previous employer, namely if necessary to protect the legitimate interest of the employer.³⁴⁶ In most of the U.S. states the restrictive covenants are enforceable to the extent they are “reasonable”. The reasonability test may, however, be applied and interpreted in a different manner in the different states. However, in general, a non-competition agreement must be territorially limited to a specified geographic area where the employer conducted its business. In addition, term must be for a reasonable amount of time, and enforceability only for as long as the previous employer continues to carry on a similar business in the same geographic area.

The court case referred to was essentially about trade secrets, and the nature of the assignment clause as an unenforceable non-compete agreement was raised in the counter claims by the defendant. The ruling did not resolve the case in its entirety, as the issue concerning whether the patent applications disclosed Applied’s trade secrets was not resolved. Since then, the companies have settled all litigations between them and resolved the outstanding disputes.³⁴⁷ Indeed, restricting post-employment assignment clauses can be seen as an exception to *protecting the trade secrets* of the company. Most trade secret disputes arise when employees who have learned trade secrets as part of their work assignment leave to work for a competitor that may want the trade secrets and seeks to use the services of the employee in a manner that risks the trade secrets being exposed. Therefore, one of the measures by employers to protect their trade secrets is to impose some kind of post-employment activity restraint designed to protect the use or the disclosure of the trade secrets. It should be noted that irrespective of the validity of the non-competition agreement or the post-assignment clause there are always restrictions on disclosing and using trade secrets placed on employees based on the general principles of employment laws. However, the validity of post-assignment clauses, which require the employee to

³⁴⁵ California Business and Professions Code, Division 7, General Business Regulations. Part 2, Preservation and Regulation of Competition. Chapter 5, Enforcement, 17200§, Amended by Stats. 1992, Ch. 430, Sec. 2. Effective January 1, 1993.

³⁴⁶ See e.g. *IDS life Ins. v. SunAmerica, Inc.*, 958 F. Supp. 1258 (N.D. III 1997) and *BDO Seidman v. Hirshberg*, 93 N.Y.2d 382 (N.Y. Ct. App.1999).

³⁴⁷ In the settlement the parties agreed that the patent families shall be jointly owned. Press release “Applied Materials And Advanced Micro-Fabrication Equipment, Inv. Settle litigation And Resolve all Outstanding Disputes”: <http://www.amec-inc.com/news/news-detail.php?id=36>.

assign and disclose inventions to their former employer during a predefined time after employment, determines who shall be the legal owner for such inventions.

Post-assignment clauses are typical, for example, in U.S.-driven companies, as a safety measure to avoid the risk of employees leaking any inventions from their heads to outside the company. However, it is also a risk for any company recruiting new employees from companies operating within the same business field if inventions conceived by an employee can belong to the previous employer. As the assignment is an individual action it is possible that not all the rights to a joint invention where a new employee is involved are vested in the employer, which causes challenges in both securing and using the invention. However, it is also certainly highly unfortunate for an employee to find themselves in a situation with two conflicting contractual obligations related to their inventive activities – a post-assignment duty set by the previous employer and a possible pre-assignment already made for the new employer. When a person is between jobs, the situation might even endanger the person being hired to companies operating within the same field of business as the previous employer. Therefore, non-compete agreements *can restrict employee mobility* as in the Applied case.³⁴⁸

4.5.4.4 Substantive effect of timing on the validity of patent

In statutory regimes the acquisition of the rights and thus also the assignment of the rights needs to be done shortly after the invention is reported to the employer, due to the time requirements in the laws. In contractual regimes, the assignment can be executed already prior to the invention being made, and basically also any time after that. However, there can be major implications for the late dating of an assignment also in contractual regimes, derived from the patent legislation. A decision from the UK patent court³⁴⁹ emphasizes the importance of an early date for an assignment, especially when the invention is patented in the name of someone other than the inventors. In the patent action the claimant was seeking revocation of a European Patent (UK). The defendant was the proprietor of the patent and counter-claimed for

³⁴⁸ As a practical note, as an alternative to traditional non-compete agreements it is possible to include into an employment agreement a so-called “garden leave” provision. The provision is a variation of a statutory notice period, which does exist in the U.S., and as such it is an extension to the term of employment. Employers place employees under non-compete restrictions on garden leave, to “tend their gardens”. Typically, the employees are relieved of their duties, but remain employed by the employer and therefore, cannot go to work for a competitor.

³⁴⁹ *Edwards Lifesciences AG v. Cook Biotech Incorporated*, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934.

infringement.³⁵⁰ The Patent was issued from an international PCT application filed on 31 January 2001, claiming priority from the priority application filed in the U.S. on 31 January 2000. The claim to priority was disputed by the claimant, a matter of some importance because, if priority was lost, then a later published document was considered a relevant prior art as it was published at a time between the priority US application and the later filed PCT application.³⁵¹

The PCT application was filed in the name of the defendant company whereas the US priority application was filed in the name of three individuals as joint inventors. One of these inventors was an employee of the defendant when the invention was made, and thus the only interest the defendant had in the invention was via this employee's contract of employment. It was accepted that this employee's interest, such as it was, indeed belonged to the defendant. The rights in the invention from the two other inventors that were not employed by the defendant, however, were not assigned to the defendant until in September 2002, around 21 months after the PCT application was filed but before the patent was granted.³⁵² The claimant argued that the priority claim was not valid since the defendant did not own the rights in the invention (made by at least two of the inventors), when the PCT application was filed and the priority claim was made. In other words, the defendant had no entitlement to claim priority at the date that they did so, based on the fact that the right of priority may only be enjoyed by the person who filed the priority application or his successor in title at the date the right to priority is claimed. The defendant argued that the relevant issue was that by the grant date of the European patent, all rights had been assigned to them and thus the defendant was entitled not only to be granted the patent, but also to a valid priority claim, and in any event the defendant had always owned its own employee's interest to the invention in question. The judge disagreed and concluded as follows:

“In my judgment the effect of Article 4 of the Paris Convention and section 5 of the Act³⁵³ is clear. A person who files a patent application for an invention is afforded the privilege of claiming priority only if he himself filed the earlier application from which priority is claimed or if he is the successor in title to the person who filed that earlier application. If he is neither the person who filed the earlier application nor his successor in title then he is denied the privilege.

³⁵⁰ Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 1.

³⁵¹ Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 82.

³⁵² Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 84-86.

³⁵³ UK Patents Act 1977.

Moreover, his position is not improved if he subsequently acquires title to the invention. It remains the case that he was not entitled to the privilege when he filed the later application and made his claim. Any other interpretation would introduce uncertainty and the risk of unfairness to third parties.”³⁵⁴

The defendant contended that this interpretation is inconsistent with section 7 of the UK Patents Act which distinguishes between an application for a patent and its grant. Section 7(1) permits any person to make an application for a patent. Section 7(2), on the other hand, restricts the persons to whom a patent may be granted to the inventor(s), to any person(s) entitled to the property in the invention when it was made or to the successor(s) in title to any such person(s). According to the defendant it follows that, as "any person", it was entitled to make the application for the Patent in January 2001 and, as the successor in title to all the inventors as a result of the assignment of September 2002, it was entitled to the grant of the Patent in April 2007. If this is the position in relation to a grant, then it must be the same in relation to priority.³⁵⁵ The judge concluded that the two sections of the UK Patents act deal with separate issues, the right to claim priority in the case of section 5, and the right to the grant of a patent in the case of section 7. He further concluded that section 5 has been framed so as to have the same effect as Article 8 of the PCT and therefore also Article 4 of the Paris Convention. He did not consider it permissible to interpret the Paris Convention in the light of section 7 of the Act. Section 7 provides a complete code as to those persons entitled to the grant of a patent. In the case of a successor in title, he must have derived the title by the date of the grant. There is no equivalent provision in Article 4 of the Paris Convention.³⁵⁶

Notably, despite an assignment as such possibly being valid even if executed years after the invention has been made, or after the resulting patent was granted, not all defects, such as *a right to priority*, can be cured retroactively. For PCT applications the conditions for a priority claim refer to the Paris Convention, more specifically the Stockholm Act of the Paris Convention.³⁵⁷ The latter article defines the conditions for the entitlement to priority, stating that a person who has filed a patent application for an invention or his successor in title shall enjoy a right of

³⁵⁴ Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 95. The judge further referred to Board of Appeal of the EPO having adopted the same approach to the interpretation of Article 87 EPC in two cases: J 0019/87 and T 0062/05.

³⁵⁵ Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 96.

³⁵⁶ Edwards Lifesciences AG v. Cook Biotech Incorporated, High Court of Justice, Chancery Division, Patent Court. [2009] EWHC 1304 (Pat), Case No: HC08 C 00934, 97.

³⁵⁷ PCT, Article 8.2(a), Paris Convention (Stockholm revision), Art. 4.

priority.³⁵⁸ Further, each member country shall determine the latest date on which a declaration for a priority claim must be made.³⁵⁹

In the referred case, the relevant law in this respect was section 5 of the UK Patents Act.:

"5(1) For the purpose of this Act the priority date of an invention to which an application for a patent relates and also of any matter (whether or not the same as the invention) contained in any such application is, except as provided by the following provisions of this Act, the date of filing the application.

(2) If in or in connection with an application for a patent (the application in suit) a declaration is made, whether by the applicant or in any predecessor in title of his, complying with the relevant requirements of rules and specifying one or more earlier relevant applications for the purposes of this section made by the applicant or a predecessor in title of his and each having a date of filing during the period of twelve months immediately preceding the date of filing the application in suit, then-

(a) if an invention to which the application in suit relates is supported by matter disclosed in the earlier relevant application or applications, the priority date of that invention shall instead of being the date of filing of the application in suit be the date of filing the relevant application in which that matter was disclosed or, if it was disclosed in more than one relevant application, the earliest of them;³⁶⁰

The Act, as it existed at the relevant time, reflects that in order to enjoy the priority right for the subsequent filing made within the priority year, *the applicant must be entitled to the invention of the priority application at the time of filing the subsequent application*. It is not a requirement that the applicant is the *same* for both applications, so the priority application could have been filed also by the applicant's predecessor. However, at the time of filing an application claiming priority from the earlier application, the applicant needs to have the rights to the invention in question.

To conclude, even if an assignment is possible also retroactively, in the light of this case it is critical that any assignment document necessary to transfer the rights in a priority application or to assign the right to claim priority is dated before the applicant company makes the priority claim. This is because a patent's entitlement

³⁵⁸ Paris Convention (Stockholm revision), Article 4, A(1).

³⁵⁹ Paris Convention (Stockholm revision), Article 4, D(1).

³⁶⁰ Patents Act of 1977, Section 5; Emphasis added.

to its priority date is often critical to the validity of the patent, in defining the date at which the prior art is assessed. Therefore, companies should be careful that any assignment documents, be them employment agreements assigning all the rights to future inventions to the employer or invention-specific assignments made after the inventions are made, are dated shortly after the invention was made, and at the latest prior to foreign patent applications being filed, in order to ensure valid entitlement to the priority right.

A recent case example from the U.S., where the lack of a sufficient assignment caused problems is an appeal case between Advanced Video Tech. LLC and HTC Corporation, which was decided on January 11, 2018.³⁶¹ The single issue involved in the appeal was whether one of the three co-inventors of the patent³⁶² had transferred her co-ownership interests in the patent under the terms of an employment agreement even if the underlying case was about infringing the patent in question. The dismissal of the infringement case was due to the lack of a valid assignment by a co-inventor not being consented to be a party to the infringement action and the appeal court confirmed the decision: An inventor who signs an employment agreement that provides (a) she “will assign” rights to inventions doesn’t assign them at that point of time³⁶³ or (b) that she “holds in trust” those rights doesn’t mean either assigning them³⁶⁴ and finally or (c) that she “quits claims” those rights doesn’t mean she assigns them³⁶⁵. Even if one of the judged dissented relying on the “intent” of the contract, the conclusion was that the employer did not have full ownership of the patent and thus not the right to sue the defendant in the case.

The referred cases are good examples of the pitfalls related to an assignment of the rights that can efficiently dilute utilizing a company’s otherwise durable assets. It is of utmost importance to sufficiently address the assignment as early as possible. Further, it is important to ensure that the assignment is valid from each co-inventor as the patent cannot be enforced without the rights to the invention as a whole. In the case Advanced Video Tech. LLC claimed that it obtained the rights to the invention from the co-inventor in question through a series of transfers, including an alleged transfer under the provisions of the employment agreement between the third

³⁶¹ Advanced Video Tech. LLC v. HTC Corp. (Fed. Cir. Jan. 11, 2018).

³⁶² U.S. Patent No. 5,781,788 titled as “Full Duplex Single Clip Video Codec”.

³⁶³ Advanced Video Tech. LLC v. HTC Corp. (Fed. Cir. Jan. 11, 2018), p. 6. The court relied on *Arachnid, Inc. v. Merit Industries, Inc.*, 939 F.2d 1574, 1576 (Fed. Cir. 1991) (“will be assigned” language in a consulting agreement did not itself effect an assignment).

³⁶⁴ Advanced Video Tech. LLC v. HTC Corp. (Fed. Cir. Jan. 11, 2018), p. 7. See, e.g., *Jim Arnold Corp. v. Hydrotech Sys.*, 109 F.3d 1567, 1578 (Fed. Cir. 1997) and *Abraxis Bioscience, Inc. v. Navinta LLC*, 625 F.3d 1359, 1366 (Fed. Cir. 2010).

³⁶⁵ Advanced Video Tech. LLC v. HTC Corp. (Fed. Cir. Jan. 11, 2018), p. 9.

inventor and the first assignee in the chain.³⁶⁶ The inventors were not employees of Advanced Video, however in the case the issue boiled down to the validity of the assignment in the employment agreement at the other end of the transfer chain. Indeed, the assignment can also take place through a series of transfers, in a chain. For the chained assignment to be valid, there needs to be an unbroken assignment of rights in the chain.

4.5.5 Unbroken chain of assignment

A multinational company constitutes the “innovation ecosystem” for the research questions. The ecosystem construct is distinguished from value chain and supply chain constructs by its non-linear aspect, as it includes both vertical and horizontal relationships between actors.³⁶⁷ Without a doubt, in a multinational company there are vertical relationships between the parent company and the subsidiaries located in the different jurisdictions. Further, there can be horizontal relationships with other companies with whom there is ongoing co-operation. The horizontal relationships can also take place between the subsidiaries, but for the purposes of this thesis the vertical employment relationship between the inventor and the employing company, typically one of the subsidiaries, is more essential.

An assignment is an individual act and the employer needs to get the rights to a joint invention assigned from each of the co-inventors separately. This can be perceived as *the horizontal dimension of the assignment*. All the *parallel rights to the invention* are needed in order to have a full assignment and ownership to the invention. Unless the assignee does not have all the rights to the invention, then the possibilities to utilize the invention are limited and determined based on the rules of joint ownership. But there can also be *a vertical dimension to an assignment*. After the rights to an invention made by an employee have been vested into the employer, there could still be a need to assign them further to a party acting as an assignee for a patent application. Such a chain of rights may be needed, for example, when the company employs its employees via its subsidiaries.

³⁶⁶ According to Advanced Video Tech, the first transfer was made before the patent application was filed, in the employment agreement between the co-inventor and a company called Infochips. The second transfer occurred when Infochips’ “receivables” pledged as security in a financing agreement between Infochips and an entity called Lease Management Services were seized by the latter when Infochips in 1993 went out of business. The third transfer occurred in 1995 when Lease Management sold the Infochip assets to one of the three co-inventors. A fourth transfer occurred when the co-inventor having bought the assets assigned his ownership interest in the patent to an entity called AVC Technology Inc.

³⁶⁷ Erkko Autio and Llewellyn D. W. Thomas, ‘Innovation Ecosystems: Implications for Innovation Management?’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 3.

The need for a subsequent transfer of rights also occurs when the inventor is employed by a third-party company and the rights have been agreed to be transferred to a contracting party. In such a case the assignment takes place between the two companies. There could even be more than two chains of rights in respect of the invention, for example if there is a need to assign the rights further to the parent company. What is essential is that the chain of the rights from the inventor needs to be unbroken, namely that there cannot be any gaps between the chain leading from the inventor to the final assignee.³⁶⁸

4.5.6 Confirmatory assignment

Despite a valid assignment and an unbroken chain of assignments from each of the inventors, it may still be necessary to execute a formal type of assignment when filing a patent application for the invention, and to submit it to the patent office at the time of filing or shortly after. Namely, some of the world's patent offices require an applicant to provide a signed assignment document(s) from the inventors to prove the entitlement to apply for a patent for the invention. When the actual assignment of the rights has already taken place in a valid manner, in compliance with the relevant statutory requirements or as part of an employment agreement, this document is merely a formality, a "*confirmatory assignment*". As such, it can be used to "confirm" an automatic (and unwritten) assignment from the inventor in such countries where the rights to the employees' inventions automatically belong to the employer, such that has purportedly taken place at some prior point of time, and to convert it to a written form. This could be important for example for due diligence purposes if prior to a planned transaction including a specific patent no written evidence can be found of the assignment of rights to the invention. A confirmation of the assignment may be required as a condition which must be fulfilled before completing the transaction. Confirmatory assignments are also frequently used, even if a written assignment already exists, when the parties do not want to disclose the assignment document in a public file wrapper. For example, an employment agreement also contains sensitive information, such as the inventor's salary. The confirmatory assignment is also commonly used to record such non-employee assignments where the commercial terms of the assignment are to remain confidential. But it is also in the interest of the patent office to receive a separate, simple assignment document for the purposes of applying patent and documenting title, instead of complex and diverse assignment agreements, addressing also other matters beyond IP rights.

³⁶⁸ A broken chain of the rights regarding some of the inventor's part leads to an invalid assignment and can be used in invalidating all or some of the claims as in the referred UK court case.

In most jurisdictions there is no clear statutory basis for the confirmatory assignment. It is, however, clear that the confirmatory assignment, when executed in writing, is proof of the transfer of the rights from the assignor to the assignee. However, timewise, does the confirmatory assignment have the effect of ratifying the unwritten transfer of the rights having taken place at some prior point in time, or does it merely serve as a piece of evidence for the transfer of the rights effective as of its execution date? The answer can have a significant impact on the patent rights, as was seen in the UK case concerning the rights at the time of seeking a priority right. Given the uncertainty of the legal effect of the confirmatory assignment, in respect of the effective time, it would be wise to always have a written assignment in place already at the time of the actual rights transfer.

In the U.S. the confirmatory assignment is a statutory matter:

35 U.S.C. § 261

Subject to the provisions of this title, patents shall have the attributes of personal property.

Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States.

(--)

*An assignment, grant or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent and Trademark Office within three months from its date or prior to the date of such subsequent purchase or mortgage.*³⁶⁹

The provision requires that apart from patent applications, also assignments are to be made in writing. This does not exclude the option to submit a written employment agreement as “an instrument in writing” but as concluded, a separate document might be a more appropriate option. Further, the provision states that an assignment shall be void against any subsequent purchaser or mortgagee, unless the assignment is recorded in the Patent and Trademark Office within three months from its date or prior to the date of the transaction. In the event that the assignment is not recorded within the defined time, then the assignee assumes the risk of having its rights transferred to a subsequent bona fide purchaser or a lender acting without a notice of assignment. That is, the law protects a third party who is in the belief that the assignee in the patent office records is up to date and no subsequent assignment has occurred.

It should be noted that a confirmatory assignment, unlike for example a statutory assignment according to the relevant employee invention law, typically needs to be

³⁶⁹ 35 U.S.C. § 261; Emphasis added.

*signed by the inventor(s).*³⁷⁰ Thus, unless the employer provides to the patent office documentation such as employment contracts, the employer needs to have the inventor sign the necessary documents to be able to apply for a patent for the invention made by the employee. The inventor might have a duty to do so based on the clause in their employment contract. In Finland this duty has been set in the Decree on the Right to Employees' Inventions³⁷¹:

Section 1

When the rights to an invention made by an employee have under the Act on the Right to Employees' Inventions (656/1967) (--) been transferred to the employer and the employer intends to apply for a patent for the invention, *the employee shall sign an assignment concerning the transfer of rights and any other documents that may be required in the patenting process*, except where the employee considers that the rights to his invention have not passed to the employer.³⁷²

What if despite such a duty the *inventor refuses to sign* the assignment, or the inventor has left the company, moved abroad, and *is not reached*? In the U.S., for example, a diligent effort must be made to locate and have the inventor(s) sign. Nevertheless, if their efforts are unsuccessful then showing "sufficient proprietary interest" can justify filing without a signature, on behalf of such non-signing inventor(s). Further, the oath or declaration in such an application needs to be accompanied by a petition including proof of the pertinent facts, to show that such action is necessary to preserve the rights of the parties or to prevent irreparable damage.³⁷³

In general, an assignment document shall contain sufficiently identified parties and the object of an assignment, in order to address who has assigned which invention to whom. The document also typically contains the basis for the assignment, for example such as a reference to "past and continued employment", which can have the function of also being consideration for an assignment. Namely, a generally recognized principle in the contract law is that in order for any agreement deemed to be legally binding, each party must gain some benefit of entering into it, i.e. "*consideration*".

³⁷⁰ Signature requirements vary with each country, though. For documenting purposes it is always better to request signatures from inventors.

³⁷¹ Finnish Decree on the Right to Employees' inventions (527/1988, amendments up to 1218/2000).

³⁷² Decree on the Right to Employees' Inventions 1§; Emphasis added.

³⁷³ 37 C.F.R. § 1.47.

4.6 Compensation for rights

4.6.1 Consideration and encouraging inventions

4.6.1.1 Consideration impacting validity of assignment

In patent law, an assignment is a contract transferring the rights to an invention from the inventor(s) to the assignee. This permits the assignee, typically the employer, to file a patent application for the invention. For the assignee, this functions as the benefit of the assignment. What is then the benefit for the assignor? As the assignment document is a contract, it must comply with the requirements of the relevant contract law. In common law jurisdictions, for example in the U.S., one of the typical requirements is that a contract must involve a *consideration*.³⁷⁴ The assignment document can refer to, for example, the “past and continued employment” between the inventor and the assignee. This has often been deemed to constitute adequate consideration since the employee-inventor is dischargeable “at will” and the continuation of the at-will employment constitutes consideration for the patent assignment. However, there are also such views that the payment should be a right to which the employee is not already entitled.³⁷⁵

The most obvious form of genuine benefit for the employee for assigning the rights is money or its equivalent. The amount of money need not be large.³⁷⁶ However, according to the earlier case law it needed to be more than nominal. Further, although payment could be deferred,³⁷⁷ the right must be more than illusory. An example of the language in a U.S. assignment document is “*for consideration of the sum of one dollar and other good and valuable consideration, the receipt of which is hereby acknowledged...*” As such, it is a standard clause containing an extremely nominal definition for the consideration, which in more recent case law has been held as generally irrelevant to the purpose of contract.³⁷⁸ There are many

³⁷⁴ UCC, § 3-303 (“Value and consideration”).

³⁷⁵ Christopher M. Mislow, ‘Necessity May Be the Mother of Invention, but Who Gets Custody: The Ownership of Intellectual Property Created by an Employed Inventor’ (2012) 1(1) Santa Clara High Technology Law Journal, pp. 100 & 102.

³⁷⁶ It could be for example a salary raise of 100 USD per week, see *Hammermill Paper Co. v. Palese*, Civ.No. 7128 (Del. Ch. June 14, 1983).

³⁷⁷ It could be for example ten annual stock payments following termination of employment, see *Bradford v. New York Times Co.*, 501 F.2d 51 (2d Cir. 1974).

³⁷⁸ In *Bennett v. American Electric Power Service Corp.*, 2001 WL 1136150 (Ct. App. Ohio, 2001) Appeals Court held that a contract was valid despite the failure of one party to pay one dollar in consideration that was mentioned in the contract since all other terms of the contract were clear and proper.

variations of the clause - however they all serve the same purpose of removing the argument that the contract should fail because of a lack of any consideration. The language could also be more general “*for value received...*”, without defining the value. Even if some courts have found that all nominal considerations are inadequate, no requirement has been attached to the concept of adequate consideration which would require the consideration to approximate the value of the assigned invention.

In fact, typically the question of the value of an invention is not an issue that could finally be solved at the time of the assignment. The real value of the invention cannot often be determined until after years of utilization. However, at the time of applying for the patent protection for the invention, not to mention the earlier phase of assigning the rights, the invention is not usually at a very mature stage of its development, nor of utilization, yet. This is especially true with pre-invention assignments used, for example, in the U.S. As the invention at the time of such an assignment is not even made yet, it is impossible to define any consideration that would somehow correspond to the value of such an invention. Such an *ex ante* bargaining for patent rights is also difficult due to the speculative nature of the contracts; the likelihood that a given employee-inventor will invent a truly valuable invention in the future is often relatively small.³⁷⁹

Since applicants originating from any part of the world seeking patent protection in the U.S. need to execute an assignment with the USPTO, the requirement of adequate consideration is relevant also for applicants outside the U.S. However, in practice, in those countries where the assignment document required by the patent office acts merely as a confirmatory assignment, the actual assignment has already taken place. It should be noted that the issue of a consideration in connection with an assignment in such a case may not be a mere contractual issue. Namely, just like the issue of an assignment in statutory regimes is a matter of law, the possible compensation for such an assignment in most of these countries is also regulated by the law. The rules in this respect again vary between different countries.

4.6.1.2 Different ways of crediting employed inventors

Recognition of employee-inventor creativity can take place in many ways, such as in a form of right to be named as an inventor. Indeed, inventorship is one key form of attribution. *Yanisky-Ravid* has studied the important role of *granting attribution rights* to employed inventors and has pointed out that the main justification for

³⁷⁹ Steven Cherenksy, ‘A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property and Personhood’ (1993) 81(2) California Law Review (1993), pp. 622-623.

attribution rights stems from acknowledging the person behind the innovation.³⁸⁰ “Considering the complexity and uniqueness of relations within a workplace, employees should be entitled to a particularly strong attribution right for inventions and patents they develop in the workplace. Therefore, the employer’s attribution of inventions and patents to their actual inventors is important and costs relatively little, as the employer must neither waive IP rights nor invest funding to maintain the right.”³⁸¹

Regarding the attribution rights of corporations in the case of copyright, *O’Connor* has rejected “the notion that corporation persons can be deemed to have been endowed with the creative faculties of sentient humans for purposes of legal attribution of authorship or inventorship”; bizarre legal fiction such as this does significant harm to creative natural persons who increasingly must sell their creative faculties to employers. Further, creative persons need to secure attribution for their works, for example because such credit must be represented in their resumes to ensure that they remain viable in the job market. At the same time, however, firms that serve as innovation producers need to be certain of their ability to control the exclusive rights of ownership over copyrights and patents.³⁸²

Recognition going further than the mere attribution of rights was presented earlier in connection with a shop right. According to this older view, the shop-right doctrine equitably distributes patent rights between an inventor and their employer; the inventor retains the patent’s title and the employer retains the free use, which adequately reflects the parties’ presumed intent.³⁸³ However, although *retaining the patent* for the employee might seem rewarding, it has already been concluded that in the current world this view might no longer meet the employer’s interests. Indeed, *Merges* has referred to employee inventions as “one component of a complex, multicomponent product whose total market value often far exceeds the value of the component standing alone”. As a result, the associated patents could serve as a basis for a hold-up strategy *if* the patents were owned by individual employees. The prevailing rule of employer ownership prevents this result, and thus makes good

³⁸⁰ Shlomit, Yanisky-Ravid, “‘For a Mess of Pottage’: Incentivizing Creative Employees Toward Improved Competitiveness’ (2013) 43 Cornell HR Review, p. 4.

³⁸¹ *Ibid.*, p. 6.

³⁸² Sean M. O’Connor, ‘Hired to Invent vs. Work Made for Hire: Resolving the Inconsistency Among Rights of Corporate Personhood, Authorship, and Inventorship’ (2012), 35 Seattle University Law Review, p. 1245.

³⁸³ William P. Hovell, ‘Patent Ownership: An Employer’s Rights to His Employee’s Invention’ (1983) 58(4) Notre Dame Law Review, p. 875.

economic sense.³⁸⁴ In addition, another kind of approach has been proposed relating to the shop right: “One solution may be to create a *reverse shop-right* in the inventor. An inventor would receive a royalty-free, non-exclusive, and singly transferable license to use any patent which he assigns to his employer. This right would enable the inventor to bargain for a higher salary based on his invention’s value.”³⁸⁵ But again, the use right for an invention that might be only a small part of the entity of patented technology it relates to, for example an individual patent related to smart phones which contain multitude of other patents, does not add value as the employee is not entitled to use the other patents of the “complex, multicomponent product”.

However, when the invention is *not* part of a multi-patent product but an innovation that could be commercialized independently, such as an “app” providing a certain service for smart-phone users, *corporate spin-offs* is a practice that in some cases amounts to contingent compensation for the inventions. Namely, it is not uncommon for employees to leave the company and establish their own business. Often the spin-off firm is started specifically to take advantage of a technology which has first been explored during employment with the firm. Spin-off investments such as these often take the same form as venture capital investments, with the ex-employer in the role of a venture capitalist. Often the investing company has the right to expand its ownership stake in the start-up beyond some initial share. When structured this way, corporate spin-offs are an example of the *contingent ownership mechanism*.³⁸⁶ Accordingly, the ownership structure implementing the first-best investment would be where one party (such as the employer) owns the firm initially, while the other party (such as the employee) has the option to buy at a predetermined price at a later date.³⁸⁷ The possibility for this kind of compensation is acknowledged also by Yanisky-Ravid, according to whom it may be more attractive for inventors to develop products within a business they establish themselves in order to protect their connection to the product. Therefore, companies would better leverage the

³⁸⁴ Robert P. Merges, ‘The Law and Economics of Employee Inventions’ (1999) 13(1) Harvard Journal of Law & Technology, p. 13. According to Merges, “[p]re-assignment to a single entity avoids holdup costs.” A “hold-up” in economic parlance occurs when one person extorts abnormally large amounts of money from another person. See Paul Milgrom & John Roberts: *Economics, Organisation and Management* (1992), p. 137 and pp. 307-308, for example (defining “holdup”).

³⁸⁵ William P. Howell, ‘Patent Ownership: An Employer’s Rights to His Employee’s Invention’ (1983) 58(4) Notre Dame Law Review, p. 889.

³⁸⁶ Robert P. Merges, ‘The Law and Economics of Employee Inventions’ (1999) 13(1) Harvard Journal of Law & Technology, p. 24 + fn 78 regarding “contingent ownership”: See Georg Nöldeke & Klaus M. Schmidt, ‘Sequential Investments and Options to Own’ (1998) 29(4) RAND Journal of Economics.

³⁸⁷ Georg Nöldeke & Klaus M. Schmidt, ‘Sequential Investments and Options to Own’ (1998) 29(4) RAND Journal of Economics, p. 633.

employee-inventors who are not risk averse by cooperating with them in new ventures, such as giving them benefits for transferring the rights to employers or offering funding for developing their inventions, in exchange for the property rights in the new mutual entities.³⁸⁸

In most of the presented solutions (except the corporate spin-off) the drawback is the limited finances of the individual employee. Indeed, typically in connection with employee inventions, rewarding means monetary recognition for the rights vested to the employer. Companies employ a broad set of rewards to honor innovative efforts which is also acknowledged by a recent study.³⁸⁹ It states that “[i]n addition to salaries, which are the largest, most often used pay component for inventors, firms offer incentives, including bonuses to patents, royalty compensation plans, increased autonomy that allows employees to organize their time and research activities, the option to publish research results, or research grants”.³⁹⁰ In the following, however, the focus will be purely on monetary recognition and its benefits for employees and employers.

4.6.1.3 Incentivizing inventions

When discussing consideration as part of an assignment, a view was presented that adequate consideration should be something to which the employee is not already entitled.³⁹¹ As such, the regular salary as a recognition cannot be considered. Yet, in the U.S. the salary is deemed to include the consideration. *Yanisky-Ravid* has analyzed the common (US) practice of granting IP rights exclusively to employers without a significant reward to employed inventors and has concluded that it may not be the most efficient practice for fostering innovation and prosperity.³⁹² *“Managing employees’ talent, promoting innovation, and improving productivity are critical challenges for organizations. Creative employees and the innovative products they develop can make a tremendous contribution to an organization’s success and competitive position. While employed inventors play an extremely important role in the production of an organization’s technological innovations, they*

³⁸⁸ Shlomit, Yanisky-Ravid, “‘For a Mess of Pottage’: Incentivizing Creative Employees Toward Improved Competitiveness’ (2013) 43 Cornell HR Review, pp. 3-4.

³⁸⁹ Marco S. Giarratana, Myriam Mariani and Ingo Weller, Rewards for Patents and Inventor Behaviors in Industrial Research and Development (2018) 61(1) Academy of Management Journal, pp. 264-292.

³⁹⁰ *Ibid.*, p. 267.

³⁹¹ Christopher M. Mislow, ‘Necessity May Be the Mother of Invention, but Who Gets Custody: The Ownership of Intellectual Property Created by an Employed Inventor’ (2012) 1(1) Santa Clara High Technology Law Journal, p. 102.

³⁹² Shlomit, Yanisky-Ravid, “‘For a Mess of Pottage’: Incentivizing Creative Employees Toward Improved Competitiveness’ (2013) 43 Cornell HR Review, p. 6.

*are often either unrewarded or insufficiently rewarded for their achievements.*³⁹³ Employees lacking substantial incentives will not innovate beyond the minimum required to safeguard their salaries. As a result, innovative productivity is ultimately discouraged. As a conclusion, “[r]ecognizing the critical role of innovative employees in future business performance and providing them with forward-thinking incentives to match their value is a vital step toward improving innovation within the workplace.”³⁹⁴

However, in Europe and especially Scandinavia there are long traditions in awarding employees compensation for assigning their rights to the employer, which Yanisky-Ravid also acknowledges: “Several countries, such as Germany and Scandinavian nations, have had this practice as their legal norm for many years.”³⁹⁵ According to Wolk, today employees may not directly question whether the exclusive rights to an invention accrue to the employer, however “there is a discernable burgeoning opinion that employee-inventors wish, to a greater extent, to receive economic compensation commensurate with their work, especially when business reap significant profits from their inventions”.³⁹⁶ Wolk concludes that “[f]rom a societal point of view, stimulating to desire the innovate is important, and extra remuneration of employees may constitute an incentive for creativity, while at the same time employers may gain competitive advantages or economic profit by assuming employee inventions. Inventors should be rewarded for such positive results.”³⁹⁷ It should be noted, that typically compensation is paid to inventors after an invention has already been made and may be subject to negotiations between the employer and the employee. Yet, according to one study, the freedom to negotiate over compensation, after an invention has been made, inefficiently incentivizes employees to invest effort into inventions and the study devises a unique efficient payment scheme, where a bonus is contingent on the project value.³⁹⁸ This “principal-agent model” cannot, however, be discussed in further details here.

³⁹³ Ibid., p. 1.

³⁹⁴ Ibid., p. 6.

³⁹⁵ Ibid., p. 5.

³⁹⁶ Sanna Wolk, ‘Remuneration of Employee Inventors – Is There a Common European Ground? A Comparison of National Laws on Compensation of Inventors in Germany, France, Spain, Sweden and the United Kingdom’ (2011) 42(3) International Review of Intellectual Property and Competition Law (IIC), p. 272.

³⁹⁷ Ibid., p. 298.

³⁹⁸ Roland Kirstein and Birgit E. Will, ‘Efficient Compensation for Employees’ Inventions’ (2006) 21(1) European Journal of Law and Economics. Their model follows the view of Edmund W. Kitch, ‘The nature and function of the patent system’ (1977) 20(2) The Journal of Law and Economics. Kitch points out that the function of the patent law is to increase the output from resources devoted to technological invention.

To conclude, paying extra for inventions, namely incentivizing inventions, can be deemed to constitute benefits both for the employee, being rewarded for the inventive activities, as well as for the employer, as the incentive is supposed to increase innovativeness among employees, at least when the company compensation scheme is considered to be fair and transparent. In the following, the legal framework for compensating the rights to employee inventions is introduced, to show the variety of different mechanisms that are currently provided in the national laws in the statutory countries. Differences exist, for example, in respect of the basis and the level of compensation which are a challenge for managing company compensation policies at multinational companies where inventions are subject to different compensation rules. After presenting the legal framework for statutory compensation, managing a disharmonized compensation system in a multinational company where the variety of different rules apply will be discussed and the options available for the equal treatment of inventors will be touched upon.

4.6.2 Legal basis for compensation

4.6.2.1 General about duty to pay compensation

The question of whether an employer that has received the rights to an invention made by an employee needs to compensate the inventor employee for assigning the rights is a very country-specific issue. In the “paid-to-invent” –countries the employees are usually considered to be also compensated for their innovative activities in the form of a normal salary, and the employer is not obliged to pay any extra for the rights. This is not a rule without an exception, though.³⁹⁹ However, for the purposes of this thesis the focus is on a comparative overview of the statutory compensation provided in the statutory jurisdictions. Indeed, the employee invention

³⁹⁹ For example, in the United States, state and federal statutes give certain employee-inventors a right of compensation for inventions patented and commercialized by their employer. Federal employee inventors may be entitled to compensation under an Executive Order (Executive Order 10,096 “Providing for a Uniform Patent Policy for the Government with respect to Inventions Made by Government Employees and for the Administration of such Policy” issued by President Truman on January 23, 1953 and amended by Executive Order 10,930 of March 24, 196, now codified in 37 C.F.R. § § 501.1 to 501.11, 1994), or under certain statutory incentive award programs. In addition, certain government contractors may be required by statute to share royalties with inventors in their employ. A few states have enacted similar statutes. However, courts have not allowed inventors a private cause of action under these statutes. Incentive award programs are operated at the government agency’s discretion, and often cap the amount of compensation payable. *Employee-Inventors’ Rights of Compensation under State and Federal Law*, Paper presented by J. Jeffrey Hawley. © 2004 Michael F. Martin, George Wheeler, McAndrews, Held & Malloy Ltd. Pages 3 and 10-11.

(or the equivalent) laws often provide a compulsory and typically “fair and reasonable” *remuneration* to the inventor for assigning the rights to the invention to the employer. Thus, the very same confrontation between the countries following the “employed-to-invent” -doctrine and the statutory regimes also exists in respect of the employer’s duty to pay compensation, and the inventors’ entitlement to such. However, this confrontation does not correspond with the rights to an invention. Namely, in some countries the rights to employee inventions belong to the employer, based on employment, yet the transfer is not considered to be compensated by the normal salary, not at least when the invention is valuable for the employer.

Duty to pay compensation can be linked to a variety of different criteria, depending on the jurisdiction. The right to compensation can be initiated by merely *acquiring the rights to a patentable invention*, or due to the *grant of a patent* or *exploiting the patent* or it can be based on the invention generating a big *value* for the employer. In addition to different bases for compensation, also phases for triggering such vary from country to country. Compensation could also be triggered at multiple points of time, even within one country, so that at the time of an assignment a smaller compensation is paid and later, if the invention appears to be valuable for the company, a greater compensation becomes due.

Who is then obliged to pay compensation if such a duty exists? When compensation is something that is agreed upon and paid already at the time of an assignment – whether before any invention is made or later – then it is clear that the compensation is to be paid by the assignee. However, when the issue of compensation does not become topical until after years of patent prosecution and utilization of the patented invention then the circumstances could have changed. The rights to the invention may have been assigned to a third party, or the employer having acquired the rights in the first place may have ceased to exist. Indeed, in many situations the assignee of the patented invention is different at a later phase compared to the situation at the time of the assignment. It is also possible that the employee no longer works for the same company that the rights were assigned to. The question in this kind of situations is whether the duty to pay compensation still prevails and if it does, whether it is the former employer (if it exists) that shall pay the compensation to the inventor(s), or whether the duty is assumed by a new assignee along with the rights to the invention? All these matters are very country-specific issues, as is the basis for any compensation, and therefore this question is best responded to by providing examples of the different rules determining the basis for paying compensation in few exemplary countries:

4.6.2.2 Acquiring the rights to a patentable invention (Finland)

Compensation for the rights to an employee invention can be triggered already when the employer takes some rights to an invention.

Section 7

Where an employer acquires the right in an invention made by an employee by virtue of section 4 or on other grounds, the employee is entitled to reasonable compensation from the employer even if it was agreed otherwise before the invention was made.⁴⁰⁰

Whenever an employer acquires the rights to an invention made by an employee, then the employee is entitled to reasonable compensation for assigning the rights. The provisions of the Finnish Employee Invention Act apply to inventions that are patentable in Finland.⁴⁰¹ It is worth noting that the provision thus defines the patentability territorially, even if not all the inventions made in Finland are necessarily patented in Finland. However, the Act dates back to the 1960s when the world was not yet as globalized as nowadays, and at that time it was probably sufficient to protect inventions domestically. In the current global world, however, the language may raise a question regarding the applicability of the law also for inventions to which patent protection has not been sought in Finland? The response can be found from the later, second part of the provision which contains an assumption that whenever the employer claims the right to an employee invention which restricts the employee's right to apply for a patent for the invention, such an invention shall be held to be patentable in Finland, unless the employer gives probable reasons for any obstacles to the grant of a patent.⁴⁰² One could ask what these reasons can possibly be if in any case the employer has already taken the rights to the invention. Namely, the law only applies to patentable inventions. Thus, in the event that the employer is of the opinion that the invention is not patentable, the employer could just argue that there is no patentable invention and that "the invention" in question is therefore considered to belong to the employer based on the employment already, as a non-patentable result of the employee's work.

It is also worth noting that the provision defining the duty to pay compensation does not require that the employer applies for a patent for an invention, if only the invention is patentable. The employer could also acquire the rights to an invention that it decides to declare as secret. Reserving the rights to such an invention prevents the employee from applying for a patent for the invention. Therefore, according to the aforementioned assumption in the Finnish law such an invention is deemed to be

⁴⁰⁰ Act on the Right in Employee Inventions, 7§.

⁴⁰¹ Act on the Right in Employee Inventions 1§.

⁴⁰² Act on the Right in Employee Inventions, 1.2§ (526/1988).

patentable in Finland and thus, the employer is obliged to pay the employee reasonable compensation for the rights. It is then another issue whether the compensation for an invention that is declared secret, meaning that the employer cannot gain any financial benefits in the form of licensing the invention, can be at the same level as for an invention where the employer has sought patent protection and has possibly received some licensing revenues.

4.6.2.3 Patent grant (China)

In some countries, compensation is not topical until the invention, to which the rights have duly been vested in the employer, has been granted a patent. However, as mentioned earlier, in some countries the compensation can also be triggered at multiple points in time. In countries where compensation is due for all inventions to which the rights have been acquired, the amount to be paid can be smaller at the time of an assignment while later, a more substantial compensation is paid for the inventions which have been applied and granted a patent for. In other words, the patent grant can trigger an additional award on top of what has been paid at the time of the assignment, due to the invention proving to be truly patentable. For inventions which never result in being patents, the earlier compensation should constitute an adequate compensation. Another kind of example of two-folded compensation is presented from the People's Republic of China:

Article 16

The unit that is granted the patent right shall *reward* the inventor or designer of an employment invention-creation. After such patent is exploited, the inventor or designer shall be given a reasonable amount of *remuneration* according to the scope of application and the economic results.⁴⁰³

The provision provides two types of material incentives for “employment invention-creations” which in Chinese patent law means the inventions made by an employee which belong to the employer.⁴⁰⁴ The “reward” is triggered by the patent grant for an invention whereas the “remuneration” is paid upon exploitation of the patent, based on its economic benefits.⁴⁰⁵ Both types of incentives are defined in further

⁴⁰³ Article 16 of the Revised Patent Law of the People's Republic of China, effective from October 1, 2009 (WIPO translation); emphasis added.

⁴⁰⁴ Article 6 of Patent Law of PRC.

⁴⁰⁵ Article 16 of Patent Law of PRC.

detail in the Detailed Rules for the Implementation of the Patent Law⁴⁰⁶ that were issued soon after the third Patent Law amendment had come to force.

Rule 77 (Original Rule 74)

Where the entity to which a patent right is granted fails to agree with the inventor or the designer on, or to specify in its legitimately enacted company rules the way and amount of reward and remuneration specified in Article 16 of the Patent Law be paid, the entity shall reward to the inventor or designer within 3 months from the announcement of granting the patent. The minimum reward for one invention patent shall not be less than RMB 3000; and the minimum reward for one utility model or design patent shall not be less than RMB 1000.⁴⁰⁷

The *reward* to the inventor shall be paid within three months from the date of the announcement of the patent. The law defines the minimum reward level that cannot be contracted out. The level of compensation and the possibilities to agree on it are handled as topics of their own. What is essential here is that the basis for the reward is the *grant of a patent* for the invention, irrespective of whether the patent is utilized or not.

The regulations governing compensation for the rights to inventions made by an employee in China are complicated and covered by a variety of laws, regulations and policies. These include not only the special laws like the Patent Law, its Implementing Regulations and the Law on Promoting the Transformation of

⁴⁰⁶ Implementing Regulations of the Patent Law of the People's Republic of China (promulgated by Decree No. 306 of the State Council of China on June 15, 2001, amended for the first time in accordance with the Decision of the State Council on Amending the Implementing Regulation of the Patent Law of the People's Republic of China on December 28, 2002, amended for the second time in accordance with the Decision of the State Council on Amending the Implementing Regulation of the Patent Law of the People's Republic of China on January 9, 2010, and effective as of February 1, 2010), Unofficial translation from WIPO database: http://www.wipo.int/wipolex/en/text.jsp?file_id=182267.

⁴⁰⁷ Implementing Regulations of the Patent Law of the People's Republic of China, Rule 77.1.

Scientific and Technological Achievements⁴⁰⁸, but also general laws, like Contract Law⁴⁰⁹, which states as follows:

Article 326:

Where the right to use and the right to transfer employee-developed technology belong to a legal person or an organization of any other nature, the legal person or organization may enter into a technology contract in respect of such employee-developed technology. The legal person or organization shall reward or remunerate the individual(s) who developed the technology with a percentage of the benefits accrued from the use and transfer of the employee-developed technology. Where the legal person or organization is to enter into a technology contract for the transfer of the employee-developed technology, the employee-developer has the right of first refusal under the same conditions.⁴¹⁰

Compensation in China is thus regulated also in Contract Law. It should be noted that the provision does not require a technical achievement needing to be patentable, nor patented. The provision supports the compensation requirement of the patent law, but it is not limited to situations covered by the patent law, namely where a patent is granted, and it is utilized. In addition to all these national, state-wide laws, some local regulations made by provinces and municipalities apply, since most provinces in China have drawn up their own patent regulations⁴¹¹. Trying to apply Chinese regulations can cause confusion as the national laws and local regulations

⁴⁰⁸ The Law of the People's Republic of China on Promoting the Transformation of Scientific and Technological Achievements, adopted at the 19th Meeting of the Standing Committee of the Eighth National People's Congress of the People's Republic of China on May 15, 1996 and thereby promulgated and entered into force as of October 1st, 1996. Article 30.2 of the law states as follows: "Joint stock enterprises may, in accordance with relevant state provisions, convert remunerations or reward into shares or capital contributions to persons who have made significant contributions to research and development and transformation of scientific and technological achievements. The holders are entitled to share profits in proportion to shares or capital contributions." The translation from the article by Wang Gang, 'Inventor Remuneration – how to reward inventors' (2010) *Managing IP*, China IP Focus issue, p. 27.

⁴⁰⁹ Contract Law of the People's Republic of China, Adopted and Promulgated by the Second Session of the Ninth National People's Congress March 15, 1999. Unofficial WIPO translation available at: http://www.wipo.int/wipolex/en/text.jsp?file_id=182632.

⁴¹⁰ Contract Law of PRC, Art. 326.

⁴¹¹ For example Regulations of Beijing Municipality on the Protection and Promotion of Patents, effective from October 1, 2005, Regulations of Shanghai Municipality on the Protection of Patents and Implementation Measures of Shanghai Municipality on the Rights Ownership and Reward and Remuneration of Service invention-creations, effective from April 29, 2007, Regulations on Patent Protection and Promotion in Chongqing City, Patents Regulations of Zipo city etc. The local regulations can be found from WIPO database ("Wipolex") but they are only in Chinese.

are at different levels on the hierarchy, and they may repeat, overlap or contradict with each other in respect of some specific provisions.⁴¹²

During its existence, there have been several amendments to the Patent Law.⁴¹³ Yet, the fundamental principle for awarding and compensating an employee inventor upon the grant (reward) has not changed. The same applies to the compensation based on the commercialization of a patent (remuneration). Notably, the fourth amendment of the Chinese patent law is expected soon. The latest draft amendment for public comment was published in January 2019 and the final version is expected to be approved by the end of 2019. Despite previous proposals to increase statutory awards and remuneration⁴¹⁴, the newest draft remains relatively vague on inventor remuneration and further details are presumably left for future implementing regulations. The latest draft was issued after over three years of deliberation and it was the fourth iteration of the draft that was submitted to the China's National People's Congress (NPC), which implies that the new provisions seem highly debated and many interests at stake are involved.⁴¹⁵ Final changes remain to be seen.

4.6.2.4 Utilizing the patent (China & Hungary)

In many jurisdictions where the basis for compensation is acquiring the rights to a patentable invention made by an employee or obtaining a patent for such, in practice the *level* of compensation is often dependent on the benefits gained from utilizing the patented invention. However, in certain jurisdictions the law explicitly defines utilization as *a basis* for compensation, namely as a factor triggering the payment of such.

⁴¹² Wang Gang, 'Inventor Remuneration – how to reward inventors' (2010) *Managing IP*, China IP Focus issue, p. 25.

⁴¹³ Since its implementation in 1985 the patent law of PRC has experienced three rounds of major amendments in 1992, 2000 and 2008.

⁴¹⁴ In 2015, SIPO (currently CNIPA) published draft rules on employee inventions, which sought to increase the statutory award and the amount of remuneration. The draft rules were never finalized but it is anticipated that the statutory award and remuneration would soon be increased.

⁴¹⁵ It is a 4-party game involving the government (represented by the State Council), the legislator (NPC), employers and employees. The government is eager to encourage and motivate the employees to be more innovative and to shape the economy of the whole society to be innovation-friendly while the employers are lobbying to alleviate the burden of inventor remuneration imposed by the proposed amendments.

China

As said, in China *remuneration* is paid for the *utilization of the granted patent*.⁴¹⁶ It is not the reward upon grant of a patent which causes most concerns for companies but the compensation payable upon its commercialization, namely “exploitation”:

Rule 78 (Incorporating original Rule 75 and Rule 78)

Where the entity to which a patent right is granted fails to agree with the inventor or the designer, or to specify in its legally enacted company rules the way and amount of reward and remuneration specified in Article 16 of the Patent Law, the entity shall, *after exploiting the patent for invention-creation* within the term of the patent right, pay the inventor or designer remuneration at a percentage of not less than 2% each year from the profits generated from the exploitation of the invention or utility model patent, or at a percentage of not less than 0.2% from the profits gained from the exploitation of the design, or pay the inventor or creator a lump sum of remuneration by reference to the above percentages; where the entity to which a patent right is granted authorise other entity or individual to exploit its patent, it shall reward the inventor or designer at a percentage no less than 10% from the royalty fee.⁴¹⁷

Remuneration to inventors is paid after exploiting, namely utilizing the invention. In the absence of an agreement between the parties, the provision contains a minimum level. The remuneration can be a yearly payment during the patent term. Thus, unlike the reward which is typically paid by a one-off payment, the remuneration could be paid in several phases over the lifetime of the relevant patent, based on the profits gained from exploiting the patent.⁴¹⁸ An option is also provided for a lump sum payment. However, in practice, when the patent is utilized in the employer’s own business, it would be difficult to determine the total profit during the term of the patent beforehand, namely the yearly sales of the products incorporating the patented invention also in the future.

However, *exploiting the patent for an invention-creation* can mean both utilizing the patent in the company’s own products (or production, in the case of a manufacturing-technology related invention if such an invention has been patented), as well as also licensing the invention for others to exploit. This is explicitly stated for example in the local Implementation Regulations of Shanghai Municipality:

Article 11

The entity shall, according to the time agreed in the contract, remunerate the inventor or creator of a service invention-creation:

⁴¹⁶ Patent Law of PRC, Art. 16 and Implementing Regulations of the Patent Law of PRC, Rule 78.

⁴¹⁷ Implementing Regulations of the Patent Law of the People’s Republic of China, Rule 78; Emphasis added.

⁴¹⁸ Implementing Regulations of the Patent Law of the People’s Republic of China, Rule 78.

Where the entity has not concluded an agreement with the inventor or creator on the time of payment for remuneration or such agreement is not clear, the inventor or creator may, referring to the following provision require the entity to remunerate within a reasonable period of time:

- 1) The entity, if exploiting the invention-creation by itself, shall pay the corresponding remuneration on yearly basis, and the remuneration of a year shall be paid by June 30 of the following year;
- 2) The entity, if assigning or licensing others to exploit its service invention-creation, shall pay the corresponding remuneration within three months of the date of receipt of the assigning or licensing fee.⁴¹⁹

Remuneration is paid for inventions which have been utilized in the employer's own products or production as well as for inventions, that the employer has assigned or licensed to be utilized by third parties. However, the amount in these two scenarios is determined differently. When the invention has been assigned or licensed out, then the share of the profits to be paid to the inventor is bigger than for the invention that only the employer has utilized.⁴²⁰ This seems justified, given that in a licensing scenario all the profits that serve as the basis for remuneration are associated with the patent in question. However, when an invention is utilized in the employer-company's products, and the profit is calculated on the basis of the turnover of the products incorporating the patented invention, it is more difficult to determine the impact of a specific invention on the product turnover.⁴²¹ The law does not mention the scope of application or the extent of the benefit generated by the relevant patent. However, patents resulting in a new innovative product that generates millions in revenues certainly need to be differentiated from patents that may not result in a significant increase in revenues or a reduction in costs. Nevertheless, this kind of adjustment can still be done on a contractual basis.

Time-wise, remuneration is typically paid within the term of a patent right, 20 years from the filing of a patent application.⁴²² When payments are based on the royalty fees from licensing the patent, the remuneration payment stops when the patent expires, since after this the invention can be used freely by anyone. However, when remuneration is payable based on the profits generated from the sales of a company's products incorporating the invention, the time restriction can raise

⁴¹⁹ Regulations of Shanghai Municipality on the Protection of Patents (December 28, 2001), Art. 11. The translation is from Wang Gang, 'Inventor Remuneration – how to reward inventors' (2010) *Managing IP*, China IP Focus issue, p. 26. No WIPO translation available.

⁴²⁰ Implementing Regulations of the Patent Law of the People's Republic of China, Rule 78.

⁴²¹ Then again, sometimes it can also be very difficult to evaluate the value of an individual invention, or a patent, in a licensing agreement which contains a lot of patents, and possibly includes also some cross-licensing arrangement with the counterparty to the agreement.

⁴²² TRIPS, Art. 33.

questions. For example, can remuneration be stopped even if the products continue to be sold after the patent expires if the invention truly boosts the sales of the products?⁴²³

Hungary

The utilization of a service invention triggers a duty to pay remuneration also in Hungary:

Article 13

(1) Where a service invention is utilized, the inventor shall be entitled to remuneration:

(a) if the invention is protected by a patent (--) from the beginning of its utilization up to the expiration of the definitive patent protection;

(b) if the definitive patent protection (--) lapses due to surrender or failing to pay the maintenance fee by the employer, from the beginning of the utilization up to the date on which the patent (--) would have lapsed because of expiration;

(c) if the invention is kept secret from the beginning of the utilization up to the disclosure of the

invention or up to 20 years from the date on which the employer is notified of the invention, whichever expires later.⁴²⁴

Unlike in China, in Hungary the subject of utilization is *a service invention*, whether patented or not. According to the law the duty to pay remuneration also explicitly covers the utilization of inventions where the employer has failed to fulfill the due diligence to obtain a patent, set to it in the patent law⁴²⁵, as well as utilization of those service inventions which the employer has decided to declare secret. Utilization of a service invention can take place by exploiting the invention by for example making, using, putting on the market or offering for sale such a product which is the subject matter of the invention.⁴²⁶ It can also take place by assigning, or granting third parties a license to use, the invention.⁴²⁷

⁴²³ It should be noted that the time for which the compensation is calculated or defined and paid, is different from the time frame for claiming the compensation. Namely, typically the inventor can duly claim compensation after certain period of the expiration of the patent(s).

⁴²⁴ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 13(1). Supplementary protection in accordance with the Article 22/A dismissed from the article herein due to irrelevance for the purposes of the thesis. Unofficial translation from WIPO database: http://www.wipo.int/wipolex/en/text.jsp?file_id=443430.

⁴²⁵ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 12(1).

⁴²⁶ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Arts. 13(2)(a) & 19(2)(a).

⁴²⁷ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 13(2)(b)(c).

It is worth noting the law defines the entitlement separately for each exploitation.⁴²⁸ Thus, the employer utilizing the invention both in its own products but having also granted a non-exclusive license to some third parties to use the invention in their products, something that is typical in standard related essential patents, shall pay a separate remuneration for the exploitations, unless the duty to pay the compensation is transferred with the license. Namely, there is an option provided by the Hungarian law for the acquirer of the rights to assume the obligation to pay remuneration.⁴²⁹ The law does not set an obligation for an assignee or a licensee to assume the duty to pay remuneration, but it offers an opportunity to assume such. As the remuneration shall be paid separately for each exploitation, literally interpreting this means that even if one licensee has assumed an obligation to pay the remuneration the employer is not released from paying remuneration based on other licenses, in the event that the other licensees have not assumed such a duty. However, the fact that the employee has already received some compensation for the invention from a licensee, may affect the level of the compensation to be paid by the employer.⁴³⁰

4.6.2.5 Valuable patent (UK)

In some jurisdictions the compensation payable for the invention depends on the value of the patent, or the invention - in the UK both. This depends on the time of filing the patent application.

Compensation of employees for certain inventions

40.-(1) Where it appears to the court or the comptroller on an application made by an employee within the prescribed period that –

- (a) the employee has made an invention belonging to the employer for which a patent has been granted,
- (b) having regard among other things to the size and nature of the employer's undertaking, the invention or the patent for it (or the combination of both) is of outstanding benefit to the employer, and
- (c) by reason of those facts it is just that the employee should be awarded compensation to be paid by the employer,

⁴²⁸ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art.13(3).

⁴²⁹ Act No. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 13(4).

⁴³⁰ It is another issue that it is probably very rarely when the licensee, only being entitled to use the patented invention and not able to benefit financially of it, voluntarily assumes the duty to pay the compensation for the inventor. Of course, in specific cases such a duty could be agreed as a part of the licensing arrangement and be addressed and adjusted in the related licensing fee.

the court or the comptroller may award him such compensation of an amount determined under section 41 below.⁴³¹

Amount of compensation

41.-(1) An award of compensation to an employee under section 40(1) or (2) above shall be such as will secure for the employee a fair share (having regard to all the circumstances) of the benefit which the employer has derived, or may reasonably be expected to derive, from any of the following -

- (a) the invention in question;
- (b) the patent for the invention;
- (c) the assignment, assignation or grant of -
 - (i) the property or any right in the invention, or
 - (ii) the property in, or any right in or under, an application for the patent, to a person connected with the employer.⁴³²

The UK Patents Act provides that where an employee makes an invention which is of *outstanding benefit* to the employer then the employee shall be awarded “fair” compensation. This provision has been in the Patents Act since the very beginning, in 1977, but in 2005 it was amended to make the compensation payable when the *invention*, and not just the patent as in the earlier law, is of outstanding benefit. As the patent claims determine what constitutes a patentable invention in the patent application, it is only logical to explore the benefits derived from the claimed invention when evaluating the compensation which is paid for the rights to the invention. After all, the subject matter is regulated specifically in the patent law. However, for some reason the UK has adopted a different approach for inventions that have been patented after 1 January 2005. As the amendment is not applied retroactively, also in the UK, just like in Germany, the situation with compensation will remain mixed for some time. As such, inventions may still exist where the older definition applies, i.e. the outstanding benefit is merely derived from the patent.⁴³³ This presents an additional challenge for invention management in respect of inventions which originate from the UK.

What does “outstanding” then stand for? Case law⁴³⁴ can shed some light on this question:

⁴³¹ Patents Act 1977 as amended by The Patents Act 2004 (22.07.2004), Section 40(1): <https://www.legislation.gov.uk/ukpga/1977/37>.

⁴³² Patents Act 1977 as amended by The Patents Act 2004, Section 41(1).

⁴³³ This applies to inventions where the granted patent won't expire until in the end of the year 2025. It should be noted, though, that the time frame for compensation claims in the UK is longer, not expiring until one year after the patent has expired.

⁴³⁴ Kelly and Anor v GE Healthcare Ltd [2009] EWHC 181 (Pat) (11 February 2009).

Dr Kelly and Dr Chiu brought a claim against their former employer GE Healthcare (“GE”), seeking an award of compensation from their employer under Section 40 of the Patents Act 1977. The claimants were two research scientists who had been involved in the first synthesis of a compound, which later formed the basis of a patented radioactive imaging agent which was a highly successful product, sold under the trade mark Myoview, for their employers. Sales of Myoview amounted to approximately £1bn. (The actual profit margins, however, form part of a confidential schedule to the Judgment and are not publicly available.) Claim was for a share of the benefit which Drs said had been derived by their employer from the patents.

Evidence put forward by the employees valued the patents at about £700m; a hundred times greater than GE's figure of £7.6m. The Court concluded that had there been some generic competition it would have caused the price of Myoview to drop by at least 10% on about half of its sales. On sales of £1bn this would have reduced GE's revenues by £50m. Given that the patents prevented such generic competition the Court held that the benefit from the patents was thus £50m. The Judge stated he had no doubt that the real benefit to business overall was much greater but the broader benefit was not really capable of quantification. By taking the lower figure, the Judge said he was in no way casting doubt on his conclusion that the overall benefit was outstanding, i.e. “something out of ordinary and not such as one would normally expect to arise from the results of duties that employee is paid for”⁴³⁵.

Taking into account a variety of factors the Court concluded that 3% of the value of the benefit represented a just and fair award to the employee claimants. The award was divided so as to Dr Kelly received 2% and Dr Chiu 1% of the £50 million figure taken as the value of the patents.⁴³⁶

“Outstanding” thus means something special or out of the ordinary, that would not normally be expected to arise from the results of the duties the employee is paid for. It is the benefit of the patent, or the invention under the new provision, which must be outstanding rather than the benefit of the sales of products made in accordance with the invention.⁴³⁷ Further, the notion of outstanding benefit has nothing to do with how inventive the employee was, although the employee’s efforts and skill are accounted for in deciding on the quantum of an award.⁴³⁸ To conclude, compensation in the UK is paid for inventions made by employees only in cases where the invention or the patent (depending on the time of filing the patent application) is of “outstanding benefit” to the employer. In other words, it is the value for the employer which justifies paying the inventors their own share. This leads to the next topic

⁴³⁵ Superintending Examiner in GEC Avionics Limited’s Patent (Ellis’ Application) [1992] RPC 107.

⁴³⁶ England and Wales High Court (Patents Court) decisions from the British and Irish Legal Information Institute Databases: <http://www.bailii.org/ew/cases/EWHC/Patents/2009/181.html>.

⁴³⁷ Memco-Med Limited’s Patent [1992] RPC 403, p. 413, lines 14-15.

⁴³⁸ The Judge Mr Justice Floyd in Kelly and Anor v GE Healthcare Ltd [2009] EWHC 181 (Pat) (11 February 2009).

regarding the level of compensation, namely what is considered a fair share for the inventor in jurisdictions with a duty to compensate the rights.

4.6.3 Level of compensation

4.6.3.1 General

In jurisdictions with specific employee invention legislation in place, such as in Finland⁴³⁹ and Germany⁴⁴⁰, the law usually provides mandatory compensation to inventors for transferring their invention rights to the employer. However, regulations regarding compensation payable to employee inventors also exist in countries where employee-invention issues are regulated in the national patent laws, such as in China⁴⁴¹ and Japan⁴⁴². Since each invention is different, and the circumstances related to both making the invention as well as utilizing the patented invention vary, it would be very difficult to define a certain fixed level of compensation for every invention made by an employee working in a certain country. As a result, the level has often been defined in the laws using relatively vague terms such as “*fair and reasonable*”. This can raise uncertainty when determining the amount of compensation. Regardless, it permits companies to create their own compensation schemes and guidelines that simplify and streamline the payment procedures, as long as the awards defined in the scheme are considered to be fair in the light of the applicable regulations.

However, in some countries, such as in China, the law contains a *statutory minimum level* for compensation. Furthermore, in some countries, remuneration has been tied to the level of some other payment such as a license for the invention. In other words, the payable compensation is defined based on a level which the employer would have to pay to license a similar invention. This approach is called *license analogy* and it is adopted in the law for example in Hungary.⁴⁴³ In addition, the law can also provide a *statutory calculation scheme* such as in Germany.⁴⁴⁴

⁴³⁹ Act on the Right in Employee Inventions, 7§.

⁴⁴⁰ Guidelines for the Remuneration of Employees' Inventions in Private Employment (Richtlinien, RL) of 20 July 1959, amended by Guideline of 1 September 1983, enacted in accordance with §11 of the Employees' Inventions Act of 25 July 1957.

⁴⁴¹ Patent Law of PRC, Art. 16 and Implementing Regulations of the Patent Law, Rule 77 and 78.

⁴⁴² Japan Patent Act No. 121 of April 13, 1959, amended up to Act No. 55 of July 10, 2015.

⁴⁴³ Act XXXIII of 1995 on the protection of inventions by patents, Art. 13(7)(8).

⁴⁴⁴ RL 6-13 §.

4.6.3.2 Reasonable remuneration (FI, JP)

In most of the Scandinavian countries, the remuneration to be paid for the rights to an invention made by an employee shall be “reasonable”. This is the definition provided for example in the Finnish law:

Finland

Section 7

Where an employer acquires the right in an invention made by an employee by virtue of section 4 or on other grounds, the employee is entitled to *reasonable compensation* from the employer even if it was agreed otherwise before the invention was made.

When determining the amount of the compensation, particular attention shall be paid to the value of the invention, the scope of the right which the employer acquires, as well as to the terms and conditions of the employment contract of the employee and the contribution which other circumstances connected with the employment had to the conception of the invention.⁴⁴⁵

In Finland the duty to pay compensation is triggered already by acquiring the rights to an invention. According to the law, the compensation shall be *reasonable* considering for example the value of the invention, the scope of the rights acquired by the employer and the terms and conditions of the inventor’s employment contract. In addition, more detailed guidance is available for determining reasonable compensation at the decree level. According to the decree the economic value of the invention shall take into account both the value of the invention in the use of the employer as well as the benefit derived from the transfer of rights.⁴⁴⁶ Further, the value of the invention shall be determined based on the measurable economic benefit such as the savings derived from material or production costs, as a result of using the invention in question.⁴⁴⁷ In cases where it is not applicable to determine the benefits based on savings, for example because the invention does not result in savings in production costs but rather has a positive impact on the sales of products incorporating the invention, the value is determined based on a licensing analogy, namely on the basis of a licensing fee which the employer would have to pay for acquiring the right to a corresponding free invention from a third party. Alternatively, in cases where the invention has been licensed, the net proceeds in accordance with the licensing agreement will be considered as the value of the

⁴⁴⁵ Act on the Right in Employee Inventions, 7§; Emphasis added.

⁴⁴⁶ Decree on the Right to Employees’ inventions, 3.1§.

⁴⁴⁷ Decree on the Right to Employees’ inventions, 3.2§.

invention.⁴⁴⁸ Finally, if none of the aforementioned can be applied as the basis for determining compensation, then the value of the invention shall be determined by assessment (which is again a very abstract and vague expression).⁴⁴⁹

Japan

The Japanese Patent Act⁴⁵⁰, too, contains a provision for the payment of reasonable remuneration. The relevant article in this respect, Article 35, has been included in the Patent Act from the very beginning and remained untouched until the changes that took effect on April 1, 2016.

Article 35

(4) Where the employee, etc., in accordance with any agreement, employment regulation or any other stipulation, vests the right to obtain a patent and the patent right for an employee invention in the employer, etc., or grants an exclusive license therefor to the employer, etc., or where an exclusive license is deemed to have been granted pursuant to Article 34-4(2) in the case where the employee, etc., in accordance with any agreement, employment regulation or any other stipulation, grants a provisional exclusive license therefor to the employer, etc., for an employee invention, the said employee, etc. shall have the right to receive *reasonable money or any other economic benefits* (referred to as “reasonable benefits” in the next paragraph and paragraph (7)).⁴⁵¹

Notably, the 2015 revision changed the earlier term “reasonable remuneration” to “reasonable remuneration or other economical profits”, in order to clarify that the reward for an employee invention should not only be restricted to monetary remuneration but can also be provided also in the form of other forms of economical profits such as a job promotion or support for an overseas study program.

The previous law contained an assumption on the reasonability of the remuneration, in case certain criteria were fulfilled and even if the provision was slightly amended, the assumption remained:

(5) Where an agreement, employment regulation or any other stipulation provides for the reasonable benefits, providing reasonable benefits in accordance with the said provision(s) shall not be considered unreasonable in light of circumstances where a

⁴⁴⁸ Decree on the Right to Employees’ inventions, 3.3§.

⁴⁴⁹ Decree on the Right to Employees’ inventions, 3.4§.

⁴⁵⁰ Patent Act No. 121 of April 13, 1959, amended up to Act No. 55 of July 10, 2015 (in the following: Patent Act No. 121 of 1959).

⁴⁵¹ Patent Act No. 121 of 1959, Art. 35.4; Emphasis added. Unofficial translation of the Act from WIPO Database of Intellectual Property Legislative Texts used in this thesis: <http://www.wipo.int/wipolex/en/details.jsp?id=16061>.

negotiation between the employer, etc. and the employee, etc. had taken place in order to set standards for the determination of the said reasonable benefits, the set standards had been disclosed, the opinions of the employee, etc. on the determination of the content of the said reasonable benefits had been received and any other relevant circumstances.⁴⁵²

Accordingly, companies shall disclose internal standards, in practice in the form of an award scheme, in order to determine the value of inventions, and to hold “rational” talks with their employees when setting values for their inventions. Such discussions cannot be one-sided, but true negotiations need to take place between the employer and the employee in order to set standards for determining compensation in accordance with the provision. This requirement for dialogue is an attempt to avoid inventor compensation claims that can lead to unreasonably high payments for employers, which transpired in the groundbreaking “blue led” case in 2004.⁴⁵³ This case was not the first case, though. In one of the earliest and most prominent cases, the so called “blue diode” case, the court’s decision stood for the proposition that “the employer can legitimately become an applicant only after the inventor has received fair compensation for his contribution to the invention.”⁴⁵⁴

Unless there have not been negotiations or despite negotiations the content of the benefits granted appears to be unreasonable, the law defines how reasonable benefits should be defined:

(7) Where no provision setting forth the reasonable benefits exists, or where it is recognized under paragraph (5) that the reasonable benefits to be granted in accordance with the relevant provision(s) is unreasonable, the content of the reasonable benefits to receive under paragraph (4) shall be determined by taking into consideration the amount of profit to be received by the employer, etc. from the

⁴⁵² Patent Act No. 121 of 1959, Art. 35.5.

⁴⁵³ S. Nakamura v. Nichia Corporation, Case No. Heisei 13 (wa) 17772 (Tokyo D. Ct., Jan. 30, 2004). Tokyo District Court first granted Mr. Shuji Nakamura, the inventor of a process for making LEDs that emit bright blue light, as remuneration for one of his numerous inventions JPY 60 billion (USD 550 million at the exchange rate in January 2004). This caused a shock wave among Japanese Corporations, although when the District Court handed down the decision, discussions on amendments to Article 35 were already under way. In the subsequent settlement before the Tokyo High Court, Professor Nakamura received JPY 800 million (appr. USD 7 million) for all his inventions made at Nichia. Professor Nakamura was one of the three recipients of the 2014 Nobel Prize in Physics for his work on blue leds. Summary from Shoichi Okuyama ‘New Employee Invention Scheme in Japan’ (2017) LII(3) les Nouvelles – Journal of the Licensing Executives Society.

⁴⁵⁴ Olympus Optical Co., Ltd. vs. Tanaka, Case No. Hei 13 (uke) 1256 (Sup. Ct., Apr. 22, 2003).

invention, the employer, etc.'s burden, contribution, and treatment of the employee, etc. and any other circumstances relating to the invention.⁴⁵⁵

In practice, assessing the value of an invention cannot often be determined until after years of utilizing the invention and therefore, the remuneration could be triggered at multiple phases. Similarly, the overall reasonability cannot be considered until after all the payments have been made. However, by this time the inventor may no longer be employed by the company, which might lower the threshold for disputing the reasonability of an award offered by a former employer. Therefore, it is in the employers' interests to create a scheme with rewards that are deemed to be fair and reasonable and to manage a proactive payment procedure rather than a system based on inventor claims.

The revised law newly prescribes that the Ministry of Economy, Trade and Industry (METI)⁴⁵⁶ shall provide guidelines for determining "reasonable profit" for such a reward.⁴⁵⁷ The guidelines clarify, for example, that "other economic benefit" includes stock options, foreign study opportunities, and extra vacation days, but excludes honorary titles and appreciation certificates. The guidelines also set forth more details on the procedures that employers must follow to have their standardized schemes supported, of which the procedures are largely borrowed from Japanese labor law practice. Therefore, any company that has employees in Japan, who are potentially creating patentable inventions, should establish an invention policy setting forth an invention compensation formula and follow the procedures published in the METI guidelines so that its policy and compensation formula can be strongly defended in court if necessary. As a practical insight, "[t]he outcomes of disputes with employee inventors on compensation will hinge on the company's execution and documentation of such procedures".⁴⁵⁸ Again, essentially, it is a question of efficient invention management ensuring compliance of the Japanese law.

⁴⁵⁵ Patent Act No. 121 of 1959, Art. 35.7.

⁴⁵⁶ Patent Act No. 121 of 1959, Art. 35.6. The Ministry of Economy, Trade, and Industry or METI, was created by the 2001 Central Governmental Reform when the Ministry of International Trade and Industry merged with other ministries related to economic activities.

⁴⁵⁷ The guidelines for procedures to determine the details of reasonable remuneration or other economic benefits were announced as a notification of the Ministry of Economy, Trade and Industry on April 22, 2016: Ministry of Economy, Trade, and Industry Notice No. 131.

⁴⁵⁸ The cited sentence is a direct quote from "Japan Patent Act Amendment: How to compensate inventors now?" An internet article in White & Case Technology Newsflash by Eric Kosinski, David Albagli and Shino Asayama, 8 July 2016.

4.6.3.3 Statutory amount (CN, RU)

China

In some countries, such as for example in China, the law defines the minimum level for compensation:

Rule 77

Where the entity to which a patent right is granted fails to agree with the inventor or the designer on, or to specify in its legitimately enacted company rules the way and amount of reward and remuneration specified in Article 16 of the Patent Law be paid, the entity shall reward to the inventor or designer within 3 months from the announcement of granting the patent. *The minimum reward for one invention patent shall not be less than RMB 3000*; and the minimum reward for one utility model or design patent shall not be less than RMB 1000.⁴⁵⁹

The reward to be paid for the grant of the patent, irrespective of its utilization, shall be a minimum of 3.000 RMB. However, the minimum level of remuneration for a patent that has been utilized has not been defined as a specific monetary amount:

Rule 78

Where the entity to which a patent right is granted fails to agree with the inventor or the designer, or to specify in its legally enacted company rules the way and amount of reward and remuneration specified in Article 16 of the Patent Law, the entity shall, after exploiting the patent for invention-creation within the term of the patent right, pay the inventor or designer remuneration at a percentage of *not less than 2% each year from the profits generated from the exploitation of the invention* or utility model patent, or at a percentage of not less than 0.2% from the profits gained from the exploitation of the design, or pay the inventor or creator a lump sum of remuneration by reference to the above percentages; where the entity to which a patent right is granted authorizes other entity or individual to exploit its patent, it shall reward the inventor or designer at a percentage no less than 10% from the royalty fee.⁴⁶⁰

The inventor shall be entitled to a separately defined minimum percentage share of the profits generated by the employer's or a third party's exploitation of the patent. The percentages differ depending on whether the patent is exploited in the employer's own business or by licensing the invention out. The latter share is higher than for inventions which are exploited by employer's production, as the profits from

⁴⁵⁹ Implementing Regulations of the Patent Law of the People's Republic of China, Rule 77; Emphasis added.

⁴⁶⁰ Implementing Regulations of the Patent Law of the People's Republic of China, Rule 78; Emphasis added.

licensing are derived from the patent whereas the sales price of a product is also impacted by factors other than patents.

It should be noted that the latest draft of the fourth amendment to the Chinese patent law includes a newly added paragraph to Article 6, stating that the entity may use property-right incentives, such as equities, stock options and profit sharing to reasonably share the earnings of innovations with inventors and improve the exploitation of the invention.⁴⁶¹ The proposed amendment resembles the revision of the Japanese patent law, which added that compensation can also be given in the form of other economic benefits. Notably, there was also an earlier proposal, the specific Draft regulations for employee inventions.⁴⁶² The minimum level of the reward to be paid for the patent rights to the inventors proposed therein was twice their average monthly salary.⁴⁶³ The proposed minimum percentages for the remuneration were 5% from the operating profit or 0.5% from the revenue from exploiting the patent rights.⁴⁶⁴ For the assignment or licensing of the patent rights, the total remuneration should have been, at a minimum, 20% of the net income from such an assignment or licensing.⁴⁶⁵ However, the Draft Regulation aroused great criticism from the employer side. Companies especially complained that the minimum standards for rewards and remunerations were too high to implement, or the statutory provisions looks more like labor standards which might conflict with the market doctrine. As a result, the Draft Regulation was sheltered.⁴⁶⁶ Thereafter, the fourth patent amendment was initiated, and remuneration is expected to continue to be regulated by the patent law, and details by the implementation regulations of the patent law.

⁴⁶¹ Source of information: http://scjg.sx.gov.cn/art/2019/2/22/art_1628905_30447030.html (translated for me by CN attorney Tom Qi Xiaohuan).

⁴⁶² The Draft was based on discussions and opinions from the National Intellectual Property Office, Ministry of Education, Ministry of Science and Technology, Ministry of Industries and Information, Ministry of Labor and Social Security, Ministry of Agriculture, State-owned Assets and Administration Commission, Bureau of Copy Right, State Forestry of Administration, Patent Protection Association of China, China Association of Invention. However, in this process, All China Federation of Trade Union was not involved. The Draft was first published in 2012, and the updated version of the Draft finalized by CNIPA by April 2014 was formally published by the State Council for public comments in April 2015. Source: Qian Wei, 'Draft Regulation on Employee Invention and Innovative Workers Protection in China' (2017) 1(3) Japan Labor Issues, p. 18.

⁴⁶³ Proposed Article 20.

⁴⁶⁴ Proposed Article 21.1.

⁴⁶⁵ Proposed Article 21.3.

⁴⁶⁶ Qian Wei, 'Draft Regulation on Employee Invention and Innovative Workers Protection in China' (2017) 1(3) Japan Labor Issues, p. 20.

Russia

The Russian law also includes a statutory remuneration, but no specific amounts are defined therein:

Article 1370

4(3) If the employer obtains a patent for an employee's invention, employee's utility model or employee's industrial design, or takes a decision to keep information on such an invention, such a utility model or such an industrial design in secrecy and informs this to the employee or transfers the right to obtain a patent to another person or fails to obtain a patent on the basis of the application filed by him due to circumstances for which he is responsible, the employee shall have the right to remuneration. The amount of remuneration, the terms, and the procedure for payment by the employer shall be determined by a contract between him and the employee and in case of a dispute by a court.

4(4) The Government of the Russian Federation shall have the right to establish minimum rates of remuneration for employee's inventions, employee's utility models, and employee's industrial designs.⁴⁶⁷

The amount, the terms and the procedure for payment shall be agreed upon between the employee and the employer, however the Russian Government is entitled to set minimum rates for remuneration. Such rules came into effect on October 1, 2014.⁴⁶⁸ They provide for three different types of compensation, payable in three stages: 1) A lump sum payment for the creation of a patentable invention (or an industrial design or a utility model) of 30% of the average monthly salary of the inventor (or 20% in case of an industrial design or a utility model), irrespective of whether the employer seeks to patent the invention or not, 2) an annual payment for use of the patentable invention by the employer of 100% of the average monthly salary of the inventor or author for every year of use, and 3) a payment due when the invention is licensed or assigned by the employer of 10% of the revenues received by the employer from the licensee under a license agreement, and 15% of the revenues received under an assignment agreement.

4.6.3.4 Using license analogy (HU)

In China the minimum level for remuneration is determined as a percentage share from the royalty fee paid by the licensee of the patent. This, however, is not a license

⁴⁶⁷ Civil Code of Russian Federation, Art. 1370(4)(3).

⁴⁶⁸ RF Government Resolution No. 512 dated 4 June 2014 "On Approving the Rules for Paying Compensation for Inventions, Utility Models, and Industrial Prototypes That Are Works for Hire", effective as of 1 October 2014.

analogy as the remuneration is based on the actual licensing fees. *License analogy* means that the compensation is calculated based on *the royalty fee which the employer would have to pay should it need to license the corresponding invention from a third party*. This is a logical approach since one of the benefits of an invention made by an employee is that the employer does not need to license such an invention from anyone else. Thus, to some extent the employer “licenses” the invention from the employee-inventor. However, as the employee invention is made with the employer’s equipment and investments, the license analogy cannot mean that the inventor would be entitled to a hypothetical royalty fee as a whole but only to a certain share. License analogy has been adopted by the law for example in Hungary:

Article 13

(7) Remuneration for the exploitation of the invention shall be commensurate with the royalty the employer or the exploiting patentee would have to pay on the basis of a patent license agreement, taking into account the licensing conditions in the technical field of the subject matter of the invention.

(8) In the case of an exploitation license or of an assignment of the patent, the remuneration shall be commensurate with the value of the license or the assignment or with the benefit deriving from a license or an assignment without consideration.

(9) In assessing remuneration, the commensuration under paragraphs (7) and (8) shall be determined taking into account the employer’s contribution to the invention concerned and the duties of the inventor arising from his employment. Where an invention is kept secret, the disadvantages caused to the inventor by failing to obtain protection shall also be considered.⁴⁶⁹

Remuneration can be based on a license analogy, the value of an actual license or an assignment or the benefit derived from such. The remuneration for the inventor shall be defined by taking into account the contribution by the employer to the invention and the duties related to the employment of the inventor.

4.6.3.5 Statutory calculation scheme (DE)

License analogy is also widely used as a basis for calculating remuneration in Germany where the law has been complemented with Official Guidelines for Remuneration.⁴⁷⁰ Their purpose is to facilitate determining reasonable remuneration.

⁴⁶⁹ Act no. XXXIII of 1995 on the protection of inventions by patents, Art. 13.

⁴⁷⁰ Guidelines for the Remuneration of Employees’ Inventions in Private Employment (Richtlinien, RL) of 20 July 1959, amended by Guideline of 1 September 1983, enacted in accordance with §11 of the Employees’ Inventions Act of 25 July 1957.

The Guidelines provide three methods for calculating remuneration in the case of intra-company exploitation:

- (1) by analogy to a license⁴⁷¹
- (2) by method of ascertainable company's benefit⁴⁷²
- (3) by estimation of the value of invention⁴⁷³

Out of these three methods, the license analogy is clearly the simplest, and usually also the most reliable method, and it best reflects the economic benefits that were actually achieved by the employer. Therefore, it tends to enjoy preference over the other methods.⁴⁷⁴ The Guidelines contain a detailed calculation formula for determining remuneration according to the license analogy.⁴⁷⁵ In fact, the law and the related rules in Germany are probably the most detailed rules among all jurisdictions. Using a license analogy to determine reasonable compensation for an employee's invention is by no means, however, a simple way to define the correct level of payment, even using the statutory scheme suggested in the German law. Several aspects need to be either explored or estimated, such as the usual rate for a royalty in a specific branch of the industry, which is not always easy to define. If concrete license agreements are missing, then the method "abstract analogy to a license" needs to be applied, namely, to establish whether royalty rates, which are customary in the company, are known for comparable products.⁴⁷⁶

If a turnover is generated by the products which incorporate the invention, it is recommended to use the license analogy, as the impact of the invention on the product turnover is often uncertain, given that products usually contain several inventions made by multiple employees. If, as an exception, the license analogy cannot be applied because the service invention is utilized only within the company, then the most appropriate method to assess remuneration is according to benefit ascertainable to the company. However, this method suffers from the likelihood of being incorrectly estimated, since the intra-company savings must also be measured with regard to the external state-of-the-art to establish the economic benefit that

⁴⁷¹ RL nos. 6-11.

⁴⁷² RL no. 12.

⁴⁷³ RL no. 13.

⁴⁷⁴ *Employees' Inventions in Germany, A Handbook for International Businesses* by Michael Trimborn. Kluwer Law International 2009, p. 37 and supra note 98, referring to BGH GRUR 2003, pp. 789 – Abwasserbehandlung; Board of Arbitration EV of 03 Jun. 2005, Arb. Erf 034/04 – database.

⁴⁷⁵ RL no. 39.

⁴⁷⁶ Michael Trimborn, *Employees' Inventions in Germany, A Handbook for International Businesses*, Kluwer Law International 2009, p. 41.

causally goes back into the service invention in question.⁴⁷⁷ The employer should not be placed in a worse situation than a competitor offering an alternative solution on the market. If a technologically comparable protected device or method is offered for sale on the market, the expenses for the purchase and operation of such a device or a method, and its gain, must be compared to the corresponding results of the service invention to be remunerated.⁴⁷⁸

Finally, if neither the license analogy nor the method of ascertainable benefit to the company can be utilized, remuneration shall be defined by using free estimation, in which the inventor has a right to participate. This can be used for example in cases of cross-licensing without a tangible royalty income or purchase price income. Indeed, in cross-licensing there is also the same dilemma as there would be in determining compensation which is based on the turnover from a product incorporating multiple patents. In this scenario, the value received from the cross-licensing for licensing a collection – or even entire portfolio – of patents, cannot be easily allocated to a single patent. This also applies to any patent divestments that are made in bigger batches – whereby one invention can generate most of the sales price, while a lot of so-called “filling” cases might practically add no value at all. Therefore, any compensation payable for the patents included in these kinds of transactions are better estimated. There are specific rules for the use of this valuation method, as well as for the other methods, in the referred Official Guidelines for the Remuneration.

4.6.4 Agreeing on compensation

Determining reasonable compensation for the rights to employee inventions in jurisdictions where the issue is regulated by the law is far from straight-forward. Therefore, it is often beneficial for companies to create their own compensation schemes which comply with the relevant provisions and to pursue standard agreements containing fixed awards with inventors. This way the level of the payments is defined in advance by the scheme, which preferably contains different award categories. Creating general guidelines which map inventions to the correct category then simplify the management of rewards. However, this is a country-specific issue on two levels. First, how could a compensation system be created that would be binding against employees, and second would standard agreement that is used be considered as a final agreement, namely constituting the final compensation for inventions subject to the agreement.

⁴⁷⁷ Ibid., p. 37.

⁴⁷⁸ Ibid., p. 48.

It should be noted that agreeing on compensation is different from the *contracting out of liability* which already by definition means that an agreement has been made that no compensation needs to be paid for inventions despite an underlying duty to do so. It is again a country-specific issue as to whether this kind of agreement is allowed and whether it is binding against the employee-inventor. There could also be differences in this respect, depending on whether the agreement waiving the legal right is made prior or after the invention is made. In contractual regimes, the employer and the employee can quite freely agree on compensation, or on the non-payment of such. However, this may have implications for the validity of an assignment, in the event that no consideration is involved. In statutory regimes the employer has the legal duty to compensate the inventor for the rights to an invention made in the employment relationship. Therefore, the contracting out of liability means that the employer and the employee enter into a separate agreement stating that no compensation needs to be paid. The legal effect of such a contract is that the employer is released from the duty set to it. It should be noted that in a contract where a third party assumes the obligation from the employer, the option provided by the law for example in Hungary⁴⁷⁹, is not the kind of contracting out of liability referred to in this chapter. Namely, in such a case the obligation duly remains and is merely transferred to a third party and therefore, such a contract does not result in the waiving of the right to the compensation by the inventor.

However, pre-invention restrictions are not generally enforceable in statutory jurisdictions. The said applies to a pre-assignment of rights, agreeing on the compensation beforehand as well as any agreement of waiving the right to compensation for the rights. In other words, in statutory regimes the inventor cannot assign the rights to an invention nor can the right to be compensated for such rights be excluded or restricted with a pre-agreement, namely before the invention in question has even been made.

Finland

Section 7

Where an employer acquires the right in an invention made by an employee by virtue of section 4 or on other grounds, the employee is entitled to reasonable compensation from the employer *even if it was agreed otherwise before the invention was made*.⁴⁸⁰

In Finland the employee-inventor is entitled to a reasonable compensation from the employer having acquired the right to an invention, even if it was agreed otherwise

⁴⁷⁹ Act no. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 13(4).

⁴⁸⁰ Act on the Right in Employee Inventions, Section 7; Emphasis added.

before the invention was made. Any pre-invention agreements containing either a waiver of compensation by the employee or a clause defining the amount to be paid, will be void should the inventor later dispute the reasonability of the compensation. The Finnish law does not explicitly forbid entering into such an agreement *after the invention has been made* but the reasonability requirement implies that such a post-invention agreement where the inventor either waives the right to the compensation or agrees to remuneration of a certain level, could be disputed should the compensation (or the non-payment of such) eventually be considered to be non-reasonable.

China

In China the liability to pay compensation is statutory and thus contracting it out is not allowed.⁴⁸¹ However, altering the calculation of the compensation contractually is explicitly permitted in the revised patent law:

Rule 78

*Where the entity to which a patent right is granted fails to agree with the inventor or the designer, or to specify in its legally enacted company rules the way and amount of reward and remuneration specified in Article 16 of the Patent Law, the entity shall, after exploiting the patent for invention-creation within the term of the patent right, pay the inventor or designer remuneration at a percentage of not less than 2% each year from the profits generated from the exploitation of the invention or utility model patent, or at a percentage of not less than 0.2% from the profits gained from the exploitation of the design, or pay the inventor or creator a lump sum of remuneration by reference to the above percentages; where the entity to which a patent right is granted authorise other entity or individual to exploit its patent, it shall reward the inventor or designer at a percentage no less than 10% from the royalty fee.*⁴⁸²

The first sentence of the rule specifically acknowledges the possibility to agree on the way and the amount of reward and remuneration based on Article 16 of the patent law. Nothing is said about the timing of the agreement which imply that a pre-invention agreement is also allowed, as long as the minimum levels defined in the Chinese law are respected.⁴⁸³

⁴⁸¹ Patent Law of PRC, Art. 16.

⁴⁸² Implementing Rules of the Patent Law of the People's Republic of China, Rule 78; Emphasis added.

⁴⁸³ Rules 77 and 78 of Implementing Rules of the Patent Law of the People's Republic of China (January 9, 2010).

UK

In the UK, contracting out employee compensation before the creation of an invention, for example through an employment contract, may not be binding should the (non-)compensation later appear to be inadequate.⁴⁸⁴ Such contracting-out clauses are enforceable against an employee, unless the employee's trade union negotiates a payment for compensation for inventions in a collective agreement.⁴⁸⁵ This kind of third party intervention is quite exceptional given that typically the compensation is an issue to be agreed upon between the employer and the employee having made the invention in question, with few exceptions where the licensee assumes the duty to pay remuneration, such as in Hungary.⁴⁸⁶

When it comes to agreeing on the amount of compensation with inventors there is no such thing as a collective agreement. Similarly, as there is no such concept as a collective acquisition of the rights to an invention made by multiple employees, nor a collective assignment by all the inventors of the same invention, compensation is also an issue that needs to be agreed upon *individually* with each of the inventors. However, there should be no obstacles in agreeing the compensation for several inventions from the same employee simultaneously, if only the compensation is considered to constitute reasonable compensation for the inventions that it covers. It should be noted that this is different from an agreement covering several patent applications related to the very same invention: As one patent family generally contains only one invention, an agreement defining compensation for the invention shall normally constitute compensation for the individual invention(s) defined in the agreement and cover all the patents granted and yet to be granted even if there are several patents granted for the invention and sometimes several patents even in one jurisdiction. Only in exceptional cases for different members of the patent family could there be a question of different inventions entitled to own compensation.⁴⁸⁷

While in contractual jurisdictions there is a contractual freedom between the employer and the employee regarding compensation, in statutory regimes the

⁴⁸⁴ Patents Act 1977, Section 40(4).

⁴⁸⁵ Patents Act 1977, Section 40(3)(4), 40(6).

⁴⁸⁶ Act no. XXXIII of 1995 on the Protection of Inventions by Patents, Art. 13(4).

⁴⁸⁷ For example, in the prosecution, the patent application may need to be divided into two applications based on a lack of unity even if originally one invention was reported. The invention may still be considered unified in some jurisdictions. Further, in the US, it is normal practice to file continuation or continuation-in-part (CIP) applications for the invention, and even if in the latter application new matter is also added, it is typically a question of the same invention as in the parent application, complemented with some new aspects or findings. However, it could also be that a new invention reported to the employer relates so closely to the subject matter of the already filed US application that it is decided to be protected in a CIP application with the new features added and in such a case it can be a matter of two inventions.

agreement needs to address the mandatory regulations of the relevant laws and rules. This applies both to the timing of the agreement, namely whether it is possible to agree on the compensation before or after the invention has been made, as well as to the level of the compensation. When an employer and an employee have entered into an agreement defining compensation for the invention(s) made by the employee, and the compensation is agreed to constitute the final compensation for the relevant invention(s), then by default the contract shall be binding and no further compensation for the invention(s) shall be paid. However, certain situations defined in the laws provide a possibility for adjusting the already agreed terms. It is possible to adjust any agreement based on the general contractual rules for the *adjustment of unfair contract terms*. However, with regard to an agreement on compensation for an employee invention there are specific regulations providing protection against contractual terms that appear to be unfair already at the time of their execution or later, for example because of changes in circumstances.

Adjusting the agreement

In Finland compensation can be adjusted by the court in the event that there has been a substantial change in the circumstances that prevailed at the time of the agreement.⁴⁸⁸ However, such an adjustment can generally only take place to benefit the employee. Namely, the circumstances related to the invention may have changed substantially after the agreement was executed and the compensation paid and have rendered the invention as no longer eligible for the defined compensation. This kind of situation could happen for example in cases where a patent which has triggered compensation is later invalidated, or the scope of the protection needs to be substantially restricted, for example in a litigation concerning the patent. However, typically the sum of the payment in this case is not lowered nor the payment or part of it reclaimed from the employee.

In the UK, the adjustment can take place either by the court or by the comptroller.⁴⁸⁹ When the benefit for the employee, based on the relevant contract, is inadequate in relation to the benefit derived by the employer from the invention or the patent, and the employee should be awarded in addition to the defined benefit, then the employee can be compensated an amount determined under section 41.⁴⁹⁰ However, such an adjustment or an awarding decision takes place on an application made by the employee and not *ex officio*. The prerequisite for the adjustment is that

⁴⁸⁸ Act on the Right in Employee Inventions 9§, Act on legal acts under the law of property (228/1929).

⁴⁸⁹ The Comptroller General of Patents, Designs and Trademarks, leading the UKIPO.

⁴⁹⁰ UK Patents Act, 40(2).

some sort of agreement already exists regarding the compensation. However, sometimes the parties cannot reach any kind of agreement. This could also happen with only one of the co-inventors, since agreeing is an individual action. Thus, there could be a situation where some of the multiple inventors have agreed on the compensation whereas one or some of them have not. Even if only one of the co-inventors refuses to sign the agreement, the employer may have to deal with a dispute concerning the compensation for the invention. This in turn might have implications for the already agreed awards if the agreed amount that has been paid is considered by the court to be beyond the level defined by the relevant law, as then the other co-inventors may eventually *dispute the compensation*.

Indeed, sometimes parties cannot reach any agreement about the compensation to be paid. Disputes regarding compensation can be raised both for adjusting an already executed agreement, as well as prior to any agreement being entered into, because the parties have been unable to reach a mutual agreement about a satisfactory level for compensation. Here, resolution can be sought from a third party, such as a court or a specific body which has been established to resolve these disputes. In cases where an agreement is adjusted, the requiring party is typically the inventor, who requests an increase in the already paid award. In cases where there are disputes before any agreement has been made, the employer can also be the one to seek an objective evaluation from a third party about the correct level of award:

In Finland there is a specific body for giving opinions in employee invention-related issues. This Employee Invention Committee⁴⁹¹ can give opinions on different matters, sought by both employers and employees, and also by the Finnish National Board of Patents and Registration (Finnish Patent and Registration Office).⁴⁹² These opinions are only recommendations and not binding. It is in the discretion of the parties whether they intend to observe the opinion and the intent shall be notified to the Committee. However, even if the opinions of the Committee are not binding, the opinion of an objective third party regarding a reasonable award can still provide valuable guidance for the parties involved and be helpful in further negotiations for compensation. In Germany the competent body for handling these issues is the Board of Arbitration which mediates disputes between the employer and the employee, acting under the German Patent Office.⁴⁹³ In many cases, aiming towards an amicable settlement before the Board of Arbitration is a prerequisite for the following court proceeding.⁴⁹⁴ Such a “proposal for conciliation” does not have a binding effect unlike a court decision. However, if neither of the parties contests the

⁴⁹¹ Act on the Right in Employee Inventions 11.1§ (526/1988).

⁴⁹² Act on the Right in Employee Inventions 11a.1§ (526/1988, 1078/2000).

⁴⁹³ ArbEG, 28.1§.

⁴⁹⁴ ArbEG, 34.2§.

settlement proposal within the prescribed time limit, which is one month, it is deemed to be accepted and has the legal effect of a contract under the private law.⁴⁹⁵

Time frame for compensation claims

Statutory restrictions exist which stipulate the time for raising a compensation claim against the employer. If there is no agreement between the employer and the employee, and the inventor has not claimed for compensation within a determined period, the right to such may have expired.

Finland

In Finland, the employee has *ten years to act from the date of the employer having acquired the rights* to the invention in order to request compensation for the rights, or the right to such shall lapse. However, the compensation can always be requested *within one year from the grant of the patent*.⁴⁹⁶ This means that in practice the ten years' time is extended in such cases where a patent is granted for the invention either after ten years has already transpired or less than a year before. Since the law does not restrict the extension to the first granted patent, literally interpreting this means that it should be possible to raise the claim as long as the patent family is pending. Thus, the time for the compensation claim could in fact be extended rather significantly, given that it is common to keep patent families pending by filing continuation applications (US) and divisional applications of the parent application, with a slightly different claim coverage, yet related to the same invention. Then again, literally interpreting the law applies to inventions that are patentable in Finland⁴⁹⁷ which implies that the referred patent is a Finnish patent. However, as concluded earlier, nowadays inventions are not necessarily patented in Finland, which means that the law cannot only be meant to apply to patents in Finland.

Germany

According to the German law, the nature and amount of compensation shall be established by an agreement between the employer and the employee *within a reasonable time* after the claiming of the right to the service invention.⁴⁹⁸ When no such compensation agreement is concluded within a reasonable time, the employer

⁴⁹⁵ ArbEG, 34.3§, Cf. also (BGB Bürgerliches Gesetzbuch) §779.

⁴⁹⁶ Act on the Right in Employee Inventions 7.3§ (526/1988).

⁴⁹⁷ Act on the Right in Employee Inventions, 1.1§.

⁴⁹⁸ ArbEG 12.1§.

shall decide the amount of compensation and give its reasons in writing to the employee and pay in accordance with the settlement.⁴⁹⁹ An employee who disagrees with the settlement may object to it in writing within two months.⁵⁰⁰ The claim for the payment falls due three months after the employer has started to use the invention.⁵⁰¹ Further, under the German Civil Code⁵⁰², the statute of limitations in a compensation claim for an employee inventor is three years from the year in which the compensation was due and the employee had sufficient knowledge of the factors affecting the compensation. Before the employee has received the relevant knowledge from the employer the statutory limitation period of ten years applies.⁵⁰³ Namely, in Germany, the employer is obliged to provide employee-inventors with the information necessary to calculate compensation.⁵⁰⁴ The same duty is also set for employers in Finland.

⁴⁹⁹ ArbEG 12.3§.

⁵⁰⁰ ArbEG 12.4§.

⁵⁰¹ ArbEG 12.2§.

⁵⁰² BGB, Bürgerliches Gesetzbuch, 18 August 1986.

⁵⁰³ BGB 199.4§.

⁵⁰⁴ The information the employer needs to provide to the inventor(s) covers all information necessary to determine the remuneration. This means specifically that there is a statutory right to information only about the economic exploitability of the service invention, as the invention is based on this. However, there is no right to information about the profit generated with the invention as details of profit are not required for calculating remuneration. German Federal Court, Judgement of 17 November 2009-X ZR 137/07.

4.7 Managing inventions in a disharmonized compensation system

The discrepancies in the different compensating systems is said to create a complex compliance obligation for international organizations and an unclear compensation regime for inventors.⁵⁰⁵ This captures the problems of managing a disharmonized compensation system in multinational companies well. Indeed, there are disadvantages both for the employers and the inventors. For employers, the different compensation obligations are difficult to control. For inventors, the disadvantages include the general demotivation experienced by those receiving no compensation, and increased demotivation when different rules apply to co-inventors in joint inventions resulting from cross-border co-operation.⁵⁰⁶ Indeed, the problem comes sharply into focus, particularly with co-inventors who have contributed to the same invention, in the form of a phenomenon that is referred to as an “envy debate”.⁵⁰⁷ In addition, discrepancies in company compensation systems can cause competition distortions between enterprises, in other words companies that compensate their inventors equally win the most prominent employees. Further, the public interest can also be caused some disadvantages, by for example leading to unreasonable influence on the flexibility and fluctuation of employee inventors and unreasonable

⁵⁰⁵ AIPPI Standing Committee on Patents, Study on Inventor Remuneration, July 21, 2017. http://aippi.org/wp-content/uploads/2017/08/Questionnaire-Inventor-Remunerationmailing_210717.pdf AIPPI, The International Association for the Protection of Intellectual Property, is the world’s leading international organization dedicated to the development and improvement of legal regimes for the protection of intellectual property. AIPPI dates back to 1897, following the signature of the Paris Convention for the Protection of Industrial Property in 1883. Following the initiative of leading legal scientists and practitioners, a founders meeting was held in Brussels on May 8, 1897 and in October 1897 the first Congress was convened in Vienna. After the Annual Work Programme is established, Study Committees are formed to study pending Study Questions (SQ), based on reports by 65 National and 2 Regional Groups consisting of experts of the respective country or region at the field of SQ. These reports and the Summary Report wherein the Group Reports are synthesized serve as a basis for preparation of draft Resolutions that are then discussed at Congresses.

⁵⁰⁶ Bernhard Villinger, ‘Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity’, Workshop on Innovation Support Services and their Management organized by the World Intellectual Property Organization (WIPO) and the Carl Duisberg Gesellschaft (CDG) in co-operation with the German Patent and Trademark Office (GPTO), the Aachen Corporation for Innovation and Technology Transfer (AGIT) and the European Patent Office (EPO), Munich, Nurember, Aachen (Germany), June 12 to 22, 2001, p. 9.

⁵⁰⁷ Sebastian Wündisch, ‘Employee-Inventors Compensation in Germany - Burden or Incentive?’ (2017) LII(3) *les Nouvelles* – Journal of the Licensing Executives Society, p. 110.

influence on decisions relating to industry sites⁵⁰⁸, an aspect which is also relevant in the context of the rights to the inventions.

For all of the aforementioned reasons, companies are strongly encouraged to harmonize their existing incentive programs, to prevent a harmful impact on creativity, inventor satisfaction and employee loyalty. For employers, creating a holistic global compensation policy is a complex task, yet necessary for the equal treatment of inventors, at least in joint inventions where different rules apply to the co-inventors. In fact, one possibility is to adopt a holistic approach only in respect of joint inventions which involve inventors that are entitled to compensation, to treat the co-inventors of the same invention equally. However, it is also possible to selectively adopt a holistic approach for example based on the technology of the inventions. Creating a holistic approach and its practical insights are discussed in further detail in the context of cross-border collaboration, in the chapter 7.3.

Certainly, adopting a truly equal system where compensation could be tied to the actual evaluation of the contribution by individual inventors, would be possible. Indeed, according to Hovell, “[t]he most academically pure method for compensating each contributor would be to determine the inventor's and the developer's contribution and give each a pro-rata share of the invention's value. This method, however, would be *highly* impractical because it requires meticulous records of each participant's work and detailed analysis of each invention's worth.”⁵⁰⁹ There are, however, also attempts to link compensation to individual contribution. For example, according to *Fisk* the doctrines of different eras called for particularized and fact-intensive inquiry, with a perception of whether the employee was a man of ‘inventive genius’ or a ‘mere mechanic.’⁵¹⁰ Also Hovell discusses the categories of specifically-inventive, generally-inventive and non-inventive employment⁵¹¹ and concludes that “[t]his three-tiered employment status analysis

⁵⁰⁸ Bernhard Villinger, ‘Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity’, Workshop on Innovation Support Services and their Management organized by the World Intellectual Property Organization (WIPO) and the Carl Duisberg Gesellschaft (CDG) in co-operation with the German Patent and Trademark Office (GPTO), the Aachen Corporation for Innovation and Technology Transfer (AGIT) and the European Patent Office (EPO), Munich, Nurember, Aachen (Germany), June 12 to 22, 2001, p. 9.

⁵⁰⁹ William P. Hovell, ‘Patent Ownership: An Employer’s Rights to His Employee’s Invention’ (1983) 58(4) Notre Dame Law Review, p. 863.

⁵¹⁰ Catherine L. Fisk, ‘Removing the “fuel of interest” from the “fire of genius”’: Law and the Employee Inventor, 1830-1930’ (1998) 65(4) The University of Chicago Law Review, p. 1198.

⁵¹¹ William P. Hovell, ‘Patent Ownership: An Employer’s Rights to His Employee’s Invention’ (1983) 58(4) Notre Dame Law Review, fn 18: See Robert L. Gullette, ‘State Legislation Governing Ownership Rights in Inventions Under Employee Invention Agreements’ (1980) 62 Journal of the Patent Office Society, p. 733. Gullette divides employment into “specifically-inventive”, “generally-inventive” and “non-inventive”.

divides patent rights between an inventor and his employer according to reasonable expectations.”⁵¹² However, although the theory of the “individual genius” recognizes the individual work behind an invention, companies are still considered the “logical repositories” of legal rights over intellectual property developments.⁵¹³

4.8 Summary and transitional thoughts

A valid entitlement requires that *the rights to an invention made by an employee are acquired in a valid manner* according to the regulations that are relevant to the case at hand. These rules vary from country to country, depending on whether the country belongs to a contractual or a statutory regime. In statutory regimes, in order to get the rights to inventions made by its employees, the employer needs to act in a timely manner as defined by the relevant law. In contractual regimes, there needs to be *a valid assignment from the employee to the employer, including some consideration*. In statutory regimes, the consideration is not something to be agreed upon, but the right of the employee-inventor is set by the law. The rules regarding the *duty to pay compensation* and the means to calculate such also vary from one country to another. It is extremely important for companies operating in multiple countries to be aware of and comply with all the relevant laws and rules in respect of acquiring the rights to inventions made by its employees, as well as in compensating the rights. Creating company policies that sufficiently address the national requirements set for compensation can help to prevent later disputes.

Additional complexity to these situations is brought with *subcontracted inventions*. Due to increased collaboration between companies, joint inventions can also be made via collaboration wherein one or some of the co-inventors are employed by a third-party company. Even if there is a contract in place regarding the rights to inventions raised during this collaboration, in statutory regimes this contract cannot overrule the mandatory regulations regarding employee inventions. The national laws, either the employee invention laws dedicated to such issues or the patent laws containing equivalent regulations shall be applied in the relation between the subcontracted inventors and their own employers. It is not until the rights have been duly transferred according to the requirements of the respective laws from the inventor to the employer that they can be assigned further. Non-compliance with the law in the relevant relationships leaves room for disputing the validity of entitlement later, which no company investing in patenting its technologies can afford to risk.

⁵¹² William P. Hovell, ‘Patent Ownership: An Employer’s Rights to His Employee’s Invention’ (1983) 58(4) Notre Dame Law Review, p. 869.

⁵¹³ Shannon H. Hedvat, ‘A New Age of Pro-Employer Rights: Are Automatic Assignments the Standard?’ (2011) 3(3) University of Pennsylvania Journal of Business Law, p. 820.

The situation becomes increasingly complex when *joint inventions are made in cross-border collaboration* projects where the co-inventors originate from different countries which have different rules. In these situations, the different rules apply to the co-inventors, in respect of the very same invention. Regarding the compensation, this could lead to a situation where some of the inventors are entitled to additional compensation for the rights to the invention whereas others are not. Whether the co-inventors are put into different positions in this respect is a question of company policy. Nevertheless, even if different rules apply to the individual co-inventors, they can still be applied in parallel in respect of the invention. Namely, even if one invention can involve the rights of multiple inventors, their rights can - and need to be - acquired separately, since acquisition is an individual action. However, in questions pertaining to the effective securement of employee inventions by patenting, the variety of country-specific rules that apply to a joint invention involving contributors from different countries are applied as a whole in respect of the single invention. Applying the different rules simultaneously can lead to a true conflict of laws that needs to be solved.

5 Effective Securement

5.1 Strategies for protecting global inventions

After the rights to an invention have been duly vested in a company, the invention needs to be protected against unauthorized third-party use. One option is to retain the invention as a trade secret. The company can also choose to not protect the invention and publish it. “Defensive publication” ensures the freedom to act in the area of the invention as it cannot be patented by a third party anymore. However, if a company wishes to keep the invention as a proprietary technology, it is in their interest to seek *patent protection* for it. Two circles in the figure(s) describing the complex of laws represented the requirements for the validity of patents. In this chapter, it is a question of validity from the point of view of complying with national security provisions.

A patent only provides *territorial protection*. Therefore, in order to protect an invention in all the countries that are relevant to a company’s business, a separate patent application needs to be filed in each country, either by filing national patent applications or using international filing routes provided by a variety of patent conventions, such as EPC and PCT. Initially, applicants are free to decide on the range of countries for seeking protection and file their patent applications wherever they wish. However, in certain cases restrictions are imposed on the place for filing the first patent application for an invention, derived from special *national security provisions*. If the applicant does not comply with the provisions, the validity of a patent is at risk. As is the patent protection, also the invalidating effect is however territorial. Only in special cases, such as for example with the planned unitary patent in Europe, does invalidating in one country also affect a patent in other countries. However, the invalidation effect still applies to one patent only. Similarly, the non-compliance of an individual national security provision only affects the validity of a patent subject to the provision but not the rest of the patent family. Even so, invalidity for just one patent in the family can be harmful to the business and the patenting strategy of the company and dilute the investments that are made to that specific patent. To ensure the validity of its patent portfolio and effectively managed patent filing strategy it is not enough for a company to be aware of the general patent

validity requirements. Instead, it needs to ensure that its patenting procedures comply with the variety of national security provisions.

The decision *where to patent an invention* is usually based on business reasons influenced by a variety of factors such as the company's domicile, territory of the markets and the potential competitors. When an invention relates to a proprietary technology that the company is not willing to allow others to use, protecting the fundamental patent(s) is necessary within the company's own markets, to prevent competitors from offering similar kinds of solutions. In addition, the patent needs protecting in the dominant competitor's markets where the company might not have a market share, as the competitors could otherwise benefit from that market. Indeed, intellectual property rights and particularly patents play a major role in *the competitive strategy* of a company, which can cause so called patent thickets. A patent thicket is "a dense web of overlapping intellectual property rights that a company must hack its way through in order to actually commercialize new technology."⁵¹⁴ It provides a geographically wide patent protection but also a "thicket" of cumulative, incremental innovations and as such, multiple blocking patents, the use of which can be agreed with the patent holders in specific patent pools.⁵¹⁵

Deciding of the place for patenting can, however, also be based on *a defensive strategy*. This is the result of an increasing number of patents which are needed to make one product, such as a smartphone. Defensive patenting means that when a company involved in a patent thicket as a patent holder is charged for patent infringement by another holder, the company can file counterclaims based on its own portfolio, typically leading to a cross-license settlement. This strategy is called "mutually assured destruction" (MAD) according to the doctrine of military strategy and national security policy.⁵¹⁶ This doctrine dominated strategic thinking during the Cold War and refers to a military defense principle where the possession of enough weapons (of mass destructions) serves as protection from attack. Similarly, an

⁵¹⁴ Carl Shapiro, 'Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting' in Adam B. Jaffe, Josh Lerner and Scott Stern (eds), *Innovation Policy and the Economy*, Volume 1 (MIT Press, January 2001), p. 120.

⁵¹⁵ For more information about patent pools, see Jarkko Vuorinen, *Beyond Patent Pools: Patent Thickets, Transaction Costs, Self-Regulation and Competition*, IPR University Center, Helsinki 2013.

⁵¹⁶ See Jarkko Vuorinen, 'The Challenge of Patent Trolls' in Jyrki Tala and Auri Pakarinen (eds), *Changing Forms of Legal and Non-Legal Institutions and New Challenges for the Legislator – International Conference on Legislative Studies in Helsinki 2008*, National Research Institute of Legal Policy Research Communications 97, p. 258.

adequate patent portfolio is supposed to protect the patent holder against infringement attacks. Indeed, it is generally discussed of patent wars.⁵¹⁷

National security provisions only set restrictions on the place for filing the first patent application. The decision *where to file a first patent application* for the invention can also involve further strategic filing aspects. For example, the speed of receiving the first search report can help to finetune the claims further prior to foreign filing.⁵¹⁸ In addition, if the outcome of the prosecution during the priority year is successful, in foreign filing there is a subsequent possibility to utilize the Patent Prosecution Highway (PPH)⁵¹⁹. Prosecution can also be expedited for example in the U.S. based on a number of USPTO programs, such as related to the applicant's age or health, the benefits of the invention for the environment and its contribution to countering terrorism.⁵²⁰ These grounds are not something that the company can strategically choose unless it chooses to protect green technologies. However, it is also possible to accelerate examination in certain cases by paying a fee with the petition to make the application special.⁵²¹ In addition to the possibility to speed up actions, the decision about the place for filing can be made based on cost-efficiency. For example, filing a provisional application in the U.S. requires less work to prepare the patent application and the priority data can be established with minimum costs. In addition to strategizing in respect of the speed of action and cost-efficiency, there can be also practical reasons that restrict the options for the first filing, such as the limited availability of drafting resources. As the patent application is typically also filed by the drafting attorney, the place of filing is in practice restricted to patent offices where the drafting patent attorney is qualified to act as a representative.

Initially, applicants are free to choose in which country an invention will be patented first, namely in which patent office the first patent application for the invention is filed.

⁵¹⁷ There is an older article that addresses all the terms used here and even talks about "legal cold war" that sheds some light on the issue of patent war at the field of smartphones: <https://www.wired.com/2011/12/android-patent-war/>. The article has a link to a legal article of the subject matter, written by Professor James Grimmelmann (09/12/2011): <https://arstechnica.com/techpolicy/2011/09/owning-the-stack-the-legal-war-for-control-of-the-smartphone-platform/4/>.

⁵¹⁸ For example, in the UK the patent office provides the first search report for start-up companies building their patent portfolio generally in three months. In some fields of technology this time has been extended to 4-5 months, but the timing is anyhow sufficiently early in order for the applicant to try to direct the claims to an allowable form based on the search results of the report.

⁵¹⁹ "Patent Prosecution Highway (PPH) is an agreement between patent authorities, and its aim is to provide applicants with a quick and efficient alternative to obtain a patent by filing a second application corresponding a first application with any of the PPH-participating offices"- quote from the web pages of the Finnish Patent Office, PRH: <https://www.prh.fi/en/patentit/applyforapatentoutsidefinland/patentprosecutionhighwaypph.html>.

⁵²⁰ 37 C.F.R 1.102 c).

⁵²¹ MPEP§ 708.02(a) Accelerated examination.

However, the initial free choice of place for filing the first patent application may be subject to some restrictions, which are justified by national security.

National security as a general concept has been successfully captured by the following definition: “While international trade is one way to achieve nation’s economic prosperity, *national security is one objective for which a nation shall seek in the presence of external threat, actual or potential.* Thus, it seems at glance that there exists no substantial relationship between them. National security, however, has often been referred in attempts or efforts to request for or *justify protection of certain import-competing industries.*”⁵²² Even if the context for the aforementioned definition is international trade, it also fits into the context of this thesis. According to an opinion which is based on U.S. national security policy but could also be interpreted more generally, “[o]ne facet of (American) national security that has been largely overlooked is the issue of intellectual property policy. *One might think that intellectual property issues are far removed from national security matters, but that is not the case.*” Further, “[o]ur economy depends on technological progress and our ability to innovate. And our ability to innovate is linked directly to strong intellectual property rights. Thus, intellectual property and national security are two critical issues that are joined at the hip.”⁵²³ Admittedly, science and technology have a central role in ensuring national security. “The intellectual property rights are inextricably linked to generating and protecting new inventions and developments in science and technology, contributing to both national strategy and social objectives. Several initiatives have been taken (--) to understand multifaceted implications of IPR for national scientific, technological and economic development and in building capacity to efficiently manage IPR to maximize overall economic gains.”⁵²⁴ This quote originates from a paper concerning IPR and national security which analyzes and highlights intellectual property rights related to defense and national security in the Indian context. However, it is a good general presentation on the subject matter which will be presented next in the legal framework, with India as one of the presented example countries.

⁵²² Kiyoun Sohn and Taek Dong Yeo, ‘Does the international trade help to enhance national security?’, A paper presented in the International Conference “Korea and the World Economy, IV” in Seattle, December 10-11, 2005, pp. 2-3.

⁵²³ Maureen K. Ohlhausen and Dan Schneider, Intellectual property and the national security issue, The Washington Times 2018, “Protect Inventors, Preserve Innovation”, special report prepared by the Washington Times Advocacy Dept.

⁵²⁴ V K Gupta, ‘India: IPR and National Security (2008) 13 Journal of Intellectual Property Rights, p. 318; “in the country” removed from here as it refers to India but again, the said can be interpreted generally to mean global coverage.

5.2 Different grounds for national security provisions

The general purpose for the filing restrictions provided by national security provisions is to prevent the disclosure of information that might adversely affect the welfare of the nation if prematurely disclosed.⁵²⁵ Accordingly, inventions subject to restrictions are typically related to military technology or contain information that could potentially be prejudicial to national security, or to the safety of the public if published.⁵²⁶ In other words, the reasoning behind the restrictions relates to a governmental concern about exporting information related to national security, or even state secrets, in the form of a patent application. National security provisions are an attempt to establish a mechanism for export controls regulating the transfer of information and new technologies out of a country. Indeed, in many national patent laws these special provisions require that patent applications for the inventions made within the territory or by the residents of the country must first be filed locally within the country. This *first filing requirement* means that the priority application, in respect of an invention falling within the scope of the relevant provision, shall be filed in that country. It is not relevant whether the patent application is a national or an international patent application, if it is possible to file the application to be examined at the national patent office of the country in question.⁵²⁷

The mechanisms between different countries vary in terms of how they identify and proceed with inventions subject to restrictions. For example, in the U.S. the national security restraints involve three phases: the screening of patent applications, the issuance of foreign filing licenses, and the issuance of secrecy orders.⁵²⁸ Indeed, as an alternative to the first filing requirement, the national security provisions typically provide an opportunity to obtain a special *security clearance* for the invention in question. Should the applicant wish or need to file the first application for the invention in some other country, then a special *foreign filing license* can be sought from the relevant national patent office, or some other instance defined in the relevant national law. This option helps to comply with several national security provisions simultaneously, something which can occur with “global inventions”

⁵²⁵ David S. Safran, ‘Protection of Inventions in the Multinational Marketplace: Problems and Pitfalls in Obtaining and using Patents’ (1983) 9(1) North Carolina Journal of International Law and Commercial Regulation, pp. 121-122. The article relates to US provision but the said can be generalized to apply globally.

⁵²⁶ Wording from the UK Patents Act, Section 23(1A).

⁵²⁷ In case of PCT application this means that the national patent office of the country needs to be authorized to act as an International Search Authority (ISA), otherwise the requirement cannot be fulfilled by filing a PCT application.

⁵²⁸ Jay Dratler, ‘Intellectual Property Law: Commercial, Creative and Industrial Property’ (1991) 1 Law Journal Press, p. 2A-234.

having co-inventors of different origin. In the event of not complying with a relevant national security provision, the patent in the respective country can be invalidated. In addition, other sanctions can also be imposed for not complying with the provision, such as criminal consequences for the persons who filed or caused the patent application to be filed contrary to the rules. Thus, it is important that all the relevant provisions, even when in conflict with each other, are complied with.

After the security clearance has been duly conducted, and no restrictions are imposed on filing a patent application concerning the invention outside the country, the applicant is free to proceed with filing the application. However, when the security clearance, also referred to as a secrecy check, results in a secrecy order for the invention, the publication of the invention may be prohibited, the communicating of it can be restricted, or the invention could even be expropriated.

It should be noted that while the security clearance can in some cases be an alternative to the first filing requirement, the fact that the applicant files a first patent application in the required country does not necessarily mean that the application could thereafter be freely filed outside the country. Namely, the national security provisions typically also contain a certain period of time after filing the first application during which a foreign filing license is still needed. The purpose of this waiting period is essentially the same as that of a security clearance, to give the authorities the possibility to control the export of inventions, for which the publication may need to be restricted. After this period has passed, the application is deemed to have been cleared unless the applicant is informed otherwise. The time needed for the clearance, or the time after which the application is deemed to have been cleared, is also referred to as a clearance period or *a restriction period*, of which the latter term is selected to be used in this thesis. The length of the restriction period can vary from six weeks to six months, depending on the country. What is common for them all is that after the restriction period has passed, no more obstacles exist for filing a patent application abroad, unless of course if the applicant has been explicitly informed of such.

5.2.1 Criteria

National security provisions are based on different criteria. First, some provisions place filing restrictions on *inventions that have been made in that country*. Examples of countries, which secure inventions made within their territory are China⁵²⁹ and the U.S.⁵³⁰. Secondly, in some countries the first filing requirement applies to *inventions*

⁵²⁹ Patent Law of the People's Republic of China, Art. 20.1.

⁵³⁰ 35 U.S.C. 184.

made by a resident within the country, for example in India⁵³¹. However, there are also countries where the requirements apply to inventions made by citizens of that country, such as Greece⁵³². Despite the different criteria, the purpose of all the provisions nonetheless is to restrict filing patent applications abroad prior to the national review of the subject matter.

A higher-level categorization of national security provisions can be done based on whether the subject matter of an invention has an impact on applying the provision. Namely, in some countries the provisions are limited in scope and only apply to *inventions that are considered to be in the areas of defense* or in areas where the publication of the technology would be prejudicial to the national interest. Nevertheless, there are also many countries where the restrictions apply to applicants *irrespective of the technology* of the invention contained in the patent application, as long as the previously mentioned criteria in respect of the invention is fulfilled

In the following, the provisions will be introduced in further detail. First, the national security provisions that apply only to inventions considered to be relevant to national security are presented. There the applicant needs to use discretion in determining whether the provision has relevance in respect of the invention. The exemplary countries presented for these provisions are Finland and the UK. Thereafter, the national security provisions that apply irrespective of the technology are introduced, the exemplary countries being China, U.S. and Russia (of the provisions based on the place of the invention) and India (an example of a national security provision based on the applicant's or the inventor's residency). Finally, the special provision based on the inventor's nationality is presented, from Greece.

5.2.2 Provisions based on the relevance to national security

National security provisions provide protection against the national security in many countries - but not all.⁵³³ Patent applications for inventions that relate to military technology or which are otherwise detrimental to national defense are to be first filed, or security checked prior to being permitted to be filed abroad, in the country of origin. In other words, the purpose is to ensure that technologies that could harm national security are not exported without first being nationally reviewed. Therefore, patent applications for inventions falling within the scope of the provisions are subject to a specific security clearance before being granted permission to file the

⁵³¹ Patents Act of 1970, Section 39.

⁵³² Law No. 4325/1963 on the Inventions Concerning the National Defence, Art 1(1), Art. 23(1) of the Law No. 1733/87 "Technology Transfer, Inventions and Technological Innovation", Art. 23(1), Presidential Decree No. 16/1991 Implementing Regulations of PCT as ratified by Law No. 1883/1990, Art. 3(2).

⁵³³ E.g. Ireland and Japan do not have any security provisions in place.

patent application(s) abroad. These provisions can also contain the governmental right to expropriate for public purposes such inventions which during security clearance are considered important to keep secret in the interests of national security.⁵³⁴ Security provisions that restrict the patenting of defense-related technology or technology for which publication may be seen as being prejudicial to the national interest or to the safety of the public exist in the national legislation of, for example, Belgium⁵³⁵, Czech Republic⁵³⁶, Denmark⁵³⁷, Finland⁵³⁸, Germany⁵³⁹, Israel⁵⁴⁰, Korea⁵⁴¹, Sweden⁵⁴² and the United Kingdom⁵⁴³, but not limited thereto. Example countries of the national security provisions that are restricted based on the subject matter of the invention presented here are Finland and the United Kingdom.

Finland

In Finland the national security provision is not part of the national Finnish patent law, but is contained in a more specific law, the “Act on Inventions of Importance to the Defense of the Country”⁵⁴⁴:

Section 2

If it is obvious that an invention is principally of importance to the defence of the country, an inventor residing in Finland, or his successor in title, may not apply for or authorise another person to apply for a patent for the invention abroad before an

⁵³⁴ See for example Finnish Act on Inventions of Importance to the Defense of the Country (551/1967), Section 1.

⁵³⁵ Belgium: Art. 2(2) Law of 21.4.07 (patent applications filed on or after 13 December, 2007), Art. 3(2) Law of 8.7.77 (patent applications filed before 13 December, 2007).

⁵³⁶ § 24(4) Patent Act No. 527 of November 27, 1990 on Inventions and Rationalization Proposals, as amended by No. Act. No. 378/2007 Coll.).

⁵³⁷ Section 70 of the Consolidate Patents Act (Consolidate Act No. 221 of 26 February 2017) and § 2a(1) of the Consolidate Secret Patents Act (Consolidate Act No. 107 of 24 January 2012).

⁵³⁸ Act on Inventions of Importance to the Defence of the Country (No. 551/1967, amendments 245/1997), Section 2.

⁵³⁹ Patent Act of 16 December 1980 (and last amended by Article 1 of the Act of 19 October 2013), Section 52 and Penal Code, Section 93.

⁵⁴⁰ Sections 98 and 103 of the Patents Act, 5727-1967. Section 138 of the Patents Act however provides that State employees and similar persons (provided in Section 137) are required to file patent applications for *any* of their inventions first in Israel, regardless of the field of technology.

⁵⁴¹ Patent Act No. 950, Art. 41.

⁵⁴² Section 4 of Defense Inventions Act (1997:916), “Lag om försvarsuppfinningar” (1971:1078).

⁵⁴³ Patents Act 1977, Section 23.

⁵⁴⁴ Unofficial translation used in this thesis:

<https://www.finlex.fi/fi/laki/kaannokset/1967/en19670551.pdf>.

application has been filed for a patent for the invention in Finland and before six months have passed from the date the patent application was filed here.⁵⁴⁵

Where an inventor resident in Finland makes an invention that is considered to be important to the defence of the country, a patent for such an invention may not be applied abroad before a patent application has been filed in Finland. Further, there is a restriction period of six months included in the provision. If a decision to expropriate the invention for public purposes has not been made within the restriction period, then the application will continue to be processed as normally.

Section 3.3

If the Government has not within six months of the filing of the application made a decision to expropriate the invention for public purpose, the processing of the application shall be continued in the normal order.⁵⁴⁶

UK

In the UK, the national security provision was changed as of 1.1.2005. The earlier, more general provision applied to all inventions made by a person resident in the UK irrespective of the technology area. However, the new provision applies only to inventions that relate to, for example, military technology:

Restrictions on applications abroad by United Kingdom residents

23.-(1) Subject to the following provisions of this section, no person resident in the United Kingdom shall, without written authority granted by the comptroller, file or cause to be filed outside the United Kingdom an application for a patent for an invention *if subsection (1A) below applies to that application*, unless -

(a) an application for a patent for the same invention has been filed in the Patent Office

(whether before, on or after the appointed day) not less than six weeks before the application outside the United Kingdom; and

(b) either no directions have been given under section 22 above in relation to the application in the United Kingdom or all such directions have been revoked.

(1A) This subsection applies to an application if -

(a) the application contains information which relates to military technology or for any other reason publication of the information might be prejudicial to national security; or

(b) the application contains information the publication of which might be prejudicial to the safety of the public.⁵⁴⁷

⁵⁴⁵ Act on Inventions of Importance to the Defence of the Country, 2.1§.

⁵⁴⁶ Act on Inventions of Importance to the Defence of the Country, 3.3§.

⁵⁴⁷ UK Patents Act 1977, as amended in 2005, Section 23; emphasis added.

Where an inventor resident in the UK has made an invention relating to military technology, or the publication of which would be prejudicial to national security or to the safety of the public, then a patent application for such an invention shall not be filed outside the country without written authority from the comptroller. However, the restriction period in the UK is only six weeks, which means that if the first patent application for the invention has already been filed in UKIPO, then within six weeks the applicant is free to seek patent protection abroad unless the applicant is informed of directions prohibiting or restricting the publication of information contained in the application or communicating it to any specified person, pursuant to the Act.

What kind of an invention is then considered important to the defense of the country or prejudicial to national security or the safety of the public? The patent act provides little guidance as to what constitutes an invention that would fall within the scope of the provision. For example, it is a question mark whether the mere existence of a theoretical use of biotechnology for military purposes is of relevance and would render patent secrecy orders a significant problem for biotechnology.⁵⁴⁸ The same question could be raised in the case of advanced encryption technologies. Ultimately, in the UK, the onus is on the applicant to decide if the provision is relevant.

5.2.3 Security provisions based on the place of the invention

China

Article 20

Any unit or individual that intends to apply for patent in a foreign country for an invention or utility model accomplished in China shall submit the matter to the patent administration department under the State Council for confidentiality examination. Such examination shall be conducted in conformity with the procedures, time limit, etc. prescribed by the State Council.⁵⁴⁹

A patent application for an invention made in China cannot be filed outside China in the absence of state permission. Such an invention shall be submitted to the patent administration department for a confidentiality examination. It should be noted that the provision does not require the first patent application to be filed in China even

⁵⁴⁸ Commercial Biotechnology: An International Analysis (Washington, D.C.: U.S. Congress, Office of Technology Assessment, OTA-BA-218, January 1984), page 459.

⁵⁴⁹ Article 20.1 of the Patent Law of the People's Republic of China (as amended up to the Decision of December 27 2008, regarding the Revision of the Patent Law of the People's Republic of China, SIPO (now CNIPA) translation: http://english.sipo.gov.cn/laws/lawsregulations/201101/t20110119_566244.html.

though submission for a confidentiality examination conveniently takes place by filing a patent application.

In China, just like in the UK, the scope of the application for the security provision has been subject to a change recently. However, unlike in the UK, in China the scope was broadened from what it was earlier. Namely, the provision in its earlier form set the obligations regarding inventions made in China only for Chinese applicants and entities. This definition excluded all multinational corporations who filed patent applications for inventions made in their research centers in China in the name of the parent company located outside China. This loophole was removed by the revision of the Chinese patent law in autumn 2009. The current law now requires *any unit or individual* intending to apply for a patent in a foreign country for an invention accomplished in China to submit the matter for a confidentiality examination, irrespective of the domicile or the nationality of the applicant. While the earlier law required the application always to be filed first within CNIPA⁵⁵⁰, the new law now provides an option to seek permission to file an application outside the country by submitting the invention for a confidentiality examination.

The confidentiality examination according to the security provision applies to *all inventions made in China*, irrespective of the technology. Yet, it serves the same purpose as in those countries where the secrecy check only applies to inventions related to such technologies that could harm national security. However, the applicant does not have the possibility to consider whether the invention should be submitted for review as for example in the UK. Instead, determining whether the invention needs to remain confidential to protect state secrets⁵⁵¹ is done by CNIPA.

When has an invention then been *accomplished in China*? An invention made in China refers to an invention, the substantive content of the technical solution of which was completed within the territory of China.⁵⁵² Thus, there should be no problems with the definition when all the work around the invention has been done in China by inventors working in China. It is not relevant whether the inventor is a citizen or a resident in China, as long as the invention was made in China. Vice versa, a literal interpretation is that the provision does not apply if the invention is made overseas by an inventor who has Chinese nationality or residence. But what if the invention is made for example during a business trip to China, by an inventor who

⁵⁵⁰ China National Intellectual Property Administration, former State Intellectual Property Office of China (SIPO).

⁵⁵¹ Article 4 of the both old and the new patent law states: “Where an invention-creation for which a patent is applied for relates to the security or other vital interests of the State and is required to be kept secret, the application shall be treated in accordance with the relevant prescriptions of the State”.

⁵⁵² Implementing Regulations of the Patent Law of the People’s Republic of China, Rule 8.

does not regularly work in China? Is the invention then made in China? Similarly, in a case where an inventor, who regularly works in China, makes an invention on a business trip outside the country, is the invention then *not* made in China? The answer to these questions boils down first to how the moment of making an invention is determined and secondly, whether the substantive content of the solution was completed in China. Is it possible to make an invention during a business trip, especially if it relates to the regular duties of the inventor, something that they work on in their regular working place? Even if the conception of an invention is typically a longer process, sometimes the mental process taking years from the realization of the very first idea evolving to the final level of the matured invention, in theory it is possible to come up with an invention even during a shorter business trip. An invention could be, for example, an idea or an improvement that relates to a finding made during travelling, based on something the inventor has seen or experienced during the visit. It could also be that an idea that the employee has processed for some time has finally matured to an invention during a business trip, for example, simply because the inventor has had the time for further thinking during a longer flight to the destination for the trip. Whether the invention is then “accomplished”, namely the substantive content of the associated technical solution is completed in the country of the visit is however questionable. But it is even more questionable whether setting the filing restrictions for an invention made in the country, by a person temporarily travelling there, serves anymore as the original purpose for the national security provisions to keep state secrets inside state boundaries?

US

35 U.S.C. 184

(a) Filing in Foreign Country. - Except when authorized by a license obtained from the Commissioner of Patents a person shall not file or cause or authorize to be filed in any foreign country prior to six months after filing in the United States an application for patent or for the registration of a utility model, industrial design, or model in respect of an invention made in this country. A license shall not be granted with respect to an invention subject to an order issued by the Commissioner of Patents pursuant to section 181 without the concurrence of the head of the departments and the chief officers of the agencies who caused the order to be issued. The license may be granted retroactively where an application has been filed abroad through error and the application does not disclose an invention within the scope of section 181.⁵⁵³

⁵⁵³ 35 U.S.C. 184 (a), as amended by Leahy-Smith America Invents Act, Section 20. Technical Amendments, A patent reform act passed by Congress on September 16, 2011.

Where an invention has been made in the U.S., the first patent application in respect of the invention cannot be filed outside the United States without a license to do so. The national security restraints in the U.S. involve three phases: screening of patent applications, the issuance of foreign filing licenses, and the issuance of secrecy orders. The screening and foreign filing license requirements of the national security provisions are to a great extent two sides of the same coin, screening being the means by which the government decides whether the disclosure of an invention might have a detrimental effect on U.S. national security, meaning that the invention should be kept secret. The requirement for a foreign filing license in turn gives the government sufficient time to review of the invention and thus precludes premature disclosure.⁵⁵⁴ However, even when a first patent application has already been filed in the U.S., there is still a waiting period, namely a restriction period, of six months prior to the patent application being allowed to be filed outside the U.S.:

37 C.F.R. 5.11

(a) A license from the Commissioner for Patents under **35 U.S.C. 184** is required before filing any application for patent including any modifications, amendments, or supplements thereto or divisions thereof or for the registration of a utility model, industrial design, or model, in a foreign patent office or any foreign patent agency or any international agency other than the United States Receiving Office, if the invention was made in the United States and:

- (1) An application on the invention has been filed in the United States less than six months prior to the date on which the application is to be filed, or
- (2) No application on the invention has been filed in the United States.⁵⁵⁵

When is an invention then considered to have been made in the U.S.? First of all, it is necessary to define what constitutes making an invention according to the U.S. law. The U.S. courts have interpreted that an invention has been made when there is *a conception and a reduction to practice*.⁵⁵⁶ Conception has been defined as “the complete performance of the mental part of the inventive act” and “the formation of the mind in the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice”.⁵⁵⁷ It has also been defined as “a disclosure of an invention which enables one skilled in the art to reduce the invention to a practical form without ‘exercise of the inventive faculty’”.⁵⁵⁸ Such

⁵⁵⁴ Jay Dratler, ‘Intellectual Property Law: Commercial, Creative and Industrial Property’ (1991) 1 Law Journal Press, p. 2A-234.

⁵⁵⁵ 37 C.F.R. 5.11(a); 56 Fed. Reg. 1924, 1926 (Jan 18, 1991).

⁵⁵⁶ *Dunn v. Ragin*, 50 USPQ 472, 474 (Bd. Pat. Inter. 1941).

⁵⁵⁷ *Townsend v. Smith*, 36 F.2d 292, 295, 4 USPQ 269, 271 (CCPA 1930).

⁵⁵⁸ *Gunter v. Stream*, 573 F.2d 77, 197 USPQ 482 (CCPA 1978). See also *Coleman v. Dines*, 754 F.2d 353, 224 USPQ 857 (Fed. Cir. 1985).

a definition resembles the general enablement requirement set for disclosure in a patent application⁵⁵⁹.

“Reduction to practice” can mean two different things: an *actual reduction to practice* and a *constructive reduction to practice*. A constructive reduction to practice occurs when a patent application on a claimed invention is filed. In other words, a patent application serves as a conception, and as a constructive reduction to practice of the subject matter described in the application.⁵⁶⁰ Such an interpretation of the reduction to practice helps in determining who is the inventor of the invention, based on the first-to-file principle, however it does not help in determining where to file the first patent application for an invention. For this purpose it needs to be determined when and where the actual reduction to practice for an invention took place. For an actual reduction to practice, the invention must have been sufficiently tested in order to demonstrate that it will work for its intended purpose, but it does not need to be at a commercially satisfactory stage of development.⁵⁶¹ When has such a reduction of practice for an invention then been conducted in the U.S.? Where all the work around the invention has been done in the U.S., by the inventors located all the time in the U.S., there are no doubts about the invention being made in the U.S. However, situations can differ from joint inventions resulting from collaboration to situations where all the other work has been done elsewhere but the actual testing has been done in the U.S., or where only the testing may have been carried out abroad. Literally interpreting, in the latter scenario, the invention is not made, namely actually reduced to practice, in the U.S. Ultimately, it is matter of interpretation based on the individual circumstances.

The U.S. Federal Law specifically also mentions “any modifications, amendments, supplements or divisions” in the connection of seeking a foreign filing license for a patent application.⁵⁶² Also, the original regulatory implementation of 35 U.S.C. 184⁵⁶³ required applicants to obtain a license not only for the original foreign patent application but also for the filing of almost any information in support of the application, creating administrative problems for U.S. inventors seeking foreign patent protection. As it is common that foreign patent offices demand, for example, additional technical data to be added to a patent application, an additional foreign filing license was usually required before the inventor could submit such modifications, amendments or supplements to a previously licensed foreign patent

⁵⁵⁹ In the U.S.: 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112.

⁵⁶⁰ *Hyatt v. Boone*, 146 F.3d 1348, 1352, 47 USPQ2d 1128, 1130 (Fed. Cir. 1998).

⁵⁶¹ See, e.g., *Scott v. Finney*, 34 F.3d 1058, 1062, 32 USPQ2d 1115, 1118-19 (Fed. Cir. 1994), citing numerous cases wherein the character of the testing necessary to support an actual reduction to practice varied with the complexity of the invention and the problem it solved.

⁵⁶² 37 C.F.R. 5.11(a).

⁵⁶³ Patent Law Foreign Filing Amendments Act of 1988, Subtitle B of Public Law 100-418.

application, regardless of how trivial the change might have been.⁵⁶⁴ However, a different view was also presented on this, according to which any modification whatsoever should *not* have required a foreign filing license since the volume of such license requests under other kinds of interpretation would completely inundate the patent office.⁵⁶⁵ Given the problems associated with the need to obtain an additional license in situations where amendments were mere technicalities, the law was changed and the licensing process streamlined. The current law permits such subsequent modifications, amendments and supplements that do not change the general nature of an invention filed under the same foreign filing license, or without any license in case it has not been needed for the invention.⁵⁶⁶ However, when the improvements and modifications made in the U.S. change the nature of the invention, then a separate foreign filing license is needed.⁵⁶⁷ This also applies to improvements made in the U.S. where the underlying invention is of a foreign origin.⁵⁶⁸

After six months has passed from filing the patent application in the U.S., the applicant is free to patent the invention outside the U.S. without obtaining a foreign filing license, because the filed application is presumed to have gone through the secrecy review within this period of time. However, if the invention is found to present a threat to national security during screening and considered to fall within the Invention Secrecy Act, then the applicant is notified of a secrecy order.⁵⁶⁹ The content of the secrecy order can be barring the grant of a patent, ordering that the invention shall be kept secret, restricting the filing of foreign patents and specifying procedures to prevent disclosure of the ideas contained in the application.

It should be noted that in the U.S., foreign filing licenses are only one means to implement the comprehensive system of export controls established for regulating the international transfer of U.S.-origin goods, technology and services.⁵⁷⁰ The scope

⁵⁶⁴ Department of Commerce, Patent and Trademark Office, 37 CFR part 5, Notice of Final Rulemaking: Amending the rules of practice in patent cases to implement the Patent Law Foreign Filing Amendments Act of 1988, Subtitle B of Public Law 100-418.

⁵⁶⁵ Michael K. Bosworth, 'Pitfalls of Foreign Patent Filing' (1976) 7(2) Loyola University Chicago Law Journal, pp. 318-319.

⁵⁶⁶ Patent Law Foreign Filing Amendments Act of 1988, Subtitle B of Public Law 100-418.

⁵⁶⁷ 35 U.S.C. 184 (c).

⁵⁶⁸ Jay Dratler, 'Intellectual Property Law: Commercial, Creative and Industrial Property' (1991) 1 Law Journal Press, p. 2A-239 + fn 35.

⁵⁶⁹ The Invention Secrecy Act of 1951, 35 U.S.C. 181, Secrecy of certain inventions and withholding of patent.

⁵⁷⁰ The Export Administration Act of 1979, as amended, authorizes the Department of Commerce (or Bureau of Industry and Security, "BIS"), in consultation with other appropriate agencies, to regulate the export or re-export of U.S.-origin dual-use goods, software, and technology. BIS implements this authority through the Export Administration Regulations (EAR). Another U.S. export law, ITAR (International Traffic on Arms Regulations), is regulated by the Directorate of Defence Trade Controls ("DDTC").

of a foreign filing license is limited only to filing a patent application in a foreign jurisdiction, for the technology contained in the patent application subject to the foreign filing license, or which is otherwise necessary for the preparation of an application to be filed abroad, such as modifications which do not change the nature of the invention. Thus, a foreign filing license does not cover the export of all the information related to the invention in question but only information which is truly necessary to prepare the patent application. Further, the foreign filing license system is only meant for those situations where the information is sent outside the U.S. to prepare for *filing* a patent application in a foreign country.⁵⁷¹ There is no need to seek a foreign filing license if the patent application is going to be filed in the U.S., and only the preparation is taking place abroad, a typical scenario especially for multinational companies which have global patenting organizations and attorneys and patent professionals who are experts in certain technology areas locating outside the country of the invention.⁵⁷² However, also smaller companies who only have operations in one country can outsource some of their patenting work abroad. In India, for example, there are currently many companies dedicated to offering professional IP services such as the novelty search, and in order for them to conduct a search for prior art relevant to an invention, the details of the invention need to be provided to them. Thus, it is possible that an invention sent to them falls within the Invention Secrecy Act and therefore providing the invention to be evaluated outside the country could breach the procedure of preventing disclosure of the ideas contained in the application. However, it is highly likely that there is a confidentiality agreement in place between the company and the IP service provider, so it is questionable whether any harm could be caused in such a confidential disclosure.

Russia

Article 1395. Patenting of inventions or useful models in foreign states and in international organizations

1. The application for granting patent to invention or useful model, created in the RF, can be filed in the foreign state or international organization at the expiration of six months from the day of filing the relative application to the federal executive body on intellectual property, if within the mentioned term the applicant is not informed that the data, having state secret, are included in the application. The

⁵⁷¹ 37 C.F.R. 5.11(a).

⁵⁷² This is the literal interpretation of the law. Cf. Karen Canaan, 'Patent Application Foreign Filing Licenses, Export Control for Sensitive Technologies Described in Patent Applications' (2008) 9(3) Patent Strategy and Management®, ALM Law Journal Newsletters. The case study nr. 3 concerns "Outsourcing U.S. Patent Work to Foreign Technology Centers". The conclusion there, too, is that no foreign filing license is needed.

application for invention or useful model can be filed earlier than the mentioned term, but after making upon the applicant's request examination of presence in the application of data, having state secret. The procedure of making such examination is established by the RF Government.⁵⁷³

It is worth noting that in Russia there is *no foreign filing license* system in place. The Russian law requires that a patent application for an invention created in the Russian Federation is first filed in Russia:

2. The patenting in accordance with the Agreement on patent cooperation or Eurasian patent convention of invention or useful model, created in the RF, is permitted without preliminary filing of the relative application to the federal executive body on intellectual property, if the application in accordance with the Agreement on patent cooperation (international application) was filed to the federal executive body on intellectual property as to the receiving agency and the RF is indicated in it as the state in which the applicant intends to receive patent, and the Eurasian application was filed through the federal executive body on intellectual property.⁵⁷⁴

Foreign filing is available after six months has passed from filing the patent application in Russia unless the Russian patent office notifies the applicant that it is prohibited due to the secret character of the application.⁵⁷⁵ According to the earlier law⁵⁷⁶ the time was three months which was apparently too short for the review. One probable reason for the extension may have been the increase in the filings, thus more time required for conducting a secrecy review for all patent applications. It should be noted that according to the Russian law classifying a patent application as a state secret is prohibited if the applicant is a foreign citizen or a foreign legal

⁵⁷³ Civil Code of Russian Federation, Art. 1395.1.

⁵⁷⁴ Civil Code of Russian Federation, Art 1395.2.

⁵⁷⁵ Civil Code of Russian Federation, Art. 1395.1. However, it may be possible to file the application abroad earlier by filing a request for examination concerning the presence of a state secret to accelerate the proceedings. Patent system in Russia, Publication by World Intellectual Property Organization, August 2010, the document produced with the assistance of the European Union under the project "Approximation of EU and Russian Federation Intellectual Property Right aspects", implemented by the EPO and in co-operation with Federal Service for Intellectual Property, Patents and Trademarks. The nature and proceeding regarding the state secrets are regulated in separate laws: The Federal Law on State Secrets No. 5485-1 of July 21, 1993, last amended on July 27, 2017 by the Federal Law on Amending Particular Russian Federation Legislative Acts in Connection with the Adoption of the Federal Law on Security of Critical Russian Federation Information Infrastructure. Presidential Decree No. 1203 from 11/30/1995, Rules of Classifying Information Constituting State Secret by Different Levels of Classification, adopted by the Resolution of the Government of the Russian Federation No. 870 from 04/09/1995.

⁵⁷⁶ Patent Law of the Russian Federation No. 3517-1 of September 23, 1992, Art. 35.

entity.⁵⁷⁷ Thus, even if an application for an invention made in Russia, filed by a foreign applicant, is duly screened in order to check whether it contains state secrets, in practice the invention cannot be classified as such and thus, the purpose of the review in such a case remains open.

It is worth discussing one aspect in connection with Russia, where no other options to comply with the national security provision exist than to file the first patent application with the Russian Patent Office. Earlier, in connection with introducing open source as one strategy for (not) protecting the results of development in the area of software, an assumption for the purposes of this thesis was made that the joint inventions discussed here are truly patentable in all the countries involved. But what if a multinational company plans to seek global protection for a software invention that is partly made in Russia? Namely, software, more specifically computer programs, is not considered patentable subject-matter in Russia.⁵⁷⁸ If an invention is made by a multinational team involving a Russian co-inventor, does the company need to file the first patent application in Russia, even if the invention will never result in a patent because of Russian legislation which prohibits patenting software? Given the outcome of filing a patent application in Russia for an invention that is not considered patentable according to the local law, it would not be very cost-efficient to file the patent application in Russia just to comply with the provision. Then again, there can be consequences for non-compliance with the provision, so any deliberate non-compliance, even if well-reasoned, would need to be considered thoroughly.

5.2.4 Security provisions based on residency

In some countries potential state secrets contained in patent applications are screened by reviewing all inventions that are made by *a resident* in the country. This is the case for example in Indian law⁵⁷⁹:

India

39. Residents not to apply for patents outside India without prior permission.

(1) No person resident in India shall, except under the authority of a written permit sought in the manner prescribed and granted by or on behalf of the Controller, make or cause to be made any application outside India for the grant of a patent for an invention unless

⁵⁷⁷ Civil Code of Russian Federation, Art. 1401(4).

⁵⁷⁸ Civil Code of Russian Federation, Art. 1350.5(5).

⁵⁷⁹ Patents Act 1970 (19th of September, 1970).

(a) an application for a patent for the same invention has been made in India, not less than six weeks before the application outside India; and

(b) either no direction has been given under sub-section (1) of section 35 in relation to the application in India, or all such directions have been revoked.

(2) The Controller shall dispose of every such application within such period as may be prescribed:

Provided that if the invention is relevant for defence purpose or atomic energy, the Controller shall not grant permit without the prior consent of the Central Government.

(3) This section shall not apply in relation to an invention for which an application for protection has first been filed in a country outside India by a person resident outside India.⁵⁸⁰

According to the Indian law, no person resident in India shall make or cause to be made any patent application outside India unless authorized to do so under written permission. Thus, in India it does not matter where the invention has been made, if only one or some of the inventors are considered a person resident in India. However, it is somewhat unclear as to what is meant with “*this section not being applicable in relation to such an invention for which a patent application has first been filed in a country outside India by a person resident outside India*”? Namely, a literal interpretation means that joint inventions which have contributors from different countries, involving at least one inventor resident in India, also fall within the scope of the provision. So, what could an invention where a first patent application has been filed outside India possibly be, in the context of the national security provision that is based on the Indian residency?

It should be noted that the provision does not just refer to the *inventor* resident in India. Namely, in a legal sense, the term “person” may include also a “juristic” person, in other words a legal entity. This is implied already in the language of the provision, using the phrase “make or *cause to be made*”, which can be interpreted to encompass cases wherein the inventor resident in India does not file the application directly but assigns it and thus causes the assignee, who is not necessarily resident in India, to file the application. In other words, the requirement of obtaining a foreign filing license seems to apply if either the inventor or the applicant is a resident of India. A typical scenario where the inventor is a resident of India, but the assignee is *not*, is an assignment for an employer belonging to a multinational company or to a group of companies, filing patent applications in the name of the parent company having its place of business outside India. It is another issue that the assignment might still need to be done first to the local subsidiary company, which further assigns the rights to the invention to the parent company, in order to have an

⁵⁸⁰ Patents Act 1970, Section 39, introduced to law in 2002 and further amended in 2005.

unbroken chain of title derived from the inventor to the applicant. What is essential is that according to the Indian law, it is the person resident in India that needs to obtain a foreign filing license before either making or causing an application to be made outside India. In the case of employee inventions, the employer usually takes care of such a procedure, after the inventor has assigned their rights to the invention.

On the other hand, it can also be the case that the inventor resident in India is *not an employee*, or not obliged to assign any rights to the invention to the employer, or the employer has waived any rights to such. In all these scenarios the inventor is free to assign the invention to any third-party entity. Such a third-party assignee could be a foreign entity, planning to file a patent application for the invention outside India. When it is a question of an assignment to the employer, the employee-inventor does not usually need to consider issues related to the patenting procedure and is often kept informed of the patent filings. In contrast, when the assignment has been done to a third party, the inventor might not even know what will happen to the invention after the assignment. Further, it could be that while the first assignee in the assignment chain is not a resident of India, a second assignee in the subsequent assignment is, and the inventor may not even become aware of such a subsequent assignment. Yet, the inventor could breach the provision if the assignee files the patent application outside India without obtaining a foreign filing license as the inventor has caused, albeit unknowingly, an application to be made outside India without obtaining the foreign filing license.⁵⁸¹ But it could also be that an inventor, who is *not resident in India*, assigns the invention to such an entity that is resident in India and the assignee files a patent application for the invention outside India without prior permission. However, in such a case the inventor is *not* resident in India and therefore, falls outside the scope of appliance of Section 39.

The scenarios where the inventor could be held liable for indirectly, and possibly unknowingly, having caused the first patent application filed contrary to the Indian law are not very probable in cases where the invention is an employee invention assigned to the employer, as employee-inventors are indeed usually informed of the filings. Yet, ignorance, and the non-compliance, of the provision by the employer might result in consequences also to the employee as an inventor. A relevant question in this respect has been raised as to whether Section 39 imposes a duty upon the

⁵⁸¹ The inventor having assigned the invention could always try to raise a defense that he or she has merely assigned the invention to the entity (or a person) and does not know its future course (of whether the entity filed a patent application or not) and thus should not be held liable of possible later noncompliance of the provision. Taken from iPatents blog written by Ashwani Balayan; Even if such a defense is not valid as the ignorance of law is never an excuse for not obeying the rules, it seems slightly unreasonable if an inventor having assigned the invention to a third party could be held liable for the non-compliance of the provision due to the omissions taking place at the later assignment chain.

inventor resident in India to keep track of whether the assignee is filing a patent application in some country or not and to ensure that such filing complies with the Section?⁵⁸²

The restriction period in India was previously three months.⁵⁸³ However, according to the current law it is six weeks.⁵⁸⁴ This means that any secrecy directions under Section 35.1 should be given within this time.⁵⁸⁵ When an invention contained in an application belongs to the class defined as relevant for defence purposes, or is otherwise considered of relevance, the Controller may give directions for prohibiting or restricting the publication or communication of information with respect to it. It should be noted that the Indian patent law imposes a complete bar explicitly on inventions related to atomic energy.⁵⁸⁶ For inventions related to other technologies, the Controller may use their own discretion when it comes to relevancy.⁵⁸⁷

5.2.5 Security provision based on the nationality of inventor

There is one more basis for national security provisions. Namely, Greek law requires that any invention made by a Greek *citizen* – either in Greece or abroad – is filed in Greece first, irrespective of the specific area of technology concerned. In other words, the place of residence and the place where the invention has been made is irrelevant. This is indicated for example in the regulations related to filing international applications:

3.2§ The international application must be filed with the OBI if the applicant is a Greek citizen and provided that no priority for an earlier Greek application is claimed (art. 1 and 2 of Law No. 4325/1963 on “inventions concerning the national defence”).⁵⁸⁸

23.1§ The application for the grant of a European patent shall be obligatorily submitted to OBI when the applicant is a Greek citizen unless claiming the priority of an earlier Greek application.⁵⁸⁹

⁵⁸² This question is also raised in the iPatents blog.

⁵⁸³ Before the Patent Rules of 2003 were amended in 2006 pursuant to the amendments to the Patent Act in 2005 and a Notification issued by the Department of Industrial Policy and Promotion, the restriction period was indeed 3 months.

⁵⁸⁴ Patents Act 1970, Section 39.1(a).

⁵⁸⁵ Patents Act 1970, Section 35.1.

⁵⁸⁶ Patents Act 1970, Section 39.2.

⁵⁸⁷ Patents Act 1970, Section 35.1.

⁵⁸⁸ Presidential Decree No. 16/1991 Implementing Regulations of PCT as ratified by Law No. 1883/1990, Art. 3(2).

⁵⁸⁹ Law No. 1733/87 “Technology Transfer, Inventions and Technological Innovation”, Art. 23(1).

The law regulating inventions concerning national defence appears to have a more restricted scope:

1. All inventions and discoveries developed in Greece or in a foreign country by Greek nationals concerning Greece's national defense, an ally's national defense or this one of a group of allied countries of which Greece is part, may not be transmitted to any domestic or foreign legal or natural entity or disclosed in any way whatsoever in any country, *even before such invention or discovery is classified as secret* according to articles 2 and 3 herein. Similarly, it is prohibited to transmit or disclose any technical information that can be related in any way whatsoever with such inventions or discoveries.⁵⁹⁰

The provision explicitly talks about inventions and discoveries "concerning Greece's national defense". However, the subsequent language "even before such invention or discovery is classified as secret" implies that the requirement applies to all inventions. Indeed, it has also been interpreted in practice that all patent applications involving at least one Greek citizen as a co-inventor must first be filed with the Greek Patent Office OBI (The Hellenic Industrial Property Organization).⁵⁹¹

There is no option to seek foreign filing license or security clearance that could replace the first filing of a patent application in Greece, similar to Russia. Non-compliance results in criminal sanctions, although the legal provisions have not been implemented in practice. However, there are no implications for the validity of the patent application which is first filed abroad contrary to the regulations.

What is worth noting is that the Greek law contains an exception to the main rule of the first filing in Greece:

2. As an exception, the above prohibition shall not apply in the case where there is a specific and mutual agreement between Greece and other interested Countries. In this case, any matter related to information exchange procedure and confidentiality assurances for inventions, discoveries and technical information disclosed from both parties shall be governed by the terms and conditions of said agreement.⁵⁹²

The exception provides that in cases where there is a specific, mutual agreement between Greece and other countries involved in the invention at hand, the procedure

⁵⁹⁰ Law No. 4325/1963 on the Inventions Concerning the National Defence, Art. 1(1); Emphasis added.

⁵⁹¹ Constantinos Kilimiris, 'Inventions made by Greeks abroad' (24 August 2016) ManagingIP and Dr. Nikolaos Lyberis, 'Are there so-called first filing requirements for patent applications filed by Greeks and/or for inventions made by Greeks?', Greek Law Digest, The Official Guide to Greek Law, Industrial & Intellectual Property Rights, March 5, 2019.

⁵⁹² Law No. 4325/1963 on the Inventions Concerning the National Defence, Art. 1(2).

regulating confidentiality and disclosing the information about the invention is governed by the terms of such an agreement. Indeed, there can be bi- or multilateral treaties, where the parties involved agree on the mutual arrangements securing national security.

5.2.6 Alternatives to complying with provisions

5.2.6.1 First filing

Perhaps the most practical, and easy, way to comply with national security provisions is to file the first patent application for the invention within the scope of the provisions in the respective country, at least when the applicant is in any case planning to patent the invention within that territory. In some countries there are no other alternatives to comply with the provision than filing the first application within the country. However, even an action as straight-forward as filing a patent application raises several questions about how to proceed. The first question is whether the patent application needs to be a national application to be filed to the respective national patent office? If it is also possible to file an international patent application that designates the country in question, the second question is where to file such an application? Thirdly, does the patent application need to be filed in one of the official languages in the country of the provision?

The requirement to file the first patent application in the country of the provision does not necessarily mean that a national patent application shall be filed with the respective national patent office. It is usually sufficient if the receiving office is the national patent office for the country, irrespective of whether the patent application is a national or an international patent application. For example, a European patent application may in general be filed at the EPO in Munich, its branch at The Hague, or its sub-office in Berlin (however not in Vienna)⁵⁹³, and also when the contracting state so permits, at the central industrial property office or other competent authority of that state. However, when it is a question of national security provisions, then the

⁵⁹³ Place of filing a European patent application is defined in EPC, for example in Articles 75 and 76 and in Rule 35.

contracting state may explicitly *require* that an application relevant in respect of the provision be filed with the national authorities.⁵⁹⁴

When the patent application is filed via the Patent Co-operation Treaty, then the national patent office needs to be authorized to act as a receiving office for PCT applications.⁵⁹⁵ Not in all PCT contracting states can the PCT application be filed with the national patent office but only with the International Bureau.⁵⁹⁶ However, even if the national patent office is an authorized receiving office, it does not automatically mean that filing a PCT application would comply with the security provision of that country. For example, in India there is a case law where Delhi High Court upheld the order of the Indian Patent Office which refused to (i) treat PCT applications as Indian applications and (ii) grant a filing date for the PCT application until a foreign filing license under Section 39 of the Indian Patents Act was obtained.⁵⁹⁷ The Patent Office granted a foreign filing license but did not process the PCT request and refused to grant it a filing date because the Patent Office was merely a receiving office for the PCT application. The applicant had not obtained a prior foreign filing license and therefore, the PCT application was incomplete. In other words, the Indian Patent Office considered the PCT application as an application that needs a foreign filing license, despite it being filed with the Indian Patent Office which had been appointed by the PCT Contracting States as an International Searching Authority (ISA).⁵⁹⁸

⁵⁹⁴ European Patent Office publishes regularly a booklet “National Law relating to the EPC”. Part II, “Filing of European patent applications pursuant to Article 75, paragraphs 1(b) and 2, EPC” contains detailed information, for each contracting states, as to whether European patent applications may be filed at the option of the applicant at the EPO or a national authority, which applications must be filed with the national authorities, the languages in which European patent applications are accepted by the national authorities and what special features need to be borne in mind in connection with the filing. The latest edition of the booklet is the 19th edition from October 2018.

⁵⁹⁵ Regulations under the Patent Cooperation Treaty, Rule 19: The Competent Receiving Office.

⁵⁹⁶ Angola, Barbados, Lao People’s Democratic Republic, Madagascar, Montenegro, Nigeria, Oman, Saint Lucia, Saint Vincent and the Grenadines, Sri Lanka and United Arab Emirates. PCT Applicant’s Guide – International Phase – Annex C: Receiving offices.

⁵⁹⁷ Puneet Kaushik And Anr vs. Union of India And Ors on 23 September, 2013 (Delhi High Court).

⁵⁹⁸ The following have been appointed by the PCT Contracting States as International Searching Authorities (ISAs): the national offices of Australia, Austria, Brazil, Canada, China, Chile, Egypt, Finland, India, Israel, Japan, the Philippines, the Republic of Korea, the Russian Federation, Singapore, Spain, Sweden, Turkey, Ukraine and the United States of America as well as the following regional offices: the European Patent Office, the Nordic Patent Institute and the Visegrad Patent Institute. The availability of a particular ISA to the nationals or residents of a country is determined by the receiving Office where the PCT application was filed. ISA and IPEA agreements with the International Bureau of WIPO in relation to the functioning of the Authorities as International Searching and International Preliminary Examining Authorities under the PCT: http://www.wipo.int/pct/en/access/isa_ipea_agreements.html.

Multinational companies usually choose to file their patent applications in English language, even if the invention is made abroad by a subsidiary of the company. There are several practical reasons for this. In global companies where inventors are supported by a global patent function, English is usually the only common language for all parties. For example, in the case of a Japanese inventor, where the patent engineer handling the invention report is located for example in Germany, it is convenient to communicate in English. However, even if both the inventor and the responsible patent engineer have another common language, the drafting attorney might not. Filing an application in English also offers several practical benefits, such as the possibility to use the same application text for many other countries and to save the costs for translating the application. However, if it is necessary to obtain clearance by filing a patent application at the national patent office then there may also be a requirement to file the application in an accepted language. For a national application, this will be the respective national language. One solution to avoid the need for costly translations is to file the patent application in English as a European Patent (EP) application at the national patent office when the country of the security provision is a member of the European Patent Convention (EPC). Namely, the accepted languages for an EP application are English, French and German, and each national patent office is required to accept, as a receiving Office, EP applications filed in any of these languages. It is therefore possible to establish an initial filing date with this procedure. Similarly, a PCT application can be filed in any language accepted by the receiving Office. Receiving Offices are obliged to accept filings in at least one language which is both a language accepted by the competent ISA and one of the ten publication languages.⁵⁹⁹

5.2.6.2 Restriction period

Indeed, the most usual (and sometimes the only) means to comply with national security provisions is to file an initial patent application with the national patent office, which will conduct the review. The filing initiates a restriction period which needs to elapse before the applicant can file the application abroad. The purpose of the restriction period is to provide the reviewing authorities with enough time to study the application and consider whether the invention falls within the scope of the respective security provision. The length of the restriction period varies between different countries from India's six weeks⁶⁰⁰ to six months for example in the U.S.⁶⁰¹

⁵⁹⁹ Arabic, Chinese, English, French, German, Japanese, Korean, Portuguese, Russian and Spanish. PCT Rule 12.1.

⁶⁰⁰ Indian Patents Act, Section 39.1(a).

⁶⁰¹ 35 U.S.C. 184 (a).

and in Russia⁶⁰², from the date of filing a patent application to the respective national patent office. Unless the invention is notified as important to national security in terms of the provision in question, after the restriction period the applicant can assume that there are no restrictions and is free to proceed with foreign filings.

In practice, however, when the applicant has already filed a priority patent application to the national patent office, and thus the patent protection for the invention has already been initiated, there is usually no need to file subsequent patent applications abroad before the end of the priority year, as the foreign applications filed within a priority year shall enjoy priority from the date of the priority filing.⁶⁰³ The priority year provides the applicant with more time to decide the final territorial scope of protection and the possibility to delay the costs related to the foreign filings. Further, when the invention has not completely matured by the time of filing the priority application, for which there is often urgent need, the priority year provides time for the invention to evolve further. Thus, the invention in foreign applications can be enhanced from what it was during the priority filing, such as by defining some of the aspects of the invention better and completing the application with findings made during the priority year, for example in the implementation work.

Moreover, issues needing clarification could also be raised based on observations by the patent office having examined the priority application before the end of the priority year. Certain patent offices provide expedited handling for a patent application, with certain criteria. Based on the findings by the patent office the applicant can amend the claims and differentiate from the cited prior art in the subsequent foreign filing applications, thus gaining cost benefits by possibly avoiding one round of office actions at the other patent offices. This is a good additional reason to wait until the end of the priority year before filing applications abroad.

5.2.6.3 Security clearance

As mentioned, it is convenient to have a patent application cleared by filing it to the national patent office. An alternative way of obtaining clearance in order to proceed with the application abroad is to make a specific request, where possible, to the national patent office for obtaining a foreign filing license. This optional procedure might be needed if the applicant cannot for some reason file a first patent application in respect of an invention in the country of the relevant security provision. The reason for this could be for example another national security provision that also applies to the invention in question. These kinds of cross-border conflict situations will be

⁶⁰² Russian Civil Code, Art. 1395.1.

⁶⁰³ Paris Convention, Art. 4.

handled in the chapter 8. Permission to file abroad could also be requested if the applicant does not want to file a patent application within the country in question, namely does not plan to do this at all. Here, one could raise a practical question as to whether in such a case it is even necessary to request a foreign filing license, if the applicant does not intend to seek patent protection in that country, and thus the territorial effect of invalidating the (never-existing) patent would not cause any harm to the applicant? However, there can also be other sanctions for non-compliance with the national security provisions and thus, it would be wise to comply with them.

However, the foreign filing license could be needed even after already filing a patent application in compliance with the relevant provision. This kind of situation could arise if there is an urgent need to file a patent application in a certain foreign country already before the expiry of the restriction period, even if a filing date has already been established for any subsequent filing. It should be noted that in countries without any foreign filing license system in place, the applicant has no other options other than to wait until the restriction period has passed before any foreign application can be filed. Then again, handling the foreign filing request and the subsequent review naturally also takes some time, although not necessarily as long as the duration of the restriction period. In India, the time within which the Controller dispose of the request for permission to make a patent application outside India shall ordinarily be within a period of *twenty-one days* from the date of filing such request.⁶⁰⁴ The fast handling might explain why the restriction period in India is currently only six weeks. The Implementing Regulations of the Chinese Patent Law state that the applicants can proceed to filing a patent application in a foreign country *four months* after the date of the request if they have not received notification from the confidentiality examination, in which the invention has been considered likely to involve national security of substantial interests and thus necessary to remain confidential.⁶⁰⁵ If the applicant after having received such a notification has not within *six months* of submitting the request received any decision on whether confidentiality should be kept, the applicant can proceed to filing in a foreign country.⁶⁰⁶

In the review, be it called a confidentiality examination or a secrecy review, depending on the country, patent applications are screened in order to identify any inventions that could be relevant for the purposes of the national security provision. The review is conducted by dedicated personnel of the respective patent offices. However, while the initial screening is indeed performed only by the designated

⁶⁰⁴ Manual of Patent Practice and Procedure of the Patent Office of India (Third Edition, 2008), Rule 71(2).

⁶⁰⁵ Implementing Regulations of the Patent Law of the PRC, Rule 9.1; emphasis added.

⁶⁰⁶ Implementing Regulations of the Patent Law of the PRC Rule 9.2; emphasis added.

personnel, for example in the U.S. all the patent examiners have a responsibility to be alert to subject matter which is clearly sensitive either in the original disclosure or subsequently introduced, for example by an amendment.⁶⁰⁷ Despite the slightly different procedures and handling times between the national patent offices, the process in practice is the same. Unless the application is considered to contain material that has relevance with regard to the scope of the security provision in question, or the applicant has not been notified of such within the defined time limit(s), then the applicant is free to file a patent application for the invention in a foreign country. In the opposite case, restrictions subject to the respective law are imposed on the applicant whereby the level and the means are defined in the national security provision in question.

5.2.6.4 Secret inventions

When the invention in the review by the appropriate patent authorities is deemed to involve issues relating to national security, restrictions are imposed on the application to secure the matter in question. Given that countries can individually define their “essential security interests”, and which measures may be adopted to protect them, practices are very diverse. Some common features could, however, be identified, such as an indication of inventions that should be kept secret, requirements to avoid or delay the publication of related patent applications, compensating state use or assignment of the invention and restrictions on patenting the secret invention in other countries.⁶⁰⁸

Some national laws regulating state secrets were already mentioned in connection with introducing selected national security provisions, such as the Finnish Act on Inventions of Importance to the Defence of the Country⁶⁰⁹, the Russian Law on State Secrets⁶¹⁰ and the Invention Secrecy Act of the U.S.⁶¹¹ These laws define which inventions shall be considered such that restrictions can be

⁶⁰⁷ Manual of Patent Examining Procedure of USPTO, 115: Review of Applications for National Security and Property Rights Issues [R-07.2015].

⁶⁰⁸ Patent-related flexibilities in the multilateral legal framework and their legislative implementation at the national and regional levels – part IV, WIPO Committee on Development and Intellectual Property (CDIP), Fifteenth Session, Geneva, April 20 to 24, 2015. Part C. National implementation. (a) Security measures related to patent prosecution. Number 36, P. 13.

⁶⁰⁹ Act on Inventions of Importance to the Defence of the Country (551/1967).

⁶¹⁰ The Federal Law on State Secrets No. 5485-1 of July 21, 1993, last amended on July 27, 2017 by the Federal Law on Amending Particular Russian Federation Legislative Acts in Connection with the Adoption of the Federal Law on Security of Critical Russian Federation Information Infrastructure.

⁶¹¹ The Invention Secrecy Act of 1951, 35 U.S.C. 181, Secrecy of certain inventions and withholding of patent.

imposed on foreign filing or publishing the related patent applications. There are as many definitions as there are national laws, and a decision in an individual case can be different in different jurisdictions, as the examination is conducted taking into account the relevant national laws and rules. Therefore, the clearance received from one patent office for an invention does not mean that a similar invention would also receive clearance from another patent office. But the invention can also be such that several secrecy reviews need to be conducted in parallel. Scenarios like these could become topical in cross-border collaboration situations where multiple national security provisions simultaneously apply.

When an invention is considered as containing “state secrets” or is otherwise relevant to national security, applicant has to be notified of the decision. The decision can contain restrictions at different levels. In some jurisdictions, such as in the U.S., should the invention be deemed to relate to defense or national security, the competent authority evaluates whether the publication of the patent application might prejudice such security interests:

35 U.S.C. 181 Secrecy of certain inventions and withholding of patent.

Whenever publication or disclosure by the publication of an application or by the grant of a patent on an invention in which the Government has a property interest might, in the opinion of the head of the interested Government agency, be detrimental to the national security, the Commissioner of Patents upon being so notified shall order that the invention be kept secret and shall withhold the publication of an application or the grant of a patent therefor under the conditions set forth hereinafter.⁶¹²

The time during which an invention must be kept secret also varies among the national laws. For example, in the U.S., an invention shall not be ordered to be kept secret and the publication of a patent application or the grant of a patent to be withheld for a period of more than one year, and the secrecy order shall be renewed at the end of any renewal period, for additional periods of one year.⁶¹³ In India, the periodic check as to whether the invention continues to be relevant for defense purposes is conducted at intervals of six months, or according to a request made by the applicant, if found to be reasonable by the Controller. If it is found that the invention is no longer prejudicial to the defense of India, the Controller will be given notice to revoke the secrecy direction previously given by them.⁶¹⁴ In other words, it should be noted that even if an invention is initially considered secret, such a decision

⁶¹² 35 U.S.C. 181, paragraph 1.

⁶¹³ 35 U.S.C. 181, paragraph 4.

⁶¹⁴ 9.1.4. (Section 35) of Manual of Patent Practice and Procedure of the Patent Office of India, Third Edition – 2008.

could be revoked later. How this affects the rights of the applicant if the priority year for the patent application in question has already passed, and the applicant has been unable to extend the patent protection to other countries within the priority year because of the secrecy order given to them, is then totally another question that is beyond the scope of this thesis.

5.2.7 Sanctions for the non-compliance with the provisions

5.2.7.1 Invalidation of the patent (China)

Failure to comply with the national security provision can have a harmful impact on the patent protection in the country of the provision, such as for example in China:

Article 20.4

With regard to an invention or utility model for which an application is filed for a patent in a foreign country in violation of the provisions of the first paragraph of this Article, if an application is also filed for the patent in China, patent right shall not be granted.⁶¹⁵

In the event that a patent application has been filed contrary to the national security provision, namely in a foreign country without submitting the invention contained in the application for a confidentiality examination to the patent administration department in China, then an application filed for the same invention in China shall not be granted a patent. However, it could be that the patent has already been granted by the time it is discovered that the invention was made in China. In this case the already granted Chinese patent can be invalidated. However, the negative effect to the patent is territorial as is the protection provided with patents. Yet, when it is a question of an important market area for the company, such as China currently for any company operating within the global markets, a sanction of not being able to protect the invention there can result in a significant loss of licensing revenues.

No criminal punishment is regulated by the Patent Law of China. However, if the application filed in a foreign country without a confidentiality review is considered to disclose Chinese state secrets, then the penalties may range from disciplinary sanctions up to criminal prosecution.⁶¹⁶ In such a case the foreign filing without the consent from CNIPA may be treated as technology export and therefore, criminal punishment such as the crime of divulging national secrets could be applied

⁶¹⁵ Patent Law of the People's Republic of China, Art. 20.4.

⁶¹⁶ Patent Law of the People's Republic of China, Art. 64.

under the Regulations on Technology Import and Export Administration⁶¹⁷, especially if the failure to comply with the law has been intentional.

5.2.7.2 Criminal consequences (India)

In some countries criminal consequences can already ensue due to the mere non-compliance of the provision, irrespective of involving state secrets. Sanctions can potentially include criminal punishment for the attorney who filed, or the person(s) causing a patent application to be filed, contrary to these rules:

118. Contravention of secrecy provisions relating to certain inventions.—If any person fails to comply with any direction given under section 35 or makes or causes to be made an application for the grant of a patent in contravention of section 39 he shall be punishable with imprisonment for a term which may extend to two years, or with fine, or with both.⁶¹⁸

In India, a person not complying with the secrecy directions given to them⁶¹⁹, or filing or causing a patent application to be filed contrary to the rules of the patent law, namely without seeking prior permission to file the first patent application in a foreign country⁶²⁰, shall be punished with a fine or imprisonment or both. The term for imprisonment can be extended for up to two years. The criminalizing of not complying with the provision can to some extent be explained given the reasoning behind the national security provisions in the first place. However, it is another issue whether such a punishment for non-compliance has ever been enforced. Nevertheless, the threat of punishment should already be enough to ensure compliance with the provision. It should be noted that a punishment can according to the Indian law be applied to all persons who have made or caused a patent application to be made in contravention of section 39. In practice, this could be any person involved in the patenting process in the company and who can possibly affect the place of filing. Such a person can be a responsible patent engineer who has studied the invention report and given a recommendation to file a patent application, or a patenting manager in charge of patenting decisions. Criminal consequences also apply to the patent attorney who has filed the application, which is why it is important

⁶¹⁷ Regulations on Technology Import and Export Administration of the People's Republic of China, issued on December 10, 2001 and effective as of January 1, 2002. The Regulations specifically implement Arts. 16 and 17 of the Foreign Trade Law of the People's Republic of China to provide general guidelines for restricted and prohibited technology.

⁶¹⁸ Patents Act 1970, Section 118.

⁶¹⁹ Patents Act 1970, Section 35.1.

⁶²⁰ Patents Act 1970, Section 39.1.

for patent attorneys to request sufficient information not only of the contents but also of the place of the invention and the residency of the inventors, to avoid the potential consequences for not complying with national security provisions of foreign laws.

5.2.7.3 Liability under the civil law (Russia)

In addition to the aforementioned consequences in the patent laws, there can also be liabilities for non-compliance with the national security provision derived from other laws. While for example in Russia the law does not envisage any direct consequences for violating the first filing requirement, non-compliance could still be punishable under the civil law. Namely, the violation of the requirement can be considered as an administrative violation based on the Code of Administrative offences⁶²¹ and result in an administrative fine.⁶²² Further, according to the Civil Code a deal, which does not correspond to the requirements of the law or the other legal acts, shall be regarded as insignificant, unless the law establishes that such a deal is disputable or stipulates the other consequences of the breach.⁶²³ The Code also states that a deal that was done according to objectives which contradict the foundations of law and order, or morality, shall be regarded as insignificant.⁶²⁴ Thus, violation of the first filing requirement in part four of the Civil Code could invoke liabilities under the other parts of the Code and put for example patent assignments, transactions and licenses in great jeopardy, if they are based on a patent application filed contrary to the first filing requirement. Finally, it should be noted that if an application which is filed contrary to the first filing requirement comprises state secret information, even if the secret was only identified later, the violation may result in administrative, civil, disciplinary or even criminal responsibility for disclosing state secrets based on the

⁶²¹ Code of Administrative Offences of the Russian Federation, No. 195-Fz of December 30, 2001, Adopted by the State Duma on December 20, 2001, Endorsed by the Council of Federation on December 26, 2001, Enacted by the Federal Law No. 196-FZ of December 30, 2001 of the Enactment of the Code of Administrative Offences of the RF.

⁶²² Code of Administrative Offences of the Russian Federation, Art. 7.28, “Violating the Established Procedure for Patenting Objects of Industrial Property in Foreign States”.

⁶²³ Civil Code of Russian Federation, Art. 168, “Invalidity of the Deal Not Corresponding to the Law or to the Other Legal Acts”.

⁶²⁴ Civil Code of Russian Federation, Art. 169, “Invalidity of the Deal, Made for the Purpose, Contradicting the Foundations of the Law and Order, and of the Morality”.

Law on State Secrets⁶²⁵ and alternatively to criminal prosecution based on the Criminal Code⁶²⁶ and to a fine or even imprisonment.⁶²⁷

5.2.8 Different interpretations of the criteria

The types of inventions that must be kept secret can vary from country to country. Further, the scope of applications which need to be submitted for review for the purposes of national security varies from those countries where only applications regarding certain technologies are subject to review to countries where all applications fulfilling the criteria laid down in the provision, irrespective of the underlying technology, are to be reviewed. However, in addition to the differences between the content and the scope of the laws, also interpreting the criteria for inventions which are subject to review under the provisions differs from one country to another. Indeed, the criteria for the provisions shall in individual cases be interpreted according to the respective national laws.

For example, *the residency* of an inventor in one country can be based on different facts compared to some other country. There could also be differences in interpreting *the place of the invention*. Firstly, defining what is *an invention* is a very country specific issue. Secondly, *the time of making the invention*, namely what kind of actions are considered to constitute the conception of the invention, and in some countries reduction for practice needed for the invention to be patentable, could also be interpreted differently depending on the jurisdiction. As the point of time when the invention is considered to have been made can differ, in practice this can also result in different outcomes in determining the place of making the invention.

The laws of for example India and the UK both require permission to file patent applications for inventions made by residents outside the country, although in the UK only when the invention relates to military technology or is otherwise prejudicial to national security.⁶²⁸ However, residency is determined according to the respective national laws, from the point of view of the same jurisdiction where the requirement

⁶²⁵ Law on State Secrets, Art. 26, “Responsibility for Infractions of the Legislation of the Russian Federation on State Secrets.

⁶²⁶ The Criminal Code of the Russian Federation No. 63-Fz of June 13, 1996, Adopted by the State Duma on May 24, 1996, Endorsed by the Federation Council on June 5, 1996, Enacted by the Federal Law No. 64-FZ of June 13, 1996 on the Enforcement of the Criminal Code of the Russian Federation.

⁶²⁷ Criminal Code of the Russian Federation, Art. 189, “Illegal Export from the Russian Federation or Transfer of Raw Stuff, Materials, Equipment, Technology, or of Scientific or Technical Information, or Illegal Carrying Out of Works (Rendering Services) Which May Be Used in the Development of Weapons of Mass Destruction, Armaments, and Military Hardware”.

⁶²⁸ UK Patents Act 1977, as amended in 2005, Section 23(1)(A).

originated, irrespective of the location of the inventor, or of the place of making the invention.

It should be noted that a residency is not a concept equal to citizenship, or nationality. There is a fundamental difference between these two legal statutes as well as the rights linked to them. A citizen is a person who has been acknowledged as a legal member of a community, typically a nation. Each country has its own criteria, policies and regulations as to who is entitled to its citizenship. Citizenship can be obtained for example through birth or marriage, and it usually lasts for a lifetime. In contrast, residency is time-restricted, and a number of different requirements need to be continuously fulfilled in order to retain residential status. The term “residence” is also commonly referred to as “domicile”. The concept of domicile is of considerable importance in a number of areas of law. It is a connecting factor which links a person to a particular legal system of rules which are applied to the person in specific contexts such as the validity of a marriage, succession and taxation. The domicile of a person is the country where the person intends to reside permanently or indefinitely.⁶²⁹ The term “reside” implies that there is a link to the concept of “residency”. Yet, there are also views that a person’s domicile being regarded as their permanent home is far too simplistic and misleading. For most people their domicile coincides with their permanent home, but domicile is a legal concept and a person’s “basic” domicile is their domicile of origin, which is ascribed to them by law at birth and is not necessarily the country of the family’s permanent home at that time.⁶³⁰

The term domicile should be distinguished from “habitual residence”, which is the term used in the international conventions dealing with conflict of laws and other private law matters, such as the Hague Convention⁶³¹. The reason the concept of habitual residence has been selected to be used as a connecting factor is that it is considered to provide an alternative to domicile devoid of all the challenges associated with the concept of “domicile”.⁶³² The Hague Convention, however, has deliberately refrained from offering any definition for the term in question, in order to enable the concept to be flexible and capable of being adapted to practical

⁶²⁹ See for example Dicey and Morris on the Conflict of Laws, Sweet & Maxwell, 2000, p. 108.

⁶³⁰ This view was expressed by J.G. Collier, ‘Domicile and residence’ in *Conflict of Laws* (pp. 37-59), Cambridge University Press 2011.

⁶³¹ The Hague Convention of 25 October 1980 on the Civil Aspects of International Child Abduction is a multilateral treaty developed by Conference on Private International Law (HCCH) was drafted to ensure the prompt return of children who have been abducted from their country of habitual residence.

⁶³² See for example Ronald Harry Graveson, *Conflict of Laws* (7th ed. 1974), p. 194.

requirements. Instead, at an EU level, the Rome I Regulation⁶³³ introduced a new provision on the definition for habitual residence containing a single criterion based on the place of central administration: Habitual residence of companies and other bodies, corporate or unincorporated, shall be the place of central administration while the habitual residence of a natural person acting in the course of his business activity shall be his principal place of business.⁶³⁴

Despite the aforementioned general definition of “habitual residence” being used in the EU and also being widely adopted at a global level, residency is subject to interpretation based on the respective national laws. The following introduces a few examples from India and Singapore; in India the patent law lacks specific regulations which define residency whereas the patent law of Singapore explicitly contains such.

India

The issue of whether a person having filed or caused a patent application to be filed outside India is considered a “resident in India” shall be interpreted according to the Indian law. However, the term “resident” is not defined in the Patent Act. Therefore, help has to be sought from other laws containing such a definition, even if originally created for other purposes, such as from the Indian Income Tax Act⁶³⁵:

Section 6.6 Residence in India

For the purposes of this Act, -

- (1) *An individual* is said to be resident in India in any previous year, if he -
 - (a) is in India in that year for a period or periods amounting in all to 182 days or more
 - (b) [omitted by the Finance Act, 1982⁶³⁶]
 - (c) having within the four years preceding that year been in India for a period or periods amounting in all to 365 days or more, is in India for a period or periods amounting in all to 60 days or more in that year
- (2) A Hindu undivided family, firm or other association of persons is said to be resident in India in any previous year in every case except where during that year the control and management of its affairs is situated wholly outside India.

⁶³³ Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations.

⁶³⁴ Rome I, Art. 19(1).

⁶³⁵ Income-Tax Act of 1961 as amended by the Finance Act, 2012, translation: <http://www.incometaxindia.gov.in/Pages/acts/income-tax-act.aspx>.

⁶³⁶ Finance Act of 1982, 33, “Relaxation of tests of ‘Residence’ in India”.

(3)⁶³⁷ *A company* is said to be resident in India in any previous year, if –

- (i) it is an Indian Company; or
- (ii) its place of effective management, in that year, is in India.

(4) Every other person is said to be resident in India in any previous year in every case, except where during that year the control and management of his affairs is situated wholly outside India.⁶³⁸

A person is considered a “Resident of India” if they are staying there for a prescribed period during a fiscal year. Further, a person ceases to fall under the category of residence only if during that year the control and management of their financial affairs is situated outside India, a definition which is close to the definition provided in Rome I. Similarly, an Indian company is said to be resident in India if its place of effective management in that year is in India. These criteria for the place of effective management, the concept that was introduced in the Finance Act of 2015, were missing until specific guidelines were released.⁶³⁹

Singapore

In Singapore there is a dedicated provision regarding the issue of residency in the Patents Act⁶⁴⁰:

34.— (1) Subject to this section, no person resident in Singapore shall, without written authority granted by the Registrar, file or cause to be filed outside Singapore an application for a patent for an invention unless —

- (a) an application for a patent for the same invention has been filed in the Registry not less than 2 months before the application outside Singapore; and
- (b) no directions have been given under section 33 in relation to the application in Singapore or all such directions have been revoked.

In this section —

⁶³⁷ Amended in 2015 by Act No. 28 of 2016 (with effect from 1-4-2017). Prior to this amendment the company in India was classified as an Indian resident only if the company’s control and management of affairs were entirely conducted in India. This liberal test resulted in shifts of profits by incorporating shell companies outside India, which were largely controlled from India. EY Global Tax Alert: “India issues guidance on place of effective management”, on 3 Feb 2017.

⁶³⁸ Income-Tax Act, 6.6§ of the Act; Emphasis added.

⁶³⁹ The Guidelines on testing a place of effective management (POEM) issued by India’s Central Board of Direct Taxes (CBDT), on 24 Jan 2017.

⁶⁴⁰ The Patents Act of Singapore, Original Enactment: Act 21, 1994, Amendments in 1995, in 2002, and in 2005.

(c) “*person resident in Singapore*” includes a person who, at the material time, is residing in Singapore by virtue of a valid pass lawfully issued to him under the *Immigration Act (Cap. 133*⁶⁴¹) to enter and remain in Singapore for any purpose.⁶⁴²

However, despite this dedicated definition of residency the provision still contains ambiguities. The first issue which is open to interpretation is the “person resident in Singapore” and whether it refers to an applicant or an inventor, the issue that was discussed also in case of India. In fact, the wording of the provision in Singapore is the same as in India, namely “a person filing or causing to be filed outside Singapore an application for a patent” which implies that the person also in Singapore should mean the applicant as well as the inventor. But the term “valid pass” seems to refer more to a natural person than a company. On the other hand, the wording of the provision, “includes a person who...” does not necessarily mean that the definition is exclusive. There are also other issues that support the wider interpretation of “person”, covering an applicant and an inventor, namely the specific definition of “person” in the Patents Act, including also the Government.⁶⁴³ Further, according to the special Interpretation Act⁶⁴⁴ of Singapore a “person” is defined to include any company or association or body of persons, whether corporate or unincorporated.⁶⁴⁵ The second ambiguity relates to the part of the definition stating “at the material time” as there is no clarification as to what time period the term is referring to. There are two options here. The term could refer to either the time of making an invention subject to the provision or the time of filing a patent application for the invention. Given the purpose of national security provisions to control the export of the technology developed within that country or by the persons resident therein, the first definition is probably correct. The question is, however, rather theoretical as probably the residency of the relevant person in any case is the same both when making the invention and at the time of filing or causing a patent application to be filed for it. Namely, as it is critical to act in a speedy manner in protecting inventions, it should be rare for the residency to change in-between these two points of time.

⁶⁴¹ Immigration Act (Cap. 133), adopted on 16th of Sept 1963, amended 1993 – 2012.

⁶⁴² The Patents Act of Singapore, Section 34; Emphasis added. The Statutes of the Republic of Singapore, Patents Act (Chapter 221), Revised Edition 2005 (31st of July 2005), Prepared and published by The Law Revision Commission under the Authority of the Revised Edition of Laws Act (Chapter 275), Informal Consolidation – version in force from 10/3/2014.

⁶⁴³ The Patents Act of Singapore, Section 2(1).

⁶⁴⁴ The Interpretation Act on Statutory Interpretation in Singapore, originally enacted in 1965 and revised in 2002, “to define certain terms and expressions used in written law and to make provision for the construction, interpretation and publication of written law and for matters connected therewith”.

⁶⁴⁵ Interpretation Act, Part I, Section 2: “Interpretation of certain words and expressions”.

But what if the person has *dual residency*? Due to the different definitions of a residency in the national laws, it could happen that the person falls within the scope of residency in two countries. This issue has been duly addressed in the area of taxation, for example, and as a result there are bilateral double-taxation agreements in place between different countries, in order to avoid liability for double taxation of the person being resident and possibly liability for taxes in two different countries. From the point of view of national security provisions, the issue of dual residency for a single inventor can be compared to those situations where there are multiple contributors in the invention, each or at least some of which have residency in different countries. In both scenarios the national security provisions of two (or even more) countries apply.

One could think that the place where the invention was made is a straightforward issue to be determined, as the point of time is specific, and thus there should be no similar dilemma present as with the issue of residency, where the residency of a person may need to be explored for as long as a year back, and where the person might be considered as a resident of two countries simultaneously. However, different interpretations can exist in the national laws firstly with regard to *what is an invention* and secondly, *when has an invention deemed to have been made*? For the purposes of this thesis an assumption is made that a joint invention is duly considered an invention in all jurisdictions having relevance in the cases. Yet, the time of the invention could be determined differently, depending on the jurisdiction.

In the U.S., an invention has been made when there is a *conception* and a *reduction to practice in place*⁶⁴⁶, the latter of which can refer to either an actual or a constructive reduction to practice. For the purpose of determining the time of making the invention, the actual reduction to practice of an invention taking place needs to be determined. Since the reduction to practice does not occur, in most cases, until the invention is tested, it is possible to conceive and produce an invention abroad and test it in the U.S., for it to be considered to have been reduced to practice in the U.S. It should be noted that testing does not necessarily need to be done by the actual inventor but could also be done on behalf of the inventor^{647, 648}. Given the differing interpretations of when an invention is considered to have been made, and for example in the U.S. such a process taking place at two different phases, the point of time for making an invention and thus possibly also the place for making the invention can very well vary between the different countries.

⁶⁴⁶ *Dunn v. Ragin*, 50 USPQ 472, 474 (Bd. Pat. Inter. 1941).

⁶⁴⁷ See *Litchfield (and Vely) v Eigen*, 535 F.2d 72,190 U.S.P.Q. (BNA) 113 (C.C.P.A. 1976).

⁶⁴⁸ David S. Safran, 'Protection of Inventions in the Multinational Marketplace: Problems and Pitfalls in Obtaining and using Patents' (1983) 9(1) North Carolina Journal of International Law and Commercial Regulation, p. 123.

It is indeed possible that the place for a conception is not the same, namely in the same country, as the reduction to practice. It could happen even with a sole inventor who, after having come up with the idea (“conception”), moves to another country and tests the invention there (“actual reduction to practice”). For example, an inventor who has worked in the U.S. while coming up with the idea could thereafter move to work in China where the invention is actually reduced to practice. Is the invention therefore made in the U.S. or in China, and which national security provision shall apply? Or could it be that from the point of view of the Chinese law the invention was considered to be accomplished already when the invention was conceived in the U.S., while according to the US legislation the invention was not made until it was reduced in practice in China, and thus from the point of view of the respective national security provisions the invention has no relevance in respect of either of them? The scenario could also be vice versa, namely a Chinese inventor having come up with an idea for an invention in China, thus the invention being conceived in China, but actually reducing the invention to practice in the U.S. In such a situation, the national security provisions of both the countries could simultaneously apply. In the end, it is always a matter of interpreting the individual circumstances around the invention when determining whether certain national security provision applies. In the first mentioned scenario it would be not wise to omit complying with the national security provisions of either the countries but complying with them both would be the safest thing to do. This hypothetical situation, where neither the first filing requirement of the U.S. nor the corresponding requirement of China applies, could in theory also occur when an invention has been made in international overseas, namely an area which no state has control over and thus no national legislation applies.⁶⁴⁹ If, for example, an invention is made on a ship sailing in international waters, then there is no national law defining what is an invention and when is such an invention considered to have been made. Neither would any national security provision apply. Some guidance could be derived from the residence of the inventor(s), and in the case of an employee invention from the principal place of business of the employer. An invention could be related to the shipping industry and made by an employee on the ship, thus the employer, the shipping company, could be entitled to get the rights to such an invention.

⁶⁴⁹ This example was provided by a co-student in a doctoral seminar (Oct 2015) where I presented a part of my thesis.

5.3 Managing national security provisions in a multinational company

5.3.1 Addressing differing and conflicting requirements

Similar to the difficulties in addressing the different mechanisms for acquiring the rights to employee inventions in a multinational company, invention management and patenting procedures also face challenges when so many differing requirements are derived from the different national security provisions. If the intellectual property function in a multinational company is global in scale, the awareness of different requirements needs to be efficiently leveraged throughout the company to avoid any loss of rights, not to mention potential sanctions for non-compliance. Managing cross-border IP activities that involve teams of inventors can present traps for the unwary. With respect to the first filing of a patent application covering the results of collaborative cross-border R&D, the various characteristics of the cross-border inventors need to be evaluated. In particular, cross-border applicants need to be aware of the residency of each inventor in the team, the location of each R&D facility, the principle place of their business and perhaps the location of the conception and reduction to practice of the invention. Such characteristics and their legal definitions are uniquely defined by each jurisdiction and must be carefully scrutinized prior to selecting the location for the first-filed patent application. These tasks are not mere formalities but require careful planning and consideration and must be taken seriously to avoid a loss of patent rights and possible civil and criminal penalties.⁶⁵⁰

5.3.2 Contradictory filing requirements resulting in catch 22 situation?

In addition to the challenges in ensuring the compliance of the first filing requirements in a multinational company, where the employees may move between the different locations, there can also be situations where there are several contradictory requirements in the very same invention. Namely, in some cases it may happen that on the one hand a national security provision to patenting an invention applies but there is also another requirement derived from a different law, with a different function, which sets a requirement for filing a patent application in another country. This kind of situation can become topical for example when an invention is subject to the German Employee Invention Act, and the employer to whom the rights

⁶⁵⁰ Duncan, Dennis, 'Foreign Filing License for Cross-Border Inventions: Merely a Formality or Mission Impossible?' Presentation in AIPLA 2017 Mid-Winter Institute. February 4, 2017.

to the invention have been vested is obliged to file a patent application at the German patent office.⁶⁵¹ Should this kind of invention also be subject to a national security provision of another country, it could happen that the first patent application concerning the invention should in fact be filed with two patent offices. For example, the inventor working in Germany may be a resident in India, which means that the employer is subject to the requirements of both German and Indian⁶⁵² laws to file the patent application in the respective countries. It should be noted, however, that in addition to a national German application the German law also provides an opportunity to file a European application or an international application designating Germany. It may therefore be possible to comply with both the requirements by filing a PCT application designating Germany and filing it with the Indian patent office which is the competent receiving office for nationals and residents of India.⁶⁵³

In the aforementioned scenario the question relates to applying *different laws with different functions* to the invention at hand. However, it is also possible, and more probable, that in joint inventions made during cross-border collaboration within a multinational company *different national security provisions are in conflict*. As such, the company needs to manage with the alternative ways that were presented in order to comply with all the relevant provisions simultaneously. However, the alternatives are not necessarily available in all countries. For example, in Russia there is no foreign filing license system in place which means that in the event of a conflict involving the Russian national security provision it can only be hoped that such a system is available in the country or countries of the conflicting provision(s) relevant in the same case. Nevertheless, this may not always be the case. For example, in Spain it was not until quite recently, as of April 1, 2017, that the possibility to request clearance at the Spanish Patent and Trademark Office was added to the law.⁶⁵⁴ In Poland such a possibility is still missing, although there are no direct legal consequences for failing to comply with the filing obligation.⁶⁵⁵

When two or more national security provisions are relevant for a joint invention, both or all requiring the first filing to be done in the country of the provisions, and the requirements cannot be complied with by seeking a foreign filing license from one or some of the countries, then the situation results in a so-called Catch-22 situation. A Catch-22 is a paradoxical situation which an individual cannot escape from because of contradictory rules. The term was coined by Joseph Heller in his

⁶⁵¹ ArbErfG 13§.

⁶⁵² Patents Act 1970, Section 39.

⁶⁵³ PCT Applicant's Guide, International Phase, Annex C: Receiving Offices, Indian Patent Office.

⁶⁵⁴ Law No. 24/2015 of July 24, 2015, on Patents, Art. 115.

⁶⁵⁵ Industrial Property Law of Poland, namely Act of June 30, 2000, on Industrial Property (as amended by Act of January 23, 2004, and Act of June 29, 2007), Art. 40.

novel *Catch-22*.⁶⁵⁶ The expression has now generally entered the English language, to mean a dilemma or difficult circumstance from which there is no escape because of mutually conflicting or dependent conditions.⁶⁵⁷ This is exactly the scenario in situations where there are conflicting first filing requirements, and complying with one requirement violates the other requirement(s). These scenarios raised in the cross-border collaboration will be handled in further detail in the chapter 8.

5.3.3 Summary and transitional thoughts

The effective securement of inventions by patenting, be them made by the company's own employees or by third-party collaboration partners without any employment relationship with the company, requires compliance with a variety of laws and rules. These include the general criteria for patentability as well as the rules for the patenting procedure, such as timelines, which can differ to a certain extent depending on the country or the applicable patent convention. In the event that the invention does not fulfill the criteria for patentability, no patent is granted. Similarly, an invention can be prevented from being awarded a patent in certain countries if the applicant ignores the mandatory timelines, such as responding to official action within the required time or omitting to pay maintenance fees where such are needed to keep the application pending. However, in addition to the general criteria for patentability and the variety of procedural rules in place there are also certain national regulations, called *national security provisions*, which can have an impact on granting a patent and the validity of already granted patents in certain countries, irrespective of the invention being deemed as valid from the point of view of the general patent requirements.

National security provisions can be categorized based on whether they apply only to inventions related to certain technologies or to inventions considered to be relevant to national security, or whether they are applied to all inventions irrespective of the underlying technology, fulfilling the more general criteria set in the relevant provision(s). If an invention is made in a country which has a national security provision based on the place of the invention, then the patent application for the invention needs to be filed first in the country in question, or alternatively the applicant needs to obtain permission to file the patent application in a foreign country, where this is possible. In some countries, such as in Russia, there are no

⁶⁵⁶ Heller Joseph, *Catch-22* (1961). According to one description *Catch-22* exposes the absurdity of war by applying its own demented logic to America's involvement in Korea. The "catch" is that soldiers have to claim to be mad in order to get out of fighting – but being capable of making such a claim automatically proves them sane. (www.adlibris.com).

⁶⁵⁷ <https://en.oxforddictionaries.com/definition/catch-22>.

other options than filing the first patent application in Russia. In those countries where applying the national security provision is based on the residency of an inventor or an applicant, a patent application involving a person resident within that country shall be first filed therein, or a foreign filing license to be sought. If it appears that a patent application for an invention has not been filed in accordance with the relevant national security provision(s), the later granted patent can be invalidated, thus leaving the applicant without a patent protection in that country. Other sanctions can also be imposed for non-compliance with the national security provisions, such as liability under the civil law or even criminal consequences, which in the worst case can mean imprisonment. Therefore, for any person involved in the process of patenting inventions made especially in multinational companies, it is very important to be aware of, and to comply with, the variety of these specific national security provisions.

The criteria for national security provisions are subject to interpretation according to the respective national laws. Residency, for example, can be defined differently depending on the law to be applied. Similarly, the place of the invention can be interpreted differently in different countries already due to the different definitions for the concept of invention, and as a result, for the timing of such. Conflicts may arise between the different national security provisions, for example in a situation where an inventor has a dual residency. There could also be problems in determining a single place for an invention when in the process of making the invention the inventor has moved between different countries. The international overseas example was a hypothetical scenario where the international private law could not provide a definitive answer as to which law applies in respect of an invention made in the *territory of no one*.

The aforementioned conflicts already reflect the dilemmas related to cross-border collaboration where the invention has been made in the “*territory of everyone*”, namely in the location of each of the multiple inventors who have contributed to the joint invention. It is also possible that the invention has been duly made in one place, where the national security provision requires such an invention to be first filed within that country, but one or some of the inventors who have contributed to the invention are residents of another country wherein the residency is the relevant factor in the national security provision and thus, the application should also be first filed within that territory. However, the patent application cannot be filed in parts, but an invention is always patented as a whole. In the following chapters, the complex cross-border scenarios will be handled first from the point of view of the acquiring the rights (namely “valid entitlement”) to a global invention and compensating the assignment for the rights to such an invention and finally in the context of patenting (namely “effective securement”) such inventions.

**PART II
COMPLEX OF LAWS –
PROBLEMS AND SOLUTIONS**

6 Acquisition of the Rights to Global Inventions

6.1 Regulating the rights to inventions at a national level

6.1.1 Addressing country specific regulations in the global inventions

*“Business is global, but laws are local.”*⁶⁵⁸ Indeed, in the modern globalized economy companies no longer operate within domestic boundaries. Beside products being sold globally, corporate functions are also spread all over the world, supporting worldwide sales and services. As a result of R&D functions also being global, same kinds of products and technologies are being developed at different locations within global companies. However, different research groups do not operate in isolation from each other. Instead, their work is done according to the same strategic guidelines and roadmaps of the company. Further, in order to avoid overlapping work and to be able to utilize the synergies of the work conducted at different R&D sites to reach the same targets, there is often also collaboration between the multiple sites located in different countries, in the form of “cross-border collaboration”. As R&D aims to find better technological solutions and to develop further improvements to existing technologies, new inventions are also most probably created during collaboration with contributors originating from different countries.

“...but laws are local”. Even global inventions are subject to national laws when talking about acquiring the rights to such. No international law exists that would regulate the acquisition of the rights to a global invention in such a way that the rights are acquired from the individual co-inventors in a similar manner, not to mention in

⁶⁵⁸ The quote is from the presentation “Workshop V: Multinational Inventions – How to Reconcile IP Issues”, moderated by Lawrence T. Welch, Eli Lilly & Co, AIPPI Forum & Exco 2011, 13-18 Oct 2011, Hyderabad International Convention Center, India. In connection of the quote in the slide 2 there is a reference to the original source of the quote being Luncheon Address of James Pooley, WIPO at the Intellectual Property Owners Annual Meeting, L.A., Sept 12, 2011.

a collective way. Instead, the acquisition of the rights to an invention is an individual action and is regulated by the local, namely national, laws. Thus, the employer of inventors who have contributed to a global invention needs to act according to the requirements of the relevant national laws in respect of the individual co-inventors. The situation is peculiar in the sense that the employer only needs to acquire the rights to a single invention, yet separately from each of the individual inventors. Further, the laws to be applied to the individual acquisitions may be different. As a result, even the outcomes of the individual acquisitions can differ from each other. In other words, the employer may eventually have different rights from the different co-inventors i.e. rights with a different *scope*, and perhaps no rights from some.

Different countries have different procedures and rules regarding the acquisition and scope of the rights the employer is entitled to in respect of employee inventions. The position of the employer is strongest in contractual regimes where the parties are free to agree on the rights to an invention, even before any inventions are even made. In statutory regimes, the law sets specific requirements and timelines which the employer needs to comply with in order to receive the invention rights. The reaction time is not initiated until the invention has been made, which means that the rights cannot be assigned by inventors to future inventions. What this can mean in practice is that when a joint invention involves inventors from both contractual and statutory regimes, the employer may in fact have the rights to such an invention from the inventor(s) in a contractual regime before the invention in question had even been made; whereas with regard to the inventors originating from the statutory regimes, where such a pre-assignment is not allowed, the employer needs to act according to the requirements of the relevant laws in order to obtain the rights. Thus, except for the possibility that the employer receives a different scope of rights with regard to the shares of the individual inventors to the very same invention, the employer can also receive the rights at different points in *time*. Further, a situation might occur where the employer fails to react in a timely manner for acquiring the rights to a global invention in the statutory regimes, when the rights to the invention have already been vested in the employer in the contractual regimes. In other words, the employer can result in having the rights to the same invention only in certain *places*.

Differences in the scope of rights as well as the temporal (in respect of time) and the territorial (in respect of places) differences can have an impact on how the employer can utilize the invention in question which is why it is important for companies to comply with each and every requirement of the relevant national laws, to avoid discrepancies in respect of the individual rights to an invention. Nonetheless, before any compliance can be ensured, the relevant laws need to be determined, namely which laws are going to be applied to the invention at hand.

6.1.2 Choice of law – what laws apply to expatriates?

When acquiring the rights from an individual inventor to an invention made in an employment relationship the law to be applied is typically the law that is applicable to the employment relationship. Determining which specific law applies is a matter of national interpretation. Initially, the parties to a contract are free to agree on the law governing the contract, as defined for example in Rome I.⁶⁵⁹ However, when it is a question of an employment contract, then according to Rome I which is applicable among EU member states, the choice of law may not put the employee in a worse position than it would be according to the law that would have been applied to employment in the absence of choice (“the objectively applicable law”).⁶⁶⁰ In private international law most authors interpret this provision as an elaboration of the “*favour-principle*”. The court, when confronted with a choice of law in an employment contract, should compare the chosen law with the law applicable in the absence of such a choice and apply the latter in the event that it is more favorable to the employee.⁶⁶¹ Accordingly, in employment conflicts - and whenever the applicable law is for some reason unclear - it is relevant to ascertain what is the objectively applicable law.⁶⁶² To the extent that the law applicable to an individual employment contract has not been chosen by the parties, the contract shall be governed by the law of the country in or from which the work in performance of the contract is habitually carried out by the employee.⁶⁶³ Where the law cannot be determined based on *habitual working*, or regular working, the contract shall be governed by the law of the country where the place of business through which the employee was engaged is situated (*the engaging place of business*).⁶⁶⁴ Finally, both the pre-established connecting factors – the habitual work and the engaging place of the business – may be set aside where it appears from the circumstances as a whole that the contract is more closely connected with a country other than indicated above, in which case the law of that other country shall apply.⁶⁶⁵

⁶⁵⁹ Rome I, Art. 3.

⁶⁶⁰ Rome I, Art. 8.1.

⁶⁶¹ Aukje van Hoek, ‘Private International law rules for transnational employment: Reflections from the European Union’ in Adelle Blackett and Anne Trebilcock (eds), *Research Handbook on Transnational Labour Law*, Edward Elgar Publishing 2015, p. 440 and fn 9 therein; See A-G Trstenjak, Opinion in case C-384/10 (Voogsgeerd) 8 September 2011; A-G Wahl, Opinion in case C-64/12 (Schlecker) 16 April 2013; Olaf Deinert, *Internationales Arbeitsrecht*, 96; 102 and 128 (2013).

⁶⁶² *Ibid.*, pp. 439-440 + fn 10 referring to CJEU 15 December 2011, C-384/10 (Voogsgeerd v. Navimer).

⁶⁶³ Rome I, Art. 8.2.

⁶⁶⁴ Rome I, Art. 8.3.

⁶⁶⁵ Rome I, Art. 8.4.

Since the work in a joint invention between inventors from different countries is typically carried out in different countries, the laws applied to the inventors are also different. Determining which law to apply should be relatively clear when it has been specifically agreed on, taking into account the objectively applicable law.⁶⁶⁶ Even if not agreed, when the work is habitually carried out in a certain country, it is straightforward to determine that the law to be applied is the law of that country. However, sometimes the applicable law cannot be easily determined based on habitual working. It may be that no habitual place of work exists. Rome I provides exactly for these “mobile” employees that the employment contract is governed by the law of the country where the engaging place of business is located, unless it appears from the circumstances related to the contract in question that a closer connection exists to another country, in which case the law of that country is applied.

It should be noted that incidental work carried out other than in the habitual place of work does not make an employee mobile according to the relevant articles of Rome I. In an older European Court of Justice (ECJ) ruling, the place of habitual working for an employee working in various places was the place where the employee fulfilled the most important part of their duties towards the employer.⁶⁶⁷ However, this specific ruling pertained to a habitual place of work for the issues of jurisdiction which were regulated under the Brussels Convention.⁶⁶⁸ Therefore, one should be cautious with extending it to the applicable law regulated by Rome I.⁶⁶⁹ Then again, the criteria of “habitual place of work” and “engaging place of business” were used in both the rules on jurisdiction as evidenced more recently under the Brussels I Regulation and the Rome Convention, the treaty which preceded Rome I. Further, on several occasions the Court of Justice of the European Union (CJEU) has stressed continuity between the different instruments and the cross-referential character of the concepts used therein. Thus, the interpretation of the concept “habitual place of work” in the Rome Convention is also valid for the interpretation of the same concept in Rome I, and the interpretation given in the context of the rules on jurisdiction in the context of the applicable law.⁶⁷⁰

⁶⁶⁶ Rome I, Art. 8.1.

⁶⁶⁷ ECJ 27 February 2002, case C-37/00, [2002] ECR I-2013.

⁶⁶⁸ Brussels Convention of 27 September 1968 on jurisdiction and the enforcement of judgements in civil and commercial matters.

⁶⁶⁹ Mireille van Eechoud, *Choice of Law in Copyrights and Related Rights: Alternatives to the Lex Protectionis*, Information Law Series, Vol. 12, Kluwer Law International (2003), p. 190, fn 546.

⁶⁷⁰ Aukje van Hoek, ‘Private International law rules for transnational employment: Reflections from the European Union’ in Adelle Blackett and Anne Trebilcock (eds), *Research Handbook on Transnational Labour Law*, Edward Elgar Publishing 2015, p. 440.

6.1.2.1 Mobility of employees within the EU

“One of the distinctive aspects associated with the construct of the ecosystem relates to its focus on the evolution of networks of interconnected actors towards new states.”⁶⁷¹ Indeed, in multinational companies where the different corporate functions and the subsidiaries are situated around the world employees commonly work abroad for a period of time as an “expatriate”. The origin of the word, derived from the Latin word “ex”, namely “out of”, and “patria”, meaning “fatherland”, implies that an expatriate is a person leaving one’s country of residence to live and work elsewhere, but only for a certain period of time. Determining the national law that should be applied to the inventions made by expatriates is not straightforward.

Typically, there is a *choice-of-law clause* written into an expatriate agreement. The purpose of the clause is to define the legal rights of an expatriate while working overseas. However, the choice of law cannot place the employee in a worse position than would have been in the event of an absent of choice.⁶⁷² Expatriates almost always enjoy a right to at least the minimum local protection and benefits of the host country. Therefore, for example an expatriate originating from a country belonging to the contractual regimes, assigned for a temporary employment to a country of statutory protection, cannot assign the rights to the inventions made during the international assignment before the inventions have been made, in the event that the legislation of the host country does not allow such a pre-assignment. Even if the underlying employment agreement contains a pre-assignment clause it may not be valid and enforceable in respect of the inventions made in the host country. In addition to the minimum local protection of the host country, expatriates could also gain some extra rights, such as compensation for the rights, if payment of such is required according to the law of the host country. Nevertheless, mandatory legislation should also protect the employers in host countries, for example, in a situation where an expatriate has not signed a valid invention assignment agreement in the departing country and makes an invention during the expatriate assignment in the host country. In cases where the legislation regulating the rights to employee inventions in the host country is mandatory, the lack of an assignment clause in the original employment agreement cannot result in a loss of rights to such an invention.

⁶⁷¹ Erkko Autio and Llewellyn D. W. Thomas, ‘Innovation Ecosystems: Implications for Innovation Management?’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 4.

⁶⁷² Rome I, Art. 8.1.

Rome convention

Indeed, the 1980 Rome convention provided that a contractual choice of law “shall not have the result of depriving the employee of the protection afforded to him by the mandatory rules of the law which would be applicable under paragraph 2 in the absence of choice.”⁶⁷³ However, the pending Rome I Regulation omits the phrase “the mandatory rules of the law”, replacing it as follows:

Article 8

Individual employment contracts

1. An individual employment contract shall be governed by the law chosen by the parties in accordance with Article 3. Such a choice of law may not, however, have the result of depriving the employee of the protection afforded to him by provisions that cannot be derogated from by agreement under the law that, in the absence of choice, would have been applicable pursuant to paragraphs 2, 3 and 4 of this Article.⁶⁷⁴

The purpose of the newly formulated phrase is to safeguard non-waivable rights. The term “mandatory rules” was also dropped elsewhere in the convention and substituted with the following new expression:

Article 9

Overriding mandatory provisions

1. Overriding mandatory provisions are provisions the respect for which is regarded as *crucial by a country for safeguarding its public interests, such as its political, social or economic organisation*, to such an extent that they are applicable to any situation falling within their scope, irrespective of the law otherwise applicable to the contract under this Regulation.

2. Nothing in this Regulation shall restrict the application of the *overriding mandatory provisions of the law of the forum*.

3. Effect may be given to the *overriding mandatory provisions of the law of the country where the obligations arising out of the contract have to be or have been performed, in so far as those overriding mandatory provisions render the performance of the contract unlawful*. In considering whether to give effect to those provisions, regard shall be had to their nature and purpose and to the consequences of their application or non-application.⁶⁷⁵

⁶⁷³ Rome Convention of 1980, Art. 6.1.

⁶⁷⁴ Rome I, Art. 8.1; Emphasis added. See also Preamble, paragraph 35: “Employees should not be deprived of the protection afforded to them by provisions which cannot be derogated from by agreement or which can only be derogated from to their benefit.”

⁶⁷⁵ Rome I, Art. 9(1-3); Emphases added.

The overriding mandatory provisions that safeguard public interests can only replace the choice of law to the extent as the overriding mandatory provisions render the performance unlawful under the original contract.⁶⁷⁶

Posting of Workers Directive

The Preamble of Rome I state further:

The rule on individual employment contracts should not prejudice the application of overriding mandatory provisions of the country to which the worker is posted in accordance with directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provision of services.⁶⁷⁷

The purpose of this “Posting Directive”, also referred to as the European Secondment directive⁶⁷⁸, is to guarantee that the rights and conditions of the posted workers are protected throughout the European Union, and to avoid “social dumping” where foreign service providers could undercut local service providers because their labor standards are lower.⁶⁷⁹ For this reason, the European Community law established a core of mandatory rules regarding the terms and conditions of employment to be applied to an employee posted to work in another Member State. These included: 1) maximum work periods and minimum rest periods, 2) the minimum paid annual leave, 3) the minimum rates of pay, 4) the conditions of “hiring out of workers”, 5) health, safety, and hygiene at work, 6) protective measure in the terms and conditions of employment for pregnant women or women who have recently given birth, and children or young people and 7) equality of the treatment between men and women and other provisions of non-discrimination.⁶⁸⁰ It should be noted that amendments to the Directive in 2018 changed “the minimum rates of pay” to “remuneration, including overtime rates”. For the purposes of the revised Directive the concept of remuneration now means “all the constituent elements of remuneration rendered mandatory by national law, regulation or administrative provision, or by collective agreements or arbitration awards which, in that Member State, have been declared

⁶⁷⁶ Rome I, Art 9.3.

⁶⁷⁷ Preamble of Rome I, para 34.

⁶⁷⁸ Directive 96/71/EC of the European Parliament and of the Council of Dec. 16, 1996; OJ L18/1, 21.01.1997. The Directive was amended with Directive (EU) 2018/957 of the European Parliament and of the Council of 28 June 2018; OJ L173/16, 09.07.2018.

⁶⁷⁹ The expression “social dumping” is used in the official web page of the European Commission: “Policies, Information and Services, Employment, Social Affairs & Inclusion: Posted Workers”: <http://ec.europa.eu/social/main.jsp?catId=471>.

⁶⁸⁰ Directive 96/71/EC of the European Parliament and of the Council of Dec. 16, 1996, Art. 3.1.

universally applicable or otherwise apply in accordance with paragraph 8.”⁶⁸¹ In other words, the concept of remuneration is determined according to the host country’s national law and/or practice, and is no longer restricted to the minimum rates of pay. Whether this means that the directive could now in fact be relevant for the purposes of this thesis with the focus on more special terms of employment, the employees’ inventions, and remuneration for such, depends on the respective national laws and cannot be explored here. It should be noted, however, that in practice the directive has been typically applied to areas where it is common practice to hire larger groups of foreign workers for temporary projects, such as in the shipyard industry where receiving a new order for a big ship might raise an immediate need for additional resources. Indeed, the aim of the directive is to ensure fair wages and a level playing field between posting and local companies in the host country whilst maintaining the principle of free movement of services.⁶⁸² As such, it seems to lack relevance for compensating employees’ inventions.

Temporal employment according to Rome I

It should be noted that in Rome I specifically refers to the scenario of temporal employment:

Article 8

2. To the extent that the law applicable to the individual employment contract has not been chosen by the parties, the contract shall be governed by the law of the country in which or, failing that, from which the employee habitually carries out his work in performance of the contract. *The country where the work is habitually carried out shall not be deemed to have changed if he is temporarily employed in another country.*⁶⁸³

The country of “habitual working” is not changed if the employee is temporarily employed in another country. The Preamble further elaborates that the “...work carried out in another country should be regarded as temporary if the employee is expected to resume working in the country of origin after carrying out his tasks abroad” and that “[t]he conclusion of a new contract of employment with the original employer or an employer belonging to the same group of companies as the original employer should not preclude the employee from being regarded as carrying out his work in another country temporarily.”⁶⁸⁴ It thus appears that an employee can be posted to another country on a temporary basis and the applicable law can remain as

⁶⁸¹ Amendments to Directive 96/71/EC 2(a), OJ L173/16, 09.07.2018.

⁶⁸² <https://www.consilium.europa.eu/en/policies/labour-mobility/posting-workers/>.

⁶⁸³ Rome I, Art. 8.2; Emphasis added.

⁶⁸⁴ Preamble of Rome I, para 36.

the country of origin so long as the employee is “expected” to resume working in the country of origin. There is no clear rule for the duration of a “temporary” assignment although, for example, EU directives establish a one-year reference in the posting and social security context.⁶⁸⁵ In cases where an employee makes an invention related to the employer’s business during such a temporary assignment outside the country of origin, in the absence of choice the governing law of the country of origin is applied to acquiring the rights to such an invention, according to Rome. Eventually, it is a matter of interpreting the individual circumstances as there is no clear and concise rule as to for how long an assignment can be considered to be of a temporary nature.

6.1.2.2 The at-will dilemma in the U.S.

U.S. companies tend to include choice-of-law clauses in their expatriate agreements, which not only call for the application of U.S. employee benefits, but also for U.S. employment laws in general. Their main concern in doing so is to ensure that expatriates are covered by an American-style at will-employment overseas. “*Employment-at-will*” basically means that a company may fire an employee at any time, for any reason, provided the person is not, by virtue of law, in a protected class.⁶⁸⁶ Even if the U.S. has adopted the doctrine of employment-at-will in its law, the vast majority of jurisdictions of the world do not recognize the “at will” concept at all, or in cases where they do, only for a relatively short “probationary” or “trial” period, which differs between the jurisdictions. In addition, in most jurisdictions such a period must be agreed upon by the employee in writing and before commencing the employment. In most jurisdictions the law requires that the employer has a “good cause” to terminate the employment relationship.⁶⁸⁷ At a

⁶⁸⁵ The amended Directive provides extended set of terms and conditions of employment for long-term postings exceeding 12 months. Amendments to Directive 96/71/EC 2(b) 1a, OJ L173/16, 09.07.2018.

⁶⁸⁶ The employer cannot terminate an employment relationship for an “illegal” reason, for example based on discrimination against certain protected classes such as sex, gender, race, religion or national origin or violating The American with Disabilities Act of 1990 (ADA) or the Age Discrimination in Employment Act of 1967 (ADEA, 29 U.S.C. § 621 to 29 U.S.C. § 634).

⁶⁸⁷ Termination for “good cause” is the employer’s justification, and even if the U.S. courts widely differ as to what constitutes “good” or “just” cause, there seems to be somewhat consensus of the at-will employment-presumption, which however is rebuttable. See e.g. *Foley v. Interactive Data Corp.* (1988) 47 Cal.3d 654, 678 (“[A] contract for permanent employment, for life employment, for so long as the employee chooses, or for other terms indicating permanent employment, is interpreted as a contract for an indefinite period terminable at the will of either party...”), *Eisenberg v. Alameda Newspapers, Inc.* (1999) 74 Cal.App.4th 1359, 1386 (“This presumption of at-will employment may be rebutted only by evidence of an express or implied agreement between the parties that the employment would be terminated only for cause.”).

minimum, in the absence of such a demonstrable good cause, the employee must be provided with a statutory notice and/or severance pay.

Thus, a choice-of-law clause in a contract defining the U.S. law is not necessarily valid outside the U.S. as an expatriate almost always enjoys the right to at least the minimum local protection provided by the employment laws of the host country. Host country employment laws cover the essentials of employment such as firing, pay, hours, vacation, overtime, safety, wages, other mandatory benefits, labor unions, discrimination, non-compete clauses and trade secrets. Because the mandatory termination notice and the severance pay laws can be very onerous outside the U.S., the issue of choice-of-law is especially significant with American expatriates. Once the place of employment for an American expatriate becomes a foreign country, he is no longer ruled by the “employment-at-will” but enters the safety of a new kind of protection, the “indefinite employment” law of the host country.⁶⁸⁸ The question in such a case is again whether it also applies to the issues regulating employee inventions?

In many jurisdictions outside the U.S. the issue of rights to inventions made by employees is a matter of law, and as such, separate contractual agreements are not needed. However, in the U.S., companies tend to require specific Confidentiality and Invention Agreements (also called Proprietary Information and Invention Agreements, PIIA’s) from their employees, and many multinational companies have begun to also request these from their locally hired employees. However, these agreements are not enforceable as such, and thus do not necessarily violate the local laws if they are drafted properly. Nonetheless, some of their content may conflict with the mandatory law(s) of the country of employment, for example, if an assignment for future inventions has been included.

Restatement (Second) Conflict of Laws

In the U.S. issues related to choice of law and the validity of contracts are regulated by Restatement.⁶⁸⁹ The First Restatement⁶⁹⁰ made no reference to the law chosen by the parties but merely provided a list of issues with respect to which “[t]he law of

⁶⁸⁸ See Jacque Vilet, ‘The At-Will Dilemma: What Laws Apply to Expatriate Employees?’ (March 8, 2012) TLNT, Talent Management & HR.

⁶⁸⁹ In American jurisprudence the Restatements of the Law is a set of treatises on legal subjects, seeking to inform judges and lawyers about general principles of common law. There are four series of Restatements, published by American Law Institute (<https://www.ali.org>), an organization of judges, legal academics and practitioners founded in 1923.

⁶⁹⁰ Series of Restatements of Agency, Conflict of Laws, Contracts, Judgements, Property, Restitution, Security, Torts and Trusts, published in 1923-1944 and expanded in 2015 with publication of the Restatement of Employment Law.

the place of contracting determines the validity and effect of a promise.⁶⁹¹ It was then replaced by The Second Restatement⁶⁹² which specifically authorized party autonomy as follows:

§186. Applicable law

Issues in contract are determined by the law chosen by the parties in accordance with the rule of §187 [Law of the State chosen by the Parties] and otherwise by the law selected in accordance with the rule of §188 [Law Governing in Absence of Effective Choice by the Parties].⁶⁹³

§187. Law of the State chosen by the Parties

- (1) The law of the state chosen by the parties to govern their contractual rights and duties will be applied if the particular issue is one which the parties could have resolved by an explicit provision in their agreement directed to that issue.
- (2) The law of the state chosen by the parties to govern their contractual rights and duties will be applied, even if the particular issue is one which the parties could not have resolved by an explicit provision in their agreement directed to that issue, unless either
 - (a) the chosen state has no substantial relationship to the parties or the transaction and there is no other reasonable basis for the parties' choice, or
 - (b) application of the law of the chosen state would be contrary to a fundamental policy of a state which has a materially greater interest than the chosen state in the determination of the particular issue and which, under the rule of §188, would be the state of the applicable law in the absence of an effective choice of law by the parties.
- (3) In the absence of a contrary indication of intention, the reference is to the local law of the state of the chosen law.⁶⁹⁴

Under the second Restatement, if parties could have included an explicit provision in their contract regarding a specific issue, they are allowed to achieve the same result by selecting the law of the particular state. This follows the idea that the contract creates law, and that parties can write that law either in explicit contract provisions or by incorporating the law of a specific state.⁶⁹⁵ The provision goes further by providing that the choice of law by the parties will govern, even when the

⁶⁹¹ Restatement, Conflict of Laws § 332, "Law Governing Validity of Contract" (1934).

⁶⁹² Restatement (Second) Conflict of Laws (1971, revisions 1988).

⁶⁹³ Restatement (Second) Conflict of Laws § 186.

⁶⁹⁴ Restatement (Second) Conflict of Laws § 187.

⁶⁹⁵ Ronald A. Brand, 'The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective' (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 8.

issue is not something that the parties could have explicitly agreed upon. However, in such a case the choice of law is not applied if it has no “substantial relationship” to the parties or the transaction, and there is no other “reasonable basis” for the choice. In addition, the law will not be applied in cases where it would be contrary to the fundamental policy of a state which materially has a greater interest in the dispute, with the intention of preventing any disputes.

§188. Law Governing in absence of effective Choice by the Parties

(1) The rights and duties of the parties with respect to an issue in contract are determined by the local law of the state which, with respect to that issue, has the most significant relationship to the transaction and the parties under the principles stated in Section 6.

(2) In the absence of an effective choice of law by the parties (see Section 187), the contacts to be taken into account in applying the principles of Section 6 to determine the law applicable to an issue include:

- (a) the place of contracting,
- (b) the place of negotiation of the contract,
- (c) the place of performance,
- (d) the location of the subject matter of the contract, and
- (e) the domicile, residence, nationality, place of incorporation and place of business of the parties. These contacts are to be evaluated according to their relative importance with respect to the particular issue.

(3) If the place of negotiating the contract and the place of performance are in the same state, the local law of this state will usually be applied, except as otherwise provided in Sections 189-199 and 203.⁶⁹⁶

The place of contracting is a relatively insignificant factor when considering the effective law to be applied to a transaction. The same applies to the place of negotiating the contract governing the transaction in question. However, the place of performance, such as a place for making an invention, is admittedly a concrete factor which may raise issues regarding, for example, the minimum protection of the employee, especially in such cases where the effective law that is chosen deviates from the law of the place of performance.

⁶⁹⁶ Restatement (Second) Conflict of Laws § 188.

The Uniform Commercial Code: The “Reasonable Relation” Test

The Uniform Commercial Code (UCC) is another significant U.S. source of rule related to party autonomy in selecting the law governing contractual relationships.⁶⁹⁷ Just like Restatement, the UCC begins with a statement about the respect for party autonomy, followed by limitations.

The original UCC contained section 1-105 remaining the *de facto* uniform rule until year 2008:

§ 1-105.1

When a transaction bears *a reasonable relation* to this state and also to another state or nation, parties may agree that the law of either this state or of such other state or nation shall govern their rights and duties. Failing such agreement, this Act applies to transactions bearing an appropriate relation to this state.⁶⁹⁸

When revising the UCC in 2001 this rule was replaced with a new section 1-301. The rule was split and deleted the “reasonable relation” requirement, provided complete freedom of choice of law in merchant-to-merchant contracts and set forth specific, expanded limitations on the choice of law in consumer contracts.⁶⁹⁹ Thus, it seems that the statutory protection thereafter was provided mainly for weaker parties in transactions.

The general rule for this provision was contained in paragraph (b), which stated as follows:

- b) Except as otherwise provided in this section:
 - (1) an agreement by parties to a domestic transaction that any or all of their rights and obligations are to be determined by the law of this State or of another State is effective, whether or not the transaction bears a relation to the State designated; and
 - (2) an agreement by parties to an international transaction that any or all of their rights and obligations are to be determined by the law of this State or of another State

⁶⁹⁷ The Uniform Commercial Code of 1952. UCC is a comprehensive code addressing most aspects of the commercial law, and it is generally viewed as one of the most important developments in American law. The UCC texts and draft revisions are written by experts in commercial law and submitted as drafts for approval to the National Conference on Commissioners on Uniform State Laws (<http://www.uniformlaws.org>) in collaboration with the American Law Institute (ALI). Once a draft is endorsed, the Uniform Law Commissioners recommend that the states adopt these rules. Namely, the UCC is a model code, without legal effect unless enacted by the individual state legislatures as statutes. Source of information: Uniform Commercial Code (UCC), J. Michael Goodson Law Library, Duke University School of Law, Research Guides, p. 1.

⁶⁹⁸ UCC, § 1-105.1 (1956 version); Emphasis added.

⁶⁹⁹ UCC, § 1-301 (2001), see Ronald A. Brand, ‘The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective’ (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 10.

or country is effective, whether or not the transaction bears a relation to the State or country designated.⁷⁰⁰

In paragraph (e) this rule of party autonomy, however, became subject to a public policy limitation:

(e) An agreement otherwise effective under subsection (b) is not effective to the extent that application of the law of the State or country designated would be contrary to a *fundamental policy of the State or country* whose law would govern in the absence of agreement under subsection (c).⁷⁰¹

It should be noted that the 2001 UCC provision did not contain any general reference to “mandatory rules”, except to the extent such would rise to the level of public policy. It did, however, contain a separate rule similar to the European model found at the time in the Rome I Convention, now in Rome I, for consumer contracts: A consumer would have been allowed to enter into a valid choice of law clause when the transaction bore a “reasonable relation” to the forum state, however, the choice may not deprive the consumer of the protection of any rule of law protective of consumers, in relation to both the consumer’s state of habitual residence and (in sale of goods contract) the state of performance.⁷⁰² But this paragraph regulating the transactions of consumers is not directly applicable to the issues related to employees and thus is not relevant to this thesis. However, it should be noted that almost all of the first thirty-three states to enact the revised Article 1 declined to adopt the new section 1-301, and instead retained the substance of the former section 1-105.⁷⁰³ As a result of this clear rejection of the “uniform” rule, in 2008 the new section 1-301 was amended and reverted substantially to the language of the former section 1-105, which had remained the *de facto* uniform rule.⁷⁰⁴ Thus, there needs to be some kind of a relationship, “a reasonable relation”, between the selected law and the transaction. Notably, that rule is in no way specific to consumers and therefore it could, at least in theory, also be applied to employees when such a reasonable relation exists.

⁷⁰⁰ UCC (2001), § 1-301(b).

⁷⁰¹ UCC (2001), § 1-301(e); Emphasis added.

⁷⁰² UCC (2001), § 1-301(d).

⁷⁰³ Ronald A. Brand, ‘The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective’ (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 12 + fn 21: See, the American Law Institute, 85th Annual Meeting Program, May 19-21 2008 (not accessed), p. 8, n. 3; Keith A. Rowley, The Often Imitated, But (Still) Not Yet Duplicated, Revised UCC Article 1.

⁷⁰⁴ *Ibid.*, p. 12 + fn 22: American Law Institute, 85th Annual Meeting Program, May 19-21-2008 (not accessed), *supra* note 21, at p. 8.

6.1.2.3 Comparison of EU and US limitations on the choice of law

It has been concluded that while U.S. law is at least theoretically more fragmented than European Law, it tends to approach the issue of party autonomy with analysis that is somewhat less complicated in structure than the framework provided by Rome I. Both the U.S. law and Rome I begin with the assumption of party autonomy. However, the limitations appear to be more complicated and more diverse in Rome I. In the U.S., the principal limitation on party autonomy in the choice of law is public policy. Thus, what is gained by having fewer limitations is perhaps lost, at least in part, by the fact that the role of the public policy in addressing party autonomy for the choice of law is rather amorphous.⁷⁰⁵ Comment 6 to the rejected section 1-301 deals with the distinction between the mandatory rules and the public policy found in Rome I.⁷⁰⁶ This comment indicates that the distinction is less significant in the U.S. than it is in Rome I:⁷⁰⁷

Analytically, one might conclude that application of the designated law is contrary to a fundamental policy of the State or country whose law would otherwise govern either

- (i) because the substance of the designated law violates a fundamental principle of justice of that state or country or
- (ii) because it differs from a rule of that State or country that is "mandatory" in that it must be applied in the courts of that State or country without regard to otherwise-applicable choice of law rules of that State or country and without regard to whether the designated law is otherwise offensive.

This distinction, which may have more theoretical than practical significance, has been suggested in some international conventions in this area, although in some cases the concept is applied to authorize the forum State to apply its mandatory rules, rather than those of the State or country whose law would otherwise govern.⁷⁰⁸

Whereas the issue of party autonomy in the U.S. was said to be less complicated than in Rome I, the concept of public may not always be subject to a very clear definition in the U.S. It is clear, however, that it provides a very narrow basis for denying respect to the parties' choice of law, and that it also includes the concept of

⁷⁰⁵ Ibid., p. 15.

⁷⁰⁶ Besides the text of the Code itself, the Official Comments are almost universally treated as the most authoritative sources in the construction of the Code Sections. Uniform Commercial Code (UCC), J. Michael Goodson Law Library, Duke University School of Law, Research Guides, p. 2.

⁷⁰⁷ Ronald A. Brand, 'The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective' (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 17.

⁷⁰⁸ UCC §1-301 (2001), cmt 6.

“mandatory rules”.⁷⁰⁹ Admittedly, it is essential to determine which law applies to each individual employee inventor and whether the choice of law is enforceable in respect of the employee(s) in question. However, determining the law(s) to be applied and enforced is not the only dilemma in multinational companies. Further complexity in these companies is raised after the relevant laws are already known, and it appears that in the case at hand several different national laws apply. Thus, there needs to be a way to interface different employment regimes, namely apply simultaneously, in the very same invention. Next, the challenges related to the “complex of laws” will be introduced in detail with the help of practical case examples.

6.2 Relevance of several national laws in the same invention

6.2.1 Contribution to an invention – a piece of cake?

An acquisition of rights to a joint invention is an individual act. In other words, in the case of a joint invention made by two or more employees, the employer needs to acquire the rights from each of the individual inventors. The entitlement and the scope of the rights depends on the individual circumstances related to the employment relationship of the respective inventor. Since the rights to employee inventions are regulated by the national laws, a joint invention made in cross-border collaboration could be seen as a cake where the individual contributions are the pieces of the cake to which the different national laws apply. Of course, the same laws could apply to some, or even all, of the pieces but for the purpose of this thesis, interest is in those inventions wherein at least two different national laws in respect to the jointly “baked” cake apply (Figure 6):

⁷⁰⁹ Ronald A. Brand, ‘The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective’ (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, pp. 15-18.

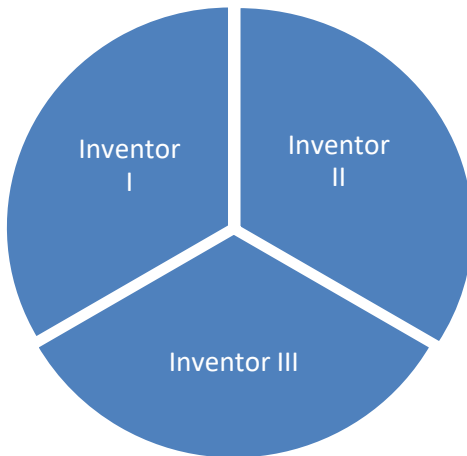


Figure 6. Contribution to an invention – a piece of cake?

If an invention is considered a cake comprised of pieces upon which different laws apply, then the employer may result in having a different *scope* of rights for the individual pieces, and also at different points of *time*. Thus, by continuing to use the cake metaphor, it could be that the employer can eat one piece of cake (to which it duly has all the rights) but only taste another (to which it only has the right to use, for example), and not necessarily even touch one of them (where the inventor owns all the rights to the respective piece, namely to their contribution). Furthermore, from the perspective of the timing aspect the pieces of the cake can also be considered to be served at different times. For example, the employer may have reserved a piece of cake before it has even been baked while the other pieces cannot be reserved before the cake is made. This raises further questions such as who can eat the piece which the employer is entitled only to taste of? What about selling the cake? Can a joint invention be sold or utilized in other way in pieces, if the employer does not have the rights to the invention as a whole? The possibility that an employer may end up with a different scope of rights to the individual pieces of the invention, even at different points of time, can lead to complex situations where there are several bakers (inventors) but also owners of the cake involved. Depending on the jurisdiction, the multiple owners - the employer for one part and the inventor(s) for the other part(s) of the invention – may be able to utilize the invention independently without permission from the co-owners, or the owners may only co-operate together. One or more pieces of the cake could also belong to a third-party employer, when the invention has been made in a collaboration project with another company in a

statutory jurisdiction, where the rights do not belong to the employer based on the employment already.

In the following chapters different kinds of cross-border collaboration scenarios are introduced in further detail and elucidated with the help of practical case examples. First, chapter 6.2.2.1 introduces a hypothetical scenario for a joint invention made in a country belonging to the statutory regimes, with an expatriate employee involved, originated from a contractual jurisdiction. Next, 6.2.2.2 highlights the challenges related to the different rules regarding the timing of acquiring the rights to inventions along with examples of country-specific concepts for a pre-assignment and a post-assignment. Thirdly, 6.2.2.3 presents relevant case examples where the outcomes for the employer differ in respect to the contributions of the individual co-inventors. Finally, 6.2.2.5, introduces a scenario where one of the co-inventors is employed by a third party employer, in which case there is one more party involved in the chain of the rights required to be unbroken.

6.2.2 Case examples

6.2.2.1 Mobility of employees

Multinational companies have the competitive benefit of being able to provide their employees an opportunity to work for temporary periods in the foreign operational units of their company. Indeed, at companies where the different corporate functions are spread globally, many employees tend to work at least some time abroad, namely in a country outside their regular working place. The choice-of-law clause in an expatriate agreement governing such a temporary period of working abroad should not, however, override the mandatory legislation of the host country. The expatriate almost always enjoys a right at least to the minimum local protection and benefits of the host country, regardless of the choice-of-law and the rights defined in the expatriate agreement in question, as was elucidated earlier in chapter 6.1.2.

In Figure 7, in *Case example 1*, an employee from a statutory regime moves to work temporarily in a country belonging to contractual regimes. In *Case example 2* an employee from a contractual regime is sent for a temporary secondment to a statutory regime. In these two case examples it is assumed that the transfers are taking place within the same company, namely that the employing group of companies for the expatriates remains the same. The essential question in the case examples boils down to the choice of law and the validity of a pre-assignment, a clause that is typically used in the contractual regimes, now in a statutory jurisdiction. The countries in these two case examples are represented by Finland and the U.S.

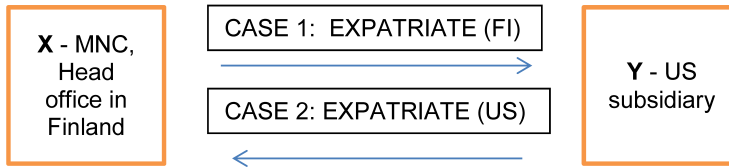


Figure 7. Mobility of employees – exchanging expatriates between statutory and contractual regimes.

Case example 1: Finnish expatriate in the US

In the first example, a Finnish employee from a multinational company, whose regular place of work is in Finland, is transferred as an expatriate to the U.S. As the secondment is planned to be temporary, no new employment agreement is made with the U.S. affiliate. Instead, the existing employment relationship with the Finnish employer remains in force, while the expatriate agreement defines the rights and the terms of the employment during the secondment in the U.S. Such an agreement is often called an *International Assignment Agreement (IAA)* or an “Assignment Letter”. Indeed, “assignment” is often used as a synonym for a secondment. However, in order to avoid any confusion with the terminology used in this thesis, here the term “secondment” will be used in a context of this kind of an expat assignment.

The introductory language in such an agreement or a letter could be for example the following:

“This letter (referred to as the “Assignment Letter”) outlines the terms and conditions of your International Assignment (the “International Assignment”) pursuant to which you are to be seconded to Y Limited, a subsidiary of X Corporation (collectively, “X”). This Assignment Letter, together with any additional documents, agreements or provisions that may be referenced herein, including your employment agreement with X, constitutes the entire understanding of your International Assignment in the U.S.

The terms and conditions of this Assignment Letter will be governed by the laws of the state of CA, USA.

This Assignment Letter does not create a contract of employment between you and X for any specified period. Your employment with X shall continue to be subject to the terms and conditions of your Employment Agreement.”

Additionally, several issues are agreed upon, such as an expected term for the secondment, compensation for the work in the host country, local benefits such as medical coverage, practical issues related to housing, relocation and repatriation and related costs, such as moving and travel expenses typically for the whole family, travel costs during the secondment for visiting the home country as well as

reasonable education costs for the underaged children who will be put into a school in a foreign country. For the purpose of this thesis the focus is on the aspects of the choice of law and the validity of the provisions of the selected law in respect of the rights to inventions made by an expat in an employment relationship during the secondment.

In the example, company X is the employer of the Finnish employee, who is transferring to work for a temporary period of time at company Y, which is a subsidiary or an affiliate of company X. The term of the secondment has been agreed upon but what is more essential than the duration of the secondment is that it is deemed to be temporary, namely the Finnish employee is expected to return to the home country upon the completion of the secondment. Thus, the existing employment relationship with the Finnish employer and the employment contract based on Finnish law remains in force. However, the appendix to the Assignment Letter states that “all the inventions made by the employee during his secondment shall be hereby assigned to company Y”, and the employee has duly signed such a pre-assignment. As the law applicable to the terms and conditions of the Assignment Letter have been defined to be governed by the laws of California, is the pre-assignment considered to be valid if according to the California law such a contract is deemed to be valid?

The answer is no. In Finland a contract is void if the rights to the inventions made by an employee have been agreed to vest into the employer already at the time of the conception of an invention.⁷¹⁰ The employee has the same initial right to their invention than any other inventor and before such an invention has been made, the employee cannot waive their rights to it.⁷¹¹ Further, it has been explicitly said in the Assignment Letter that the employment with the (Finnish) company X shall continue to be subject to the terms and conditions of the employment agreement and thus, it is not replaced with the Assignment Letter regulating the employee’s secondment in the U.S. The Finnish employment agreement surely contains a choice-of-law clause defining the Finnish law to be applied to the employment relationship. However, even if it lacked such an explicit choice then according to Rome I an employee can be posted to another country on a temporary basis and the applicable law can remain with the country of origin (“habitual employment”) so long as the employee is expected to resume working in the country of origin.⁷¹² It should be noted that according to Rome I, not even the conclusion of a new contract of employment with the original employer or an employer belonging to the same group of companies as

⁷¹⁰ Act on the Right in Employee Inventions 2§, Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, *Työsuhde ja oikeus keksintöön* (1992), p. 9.

⁷¹¹ Act on the Right in Employee Inventions 3§.

⁷¹² Preamble of Rome I, para 36, 1st sentence.

the original employer shall preclude the employee from being regarded as carrying out their work in another country temporarily.⁷¹³ Even in the case of a new employment agreement, if only working in the host country is considered to be temporary, the law of the home country applies.

In this case example, the secondment was planned to be temporary, which means that the employee is indeed expected to return to their home country upon completion of the secondment. But plans can always change, and at the end of the secondment, the employee may decide to stay in the host country. In such a case, if the employee also decides to stay in the service of the same group of companies, the employment agreement will probably be converted to a local agreement based on the U.S. law. That, however, cannot retroactively change the legal situation that has prevailed during the secondment nor affect the assignment of the inventions made during that period. Thus, as pre-assigning future inventions is not considered a valid assignment in Finland, such a pre-assignment clause associated with the Assignment Letter cannot override the mandatory regulations of the Finnish law. This in turn may mean that in the case of an invention that is a joint effort of a Finnish expatriate and a local employee working under the U.S. laws, the employer may in practice have the rights to the very same invention from the local employee beforehand, namely earlier than from the Finnish co-inventor. Further, the scope of rights from the inventors may eventually be different, for example if the employer fails to acquire the rights from the Finnish expatriate after the invention has been made. Examples of these kinds of scenarios of joint inventions where several national laws can have relevance and simultaneously apply are introduced with the help of a variety of scenarios after the next case example.

Case example 2: US expatriate in Finland

In the U.S. it is typical to agree on the rights to inventions made during an employment relationship in advance, already at the time of executing the employment agreement, in the form of a pre-assignment. Thus, in the opposite scenario, namely a US employee transferring to work temporarily in Finland, it is assumed that their employment agreement contains such an assignment. The question now is whether the pre-assignment is valid also in respect of the inventions that are made during the secondment, while the expatriate is working in Finland? Does the minimum protection of the host country mean that the mandatory regulations of the Finnish employee invention legislation cannot be overridden in

⁷¹³ Preamble of Rome I, para 36, 2nd sentence.

respect of the inventions made in Finland by an expatriate from the U.S.? Rome I states as follows:

Article 3

Freedom of choice

3. Where all other elements relevant to the situation at the time of the choice are located in a country other than the country whose law has been chosen, the choice of the parties shall not prejudice the application of provisions of the law of that other country which cannot be derogated from by agreement.

4. Where all other elements relevant to the situation at the time of the choice are located in one or more Member States, the parties' choice of applicable law other than that of a member state shall not prejudice the application of provisions of Community law, where appropriate as implemented in the member State of the forum, which cannot be derogated from by agreement.⁷¹⁴

The mandatory rules of a country that is not chosen by the parties may be applied in the event that all other elements relevant to the situation at the time of the choice are located in that other country.⁷¹⁵ It should be noted that these provisions of the mandatory law are not required to be from a Member State of the European Union. It simply allows the mandatory rules of a country to be applied if the contract is purely domestic to that country.⁷¹⁶ In the case example the contract is not purely Finnish as the underlying employment is of U.S. origin and thus, not all the other elements than the choice of law are located in Finland. Therefore, the mandatory provisions of the Finnish law according to Article 3.3. are not applicable.

Paragraph 4 prevents private parties from opting out of the mandatory provisions of Community law when all other elements than the choice of law are located in one or more Member states.⁷¹⁷ Apparently because a choice of law clause selecting the law of a Member State would include Community law (applicable in that State), the provision specifically applies only when the selected law resides in a country outside the EU. It thus allows the mandatory rules of the EU to apply if the contract is purely European.⁷¹⁸ In the case example the contract is not purely European given the U.S. origin, and thus the mandatory rules of the EU are not automatically applicable.

⁷¹⁴ Rome I, Art. 3(3-4).

⁷¹⁵ Rome I, Art. 3.3.

⁷¹⁶ Ronald A. Brand, 'The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective' (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 23.

⁷¹⁷ Rome I, Art. 3.3.

⁷¹⁸ Ronald A. Brand, 'The Rome I Regulation Rules on Party Autonomy for Choice of Law: A U.S. Perspective' (December 1, 2011), University of Pittsburgh Legal Studies Research Paper Series No. 2011-29, p. 23.

However, unlike the language of the aforementioned Article, Article 9 of Rome I does *not* carve out application of the mandatory rules on the basis of purely domestic or European contracts. The article provides a definition of “overriding mandatory provisions” for safeguarding the public interests of the relevant country, irrespective of the law otherwise applicable to the contract.⁷¹⁹ However, in this case example it is a question of private parties to a contract and not about public interests. The article further provides a rule authorizing the application of the overriding mandatory provisions found in the law of the forum.⁷²⁰ The law of the forum, or *lex fori*, is said to be the basic rule of the conflict of laws.⁷²¹ The article provides further authorization for the application of overriding mandatory provisions linked to the law of the country where the obligations arising out of the contract are performed.⁷²² The latter authorization has a limitation that is not found in the authorization based on the law of the forum. Namely, those mandatory rules of the law of the country of performance may be applied only “in so far as those overriding mandatory provisions render the performance of the contract unlawful”.⁷²³ In this case example, the employment agreement of an expatriate from the U.S. contains a pre-assignment for all future inventions, and such an assignment clause is not valid in Finland. Regarding the inventions made by the expatriate in Finland, the clause cannot override the mandatory provisions of the Finnish law stating that the employee shall have the same right in his inventions as other inventors.⁷²⁴ Therefore, the U.S. expatriate cannot have effectively pre-assigned the rights to the inventions that are made in Finland but the employer needs to acquire the rights to them according to the Finnish law.

Is the conclusion the same if the same issue is explored from the perspective of U.S. law? In order to find the answer, this issue will be investigated from the viewpoint of the Restatement.⁷²⁵ Initially, issues in the contract are determined in accordance with the law selected by the parties.⁷²⁶ In the case where parties could have resolved a particular issue in the contract under the selected law, the law of that particular state is allowed.⁷²⁷ The selected law is allowed even if the parties could not have resolved the particular issue contractually, where there is a substantial

⁷¹⁹ Rome I, Art. 9.1.

⁷²⁰ Rome I, Art. 9.2.

⁷²¹ See Albert A. Ehrenzweig, ‘The Lex Fori: Basic Rule in the Conflict of Laws’ (1960) 58(5) Michigan Law Review, pp. 637-688.

⁷²² Rome I, Art. 9.3.

⁷²³ Rome I, Art. 9.3.

⁷²⁴ Act on the Right in Employee Inventions 3§.

⁷²⁵ Restatement (Second) Conflict of Laws (1971, revisions 1988).

⁷²⁶ Restatement (Second) Conflict of laws § 186.

⁷²⁷ Restatement (Second) Conflict of Laws § 187.1.

relationship between the law and the parties or the transaction, or another reasonable basis for the choice, and it is not contrary to a fundamental policy of a state having materially a greater interest for the particular issue.⁷²⁸

In the case example the issue of the pre-assignment could probably not have been resolved under the U.S. law for those inventions that are made in Finland, given the “fundamental policy” of Finland. Further, the law of the place of contracting⁷²⁹ or the place of negotiating the contract⁷³⁰, namely the employment agreement entered into in the U.S., has no relevance in respect of a pre-assignment that is not valid in respect of the inventions made in the territory of Finland. But the place of the performance⁷³¹, namely the place of such inventions, as well as the location of the subject matter of the contract⁷³², more specifically the pre-assignment clause therein, links the law to Finland. The place of the performance is commented on the 2nd Restatement as follows: “The state where performance is to occur under a contract has an obvious interest in the nature of the performance and in the party, which is to perform. So, the state where performance is to occur has an obvious interest in the question whether this performance would be illegal (see s 202). When *both parties are to perform in the state*, this state will have so close relationship to the transaction and the parties that it will often be the state of the applicable law even with respect to issues that do not relate strictly to performance. And this is even more likely to be so if, in addition, both parties are domiciled in the state.” Further, “[i]t is clear that the local law of the place of performance will be applied to govern all questions relating to details of performance (see s 206).”⁷³³ In the case example, the performance of the expatriate, namely conducting the work, takes place in Finland. Further, the expatriate is working for a Finnish company, albeit under the employment agreement made with the U.S. affiliate. Thus, both parties are performing in Finland, and as the inventions in Finland have been made while working for the Finnish company, Finland has a closer relationship than the U.S. to the performance having led to the inventions. Together with the fact that a pre-assignment is not allowed in Finland, the conclusion to be reached also based on the U.S. law herein is that Finnish law is the effective law that will be applied to the pre-assignment clause in the contract.

⁷²⁸ Restatement (Second) Conflict of Laws § 187.2.

⁷²⁹ Restatement (Second) Conflict of Laws § 188.2(a).

⁷³⁰ Restatement (Second) Conflict of Laws § 188.2(b).

⁷³¹ Restatement (Second) Conflict of Laws § 188.2(c).

⁷³² Restatement (Second) Conflict of Laws § 188.2(d).

⁷³³ Restatement of the Law Second, Conflict of Laws 2d, Chapter 8. Contracts, Topic 1. Validity of Contracts and Rights Created Thereby. Title A. General Principles, Comment on Subsection (2)(e)(5,7); Emphasis added © 1971 The American Law Institute.

6.2.2.2 Timing of rights

In both the previous case examples the question boiled down to the validity of a *pre-assignment*. The focus was on investigating the validity of the pre-assignment from the point of view of an individual inventor, moving from his regular employment regime to another, something that is very typical among employees working for multinational companies. However, the problems related to scenarios with *global inventions* have not yet been introduced, namely where multiple different national laws in respect of the individual inventors, regarding the very same invention, apply simultaneously.

In the next case examples the invention is a joint effort between inventors originating from different countries having different rules with regard to the timing of the assignment and thus, the employer can gain the rights to the same invention at different points in time. In the first case scenario (*Case 3*) the inventors originate from Finland and the U.S.; however, they are not expatriates but working in their regular employment regimes. The invention is a joint effort made partly in the U.S. and partly in Finland, via collaboration using modern communication technologies. For the U.S. inventor's part there exists a pre-assignment of the rights whereas from the Finnish inventor the rights cannot be acquired until after the *invention* has been made. The latter type of acquisition is here called *post-invention acquisition*.

The second case scenario (*Case 4*) relates to problems of post-employment assignment rules in cases where the assignment does not take place until after the *employment* has been terminated (*post-employment assignment*). The inventors are from Finland, the U.S and China. The subject matter will first be introduced facilitated by a scenario where the individual inventors of different origin have transferred to work for a new employer, from the perspective of the rights of their previous employer (*Cases 4 a – c*). Finally, the subject will be handled in the context of joint inventions where one of the inventors is subject to the post-employment assignment duty to his previous employer(s), from the perspective of the rights of the new employer (*Cases 5 a – d*).

Case 3: Pre-assignment vs. post-invention acquisition of the same invention

In the first case example the invention is made in a cross-border collaboration project within a multinational company. The co-inventors are employed by the same company but located in Finland and in the U.S. The U.S. inventor has signed, as part of their employment agreement, a pre-assignment where the rights to all the inventions made in the course of the employment are assigned to the employer. It is assumed here that the language in such a clause is valid, and not open to

interpretations as to whether the assignment has already taken place or whether it has merely constituted a promise for such an assignment in the future. Thus, the rights to all the inventions the employee in question will make while working for the employer are vested in the employer.

However, as an assignment is an individual action, the U.S. inventor can only assign his own share to the invention(s) to the employer. With regard to such inventions where there are co-inventors involved, as in this case example, the employer only has rights to those inventions for the U.S. inventor's part, whereas the rights to the contributions by the co-inventors shall be determined based on the law(s) applicable to their employment. Therefore, in this case example the employer can only have partial rights to the joint invention before the invention has been made. It should be noted that "partial" in this context means all the rights (such as a right to patent it) but only to a part of the invention, while in another context in this thesis the term can refer to the employer only having limited rights to the invention as a whole, such as a right to merely use the invention.

From the Finnish inventor the employer cannot acquire any rights until the invention has been made. After the conception has taken place and the inventor has duly notified the employer of the invention⁷³⁴, the employer has four months to notify its interests in the invention.⁷³⁵ Otherwise the rights will vest in the inventor. It is irrelevant that the employer already has the rights to the invention from the U.S. inventor if the employer does not act according to the requirements of the Finnish law in respect of the Finnish inventor. It is another issue that the inventor who gains rights to an invention because of a failure or an omission by the employer, can be subject to general restrictions derived from the employment to act with the invention. In any case the inventor in question does not have any rights to the contribution(s) of the co-inventors. However, with partial rights, namely not having all the rights to the invention, the employer's use of the invention is also restricted.

⁷³⁴ Act on the Right in Employee Inventions, 5§.

⁷³⁵ Act on the Right in Employee Inventions, 6§.

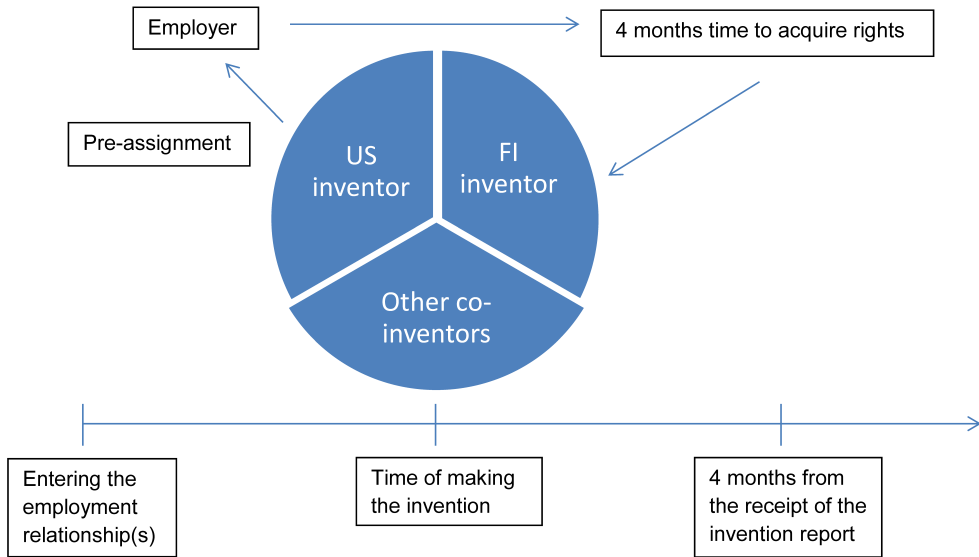


Figure 8. Pre-assignment vs. post-invention acquisition of the same invention.

To conclude, an acquisition and an assignment of the rights to an invention are individual acts and the applicable laws are determined based on the law applicable to the employment of the respective inventor. In the case of global inventions involving contributors from different countries, multiple laws can be applicable to the same invention simultaneously. Owing to a pre-assignment being a valid manner of assignment in some jurisdictions while not in others, the employer may gain the rights to the very same invention at different points of time. It can also happen that eventually the employer fails to acquire all the rights to an invention to which it already has the rights partially. This scenario is handled in connection with the discrepancy of the *scope of rights* (6.2.2.3).

Case 4: Post-employment assignment of an invention

In the second case related to the timing of rights, a few different case scenarios will be presented where there are inventors originating from Finland, the U.S. and China. The problems herein relate to a “*post-employment assignment*”, namely an assignment for an invention made by an employee after the employment relationship has already been terminated. The dilemma as such is not in any way specific to global inventions as the post-employment assignment rules apply also in domestic inventions where all co-inventors are working under the same legislation. However, peculiar situations can occur in the globalized corporate world due to the mobility of employees when they move between companies in similar kinds of projects.

This subject will be introduced with help of individual inventors, irrespective of whether the invention is global or not, or a joint invention or not. A more relevant aspect than the amount of the inventors in the case examples is that the inventor(s) no longer work for the employer of the example. Yet, the *previous employer* in question may still be entitled to some rights to their inventions. For this employer in *case examples 4 a - c* only one law is of relevance. The basis for an employer to have or not have the rights to inventions made after an employment relationship has terminated is based on one law. In *case 5*, “*Conflict of entitlements to the same invention*”, the issue is explored from the point of view of such inventors who despite still being in an employment relationship with the employer in the example, might be subject to a duty to assign the invention to their previous employer. In such a case there are two or more laws simultaneously applicable in respect of the same inventor, such that can affect the rights of the current employer.

Case example 4a: Post-employment assignment of an invention in Finland

The presumption in the Finnish law is that the invention, for which a *patent application is filed within six months from the termination of employment*, to which the previous employer could have taken the rights had the invention been conceived during the course of employment is deemed to have been made during the previous employment.⁷³⁶ This presumption can only be reversed if the inventor can provide probable reasons as to why the invention in question was made after the employment had been terminated. The presumption serves to protect the previous employer, for example, in cases where the employee transfers to work for a competitor operating in the same field of business, and there is a risk that the inventor carries some ideas to the new employer “in their brain”. This is a risk especially in cases where the inventor in question has been headhunted to work for the competitor and the negotiations for the new employment relationship have been ongoing for some time already. Of course, it is a very subjective issue whether the inventor in such a case would deliberately delay reporting invention(s) until the previous employment has been terminated, to harm the previous employer. Such a behavior may be more probable in cases where the previous employer has laid off the employee after which the level of loyalty in respect of the previous employer, and thus also the threshold to withhold inventive ideas, may be lowered.

In this case example the employment relationship of employee X in the Finnish Company A has been terminated under six months ago. The law applicable to the Finnish inventor is the Finnish law. It is not relevant whether the inventor is working

⁷³⁶ Act on the Right in Employee Inventions, 8.1§.

under the Finnish law or some other law after the employment relationship, as long as the previous employment has been under the Finnish law as the presumption is an extension to the main rule in the Finnish law, stating that the employer may be entitled to acquire rights to the inventions made in the course of the employment.⁷³⁷ Employee X has transferred to work for another company operating in the same business than the previous employer. Within six months a patent application is filed by the subsequent employing Company B, naming employee X as an inventor, for an invention that relates to the same field of technology that was part of the duties of employee X in the previous employment at company A.

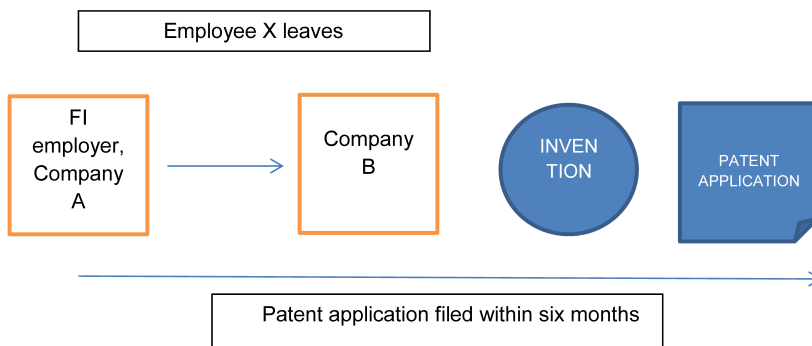


Figure 9. Post-employment assignment duty according to Finnish law.

Company A is entitled to claim the rights to the invention in question from inventor X, or from the current employer, Company B, to whom the rights have already been assigned. This can be done by contacting the Company B for example by a letter. Namely, the presumption does not take place *ex officio*, but it is merely a presumption that the previous employer may take advantage of or choose not to. Of course, in order to utilize this possibility, the previous employer needs to be aware of such a patent application, which might not always be the case as patent applications are not published until after 18 months has passed from filing a priority application. In cases where the inventor or the new employer does not notify the previous employer of the application filed or to be filed, for example to try to receive a clearance for the invention and to avoid unclarity in respect of the rights, it could be that the previous employer does not become aware of the invention until the publication of the patent application. But in practice, as companies may not necessarily actively monitor competitor intelligence in the form of patent applications in real time, it could be that an ex-employer remains unaware of the

⁷³⁷ Act on the Right in Employee Inventions, 4§.

invention until it arises in a specific connection, for example among prior art documents cited by the examiner in a search conducted for some of the pending applications in the company's existing patent portfolio. As there is no time limit set in the law to make a claim regarding the rights, the previous employer can still take advantage of the presumption at the time of becoming aware of the application.

In the aforementioned situation, suspicions may be raised that the invention has a strong link to the terminated employment as the patent application involving the ex-employee closely relates to the inventions patented by the previous employer. Unless inventor X can provide *probable reasons* as to why the invention has been made after the previous employment, employer A is entitled to gain the rights to it. Sufficiency of the "probable" reasons needs to be evaluated in the light of the individual circumstances and it is always a matter of proof as to whether the idea was conceived already in the employment relationship with the previous employer and taken outside in the inventor's head, or whether it was really created after the employee had already left and started working for the new company. There is, admittedly, room for interpretation here since the process from developing a mere idea to a patentable invention can often be long, and the exact time of conceiving the invention is not always easy to determine. The definition of "probable reasons" is so vague that in practice the rights to the invention need to be agreed upon with the applicant, even if this matter itself is not based on a contract.

This specific example is independent of whether the invention in question is a jointly made invention or not. However, in practice, this may have an impact on how probable reasons the inventor is able to provide to override the presumption. In the case where the inventor is a sole inventor, then it is easier for the previous employer to claim that the idea to the invention has arisen in the course of the previous employment, especially if the field of the invention is identical to the duties the inventor had while working for the previous employer. In contrast, in cases where the inventor subject to the post-assignment presumption is a co-inventor in an invention also involving other contributors from the new employing company, it is easier to reverse the presumption as then it is more probable that the invention has been made after the previous employment was terminated and co-operation with the co-inventors started. However, employer A may still be entitled to the rights for the ex-employee's part, when it appears that the specific contribution by that inventor has probably already been conceived during the previous employment and was merely combined with an invention by the other contributors. In such a case the possibilities for employer A to utilize the invention, having only partial rights to it, are restricted. But without any rights, employer A is not able to utilize the invention at all without separate authorization, such as a license. Yet, it may be necessary for employer A to claim the rights to the invention if it is crucial for the purposes of their own business. This is probably the reason why this presumption has been created by

the legislator in the first place, to protect the employer in situations where the employee switches to work for a competitor and in the new job begins to use the experience and knowledge gained during the service of the former employer.

Case example 4b: Post-employment assignment of an invention in the U.S.

In the U.S. the post-employment assignment, also called a post-termination *restrictive covenant*, is a contractual matter and as such something to be agreed upon between the employer and the employees. The concept of restrictive covenant contains assignment clauses as well as confidentiality or non-disclosure clauses to protect confidential information, and non-competition clauses designed to restrict a former employee from engaging in employment activities for another employer which is a direct competitor to the contracting employer. Non-competition agreements are already by a definition anti-competitive and therefore generally subject to heightened scrutiny by courts. These agreements are normally only enforced if the employer has a “legitimate business interest” to protect the interest in question, and only so far as it is necessary.⁷³⁸

There are differences in how restrictive covenants are treated in the United States between the different states. Most of the states look at the *reasonableness* of the restriction, focusing primarily on its *duration*, the *geographic scope* and the substantive *nature of the activity being restricted*. If the term of the restrictive covenant is too long, generally defined to be exceeding two years, it most likely will not be enforced. If the geographic scope is overly broad, for example broader than the geographic scope of the employer’s business, it will not be enforced. Finally, if the substantive nature of the business activity, including the inventions to be assigned, subject to restrictions is broader than the segment of the business in which the employer operates, it will likely not be enforced.⁷³⁹

Indeed, while the majority of the states have adopted an approach to consider how reasonable the non-compete restrictions such as a post-employment assignment duty are, California represents the minority view. In general, California prohibits all manners of restriction on one’s ability to carry on a business or vocation, so all kinds of covenants not to compete are largely unenforceable in California:

⁷³⁸ See e.g. *IDS Life Ins. V. SunAmerica, Inc.*, 958 F. Supp. 1258 (N.D. Ill. 1997) and *BDO Seidman v. Hirshberg*, 93 N.Y.2d 382 (N.Y. Ct. App.1999).

⁷³⁹ For a good presentation containing essentials of the U.S. law and a very good coverage of case law for the restrictive covenants and trade secret protection see Gary R. Siniscalco, ‘United States Law on Restrictive Covenants and Trade Secrets’, a paper presented in International Labor Law Committee Midyear meeting in Istanbul, Turkey, May 9-12, 2010.

California Business and Professions Code (BPC)

16600. Except as provided in this chapter, every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void.⁷⁴⁰

17200. As used in this chapter, unfair competition shall mean and include any unlawful, unfair or fraudulent business act or practice and unfair, deceptive, untrue or misleading advertising and any act prohibited by Chapter 1 (commencing with Section 17500) of Part 3 of Division 7 of the BPC.⁷⁴¹

According to California law, the use of such non-compete provisions that violate section 16600 of the California Business and Professions Code constitutes an unlawful business practice under section 17200 of the Code. In other words, California does not follow the general rule that covenants not to compete are valid if they are reasonable in reason and scope. Instead, California has a “state public policy” which is against the enforcement of restrictive covenants in the employment context:

Every individual possesses as a form of property, the right to pursue any calling, business or profession he may choose. A former employee has the right to engage in a competitive business for himself and to enter into competition with his former employer, even for the business of those who had formerly been the customers of his former employer, provided such competition is fairly and legally conducted.⁷⁴²

There is one exception to the limitations on the restrictive covenants in the U.S., and it also applies in California. Namely, an employer is always entitled to protect its confidential information and *trade secrets*.⁷⁴³ Thus, agreements not to use or to disclose the company’s trade secrets after (and of course during) the term of the employment or a contractual engagement are fully enforceable, also in California.⁷⁴⁴ This includes a post-employment assignment clause that sets a duty to a former employee to assign such inventions to his previous employer that clearly relate to

⁷⁴⁰ California Business and Professions Code, Division 7, General Business Regulations. Part 2, Preservation and Regulation of Competition. Chapter 1, Contracts in Restraint of Trade, 16600§, Added by Stats. 1941, Ch. 526.

⁷⁴¹ California Business and Professions Code, Division 7, General Business Regulations. Part 2, Preservation and Regulation of Competition. Chapter 5, Enforcement, 17200§, Amended by Stats. 1992, Ch. 430, Sec. 2. Effective January 1, 1993.

⁷⁴² California Supreme Court: *Scott*, 732 F. Supp. at 1039-40.

⁷⁴³ The Civil Code of the State of California, enacted 1872. Title 5, Uniform Trade Secrets Act 3426 3426.11, Added by Stats. 1984, Ch. 1724, Sec. 1. Section 3426.1 (d) §, Amended by Stats. 1994, Ch. 1010, Sec. 54. Effective January 1, 1995.

⁷⁴⁴ See, e.g. *Muggill v. Reuben H. Donnelley Corp.*, 62 Cal. 2d 239, 242 (Cal. 1965); *Am Credit Indem. Co. v Sacks*, 213 Cal. App. 3d 622, 633-34 (Cal. Ct. App. 1989).

trade secrets. In other words, a post-assignment clause can be held to be valid if the assignment is limited to the inventions based on the employer's confidential information.

In this case example employee X, having signed a post-assignment clause in connection with an employment contract with company A, or when entering an exit agreement upon termination of the employment, is starting to work for another employer B in the same field of business. While working for the new employer B an invention is made. The question now is whether the post-assignment clause is valid and employee X thus subject to the duty to assign the invention in question to the previous employer A.

The validity of the post-assignment clause is evaluated in the light of its reasonability regarding the duration of the clause, its geographic scope and the substantive nature of the activity being restricted. The generally acceptable duration falls within six months to maximum two years from the termination of the previous employment relationship whereas the geographic scope should essentially be the same as that of the previous employer's business, for the clause to be enforced. The scope of the assignment should be no broader than the segment of the business in which the previous employer operated, and the inventions subject to the post-assignment duty should be related to the duties of the inventor while working for the previous employer. However, in California the requirement that an employee should assign *any* invention related to the former employer's work during a specified time is deemed overly broad because it falls outside the scope of the trade secret exception to Section 16600.⁷⁴⁵

It should be noted that the enforceable time of the restrictive covenant in the U.S. can be as long as two years. As employment relationships tend to be shorter nowadays than earlier, unusual situations can take place in the event that an employee first moves to work for another competitor and then, within two years, transfers to a third company operating within the same business. In such a case the same employee might in fact have a duty to assign the inventions made within the two years to two different previous employers:

⁷⁴⁵ Applied Materials Inc. vs. Advanced Micro-Fabrication Equipment (Shanghai) Co., No. C 07-05248 JW, 2009 WL 1481147 (N.D. Cal. May 20, 2009).

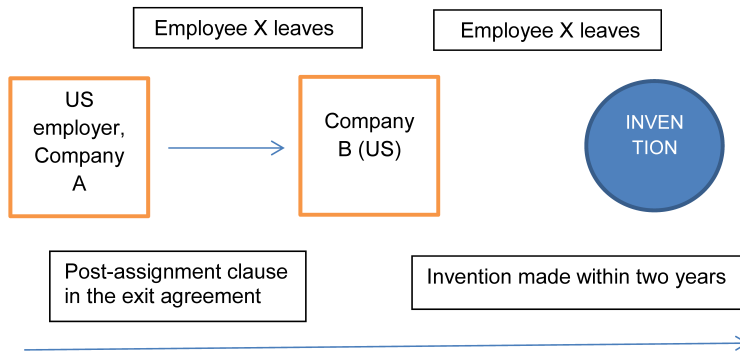


Figure 10. Post-employment assignment duty by virtue of a contract in the U.S.

Problematic situations can also occur, for example, in connection with the acquisition of a company. If, for example, shortly after a company has been acquired some of the most promising employees of the company resign and join the principal competitor, the relevant question is whether the post-employment restrictive covenant that these employees had with the acquired firm also provide adequate protection for the new owner? Another relevant issue to be determined is whether there was an assignability provision included in the restrictive covenant, namely whether the employees, when executing the post-employment restrictive covenant, had agreed that the covenant would be assignable to and also enforceable by a successor corporation? Even if there is variance between states in this respect, the majority view is that unless there is a specific assignability provision, the restrictive covenant is not enforceable by the acquiring company.⁷⁴⁶

Case example 4c: Post-employment assignment of an invention in China

In China, post-employment service inventions are defined in the Implementing Regulations of the Patent Law. The Chinese law is in this respect clearer compared to a mere rebuttable presumption in the Finnish law in defining explicitly that inventions, which have been made within one year from the termination of employment are deemed to be service inventions when related to the employee’s duty or other task assigned to them during the service of the previous employer. Although the post-employment service inventions are separately determined in Rule 12(3) of Implementing Regulations, the definition relies upon determining service inventions during employment in Rules 12(1) and 12(2). In other words, the same

⁷⁴⁶ For example, *Hess v. Gebhard & Co.*, 808 A.2d 912 (Pa. 2002) – “covenant not to compete contained in an employment agreement is not assignable to the purchasing business entity in the absence of specific assignability provision”.

standard should be adopted in determining service inventions created *during* employment and those created within one year *after* the termination of employment.

In a decision from one court judgement case, the court considered the three types of service inventions enumerated in Rule 12 and held that the post-employment service inventions differed from service inventions during employment only in their completion time. According to the court, a post-employment service invention in Rule 12(3) was provided with a purpose that when the conditions of the service inventions were met, then inventions easily obtained in the inventor's follow-up work could constitute service inventions owned by the former employer. Without the prerequisite of "performing duties or carrying out special jobs assigned by the former employer", inventions created within a year after the termination of employment should not be considered as service inventions owned by the former employer.⁷⁴⁷ Thus, inventions that are closely related to the inventor's previous work are deemed to be service inventions.

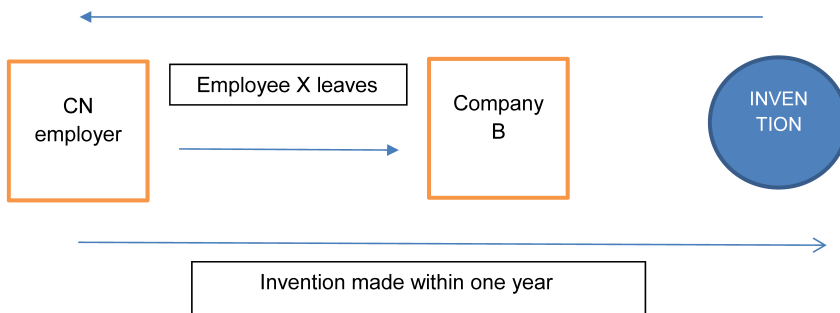


Figure 11. Post-employment assignment duty based on Chinese law.

In this example of a Chinese inventor having created an invention within a year of terminating the previous employment, the attention is thus focused on the nature of the invention, in other words if it is derived from the employee's former duties or specific tasks. It should be noted that unlike in Finland, where the presumption only concerns inventions for which a patent application has been filed within six months following the termination of employment, in China it is sufficient that the *invention is made within the determined term of one year*. There is no mention of filing a patent application. Thus, inventions where a patent application is filed after a year from the termination of employment as well as inventions where a patent application is not filed at all, can also be deemed to belong to the previous employer.

⁷⁴⁷ "Implementing Regulations of the Patent Law of the People's Republic of China, Rule 12.3.

Case 5: Conflict of entitlements in a joint invention

The different rules are now explored regarding how a post-employment assignment can affect the entitlement to a joint invention, where in respect of at least one of the co-inventors the previous employment relationship has been terminated no longer than the term defined for the post-employment assignment duty or the legal presumption applicable to the inventor in question. To summarize, in Finland the time for the presumption is six months, which is derived from the written law.⁷⁴⁸ In the U.S. the post-assignment duty is a contractual issue and only subject to restrictions by the case law, restricting the term to a maximum of two years. In China, the basis for the post-assignment of inventions is statutory, and the time is one year.⁷⁴⁹ Four case examples are presented, three of which have only one co-inventor to whom the post-employment assignment duty or presumption applies, while in the final case example all the co-inventors are subject to a post-employment assignment duty or presumption to their previous employer.

The viewpoint in the following examples is now that of the *current employer*. In the earlier case examples the respective laws were introduced from the point of view of the previous employers possibly having rights to the inventions made by their former employees. Only one law applied to the inventor from the point of view of the previous employer. In cases where the provision of the respective law was deemed to be applied, the employer gained rights based on that. Unless the provision was not applied, the previous employer did not get any rights to the invention. However, in the following case examples, from the point of view of the current employer, there are *two conflicting laws applicable* to the inventor in question. Both of those laws affect the rights of the employer in respect of the invention made by an employee under the post-employment assignment duty or the presumption, even if only one of them can prevail. In other words, there are two laws applicable to this specific employee. However, in respect of the other two co-inventors who are not in this exemplary scenario subject to any post-assignment duties to their previous employers, only one law applies to regulating rights to their shares to the joint invention. The situation resembles the previous examples, with the difference that the invention is now made at the service of the current, and not the subsequent, employer.

Figure 12 below reflects the situation in the case examples 5a – 5c:

⁷⁴⁸ Act on the Right in Employee Inventions, 8.1§.

⁷⁴⁹ Implementing Regulations of the Patent Law of the People's Republic of China (PRC) of 2010, Rule 12(3).

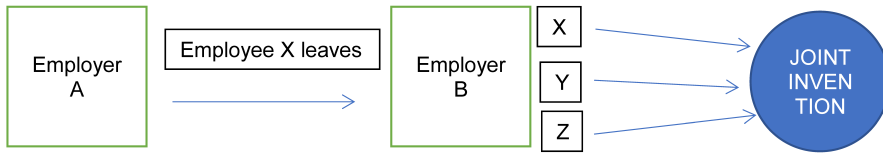


Figure 12. Conflict of entitlements to the same invention.

Case example 5a: Invention involving a Finnish inventor having been employed under six months

In the first case example it is a question of an invention involving a Finnish inventor whose previous employment relationship has been terminated under six months ago. It is not relevant whether the invention is a global invention with contributors originating from different jurisdictions or a national Finnish invention, as long as it involves one Finnish inventor. It is assumed here that both the previous and the new employer are operating within the same field of business. The Finnish inventor is an expert in the particular field of technology and has now moved on from working for employer A to working on similar kinds of duties for employer B.

The invention is the joint effort of multiple inventors, only one of which, employee X, is subject to the legal presumption of the Finnish law to assign the invention to the previous employer, absent of probable reasons that it was made after the employment relationship had been terminated. In respect of the other inventors it is sufficient that the employer acts according to the requirements of the relevant laws applied to them. The employer may have rights from some of the inventors based on the contract already, as in the U.S. As there is no such concept as a collective acquisition of the rights in any jurisdiction it is not relevant where the co-inventors originate. The focus in the case example is on employee X under the post-assignment duty and in the potential effect of the conflicting assignment duty to the rights of the current employer B.

However, in order to determine both the conflicting laws applied to employee X subject to the post-assignment duty, it is certainly relevant to know in which jurisdiction employee X currently works. It is assumed in this case example that irrespective of whether the invention in question is a global or a national invention, the new employer B is also a Finnish company. This way, there are no conflicts for example between the post-assignment presumption and a possible contractual assignment signed by the employee when entering into a new employment relationship, should the new employment relationship be established for example under the U.S. law which recognizes such a pre-assignment and where the employee typically also needs to convince that there are no conflicting obligations that would

prevent such a pre-assignment.⁷⁵⁰ The conflicting laws, more specifically the conflicting provisions of the same law, in this case example are 4§ and 8§ of the Finnish Employee Invention Act. On the one hand, employer B is entitled to acquire the rights to the invention made by the employee X based on the first mentioned provision, provided that the invention fulfills the criteria set down therein. On the other hand, as the employee X has been working for the previous employer A less than six months ago, the other provision may be of relevance and result in the loss of rights of the employer B.

It should be noted that for the presumption of the Finnish law to be applied, there needs to be *a patent application filed for the invention* within the defined six months' time. It is assumed that an invention patented within such a short time after the termination of the previous employment relationship, when related to the business of the previous employer and the duties or specific tasks of the former employee, is such that is deemed to belong to the previous employer. In the case example, there is a patent application filed for the joint invention within six months from the termination of the previous employment of the Finnish inventor X. Thus, the presumption of the law applies, irrespective of how long the employee has worked for the current employer. However, in practice the duration of the new employment relationship can have an impact on the credibility of reasons provided by the inventor for the invention having been created in the new employment relationship. In cases where the employee has only worked for the current employer for a very short time, it is more probable that the invention has been made by utilizing information and knowledge gained at the service of the previous employer. But this only applies to the contribution of the employee subject to the presumption and not to the contributions by the co-inventors probably having worked for the employer B for a longer time. It is a matter of interpreting the individual circumstances whether the presumption is relevant to the case at hand. Further, it is a question of risk analysis as to whether to proceed with filing a patent application for an invention that may be subject to the presumption without seeking clearance and taking a risk of a potential third-party claim by the previous employer in the future. For example, when the new employer plans to enter into a patent licensing business, or the company or its patent portfolio is a potential target for acquisition, these kinds of risks in respect of the rights to the inventions can cause problems in due diligence and ought to be clarified in advance, for example by seeking the clearance as a part of the company compliance procedures. However, in practice this presumption of the law may not be something that is regularly taken into account when filing patent applications for joint inventions involving an inventor subject to such a presumption. This is

⁷⁵⁰ In such a case, the employee might need to pay remedies for the employer for the loss of rights, but such contractual damages are now not relevant in this example.

especially true in situations when the new employer is *not* a Finnish company and thus not necessarily even aware of such a presumption in the Finnish law. But, also among Finnish companies, awareness of the presumption leading to the risk of loss of rights can vary. The most knowledgeable companies might anticipate future problems and seek explicit clearance from the previous employing company to avoid a situation where the previous employer would at some point require the rights to the invention. Namely, the previous employer may not become aware of the patent application until it is published, unless it is informed.

But what if the *patent application for the invention is not filed* within the defined six-month period? Can the new employer B avoid appliance of the legal presumption by simply delaying, when possible, the filing of the patent application? Literally interpreting the presumption as such only applies to inventions where a patent application is filed within the six-months. It has probably been assumed that whenever inventions are made that are patented, a patent application for the invention will be filed shortly after the creation of such. However, for example in Finland the employer can reserve all rights to the invention without filing a patent application and retain an option to file the application later. Would such a reservation of rights, when the patent application for an invention is filed later than six months after the termination of the previous employment relationship of the inventor, be deemed to be equalled to filing a patent application within the defined time, and thus the invention by default belonging to the previous employer? Literally interpreting the law, the answer is “no”. It is questionable whether the new employer can deliberately try to circumvent the presumption in the law by delaying filing a patent application for an invention subject to the presumption. However, drafting a patent application typically takes some time, and in big companies the backlog of invention reports can also be long. Thus, the time from receiving an invention report to a patenting decision, not to mention to filing a patent application, can take several months. Therefore, the defined time is not necessarily sufficient to secure such inventions that the employee subject to the presumption has made shortly after entering into a new employment relationship. However, the legislator has chosen to define the time as six months and to also include the filing of a patent application, which will probably cover the most obvious “invention hijacking”.

Case example 5b: Invention involving a U.S. inventor having been employed less than two years

In the second case example, employee X is an inventor from the U.S., having signed a typical restrictive covenant which also contains a post-employment assignment clause, for the previous employer A. Thus, the inventor is at least initially under a post-employment duty to assign to the former employer such inventions that fall within the definition of the clause. Whether the assignment of such inventions is going to take place depends on the validity of the assignment clause. The validity of the clause is examined from the point of view of the *duration*, the *geographic scope* and the *substantive nature of the activity being restricted*.

Timewise the term for assigning inventions to the former employer cannot in any situation extend to two years. Thus, when evaluating whether the contribution to the joint invention by employee X contains confidential information of the previous employer, the relevant factors are basically the same as in the previous example. That is, in the case that employee X has worked for employer B for a very short time, it is probable that the inventor has utilized confidential information from the previous employer A instead of the information and knowledge received in the service of the new employer B. But as more time passes, it becomes more difficult to prove that the knowledge is derived from the confidential information of the previous employer if similar research is also being done at the new employing company. Regarding the term of the post-assignment clause, it is assumed in this case example to be within the acceptable time limits of the relevant law.

Regarding the geographic scope, when considering the enforceability of the restrictive covenants, the courts have generally considered them to be initially valid only when the operational territory for the business of the new employer is the same as for the previous employer. In the opposite case, it is no longer a question of competing with the previous employer, and thus a non-competition clause is not relevant. Of course, in the case of a truly global company, providing products or services worldwide, there are no territorial limits when considering the enforceability of the restrictive covenant. Nevertheless, even if the company as such is not truly global in having its operational or sales units all over the world, in the current internet world the coverage of the products and services provided can still extend globally and thus the area of the competition can also be considered worldwide. In this case example, an assumption is made that the employing companies of the example are operating within the same geographic area, and thus there are no issues related to the geographic scope of the post-assignment clause that could result in the clause being against the reasonability requirement.

The third assumption made in this case example is that the inventions subject to a potential duty, assignable to the previous employer, are defined as substantially in the same field of business as previous employer A and more specifically, related to

the former duties or tasks of employee X. To add complexity, let us also assume that the law to be applied to the post-assignment of such inventions is the law of California. In California a post-employment assignment provision is only held valid if the assignment is limited to inventions based on the employer's confidential information, i.e. it is necessary to protect the former employer's trade secrets.⁷⁵¹ To establish whether the invention is based on the confidential information of the previous employer, the individual circumstances need to be interpreted for each invention made by the employee subject to such a post-employment assignment duty. For example, in the case of an invention that is closely related to the scope of a project that an employee worked on in a former employment relationship, and in the current employing company there had previously been no identical research, then it is more probable that the invention has been made using the confidential information received during the service of the previous employer. However, as the invention in this case example is the joint effort of multiple inventors, it can hardly relate to any such research which the co-inventors are totally ignorant of. Nonetheless, the fact that there is a similar kind of research in the current employing company does not prevent part of the invention being related to the trade secrets of the previous employer.

The conflicting laws – or obligations – in this case example are now the pre-assignment for the current employer B, entered in an employment agreement already, and the post-assignment duty for the previous employer A. Both the obligations are contractual, and in that sense equal. In the event that both assignments are deemed to be valid, there is a true conflict between the two assignments, only naming the different beneficiary. However, this case example merely focuses on the validity of the post-assignment, irrespective of the validity of the pre-assignment. Thus, if the post-assignment clause here is considered to be valid, then employee X will assign the rights to the invention subject to the duty to the previous employer A.

In practice, the previous employer A cannot know about inventions made by its former employee X unless it is informed of such, or unless it otherwise receives information, for example when such an invention becomes public in a filed patent application. Therefore, the new employer B would also in this case be wise to seek a clearance from the previous employer A in order to avoid future problems and to solve unclarities with regard to the rights in case of concern that the former employer A would otherwise try to enforce the restrictive covenant signed by its former employee X. Then again, since the term for restrictive covenants can be as long as two years, it would be harsh for any company to seek clearances for all the inventions made by their employees who have been employed for less than two years, given

⁷⁵¹ Gordon v. Landau, 321 P.2d 456, 459 (Cal. 1958); Muggill v. Reuben H. Donnelley Corp., 398 P.2d 147 (Cal. 1965).

that in the U.S. it is very common to include such a post-employment assignment clause to “exit” agreements with employees. Further, the contractual duty to assign inventions in accordance with the assignment clause is essentially the duty of the employee. Yet, any risk of unclarity in respect of the rights to the invention made by the employees is essentially the risk of the new employer. This is especially true when the invention has been patented, and the patent is utilized for example in licensing or litigation. For example, in litigation concerning infringement of the patent, the counterparty accused of infringing the patent may attempt to find any reasons to either invalidate the patent or to dispute the rights of the patent holder, namely the plaintiff. Thus, the infringement case might turn to the question of ownership to the patent which then needs to be solved prior to the infringement case.

As a general observation, post-employment assignment clauses do not typically contain an aspect of filing a patent application. That is, the inventions can be subject to a post-assignment irrespective of whether they are patented or not. However, it is also possible that the former employer requires inventions which are made shortly after the termination of the employment relationship merely to be *disclosed* to them. Without a duty to assign the inventions the clause does not, however, impose a risk for the rights of the new employer. On the other hand, when it is a question of competing companies, also disclosing any inventions related to ongoing projects for the competitor contains a risk. Thus, it would be wise to have sufficient non-disclosure agreements in place with the previous employer so that the confidential information disclosed in the form of an invention is not used for other purposes than fulfilling the requirement of a post-employment duty of disclosure.

It should be noted that the post-employment assignment duty, and thus also the duty of disclosure, only concerns the specific contribution of the former employee. In cases where the contribution cannot be specified, in practice the share of the former employee to the joint invention is assigned. This can be equal to the shares of the other co-inventors or defined as a specific percentage share. In theory it could also be that the former employee’s contribution is only partly made by using confidential information from the previous employer and literally interpreting it, then only the relevant part of the contribution is subject to the duty of the assignment. However, it would be very difficult to assign any share of the invention specified in that detail. Should at least part of the invention be deemed to be such, where the former employee has used confidential information from the previous employer, then the new employer is faced with a situation where it does not own all the rights to the joint invention and thus cannot fully utilize the invention in its business.

Case example 5c: Invention involving a Chinese inventor having been employed under one year

In the third example the employee X having contributed to a joint invention is from China and has worked for the current employer B less than one year since the previous employment relationship has been terminated. The conflicting provisions in this case example are derived from Rule 12 of the Implementing Regulations. On one hand, the invention is a service invention made in the course of performing the employee's own duty⁷⁵², at the service of the current employer B. On the other hand, when the invention also relates to the inventor's duties during the service of the previous employer A, it can be considered a service-invention that belongs to the employer A.⁷⁵³ When the employee's duties in the service of the new employer B are essentially the same as in the previous employer A, it may be difficult to determine whether the invention will belong to the new or the previous employer. Both the duties are derived from the very same law so there is no hierarchy between them. Eventually the rights may need to be agreed upon between the previous employer A and employer B.

Case example 5d: Invention subject to multiple conflicting post-employment assignment duties

Finally, a hypothetical scenario is presented for an invention where inventor X, whether a sole or a joint inventor, could be subject to multiple conflicting post-assignment duties or presumptions. In this case example, inventor X has moved between competing companies in a very short time so that when an invention is made, the employee in question may be under multiple obligations to assign it to several previous employers.

Figure 13 captures this rather unusual scenario quite well:

⁷⁵² Implementing Regulations of the Patent Law of the People's Republic of China (PRC) of 2010, Rule 12(1).

⁷⁵³ Implementing Regulations of the Patent Law of the People's Republic of China (PRC) of 2010, Rule 12(3).

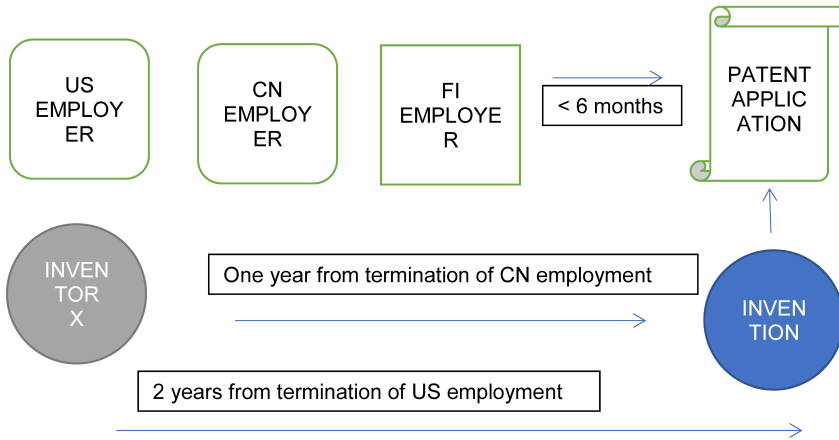


Figure 13. An invention subject to multiple conflicting post-assignment duties.

In the case example, inventor X, after having worked for a US employer, moves to work for a Chinese company operating in the same field of business. Shortly after this, inventor X moves on to work for a Finnish employer. However, soon inventor X starts their own business in the same field as the previous employers, makes an invention and seeks patent protection for it. The invention is made within two years from the termination of the US employment and within one year from the termination of the employment with the Chinese employing company. Furthermore, the patent application for the invention is made within six months from the last employment relationship with the Finnish employer. In other words, the very same invention is potentially subject to a post-assignment duty to all three previous employers.

The conflict takes place between one contractual post-assignment clause (US) and two different provisions of law (CN and FI), one of which is a rebuttable presumption. The inventor’s own start-up company could gain the rights to the invention based on the Finnish law if the inventor can show probable reasons as to why the invention was made after the employment relationship with the most recent employer had been terminated. However, the probable reasons do not yet guarantee protection against the previous Chinese and the U.S. employers. Both the companies can be entitled to obtain the rights to the invention, if the post-assignment clause is considered to be valid and the invention is related to the employee’s duties at their service. In the event that the California law is to be applied to the U.S. employer, then an additional requirement is that the invention was made using the confidential information gained from that particular employer.

The situation in the case example is unusual, because of the multiple conflicting post-assignment duties or presumptions and in addition to the terms of the employment relationships which have been rather short. No information is available

for the term of the employment relationship with the U.S. employer but the duration of the employment relationships with the Chinese and the Finnish companies cannot have been very long since within two years of the termination of the employment relationship with the U.S. employer there have already been two subsequent employers for the inventor in question. Further, fair amount of time necessarily has also been spent at the newly started business of the inventor. This may impact the outcome, namely who is entitled to the rights to the invention. The end result may also be different depending on whether the invention is a sole or a jointly made effort with the new business partners. Ultimately, it is a matter of interpreting the individual circumstances related to the invention and the employee's duties during the service of the previous employers.

6.2.2.3 Scope of rights

In the previous examples it was essentially a question of the different timing for the acquisition of the rights, in the form of a pre-assignment allowable in certain jurisdictions while in others not, and in the form of a post-employment assignment which in some jurisdictions is a statutory matter whereas in the U.S. it is based on the contract between the employer and the former employee. Despite the case examples being based on the different *timing* of the acquisition of the rights, in many of the examples the employers encountered a situation where there was also a discrepancy in the *scope of the rights* to the invention. In other words, either the previous or the new employer did not in the end get *all* the rights to the joint invention made by the respective employees because of the other company who was also entitled to some rights to the same joint invention.

Case 6: No rights to some part of the invention

The following case examples present a few scenarios where the employer gains only partial rights to the invention. In *case example 6a* the *partial entitlement is due to other employers being entitled to the rights* to the joint invention. The basis for the conflicting rights can be the post-assignment duty of some of the co-inventors, as well as collaboration with a third-party employer, being entitled to the rights. However, in addition to situations where two or even more companies collectively have the rights to the very same invention, there can also be situations where *some of the rights belong to an employee (case example 6b)*. That is, one or some of the inventors may have the rights to their part(s) of the invention as a whole or partly, for example because *the employer has failed to acquire the rights* from them in accordance with the requirements of the relevant law. This scenario is reflected in

case example 6b(i). Further, it is also possible that the employer is *not* even entitled to all the rights to the invention made by the employee, as in case example 6b(ii).

Case example 6a: Partial entitlement of other employer(s)

The scenario in this case example is essentially the same as in the previous example case 4, “*Post-employment assignment of an invention*”. That is, the employer does not have rights to all parts of the invention made by its employee because there is another employer who is entitled to some part of the same invention. The other employer can be the former employer of an employee X subject to a post-employment assignment duty to previous employer A, or it can be the new employer B, when the perspective is that of the previous employer. However, the other employing party having rights to a part of the invention can also be a third party employer C employing some of the co-inventors in the case that there are also sub-contracted inventors involved in the joint invention and the transfer of the rights to the invention has not been agreed upon. But even if the transfer between the contracting parties B and C has been duly agreed, employer C may have failed to acquire the rights to the invention from employee Z in accordance with the relevant legal regulations.

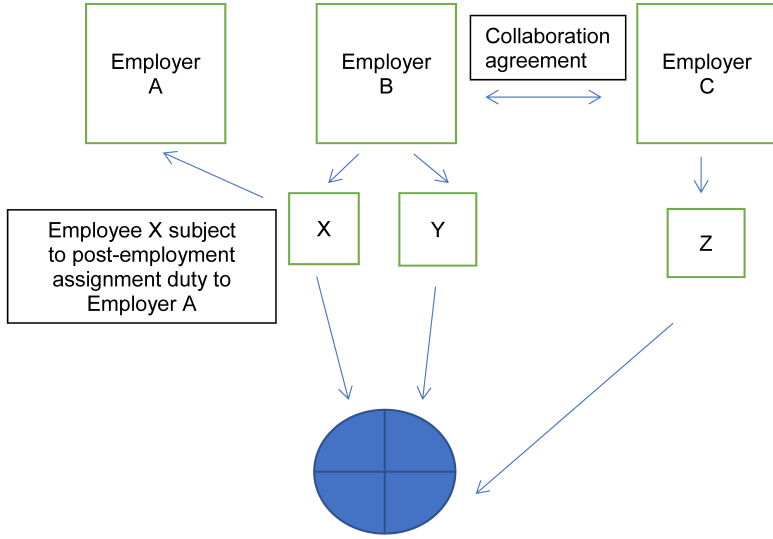


Figure 14. Partial entitlement to the invention of other employer(s).

From the point of view of the first employer A, possibly having rights to a specific part of the invention made by its former employee X, the situation is always going

to be such that employer A will not gain the rights to the joint invention as a whole. Only in very rare cases, where all the joint inventors currently employed by employer B and employer C have been employed by Employer A and are subject to the post-employment assignment duty to their common previous employer, could employer A get rights to the invention as a whole. It would mean that the current employers of the inventors would not have any rights to the invention and the situation would be very awkward. However, in this example it is assumed that the co-inventors of inventor X in the invention have not been employed by employer A nor are they subject to a post-employment assignment duty to any previous employers.

The joint invention has been made in the research project of the current employer B. In an ideal situation all the rights from all of the co-inventors belong to company B, and there are no restrictions for utilizing the invention due to any conflicting entitlements. In other words, the post-employment assignment duty of employee X is not applicable to the invention either because the inventor has provided probable reasons as to why the invention has been made after entering into the new employment relationship (Finland) or the post-employment assignment duty does not apply to the invention for some other reason, for example because it was not made using the confidential information of the previous employer (US, CA). Even if one of the inventors, inventor Z, is not employed by company B, it is standard practice in subcontracting agreements that the party who has ordered and paid for the subcontracted research, and to whose business the research is more closely related, will also receive rights to the inventions that are made through collaboration by the employees of the subcontracting company. However, even if the rights according to the subcontracting agreement between companies B and C are to be assigned to company B, a valid agreement needs to be in place in relation between company C and its employee Z, either in the form of a pre-assignment if the applicable law acknowledges such, or by an acquisition in accordance with the relevant law.

Regarding the third employer C, the situation is the same as with employer A. Employer C will not be able to get the rights to the joint invention as a whole, if at all. Of course, it could be that the collaboration agreement between companies B and C is such that it is company C who has ordered the subcontracted research and to whom the rights to the invention according to the contract belong. However, this kind of situation would require that both inventors X and Y work for the collaboration project in question, and also that the previous employer of inventor X, i.e. employer A, is not entitled to any rights to the invention. It could also be that an agreement is made whereby the rights to the inventions that are made through collaboration are jointly owned by the parties. In this example, however, it is assumed that the collaboration agreement provides that the rights to the inventions will be assigned to company B. Thus, employer C does not gain any rights to the

invention. It should be noted that timewise it is possible that company C has the rights to the invention already prior to the invention being made, in the case where there is a pre-assignment entered into the employment agreement between company C and its employee Z. However, after the invention has been made, the rights are assigned to company B either immediately (in the case where the assignment has taken place already) or shortly after (in the case where the rights need to be first acquired from employee Z). In the latter scenario, on a momentary basis the rights to the invention can also belong to employee Z, in those jurisdictions where the rights to the inventions made by an employee initially always belong to the inventor.

In Figure 14 the shares of all the co-inventors are equally sized and strictly bordered. However, typically it is not possible to define the specific shares for any of the inventors, but it is assumed that they have jointly made the invention as a whole. No specific “slice” of the invention is assigned to the other employers but instead, for example a percentual share to it. All the employers that are entitled to some rights to the joint invention are only assigned the part of the invention made by their own employee(s), or former employee(s), and not partial rights to the invention as a whole. As in practice it is difficult to utilize only part of the invention, in those situations where the different parts of the invention are assigned to the different parties, the parties may need to enter into a joint patent ownership agreement or otherwise agree on utilizing the rights to the joint invention.

To summarize, the outcome of this case example scenario can be that company B gets all the rights to the invention which is an optimal solution for that company employing two of the three inventors and the invention relating to a research project of the company. However, depending on the individual circumstances, company A can be entitled to the rights in respect of the share of employee X, and company C can exceptionally be entitled to the rights to the share of employee Z, in some cases jointly with company B. When none of the companies have all the rights to the joint invention, utilizing the invention is restricted due to the parallel rights of the co-owners.

Case example 6b: Invention partly owned by the inventor(s)

While in the previous case example it was a question of an employer not having rights to some part of the invention because of the conflicting rights of the other employers, there can also be situations where the invention is partly owned by at least one of the inventors.⁷⁵⁴

⁷⁵⁴ It should be noted that it is not referred now to the mentioned momentary possession of the rights by the inventor(s) prior to the acquisition of the rights in certain jurisdictions.

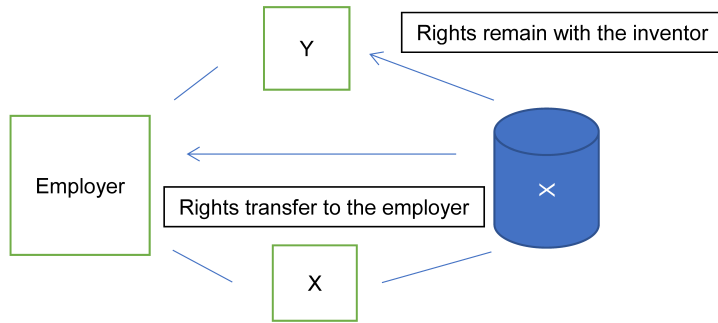


Figure 15. An employee invention partly owned by one of the inventors.

(i) Employer having failed to acquire the rights (Finland)

An example scenario where eventually the rights to part of an invention belong to the inventor could take place for example in relation to a Finnish employer and an employee-inventor when the employer has not complied with the requirements of the Finnish law in acquiring the rights to the invention. This omission can relate to a requirement on timing or on the form. In cases where the employer has not managed to notify the employee within four months from the proper notice of the invention report that a specified right will be claimed in the invention, or it has not been done in written form, the employer has missed the legal rights to the invention.⁷⁵⁵

Even though many provisions in the Finnish Employee Invention Act are of a mandatory nature, the notification time set for the employer is deemed to be such which can be extended with the permission of the employee.⁷⁵⁶ Therefore, on some occasions the employer may acquire the rights to the invention in a valid manner also after the four months has passed. However, in cases where the employee has not given permission to an extension then the employer only has four months to react. The time, however, is not initiated until the employer has received proper notification of the invention from the inventor.⁷⁵⁷ The requirement “in writing” is said to be presumably fulfilled with modern means of technology, such as e-mails. What is essential in complying with the requirement is that the notification by the employer is duly documented, in order to prove that the rights were acquired in accordance with the law, should it be later disputed by the inventor or by a third party.

⁷⁵⁵ Act on the Right in Employee Inventions (526/1988), 6.1§.

⁷⁵⁶ Act on the Right in Employee Inventions 2§, Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, *Työsuhte ja oikeus keksintöön* (1992), p. 48, ref. 59 and Kivi-Koskinen 2002 p. 140.

⁷⁵⁷ Act on the Right in Employee Inventions (526/1988), 5.1§.

In this case example, there are two inventors X and Y who have jointly made the invention in question. The employer has duly acquired the rights from inventor X, either under the Finnish law or some other law applied to the employment relationship. The law applied to the employment relationship of inventor X is not relevant here. The invention can be a joint invention made in cross-border collaboration or it can be a domestic Finnish invention but the applicable law for Inventor Y shall be the Finnish law. What is essential in the example is that in respect of inventor Y the employer has not managed to acquire the rights due to non-compliance of the requirements, be it an omission related to the timing or the form of the acquisition. Should the employer not comply with the requirements of the law when acquiring the rights to the invention then the employer has lost its rights to the invention according to the Act. This, however, does not mean that the parties could not agree on the transfer of rights afterwards, in order for the employer to be able to fully utilize the invention. However, it is then no longer a question of acquiring the rights based on the Employee Invention Act even if the parties might adopt certain provisions therefrom, such as the inventor's right to compensation for assigning the rights (it is another issue whether the inventor will accept the reasonable compensation defined by the law anymore if the assignment is made voluntarily).

(ii) Employer not entitled to rights from an inventor (China)

However, the situation could also be such that the employer is not even entitled to acquire the rights to the invention from inventor Y. There can be multiple reasons for this, depending on the jurisdiction. Referring to the previous case scenario, in the event that Finnish law will be applied to inventor Y, this kind of situation would be exceptional since whenever the invention relates to the business of the employer, the employer is always entitled to acquire at least the right to use the invention.⁷⁵⁸

However, in China the invention is considered to be a service invention-creation belonging to the entity the employee belongs to only if the invention has been made in the course of performing the employee's own duty or in the execution of any task, other than their own duty, assigned by that entity.⁷⁵⁹ Thus, if in the case example inventor Y is from China, and has contributed to the joint invention beyond the duties or specific tasks assigned to them, the employer may not be entitled to the rights to their part of the invention since for any non-service invention the right to apply for a patent shall remain with the inventor.⁷⁶⁰

⁷⁵⁸ Act on the Right in Employee Inventions (1078/2000), 4.2§.

⁷⁵⁹ PRC Patent Law, Art. 6 and Implementing Regulations of the Patent Law of PRC, Rule 12.4-5§.

⁷⁶⁰ PRC Patent Law, Art. 7.

Case 7: Partial rights to at least some part(s) of the invention

The previous case examples introduced scenarios where one or more parties, either companies or individual inventors, together had rights to the invention as a whole. All the parties had *all* the rights to their respective shares of the invention, even if the shares were not defined as specific portions of the invention, or as “slices of the cake”, using the cake metaphor. Most importantly, in the provided examples there was only one party, the current employer or the previous employer or the inventor, owning a share of the invention.

However, the same “slice” can also have *multiple owners*, either so that owners have all kinds of rights in respect to the specific slices, or the different rights are divided between the multiple right holders. In other words, there can be right holders who have merely the right to use the invention and a possibly granted patent while one party is entitled to utilize the patent rights more widely. In terms of the cake metaphor, some right holders only have a right to taste the cake while some can also eat it. This kind of situation could take place for example in Finland, between an employer and an employee-inventor when the employee has exceptionally received a right to patent an invention that has been made in the employment relationship, either because of an omission by the employer or on purpose. In such a case the employer only has the right to use the patented invention. A similar situation can occur when an invention in the U.S. has been made by an employee using information or other resources from the employer, or on company time, when the employee was not hired to invent or was not given specific instructions in relation to the invention. In the absence of a contract to the contrary, the U.S. state law may confer on an employer a royalty-free, non-exclusive and non-transferrable personal license to exploit the invention. In both cases, the employer only has the right to use the invention in its own business but does not necessarily have any have-made rights.

Typically, the right to use the invention in the aforementioned case examples applies to the invention as a whole, even if the right to use is subject to only a part of the invention by a certain employee. However, it can also be that the division of the rights is not so straightforward that the partial rights are subject to the whole invention. It could also be that the employer to whom the rights to an invention made by its employees have vested has duly all the rights to the invention for *some* of the inventors’ part but in respect of at least one of the inventors’ part only partial rights, such as a right to only use the invention. This kind of scenario is truly possible in the case of a joint invention as the acquisition of rights is an individual act. If not all of the acquisitions have been successful, or if in the first place the employer is not even entitled to all the rights from one or some of the inventors, the employer may eventually have different rights for the different parts of the joint invention.

Case example 7a: Employer entitled only to partial rights to some part(s) of the invention (Finland)

In this case example employer Z is a Finnish company who has received all the rights to a joint invention made by employees X and Y, from the employee X. However, in respect of the share of the employee Y the employer has received only partial rights to the invention and remaining rights belong to the employee-inventor Y. There are at least a few scenarios where this could happen, introduced in the following.

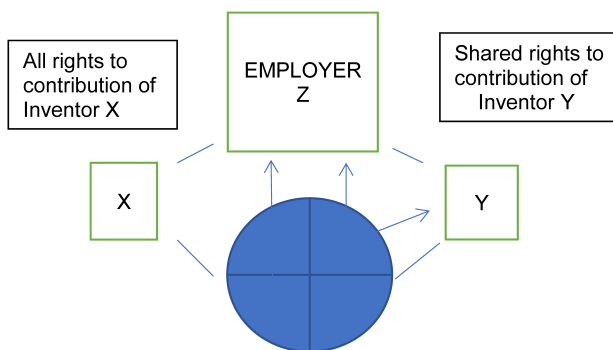


Figure 16. Partial rights to at least some part(s) of the invention.

(i) Employee given permission to patent the invention

Occasionally, an employer does not want to patent the invention, and the employee may ask for a permission to do so. It could be that the employer does not consider the invention valuable enough to be patented and is satisfied with the right to only *use* the invention whereas the inventor considers invention valuable enough to warrant a patent. In cases like this, the employer may give the employee permission to patent the invention, provided that the employer is entitled to use the invention and the possibly granted patents in its own business. The employer is not obliged to grant the permission but may do so as a gesture of goodwill.

In most circumstances, the employer has better competence, finances and resources to handle patenting, compared to an individual employee. Thus, it is probably very rare and exceptional that the employee receives the permission to seek a patent for an invention made during an employment relationship when it is related to the employer’s business. In fact, this has also been acknowledged by Finnish legislation. Namely, earlier the employee was always entitled to apply for a patent for an invention made during the employment relationship, provided that the employee-inventor notified the employer about this within one month of the filing.

If the employer wanted to acquire all the rights to the invention, and to patent it, by that time the patent application for the invention was already drafted and filed, based on the limited competence and resources of the employee. Therefore, in 2000 the Finnish law was changed in this respect. According to the current law, inventor notification is a prerequisite for patenting the invention.⁷⁶¹ Thus, the employer now needs to intentionally decide whether to give the employee permission to patent the invention and whether to only retain the right to use the invention and the resulting patents. It should be noted that also in cases where the employer has deliberately acquired only the right to use the invention, the remaining rights including the right to patent the invention belong to the inventor(s). However, typically employees are not entitled to enter into competing activities with their employer, which could certainly be the case when patenting an invention related to the employer's business, with the intention of benefitting from the patent by licensing it. Therefore, the employee should always receive explicit permission from the employer to patent the invention.

In Figure 15 there are two inventors X and Y and the employer has duly received all the rights to the invention from inventor X. However, the employer has received only partial rights in respect of inventor Y, who has received permission to patent the invention. As the employer has already acquired all the rights to the invention from inventor X, the employer is able to give permission to patent the joint invention for inventor Y only. However, it could be that after this permission is granted, inventor X also wants to join the patent application as an assignee, and not merely as an inventor. Indeed, it would be good practice for the employer to contact inventor X to seek their view already when considering the request of inventor Y for permission to patent the invention. Essentially, it is a matter of equal treatment of the inventors to provide both with at least an initial opportunity to patent the invention. However, it is also in the interest of inventor Y to seek inventor X's view, in order for inventor X to co-operate in signing the necessary assignment documents that some patent offices require. From the legal point of view the assignment of invention rights from the employer to inventor Y is sufficient for inventor Y to proceed in filing a patent application since there is then a broken chain of entitlement from inventor X to inventor Y. However, some patent offices still require the formal assignment documents to be signed by all the inventors.

⁷⁶¹ Act on the Right in Employee Inventions (1078/2000), 6.2§.

(ii) Employer not entitled to all rights

The situation could also be such that the employer in the first place is not even entitled to acquire all the rights to the invention from one or some of the inventors, in this case from inventor Y. This kind of situation can occur when the connection between the invention and the employment relationship of the inventor is too loose for the employer to be entitled to acquire all the rights to the invention.⁷⁶² Either the invention is not the result of inventor Y's activity in the performance of their duties, or essentially of using the experiences gained during the service of the employing company, which is interpreted to cover the whole consolidated corporation.⁷⁶³ However as the invention in the case example is assumed to be in the field of activity of the employer's business, it would be difficult for any inventor to argue that the invention was made without using experiences gained at the employing company. Only when the inventor has worked for the employer for a very short time, it could be that the invention was made essentially using experiences gained at the service of the previous employer in the same field. In such situations the previous employer may be entitled to get some rights.⁷⁶⁴

When the invention falls within the field of activity of the employer's business and it has been deemed to be conceived in other connection with the employment than those where the employer is entitled to acquire the right to the invention in whole or in part, the employer is still entitled to acquire the right to use the invention.⁷⁶⁵ The outcome is thus the same as in the previous case example where the employer intentionally gave up the right to patent the invention to the employee(s), with the difference that in this case the employer has no other options than to settle for the right to merely use the invention. However, should the employer wish to acquire a more comprehensive right to the invention, the employer shall have priority to acquire extended rights by agreement with the employee before any third party.⁷⁶⁶ In other words, the employee then needs to consent to such an acquisition, but there is no obligation. Of course, the terms in an agreement between the employee and the employer need to be such that the employee can accept them. It should be noted that in this kind of scenario, the employer does not acquire the extended rights anymore directly according to the law, unlike the right to use the

⁷⁶² Act on the Right in Employee Inventions, 4.2§.

⁷⁶³ Act on the Right in Employee Inventions, 4.1§.

⁷⁶⁴ Act on the Right in Employee Inventions, 8.1§.

⁷⁶⁵ Act on the Right in Employee Inventions, 4.2§.

⁷⁶⁶ Act on the Right in Employee Inventions, 4.3§.

invention, but indirectly based on the option provided by the law and directly based on the agreement which might have effect also on the compensation to be paid.⁷⁶⁷

Case example 7b: Employer having a shop right to the invention (US)

In yet one example employer Z is a U.S. company employing co-inventors X and Y. Inventor X has assigned all rights to the invention to employer Z, by virtue of a pre-assignment in the employment agreement already. However, the employment agreement of inventor Y does not contain any pre-assignment clause nor is it defined there that employee Y is hired to “inventive activities”. In such a case the employer may not necessarily be entitled to all, if any, rights to the invention from inventor Y.

When the employee was not hired to invent or given specific instructions in relation to the invention and an invention has been made by an employee using information or other resources of the employer, or on company time, then in the absence of a contract to the contrary the U.S. state law may confer on an employer a royalty-free, non-exclusive and non-transferrable personal license to exploit the invention, also called a *shop right*. The shop right permits the employer to use the subject of the patent for its own purposes but not to sell or to prevent others from using it.⁷⁶⁸ The right of preventing others from using the invention naturally requires that the invention has been patented. Indeed, as in the earlier case example where the inventor Y was given permission to patent the invention, also in this case it is possible that the inventor Y gets permission to patent the invention. However, since the employer has not intentionally chosen to retain the limited right to the invention but has ended up with such a situation due to the lack of a pre-assignment clause, a more probable scenario is that the employer tries to negotiate all the rights also from the inventor Y. Without any such agreement in practice the employer only has the shop right to the invention as the employer cannot patent the invention only partly.

⁷⁶⁷ Act on the Right in Employee Inventions, 7.1§ and 7.2§; It is surely defined in the Section 7 of the Finnish Employee Invention Act that the inventor is entitled to a fair and reasonable compensation from the employer when the right in an invention has been acquired by the virtue of Section 4 or “on other grounds” to which this scenario certainly falls within. However, when determining the amount of compensation, the fact that the employer would not have been able to acquire all the rights to an invention without an agreement may have impact to the amount of compensation as a factor related to the circumstances connected to the invention in question.

⁷⁶⁸ *Wommack v. Durham Pecan Co.*, 715 F.2d 962, 965, (5th Cir. 1983).

6.2.2.4 Summary and transitional thoughts

In the previous case examples the scenarios were introduced essentially from the national point of view. The employer in the examples was a company within the *same* legal regime as the inventor(s). The discrepancy of the rights was a result of an intentional act or a provision of the law. The employer had either chosen to acquire only partial rights to the invention, or the employer was not even entitled to more extensive rights. The employer may have ended up having partial rights to an invention also because it had missed its opportunity to all the rights due to the non-compliance of the requirements of the law(s). In the case examples the end result was due to an omission by the employer to act according to the *domestic* (Finnish) law. But such an outcome might be a more probable scenario in cases where the employer is a company within a *different* legal regime that the inventor is working in, namely a multinational company having research units in foreign countries, where the non-compliance of the relevant requirements is caused by the ignorance of the *foreign* law.

In the previous case examples, both – or all - the inventors were working in the same jurisdiction. However, because of the differences in the individual circumstances the employer ended up with different rights in respect of them. But the law applied to them was still the *same*. Thus, there was no real conflict of laws. Only in the case example 6a where the previous employer was entitled to the rights based on the past employment relationship of the inventor, there could be considered to have been some sort of a conflict of laws, yet between different provisions of the *same* law.

Case 8: Discrepancy of rights in case of cross-border inventions

In joint inventions made in a cross-border co-operation the inventors are working in *different* jurisdictions and thus also the laws to be applied to the rights for their part of the invention are *different*. It is in these situations where there can be seen a real conflict of laws, as different laws apply to the very same joint invention. In the following, there will be introduced similar scenarios as previously, now in respect of joint inventions in a context of cross-border regimes. The employer is now presented as a foreign employer in respect of the inventor to whose contribution to the joint invention the employer is not entitled to get all the rights. The “foreign employer” means that the parent company of the subsidiary employing company is located abroad.

Case example 8a: No rights to some part(s) of the invention

In the first case scenario the employer is not entitled to *any* rights from one - or some - of the inventors for different reasons. There are two case examples (i) and (ii), in both of which the employer is a foreign company in respect of the inventor(s) from whom the employer does not get the rights. The case examples will be presented from the viewpoint of both the laws causing the discrepancy in the rights:

(i) No rights to one part of the invention due to a post-employment assignment duty (FI & US)

In the first example it is the post-assignment provision of the *Finnish law* that causes the discrepancy:

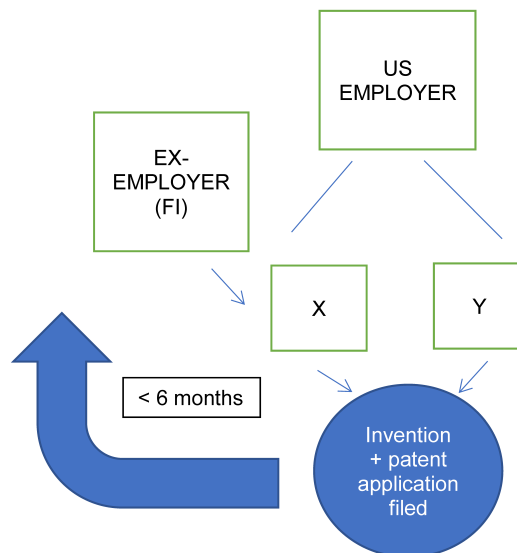


Figure 17. No rights to one part of the invention due to post-assignment duty of the FI inventor.

The current employer in this example is a US company and the inventors who have contributed to the joint invention originate from the U.S. and Finland. The employer has duly received all the rights to the invention from inventor Y, by virtue of a pre-assignment. However, the employer has also acquired all the rights to the invention from inventor X. Nevertheless, by the time the invention is patented the Finnish inventor X has been employed by the group of companies the employer belongs to less than six months which means that the previous employer could claim rights to

the invention based on the legal presumption of the Finnish law.⁷⁶⁹ In other words, even if the foreign employer has duly acted according to the requirements of the Finnish law in acquiring the rights to the invention from the Finnish inventor, a former employer could still enter the picture, claiming rights to the invention for its ex-employee's share. There is thus a conflict of interest for the current and the previous employer of inventor X in respect of inventor X's contribution to the invention. The outcome is dependent on whether inventor X and the current employer can provide probable reasons as to why the invention has not been made until the employment relationship with the current employer had already started. Providing the probable reasons can overrule the legal presumption that the previous employer is entitled to the rights to its former employee's share of the invention. Otherwise the previous employer gains the rights and the current employer is confronted with a discrepancy of rights in respect of the co-inventors' shares to the invention.

In this case example there were only two co-inventors but certainly there can be more of them, and the situation can be far more complex, involving inventors from several jurisdictions, with multiple issues causing the discrepancy. However, what is essential in this case example is that unlike in the previous examples, the discrepancy of the rights to the joint invention from the current employer's point of view is now resulting from the conflict of the laws of different national origin, applied to the very same invention.

In the second example the *post-assignment clause signed by the US inventor* causes the discrepancy:

⁷⁶⁹ Act on the Right in Employee Inventions, 8§.

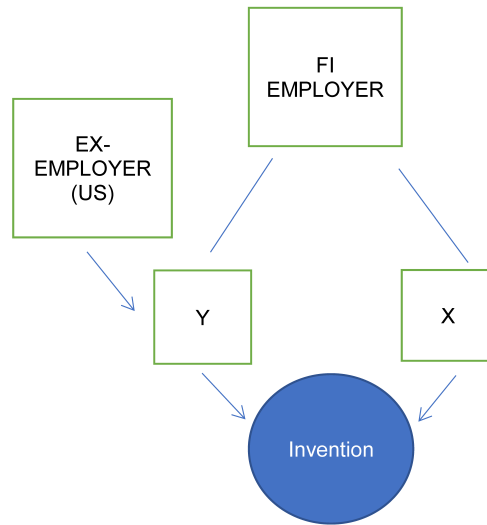


Figure 18. No rights to one part of the invention due to post-assignment duty of the U.S. inventor.

The current employer in this example is now a Finnish company and the inventors are again from the U.S. and Finland. It is again the foreign inventor, now inventor Y, from whom the employer does not get all the rights to the joint invention. This is due to the U.S. law. More specifically, inventor Y has a conflicting duty to assign the rights to the invention made in an employment relationship with the current employer to his previous employer in the U.S. The basis for the duty is derived from the post-employment assignment clause signed by inventor Y in connection with the employment agreement with the previous employer. The clause is assumed to be valid and effective. Thus, inventor Y has a duty to assign the rights to the invention to the former employer, causing a discrepancy of rights to the current employer.

To summarize the case example 8a(i), in both the examples the current employer *could* have had rights to the invention from both the inventors, should there not have been conflicting rights for the previous employer of the foreign inventor. In the first case scenario, if the current employer and inventor X have been able to provide probable reasons, they could have overruled the presumption of the Finnish law. It is another issue that the current employer may have had all the rights for some time as the previous employer may not be aware of the invention to which they are entitled to get rights, until the patent application containing the invention is published. This could happen in cases where the current employer or the inventor, subject to the respective post-employment assignment duty or the presumption, are not active in this respect, or not even aware of the respective duty or presumption. In the first case, where the duty was based on a presumption in the law, it is likely that *the inventor* is unaware of such a presumption. However, when it is also a question of an

employer outside Finland, it is possible that not even the employer is aware of the legal presumption provided in the Finnish law. In contrast, in the second case where the duty was based on a contractual clause between the inventor and the previous employer, it is more probable that *the new employer* is not aware of such a duty, unless it is informed of it by the inventor. Thus, the invention may very well be patented in the name of the current employer and it is only when the patent application is made public that the previous employer becomes aware of the invention and claims the rights to a part of it. Because of these kinds of underlying encumbrances that may affect the rights to patents filed by the company, it would be wise for employers to have a procedure in place to check any conflicting duties when hiring new employees. Indeed, many companies request that employees who are about to be recruited give a specific declaration in this respect.

To conclude, the current employer could have had - but also may in fact have had - all the rights to the invention at the very beginning but eventually loses them once the post-assignment presumption or clause is enforced. However, in the following example scenario the employer does not gain the rights to a part of the invention at all, not even initially, either because the employer is not entitled to acquire any rights to the invention or because the employer has failed to acquire the rights.

(ii) No rights to one part of the invention – no entitlement initially or due to an omission (FI)

The following two case examples relate to a scenario where the employer is not entitled to get the rights to an invention. The law to be applied to the inventor from whom the rights are not transferred, namely inventor X, is the Finnish law. The employer is a foreign company, in these case examples again a company from the U.S., to emphasize the differences of the laws and rules in statutory regimes compared to contractual regimes. Inventor Y resides in the U.S. Two different situations derived from the Finnish law are presented. Since it is only the grounds for not getting the rights that are different, the same figure applies to both the cases:

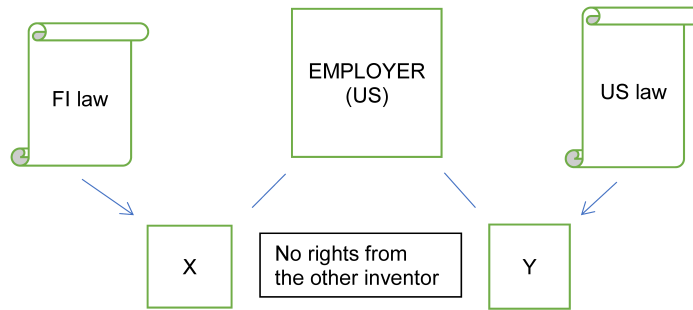


Figure 19. No rights from one co-inventor of the joint invention due to non-entitlement or omission.

In the first example the employer is *not*, initially, entitled to acquire *any* rights to the joint invention in question from inventor X, subject to the Finnish law. The invention relates to the field of the employer's business, but inventor X has done it without a necessary link to the employment.⁷⁷⁰ Inventor X has been employed in other duties than in the field of the invention. The employee may be, for example, an accountant or a receptionist at the company but develops software during the spare time. In other words, the employee is not hired to develop software at the company nor is the employee in any way involved in the software development function of the company. Yet, the employee could become involved in a joint invention for example in a hypothetical situation where the employee presents a piece of software that they have developed to a software engineer of the company, the engineer gets interested in it and develops it further, resulting in a completed algorithm. As a concrete example, the Finnish accountant may meet the U.S.-based engineer at a global meeting where all the employees working for and supporting the organization are invited to the same venue to hear about a new strategy for the organization, for example. The accountants and other support functions are invited too, in order to get all the employees working for the organization to know each other, and to also appreciate the administrative staff dealing with different kinds of issues within the organization. In practice, during discussions over dinner at the global event, the accountant may present the piece of software and its purpose to the engineer capable of maturing it to an algorithm that may be feasible for the end-products of the company.

The employer wishing to acquire the rights to the joint invention gets the rights from the U.S.-based engineer based on a pre-assignment clause in the employment agreement. However, in respect of inventor X, having contributed to the invention *allegedly* without any connection to the employment, the employer only has a priority to acquire the rights before any third parties, by agreement with the

⁷⁷⁰ Act on the Right in Employee Inventions, 4.3§.

inventor.⁷⁷¹ It is another issue whether in practice the contribution to an invention falling within the employer's business can be made without *any* connection to the employment. A spare-time hobby developing software can surely be disconnected from employment, but there is certainly some type of connection to the employment, perhaps an insight into an on-going project as the employee has chosen to present the piece of software to a software engineer in the company. It is of course a very subjective issue as to whether there was an intention to offer the idea to the company or whether there was merely a discussion over dinner about the hobby and of that specific piece of software possibly developed for a completely different purpose, which the company engineer was then able to develop further to fit the software product portfolio and the strategy of the company. The example is indeed hypothetical. The comparison of the two laws in this case scenario is also somewhat ostensible, given that the position of these two employees in the company is not equivalent. One inventor has been hired for inventive activities while the other has not. Further, the other inventor has made the invention allegedly in isolation from the duties related to their employment. Notably, this dilemma would be present even without the cross-border scenario, should the Finnish accountant present a piece of software to an engineer working in Finland.

In the second example the employer *is*, initially, entitled to acquire the rights to the joint invention from inventor X, subject to the Finnish law. However, for some reason the employer fails to acquire them in accordance with the requirements of the law. In this example the two inventors have equivalent duties; it is assumed that both the inventors are working as engineers in the employing company employing. Further, it is again assumed in the example that with respect to inventor Y the employer gets the rights to the invention based on a pre-assignment clause entered in an employment agreement already. Thus, timewise the employer has part of the rights to the invention already at the time of making the joint invention. However, regarding the Finnish inventor X the employer needs to act according to the requirements of the Finnish law, and to notify the inventor in writing within four months of receiving the invention report.⁷⁷² In this case example the employer fails to do so. It could be that the reason for such a failure is that the employer is a U.S.-based company, possibly having just recently established a small research unit in Finland. However, all the corporate governance functions including IP continue to be located in the U.S., and as the patent personnel are locals, there is a strong likelihood that they lack knowledge of the specific Finnish regulations. As the transfer of the rights in the U.S. is typically already addressed in the employment agreement, it may be difficult for them to understand that in some countries the rights

⁷⁷¹ Act on the Right in Employee Inventions, 4.3§.

⁷⁷² Act on the Right in Employee Inventions, 6§.

need to be separately acquired after the invention has been made, and that there is a specific procedure for such an acquisition set in the law. Whatever the reason for the failure to acquire the rights, the employer loses the possibility to acquire them in accordance with the Finnish law. Thus, there is a discrepancy between the rights from the co-inventors of the joint invention, as the employer has the rights from inventor Y but not from inventor X. What inventor X can do with the partial rights to the joint invention, if anything, is a completely different issue, as well as whether it would be more fruitful to enter into an agreement which transfers the rights to the invention to the employer. Without the rights to the other part of the invention the employee, or the employer, cannot for example patent it. Therefore, for inventor X, it might be more beneficial to allow the employer to patent the invention and to claim compensation for the economic benefits, should such be gained, as opposed to retaining the rights to part of the invention, without being able to utilize it.

Case example 8b: Partial rights to some part(s) of the invention

Whereas in the previous cases the employer resulted in having the rights from one inventor but not from the other, in the next case example the employer receives the partial rights from the other inventor. In the case example (i) the employer ends up duly with all the rights from inventor Y but only the partial rights from inventor X, subject to the Finnish law. In the second case example (ii) the situation is vice-versa, namely the employer gets all the rights from the Finnish inventor X but only a shop right from inventor Y in accordance with the U.S. law. Figure 20 illustrates both scenarios. Employer Z, irrespective of its location, employs both inventor X based in Finland and inventor Y, based in the U.S. The invention is a joint effort of the Inventors X and Y, a result of the collaboration between them.

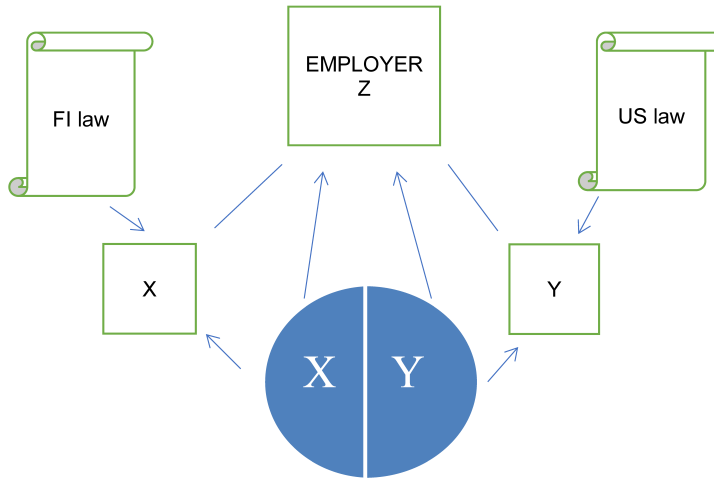


Figure 20. Partial rights to one part of the joint invention due to restrictions of entitlement.

(i) Employer only entitled to partial rights (FI law)

In the first case example, employer Z is entitled to all the rights from inventor Y based in the U.S. However, in respect of inventor X, to whom the Finnish law applies, the employer is only entitled to partially acquire the rights to the share of inventor X. This is because inventor X has allegedly not *essentially* utilized the experience and knowledge gained during the service of the employer when contributing to the invention which is why the employer is only entitled to acquire the right to use the invention.⁷⁷³ It is again a question of evaluating the individual circumstances around the invention and inventor X as to whether the contribution is made in a looser connection to the employment than that defined in the law. One justification for a looser connection might be, for example, the fact that the employee has been very closely involved in some specific field of technology during spare time. This could be for example a radio amateur activity, which as a long-term hobby provides the knowledge which could be used by the inventor when creating the invention.

Let us assume that in this case example employer Z is based in the U.S. Thus, the outcome of the Finnish law might be a surprise for a company in a jurisdiction where it is common practice that all inventions related to the employer's field of business, made during an employment relationship, are assigned to the employer, irrespective of whether they are made utilizing experience gained during the service of the employer. However, in practice, the outcome where the employer only results

⁷⁷³ Act on the Right in Employee Inventions, 4.1§ and 4.2§.

in having partial rights requires that the employer is *aware* of the relevant regulation. Further, the personnel responsible for making the decisions and sending notifications to the inventors also need to be aware of the *circumstances* that form the basis for an exception to the main rule and the typical scenario where the employee inventions within the company are made based on the experience gained during their employment. Since it is a question of a multinational company here, and not a small enterprise where patent personnel know each inventor personally and are familiar with the circumstances related to the inventions, in practice the only feasible way for the employer to become aware of these exceptional circumstances is by being informed by the inventor. This could be addressed for example in the form of a tick box in an invention report. In other words, activity from the inventor may also be required in cases where appliance of the law results in the employer only getting partial rights. Indeed, often the claim for retaining some rights to the invention is presented by the employee-inventor, who has an interest in utilizing the invention outside the company, for example in a spare time hobby.

The right to only use the invention means that the employer cannot for example patent the invention in question. Inventor X however retains in practice *all kinds of* rights to the invention including a right to use and also patent it. However, those rights are only subject to the respective share of inventor X. Further, the rights are encumbered as a result of the parallel right of the employer to use the invention. This could affect the effective monetization of the invention and patents, should inventor X be entitled to engage in such activities, for example in the form of licensing. Typically, when it is a question of a joint invention related to the business field of the employer, to which the employer has all the rights in respect of co-inventor Y's part, this permission may be given to the other co-inventor only in exceptional circumstances.⁷⁷⁴

The discrepancy of the rights in this case example is based on the differences in the laws of Finland and the U.S. In another scenario it could be the case that also the U.S. inventor, inventor Y, has the same spare-time hobby and both inventors contribute to the joint invention essentially *only* based on their experience from their spare time activities. It is then another issue as to whether such an invention is anymore *an employee invention*. However, if it falls within the field of the business of the employer, then the inventors should report such an invention to their employer, in order to avoid any future problems regarding the rights to such an invention.

⁷⁷⁴ Cf. case example 7a, (i) *Employee given permission to patent the invention*.

(ii) Employer only entitled to a shop right (US law)

In the second case example the situation is the opposite. It is now inventor Y, based in the U.S., from whom the employer is only entitled to get a shop right in respect of the joint invention. This is because the issue of the assignment of the rights to inventions made during the employment has not been sufficiently addressed in the employment contract of inventor Y. In such a case, the U.S. state law tends to confer on the employer a royalty-free, non-exclusive and non-transferrable personal license to exploit such an invention.⁷⁷⁵

Let us assume again that the employer is a foreigner to the law which will be applied, now being the U.S. law. The situation may now be a surprise for the Finnish employer who is used to getting the rights to employee inventions by acting in accordance with the requirements of the Finnish law after the invention has been made. Again, the personnel responsible for making and notifying decisions need to be *aware* of such rules as well as of the mentioned defect in the employment agreement, in order to make a correct decision for the case at hand. In cases where the patent administration is centralized in Finland, such as in this case, it could happen that the decision is made in a similar manner as according to the Finnish legislation. In other words, all rights to be acquired from the U.S. inventor are also notified, even if such a notification in general is not necessary for the U.S. inventors from whom the assignment typically takes place already in their employment contract. But, as in this specific case example, it is not always the case. In cases of this kind, where the inventor does not dispute such an acquisition taking place via the standard procedures of the company, can this be interpreted as an assignment of more extended rights than just a shop-right?

This issue may become increasingly important even years afterwards, for example in a litigation concerning a patent which has resulted from an invention patented by the employer without any contestation from inventor X. The counterparty to such a patent litigation could highlight the insufficient addressing of the transfer of rights in inventor Y's employment agreement and question the rights of employer Z to act as an assignee. Namely, in the U.S. litigation there is a process called "discovery" which gives both parties to the case the right to review all the relevant documents related to the inventions subject to the court case, and this right may apply even to the employment agreements of the inventors involved.⁷⁷⁶ The situation could also be such that inventor Y is at the time of the litigation working at a company that is been accused of infringing the patent. In discussions with inventor

⁷⁷⁵ United States v. Dubilier Condenser Corp., 289 U.S. 178, 187, 53 S.Ct. 554, 77 L.Ed. 1114 (1933).

⁷⁷⁶ The Federal Rules of Civil Procedure (FRCP), Title V "Disclosures and Discovery".

Y, the defendant company may make an observation for its own benefit that the employment agreement has lacked a valid assignment clause. It should be noted, however, that in most jurisdictions and especially in the U.S. where discovery exists, it is a standard procedure in patenting that the inventor needs to sign a formal assignment document for submitting to the patent office. As was concluded in connection with the “confirmatory assignment”, this document may serve as a valid assignment from that date onwards, should the issue have been insufficiently addressed earlier.

6.2.2.5 Special issues when sub-contracted inventors involved

In all the previous case examples it was a question of acquiring or assigning the rights to inventions made by a company’s *employees*. However, it is no longer self-evident that all company technologies are developed by their own employees. Instead, companies are also increasingly utilizing external resources in order to gain the best expertise to develop new products and technologies. In this kind of situation, the issue of transferring the rights to the inventions to the company differs from the procedure with employees from the company. Namely, in these cases there is one more party to the chain of entitlement, the employer of the sub-contracted inventor, and there needs to be an *unbroken chain of entitlement* from all the inventors to the applicant company. In the relation between the sub-contracted inventor and the employer, the procedure is the same as described from the viewpoint of the employer previously. However, for the company to whom the technology is being developed, there is one step further to the previous procedure.

Case 9: Subcontracted inventor

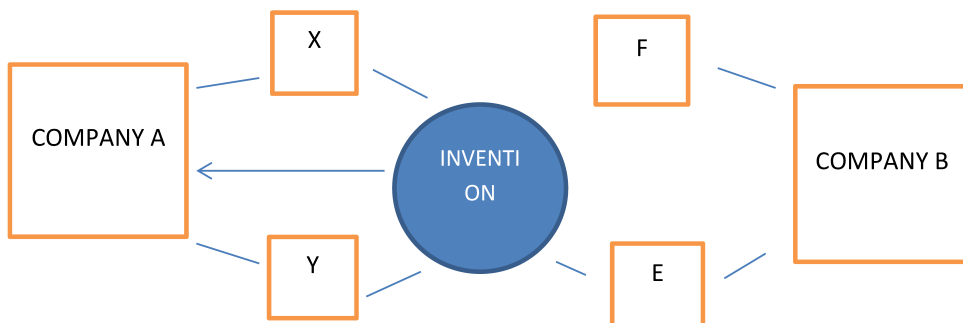


Figure 21. Subcontracted inventor involved in a joint invention.

In this case example (Figure 21) the invention relates to a technology developed at company A. However, the invention is the joint effort of inventors X and Y of company A, and an external inventor E, employed by a subcontracting company B. The joint invention is the result of the collaboration between companies A and B in the field of the technology in question. The companies have agreed that all the results of the collaboration, including any inventions, shall belong to company A. However, it is not necessarily sufficient to merely agree on the transfer of the rights between the two companies. There may be a law which applies to the relationship between inventor E and the employing company B, the requirements of which first need to be complied with, prior to the rights being transferred from company B to company A, subject to their mutual agreement.

In contractual jurisdictions, where the issue of rights is a matter of contractual freedom, the procedure is not that different compared to the situation where the external inventor E is an employee of company A. In both cases, the transfer of rights is based on an agreement, and in this case-example scenario there is only one more agreement, namely the collaboration agreement between companies A and B, to the chain. Both the transfers of the rights, an assignment from inventor E to company B as well as the subsequent transfer of the rights from company B to company A, are based on the contractual arrangements between the respective parties. In the employment agreement, the basis for the transfer is a pre-assignment for the inventions made during employment whereas in the collaboration agreement, the transfer is agreed based on company A paying and thus being entitled to the results of the collaboration project. However, in the statutory jurisdictions, the transfer of the rights is subject to a contractual arrangement only in the relation between company A and company B. Prior to that transfer, there needs to be a valid transfer of the rights from inventor E to the employing company B. The rights need to be taken by the employing company B within a defined time limit and by notifying the inventor in the form required by the relevant law. It should be noted that following the acquisition, the employer B may also have further obligations, such as the duty to file a patent application.

It should be the responsibility of company B to ensure that the rights from inventor E are acquired, and that it is able to duly fulfill its contractual obligations to company A for whom it provides the subcontracted development work. However, it is even more in the interest of company A that the rights from inventor E are duly assigned. Therefore, company A would be wise to control or monitor the issue of transfer of rights for company B. It may not be sufficient that the collaboration agreement sets the obligation for company B to ensure that the rights are vested in company B and then transferred to company A. Essentially, it is a business decision and determined by company procedures concerning compliance and due diligence as to whether there needs to be some sort of check point in respect of the transfer of

rights from the subcontracted inventors. In cases where patents are an important asset for the company, i.e. do not merely protect the own use of the developed technology but is also utilized to gain monetary benefits in the form of licensing and when necessary via litigations, it is of utmost importance that the company ensures that the transfer is not only addressed in the agreement but that the relevant legal requirement related to the transfer in practice are also duly fulfilled, in order to result in a valid transfer, and eventually the durable IP assets. In practice, such a monitoring system could be implemented as part of a collaboration agreement process wherein the contracting parties would always be requested to provide a copy of the notification to the respective inventor or an assignment document signed by the inventor. It should be noted that in patenting, the inventors in any case need to sign the formal assignment document required by certain patent offices, such as USPTO. However, by that time the time limits defined in the statutory jurisdictions have probably already passed, and such an assignment document cannot repair a situation whereby company B has potentially missed acquiring the rights to the invention from inventor E, resulting in a non-valid transfer of rights to company A. Should there not be any due diligence process in place, the issue of non-validity may not be observed until, for example, during a litigation many years later, and it is most certainly in company A's interest to avoid such situations.

When ensuring that the rights to inventions resulting from collaboration between contracting parties A and B are duly transferred to company A, it is also essential to pay attention to drafting the scope of the agreement so that it addresses sufficient coverage for those inventions that company A is entitled to. This applies both to the field of technology regarding inventions as well as the employees working for the project. It is important to define the scope of inventions in such a way that all inventions to which company A should gain the rights, fall within the scope of the collaboration agreement and the clause defining the rights. As it is highly probable that the technology being developed through collaboration between the two companies is also important for company B, company A needs to ensure that the results of the collaboration project in the field of the technology end up with company A. The scope of inventions belonging to company A can be defined for example in such a way that the inventions related to the products of company A shall belong to company A, whereas the inventions within the same field of technology but more closely related to the business of company B shall belong to company B. The agreement could also define the scope of inventions belonging to company A so that only certain employees of company B will work on the collaboration project and all the inventions made by them will belong to company A. In this case, if there are employees working with the same field of technology also outside the project in company B, the company B needs to ensure that the employees outside the project do not have access to the project material nor are involved in discussions related to

the development work of the collaboration project. As such, company B could establish a “Chinese wall”, namely an information barrier separating the subcontracted work for company A from its own development work in the area, in order to prevent any communication or exchange of information that could potentially lead to a conflict of interests.

In this case example it is a question of a collaboration arrangement with the subcontractor company B employing inventor E. However, there are also many other types of collaboration where the contracting party can be, for example, a university. In some countries, such as in Finland and in Germany, there is specific legislation in place regulating university inventions. These regulations apply to the relationship between the inventor and the university in such collaboration arrangements where the university is the contracting party. It is also common nowadays for companies to utilize external resources that are available via different forms of personnel renting companies and recruitment agencies, in addition to or instead of the employed workers. It is possible that these kinds of agencies also provide professionals for research and development work and thus, it is equally possible that inventions by these rented professionals are made. Also, in these kinds of collaboration arrangements, or atypical employment relationships, the transfer of the rights is subject to the laws applicable between the inventor and the resourcing company, irrespective of what has been agreed in the contract with the company having ordered the work. Nevertheless, the external inventor could also be a contractor, namely an independent consultant providing expert services to different companies. In such a case, there is no employer between the inventor and the company ordering the professional services, and the inventor is free to assign the rights. But in such a case there could also be some conflicting rights for example for the previous employer, in case the consultant’s previous employment relationship has recently ended.

External inventors are here mainly referred to such persons that have some kind of contractual relationship to the company which is entitled to the rights to the inventions made by the persons, either directly or indirectly, via their own employer. However, in practice it is also possible that there are some external inventors involved in joint inventions to whom the company has no contractual nor other relationship whatsoever. This could happen for example in a field of technology that closely relates to end products that are part of our everyday life, such as mobile phones. Notably, not all inventions that are patentable require deep knowledge of the technical details. In addition, user experience can help to identify solutions enhancing the user interface, for example one can come up with a totally new feature for a mobile phone. Thus, it is possible that, for example, in discussions within a family, where one member is employed by the company, a potential invention is

raised as a joint effort between family members.⁷⁷⁷ The invention could also be the result of brainstorming between friends, possibly in connection with their common hobby. In the event that such an invention falls within the business of some of their employer, then for their part it may be an employee invention. In these kinds of situations, the company needs to separately agree on the transfer of the rights from the external inventor(s). In the family scenario it is possible that some of the co-inventors are minors which means that agreeing is not directly possible with them but with their guardians. It is a matter of interpreting the individual circumstances whether a person can be considered a co-inventor in an invention involving an employee of the company if they are in a relationship with the employee but not directly with the company. But it is also possible that companies actively seek ideas from totally external inventors outside the company, by offering some level of incentive for the rights to their inventions.⁷⁷⁸ In these kinds of situation, the company should require a statement from the potential inventors that they are entitled to offer the invention to the company, namely that there are no conflicting rights with, for example, any employer, current or previous. In addition, other issues exist that the company needs to address when dealing with *unsolicited inventions*, for example to ensure that there will be no confusion of the origin of any invention, namely “contamination”, in case a similar idea is already being developed within the company. For that reason, the inventors participating in programs of this nature should, in general, provide their ideas either on a non-confidential basis or not until there is a patent application filed for the invention, even if in the latter case the company can no longer impact the quality of the patent application filed for the invention.

To conclude, it is important for a company to understand that it may not be sufficient to agree on the transfer of the rights to inventions made in a collaboration project. There may be relevant laws that need to be complied with in relation to the inventor and the third-party employer prior to a transfer duly taking place between the contracting parties. However, in cross-border collaboration, for example when a company originating in the U.S. orders sub-contracted work from a company in Finland, the U.S. company may be unaware that also other issues can potentially affect the validity of the transfer of rights, besides the collaboration agreement. Thus, the issue boils down to knowledge as a pre-requisite for compliance.

⁷⁷⁷ Cf. previously introduced case law where the invention was a joint effort of Mr. Thomas and his father: *IpVenture, Inc. v. Prostar Comput., Inc.*, 503 F.3d 1324 (Fed. Cir. 2007).

⁷⁷⁸ As an example, Invent with Nokia is such a concept: <https://inventwithnokia.nokia.com/home>.

6.3 Striving for a holistic approach – does one size fit all?

The integration of innovation process has been captured for example as follows: “In practice, ideas for innovations emerge from multiple sources and it often requires the collision and blending of many diverse insights into possibilities and opportunities. Encapsulating and focusing that diversity requires high levels of organizational, technological, and commercial integration.”⁷⁷⁹ Even if this statement relates to creation of innovations, and integration of diverse views to form a coherent innovation, it also captures the difficulties of the post-creation phase where the variety of different mechanisms regulating the rights to inventions made by the employees sets challenges to the procedures in multinational companies with a global research function and cross-border collaboration projects wherein joint inventions are regularly made. Especially when new, disruptive technologies are developed, many inventions can be conceived. In these cases, there is a continuous need to efficiently handle such inventions, and it is challenging to apply the different rules in respect of the different inventors, even in respect of the very same invention. Therefore, it is in the interest of companies to try to formulate a holistic company procedure that could be applied globally and that would sufficiently address all the relevant legal issues.

In order for the company procedure to be “*one size fits all*” it needs to be adjusted based on the “weakest link” in the process, namely according to the strictest requirements of those laws that are relevant for the company. The procedure should address all such requirements in the national laws that cannot be contractually carved out, in other words the mandatory provisions. This scenario resembles the Rome I regulation concerning individual employment contracts, according to which the parties to an employment contract can freely choose the law which will be applied to the employment relationship, as long as any mandatory regulations of the law that would be applicable absent of choice are not overruled with the choice.⁷⁸⁰ However, here it is not a question of the choice of law in the employment relationship as in a multinational company multiple laws apply to the employment relationship of the employees. Rather, it is about creating a procedure for inventions which sufficiently addresses all the mandatory regulations relevant for the company.

The holistic approach is worth considering when there are both contractual and statutory regimes among those jurisdictions where the company has employees – and thus potential inventors - and the company has global operations, both regarding the

⁷⁷⁹ Mark Dogdson, David M. Gann, and Nelson Phillips, ‘Perspectives on Innovation Management’ in Mark Dogdson, David M. Gann, and Nelson Phillips (eds), *The Oxford Handbook of Innovation Management* (OUP 2014), p. 15.

⁷⁸⁰ Rome I, Article 8.

R&D function as well as the intellectual property (IPR) organization as a supporting function for R&D. Having a global R&D means that inventions are made all over the world and also as a result from joint efforts between different jurisdictions, wherein the different laws apply to the contributions by inventors originating from different countries. With regard to the IPR organization being global, supporting the global R&D as opposed to the local IPR departments supporting local R&D sites, the reflection is that the patent professionals throughout the world need to have extensive knowledge on applying the multiple laws and rules of different jurisdictions. Alternatively, multiple guidelines would need to be created in order to guide the personnel well equipped to perform their profession within their own country, to correctly handle inventions also from other countries. Therefore, it would be more efficient to have common guidelines to apply to all inventions and inventors. It would also minimize errors in applying different rules as there would only be one procedure applied, and no difficulties in determining the applicable law.

It should be noted that the procedure which is determined based on the strictest requirement inevitably leads to a situation where for some inventors the procedural actions merely serve as confirmatory acts of the already prevailing legal situation. Namely, there is no reason to change the practice in the contractual regimes to include a pre-assignment clause to the employment agreement already, nor would it be rational. Therefore, a notification sent to the inventors in the contractual regimes regarding acquisition of the rights to their inventions does not constitute any further rights but merely confirms those that already exist. On the other hand, where the strictest requirements of some national laws are very extreme, it may be worth considering whether such requirements should be addressed separately only in the relevant jurisdictions, without also extending them voluntarily to other countries. For example, in Russia the employer can lose the right to apply for a patent unless it files a patent application within four months of receiving the invention report, assigns the right to apply for a patent to a third party or notifies the inventor about the decision to keep the invention secret. This cannot possibly mean that the company procedure *always* requires acting accordingly, i.e. filing a patent application, assigning the right to a third party or declaring the invention secret. Therefore, exceptions could – and should - be made to the holistic procedure at least in respect to some countries.

Reflecting on the above, it might not be possible to create such an approach that fulfills “one size fits all”. However, some streamlining is certainly possible, in order to unify procedures for inventors originating from the different countries, and to reduce the number of rules applied to the inventions made within the company. For example, notifying inventors about decisions made by the employer regarding inventions duly serves its purpose for all inventors even if only in statutory jurisdictions the *notifications* to the inventors need to be sent *after the invention has been made*. Even if in contractual jurisdictions the rights have typically been

transferred to the employer before any inventions have even been made, it would be logical to send notifications to all the inventors because the employer cannot make any business decisions, for example, regarding patenting the invention prior to becoming aware of the invention. Thus, the notification for those inventors whose rights have duly been assigned already at the time of signing their employment agreement, serves as informing them of the company's decision as to whether their invention will be patented or not. In addition, when the decision has been made to patent the invention and according to the company guidelines there is a patenting award paid for all the inventors irrespective of the jurisdiction, the notification can also contain information regarding the payment as well as any requirements for the inventor in order to receive the payment, such as signing documents needed for patenting. Thus, there is also an additional, *informative function*, associated with the notification to the inventors originating from the contractual regimes.

Another issue that can be unified in the company procedure is the *time* in which the decision is sent to the inventors, counted from the receipt of the invention report. It should be more straight-forward to define the time requirement to comply with the strictest requirement than with the form of the acquisition of the rights which for example in Russia require specific actions by the employer. From the options introduced in this thesis the strictest requirement timewise is the three months defined in the laws of Hungary⁷⁸¹ and the four months of Russia⁷⁸², in Russia the time not involving a mere notification of taking rights but also further activities. Regarding the *form*, the requirement defined in many countries "in writing", serves also the company's own interests to have the notifications properly documented.

As a final note, even if a multinational company has operations in multiple countries, similar situations can also occur in a company which has only had purely domestic operations. This could happen, for example, if the company is subjected to a transaction, such as *mergers and acquisitions*, which are common particularly among technology companies nowadays. In these kinds of transactions the ownership of existing companies or their operating units are transferred or combined.⁷⁸³ As an example, a U.S. based company operating domestically does not need to deviate from the U.S. law in its procedures regarding the assignment of inventions made by its employees, but should the company acquire, for example, a small Finnish start-up company having promising research in the same field of

⁷⁸¹ Hungarian Patent Act (Act XXXIII of 1995 on the Protection of Inventions by Patents), Art. 11(2).

⁷⁸² Russian Civil Code, Art. 1370(4).

⁷⁸³ From the legal point of view, a merger is a legal consolidation of two entities into one entity, whereas an acquisition occurs when one entity takes ownership of stock, equity interests or assets of another entity.

technology, then the company procedure based on U.S. law is no longer valid in respect of the inventions made by the new, Finland-based employees. However, the Finnish start-up probably has its own established procedures in place, based on the Finnish law, and it should be quite straight-forward to continue to apply the two procedures in parallel for the respective parts of the company. Indeed, the holistic approach would be most appropriate in a truly multinational company where multiple laws to the inventions made by the employees apply, and especially when there are cross-border inventions where multiple laws apply to the *same* inventions.

6.4 Summary and transitional thoughts

To summarize chapter 6, having described the complexity of the conflict of laws (or *complex of laws*) in a multinational company which has global R&D and also cross-border collaboration, with jointly created inventions, there are a few practical conclusions: First, in order to be able to comply with all the necessary requirements of the variety of different laws that are relevant to a company, it is of course imperative to be aware of them, namely to have the relevant *knowledge*. In the event that for example a U.S.-based company acquires a Finnish company, knowledge of the special requirements of the Finnish law may not pre-exist in the U.S.-based company. This knowledge is acquired, too, and becomes available in connection with the acquisition of the Finnish company. Such knowledge could be considered a part of the assets of the Finnish company, belonging to the other acquired assets that will be transferred in the transaction. In contradistinction, in truly multinational companies containing subsidiaries all over the world, all the relevant knowledge should already exist within the company. The local subsidiaries mainly operate according to the domestic legislation and have the best expertise and knowledge of the requirements of the local laws. Challenges arise when a multinational company goes global, namely organizes its functions such as research and development and the supporting functions including intellectual property organization, to be truly global. In these situations, it is no longer sufficient to retain the knowledge in the local subsidiaries and units. Instead, it needs to be also leveraged to other parts of the company, including the intellectual property (IPR) organization. This is because in a truly global IPR organizations based on technology divisions rather than acting as local supporting units, anyone in the organization can receive an invention report originating anywhere in the company, to be handled. Therefore, when handing inventions on a global basis it is no longer enough to be aware of the procedures and requirements of the domestic laws. Instead, the knowledge needs to be expanded to cover all the relevant laws and rules applicable in the company.

Secondly, after the relevant knowledge is in place, it needs to be implemented in practice. In other words, the different laws and rules need to be *complied* with,

meaning that the procedures within the company should be implemented accordingly. One means for enabling this is to create a holistic approach that addresses the strictest requirements of the laws that are relevant for the company. However, with some requirements, extending them voluntarily to countries lacking them would mean unnecessary restrictions or actions to the employing company. Thus, it would be more rational to apply separate procedure(s) in parallel with the holistic approach applicable in some cases. In both scenarios the knowledge is duly implemented into practice, irrespective of whether it is done via a holistic approach or a separate country-specific procedure. It is another issue that in some cases determining the law is not straight-forward – nor which procedure applies - in the case where an employee is, for example, working as an expatriate.⁷⁸⁴ Additional challenges and complexity arise when the invention has been made in cross-border collaboration. In such situations multiple different laws apply regarding the very same invention, in respect of the co-inventors originating from the different jurisdictions.

Companies would be wise to monitor their compliance procedures on a regular basis and have an efficient IP due diligence process in place. *IP due diligence* is essentially an audit to assess the quantity and the quality of the intellectual property assets owned by, or licensed to, a company. The assessment concerns for example how intellectual property, including employee inventions, is captured and protected by the company. Even if such due diligence is typically carried out by a prospective purchaser in relation to the IP assets of a target company or business, it can also be carried out by a company on its own IP assets. This is often done in preparation for a transaction, such as a major licensing deal, in order to anticipate the due diligence to be conducted by another party to such a transaction. But IP due diligence should be part of the company procedures also to ensure compliance of one's own procedures. Namely, they can be subject to a future dispute not only by third parties, for example in a litigation concerning a patent based on an invention made by the company's employee(s) but also by the company's own employees, often by the former employees. It is always better to proactively try to prevent such situations instead of solving the conflicts later. Therefore, whether there is a holistic procedure in place or a separate procedure for each or some of the jurisdictions, the company procedures regarding the acquisition of rights to the inventions made by their employees and protecting them, typically by patenting, should sufficiently address all issues that might in the future give arise to potential conflict situations.

When considering a truly holistic approach, companies need to carefully consider whether all the requirements – even the strictest - are desired to be

⁷⁸⁴ See 6.1.2.1 Mobility of employees.

voluntarily extended also to the countries lacking such requirements. This is especially relevant when talking about compensation for rights that have been transferred to the company. Namely, the employer is not under obligation in all countries to pay any extra for the rights to the inventions made by its employees. For example, in the so-called “paid-to-invent” –countries employees are deemed to also be compensated for their innovative activities in the form of their normal salary. This issue might have already been addressed in their salary, when determining its level. The same applies vice-versa in those countries where there is a duty to pay extra compensation; the salary level there might have been defined to be at a lower level to anticipate some extra compensation to be paid, especially when employees are employed for inventive activities. The following chapter will introduce the awkward situations experienced sometimes by the employer in respect of compensating the rights to joint inventions made in cross-border collaboration, involving co-inventors that originate from the different jurisdictions.

7 Compensation – Balancing Between Legality and Equality

7.1 Country-specific regulations regarding compensation

7.1.1 National differences in respect of the duty to pay compensation

In Scandinavia, Wolk has conducted multiple studies about the wide diversity of legal regimes regarding employee inventions, and concluded that for example in Europe, “[t]here is no harmonization of laws (--) in the matter of inventor remuneration, and very different regimes apply to compensation of employee-inventors”.⁷⁸⁵ It is indeed a very country-specific issue as to whether the employer who gets the rights to an invention made by its employee needs to compensate the inventor for assignment of such rights. In the “paid-to-invent” –countries the employees are deemed to be compensated in their normal salary, and the employer is not obliged to pay any extra for the rights to their inventions. The salary level may have been adjusted accordingly, though. However, in jurisdictions with an employee-invention legislation in place, or equivalent provisions in the national patent law, the regulations provide a compulsory, typically “fair and reasonable” remuneration for the inventor. Thus, there is the same confrontation between countries following the “employed-to-invent” -doctrine and the statutory regimes in respect of the employer’s duty to pay compensation and the inventors’ entitlement to such compensation as with acquiring rights to the inventions. However, in addition, there are also countries where inventions made by employees are deemed to belong to the employer already on the basis of their employment. Yet, the transfer

⁷⁸⁵ Sanna Wolk, ‘Remuneration of Employee Inventors – Is There a Common European Ground? A Comparison of National Laws on Compensation of Inventors in Germany, France, Spain, Sweden and the United Kingdom’ (2011) 42(3) *International Review of Intellectual Property and Competition Law (IIC)*, p. 296.

of the rights in these countries can be subject to additional compensation, especially when the invention appears to be valuable for the employer.

Differences also exist among countries which share a common duty to pay compensation. First of all, the *basis*, and as a consequence the *timing*, of the payment can differ. In some countries the payment of the compensation becomes topical already at the time of the acquisition of the rights, such as in Finland.⁷⁸⁶ In some countries the compensation is not triggered until the grant of the patent for the invention, such as in China.⁷⁸⁷ There are also countries where the compensation is tied to utilizing the granted patent or the service invention, such as Hungary.⁷⁸⁸ However, in China, after the payment of the grant-based reward, the utilization of the patent also triggers another type of compensation, remuneration.⁷⁸⁹ In the UK, in order for the inventor to receive compensation, the invention needs to be of “outstanding value”.⁷⁹⁰ Further differences between national laws arise regarding the *level* of compensation, which in different countries is determined in different manners. In some countries, such as in China and in Germany, the amount of compensation is defined in the law (statutory compensation). In China the law defines the minimum and maximum level of the reward to be paid upon the patent grant⁷⁹¹ while in Germany the amount of compensation is based on license analogy⁷⁹². In some countries, such as in Finland, the law only gives a vague definition for compensation, which is required to be “*fair and reasonable*”, leaving room for interpretation.

To conclude, every jurisdiction which provides regulations regarding compensation for rights contains very country-specific rules about compensation. Even between two countries that both acknowledge the duty to pay compensation. the basis, the level and the timing of the compensation can vary. Thus, it can be challenging to create a compensation policy based on a holistic approach, addressing all the relevant legal requirements. The following chapter introduces some aspects that may affect a company’s decision to apply a common policy for all inventors, or alternatively to retain separate procedures based on the laws applicable to the employment relationship of each individual inventor, even if this results in different treatment for co-inventors in the same invention.

⁷⁸⁶ Act on the Right in Employee Inventions, 7.1§ (656/1967).

⁷⁸⁷ Article 16 of Patent Law of PRC and Rule 77 of Implementing Rules of the Patent Law of PRC (January 9, 2010).

⁷⁸⁸ Act no. XXXIII of 1995 on the protection of inventions by patents, Art. 13(1).

⁷⁸⁹ Article 16 of Patent Law of PRC and Rule 78 of Implementing Rules of the Patent Law of PRC (January 9, 2010).

⁷⁹⁰ Section 40(1) of the UK Patents Act.

⁷⁹¹ Rule 77 of Implementing Rules of the Patent Law of PRC (January 9, 2010).

⁷⁹² RL nos. 6-11.

7.1.2 Compensation for global inventions subject to national laws

At multinational companies, especially in cross-border collaboration projects, it may become apparent to inventors that different rules for compensation are applied to co-inventors if some of them are paid more compensation for their rights. Typically, the company pays *all* the inventors a small award for inventions that are patented. However, payment of more substantial remunerations is usually restricted to countries where there is a legal duty to pay such. In some countries, such as in Finland, the compensation becomes topical even if the invention to which the rights were acquired is not patented.⁷⁹³ In these situations there may be co-inventors who have contributed to the joint invention in question who do not get paid at all.

In the case of a joint invention where the co-inventors originate from jurisdictions with different rules regarding compensation, the employer does not have an obligation to pay compensation for the rights to all the inventors. It is a matter of choice between *legality* and *equality*. On the one hand it is based on the strictly legal requirements derived from the laws and on the other hand on the potential company policy for equal treatment of its inventors, whether the company chooses to only pay compensation for the inventors in the jurisdictions with mandatory regulations or to also extend the right voluntarily to the inventors who are not legally entitled to be compensated for their rights to the inventions.⁷⁹⁴ The latter is derived from a more general legal principle of equality and from the key principle of equal treatment in employment and industrial relations, requiring that all people, all employees in the context of employment, have the right to receive the same treatment, and will not be discriminated on the basis of criteria such as an age, disability, nationality, race and religion. But these kinds of general legal principles can hardly mean that multinational companies should always extend the scope of the legal obligations provided by the national laws and apply them in *all* the jurisdictions where the company has employees. In the current world which provides mobility for employees, it would certainly be tempting for an employee to take all the best employment benefits from each jurisdiction and combine them in a “global employment contract” containing the most optimal terms in respect of the different kinds of benefits. This form of “cherry picking” could cover a variety of national benefits such as the Finnish maternity leave and other parental benefits, Swiss

⁷⁹³ Act on the Right in Employee Inventions, 7.1§ (656/1967).

⁷⁹⁴ Anne-Mari Lummevuo, ‘Conflict of Laws when Handling Employee Inventions in a Multinational Company with Global R&D and Cross-Border Collaboration’ in Katja Weckström (ed), *Governing Innovation and Expression: New Regimes, Strategies and Techniques*, Publications of the Faculty of Law at the University of Turku, Private Law Series A:132 (2013), p. 317.

taxation and the U.S. salary. However, in multinational companies there are always employees working in different jurisdictions, under the different laws and the rules. The fact that there are co-inventors originating from different countries in the same invention should not mean that the same rules apply when compensating their rights to a joint invention.

7.2 Relevance of several laws in the same invention

7.2.1 Different pricing for different pieces of the same cake?

The acquisition of the rights to a joint invention made in cross-border collaboration was exemplified as a cake, where the individual contributions were the pieces of the cake to which the different national laws apply. In respect of the compensation to be paid for the rights to such pieces, the scenario could be described as having different prices for pieces of the same cake. This is because different rules apply to the different “bakers”, namely to the inventors, of those individual pieces. It is irrelevant as to whether the contributions, or pieces of the cake, are equally sized. In all cases, irrespective of the origins of the co-inventors or their different jurisdictions, the compensation is typically shared between them based on their individual contributions. If their contributions are unequal so should be the payments. However, in this case, the different pricing for the different pieces of the cake is not due to the different sizes of the pieces. In contrast, for the purposes of this thesis the focus is on joint inventions where the pieces are the same size, yet their pricing differs because of the different laws and rules applicable to them.

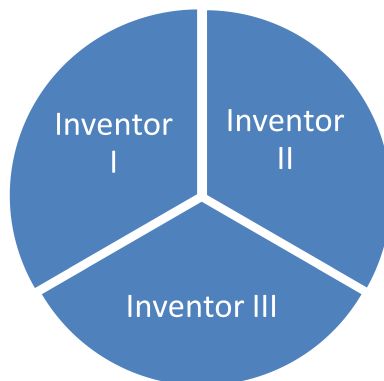


Figure 22. Different pricing for different pieces of the same cake?

In addition to the different “sales prices” for the pieces, namely different *levels* of compensation, the payment can also become topical at different *times*. For some inventors, such as in the U.S., the cake is considered to have been paid for prior to even being baked. The inventors have usually already signed a pre-assignment clause in their employment contract, and typically no extra compensation has been agreed for the rights assigned via such an assignment. In some jurisdictions the payment is dependent on the maturity of the cake. That is, the compensation does not become topical until at a certain phase, such as upon a patent grant as in China⁷⁹⁵ or when the patent is utilized - or in some cases a service invention that is not even patented as for example in Hungary⁷⁹⁶. In other words, the *basis* for the payment can also vary, depending on the jurisdiction. While in some countries the compensation is not paid until the patent is granted or utilized, there are also countries, such as Finland, where the employer is obliged to compensate even for “tasting the cake”. The employer also needs to pay compensation for the partial rights to the individual piece of the cake. Partial rights mean a right to use the invention but not to patent it. Therefore, such co-inventors who in the joint invention originate from the jurisdictions where the compensation is linked to a granted patent may not be entitled to compensation for their rights when the invention is not patented.

In the following, the situations where multiple laws are in conflict with each other are introduced with the help of similar case examples as in the context of the acquisition of the rights. First the dilemma related to the choice of law is introduced, when co-inventors work in the same jurisdiction but some of them are expatriates, namely working under the employment contract that is originally based on a different law (*Case examples 10 and 11*). For the sake of simplicity, there are only two co-inventors, one originating from Finland representing a statutory regime and the other from the U.S. representing a contractual regime. Thus, only two different national laws are explored. However, in real-life scenarios there are also these types of joint inventions where there are several co-inventors originating from many different jurisdictions, working in the host country as expatriates. Here, the situation needs to be explored from the point of view of multiple laws. *Case example 12* then discusses the effects of employee mobility on paying compensation when their movement takes place away from the employer company.

Secondly, differences in the treatment of co-inventors originating from different jurisdictions are exemplified. Despite contributing equally to a joint invention, they are treated differently in respect of compensating the rights. In these examples the laws to be applied to the co-inventors are truly different, and there are no issues

⁷⁹⁵ Article 16 of Patent Law of PRC.

⁷⁹⁶ Article 13 of the Hungarian Patent Act (Act XXXIII of 1995 on the Protection of Inventions by Patents).

related to the choice of law involved. Instead, the discrepancies in the examples are based on the different basis for the compensation, or alternatively entirely different principles regarding additional compensation for the rights to the inventions made in the employment relationship. First it is presented a *Case 13, No compensation to all parts of the invention*, with two different exemplary scenarios (*Case example 13a, Compensation for partial rights paid only for part of the invention* and *Case example 13b, Compensation for all rights paid only for part of the invention*) where the compensation is paid only to part of the co-inventors. In a *Case 14, Different compensation to different parts of the invention* all the co-inventors are duly paid compensation but there is a discrepancy in the paid compensation amounts either because of the different basis for the compensation (*Case example 14a*) or different level of the compensation (*Case example 14b*). Thirdly, peculiar situations are presented, where the employer's duty to pay compensation becomes topical at different times for the individual inventors. This may ultimately also result in a discrepancy of the rights, should the triggering event not become topical for all of the co-inventors. However, in *Case 15, Addressing country-specific differences in respect of the timing of compensation*, it is more relevant that the compensation is triggered at different points of time than that the payable compensation differs. The case examples 15 a - d involve multiple inventors from different jurisdictions, all having contributed to the very same joint invention. Yet, they receive compensation for the rights they have assigned to the invention at different points of time because of the different laws regulating their rights to the compensation.

7.2.2 Case examples

7.2.2.1 Mobility of employees

The choice-of-law clause written into an expatriate agreement governing the temporary period of working abroad should not override the mandatory legislation of the host country.⁷⁹⁷ The expatriate almost always enjoys a right to at least the minimum local protection and benefits of the host country, regardless of the choice-of-law and those rights that have been defined in the expatriate agreement. It is another issue whether the compensation for the rights to an invention made by an employee is such a benefit that it is deemed to be part of the minimum local protection of the host country, namely a mandatory rule of the law of the country of performance to be applied in so far as an overriding mandatory provision renders the

⁷⁹⁷ Rome I, Article 3.3.

performance of the original contract unlawful.⁷⁹⁸ Whether the expatriate is entitled to compensation for the rights to an invention made when working in the host country, depends on the country and the respective national laws.

The following two case examples introduce the dilemma related to the choice of law when first a co-inventor from a statutory regime (Finland) works as an expatriate in a contractual regime, and secondly a co-inventor from a contractual regime (USA) works as an expatriate in a statutory regime.

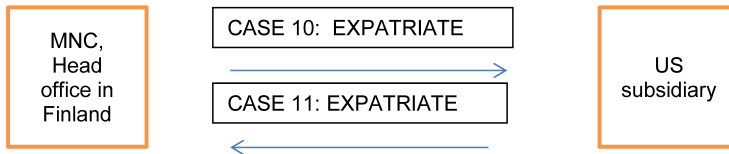


Figure 23. Mobility of employees – compensating rights for the expatriates?.

Case example 10: Finnish expatriate in the US

In this case example a Finnish employee from a multinational company, the regular place of work being in Finland, and is working as an expatriate in the U.S. During the secondment in the U.S. the rights, terms and conditions of the employment are regulated by an International Assignment Agreement. However, typically the assignment agreement states that it does not create a contract of employment between the expatriate and the host company for any specified period. Instead, the employment of the expatriate continues to be subject to the terms of the original employment agreement. Therefore, in this specific case the temporary employment abroad is subject to the Finnish employment contract. During the Finnish expatriate’s secondment, a joint invention is made, in co-operation with a local employee. The employer has duly acquired rights from both the inventors, according to the rules applicable to them.⁷⁹⁹ The question is whether the Finnish expatriate having made the invention while working in the U.S. is entitled to compensation for assigning the rights to the invention, even if in the U.S. the inventors are deemed to be compensated as a part of their regular salary for inventions?

As the employment of the expatriate is subject to the terms and conditions defined in the Finnish employment agreement, the issue of compensation is solved by virtue of Finnish law. However, applying the law of the home country (Finland) should not override the mandatory regulations of the host country (USA). As there

⁷⁹⁸ Rome I, Article 9.3.

⁷⁹⁹ The acquisition part was handled in the previous chapter 6, in connection of mobility of employees (6.1.2.2.1).

are no mandatory regulations for compensating the rights to inventions made during the employment relationship in the U.S., there are no reasons to deviate from applying the Finnish law in this respect. Thus, the Finnish law applies and the Finnish co-inventor in the joint invention is compensated for the rights to the invention that is made while working temporarily in the U.S.⁸⁰⁰ It should be noted that the U.S. based co-inventor is subject to U.S. laws and is thus not entitled to any additional compensation for the rights. It is then another issue as to whether the company has a global compensation policy, based on which the U.S. inventor is also paid some compensation, for example in the event that that the invention is patented. However, legally there is no obligation to do this. Thus, the end result in this case example could be that even if the invention has been made in the U.S. by co-inventors who have both worked in the U.S., only one is legally entitled to receive compensation for the rights to the invention whereas the other might not be paid.

Case example 11: US expatriate in Finland

In this case example the invention is a joint effort of a Finnish inventor and an expatriate from the U.S. The joint invention in question is made while the U.S. expatriate is working on a temporary secondment in Finland. The Finnish co-inventor is subject to the Finnish law, but the position of the U.S. expatriate needs to be investigated, even if the assignment agreement defines that the employment of the expatriate will continue to be subject to the terms and conditions of the expatriate's employment agreement in the U.S. Since expatriates enjoy a right to the minimum local protection of the host country, in this case Finland, the question to be explored here is whether a minimum protection exists in Finland related to the compensation that should also be enjoyed by the expatriate co-inventor.

According to Rome I *“Effect may be given to the overriding mandatory provisions of the law of the country where the obligations arising out of the contract have to be or have been performed, in so far as those overriding mandatory provisions render the performance of the contract unlawful.”*⁸⁰¹ In Finland it is not possible to waive one's entitlement to reasonable compensation for the rights to an invention before the invention has been made.⁸⁰² Thus, any such pre-assignment clause entered into in the employment agreement, according to which all rights to any inventions made during the employment relationship are to be assigned to the employer *without any additional compensation* is deemed to be invalid in respect of the inventions made while working in Finland. Therefore, both of the co-inventors

⁸⁰⁰ Act on the Right in Employee Inventions, 7.1§ (656/1967).

⁸⁰¹ Rome I, Art. 9.3.

⁸⁰² Act on the Right in Employee Inventions, 7.1§ (656/1967).

are *initially* entitled to receive compensation for the rights their employer has acquired to the invention. Whether the compensation can be waived by the U.S. expatriate *after* the invention was made is, however, not something that is forbidden by the mandatory Finnish law. However, if the expatriate is entitled to compensation because of the mandatory law in the host country, such a waiver can only take place afterwards voluntarily.

Many multinational companies have adopted a global policy for compensating inventions that are patented. Thus, in this case example, when a decision is made to patent the invention it might not be necessary to interpret the effect of the mandatory provisions of the Finnish law at all in cases where according to company policy all the rights to inventions that are patented globally are compensated, irrespective of the applicable law. If the payment is equal in all the operating countries of the company, the Finnish and the U.S. inventors should be paid the same patenting reward, according to the company policy, irrespective of where the invention was made. However, in Finland and many other countries a higher-level of compensation is typically triggered when a patent is granted for an invention and it appears to be valuable. But reaching this point can be a long process and often takes many years after the invention has been created. Therefore, the U.S. co-inventor, having worked in Finland as an expatriate, may not be working in Finland anymore when such a high-level of compensation becomes topical. The relevant question here is whether it is still a question of an obligation arising out of the contract in the country of performance, i.e. if the compensation concerns the invention that was made while working in Finland, or whether the triggering event is now the patent grant or utilization of the patent, both of which probably taking place after the expatriate has already returned to work in their regular working country? The response depends on how the scope of the application is drafted in the company compensation policy, and how the first payment to the expatriate inventor has been communicated. For example, if different types of notification letters are used for different jurisdictions, depending on whether compensation is based on a legal duty or paid on a voluntary basis according to the company policy, using the first type of letter, also for the expatriate might imply an additional obligation to pay further rewards for the invention, based on an implied term arising through custom and practice.⁸⁰³ But if the first payment is notified as an “*ex gratia*”, the situation is different. An *ex gratia*

⁸⁰³ Custom and practice is one of various ways that terms may become implied into an employment agreement for example in UK. For the custom and practice to constitute an implied term of a contract of employment it must be “reasonable, certain and notorious” (*Bond and another v CAV Ltd* [1983] IRLR 360) and followed “because there is a sense of legal obligation to do so” (*Solelectron Scotland Ltd v Roper* [2004] IRLR 40). The threshold for the custom and practice constituting an implied term is high, yet to avoid any unclarities or disputes it is better to use explicit language.

payment is one that is given as a favor or gift and not because it is legally necessary.⁸⁰⁴

This aspect needs to also be addressed in the company’s invention management procedures so that inventions made by expatriates are docketed in a manner that enable tracking the law and the resulting compensation rules to be applied to the inventions even after expatriates return to work in their home country. In a global organization the invention docketing system is also typically global in scale, and the “law” of the invention may be considered to correspond to the place of the invention, although this may not necessarily be the case in inventions made by expatriates.

Case example 12: Employees who have left the company

The aforementioned distinguishing between a legal duty and a bonus-based payment for compensation is especially important when inventors leave the company before the higher-level compensation becomes topical. Namely, in those countries where there is a legal duty to pay compensation, this duty remains in force irrespective of the employment relationship being terminated. In contrast, bonus-typed payments are typically only paid to employees, in other words inventors who are still employed. As such, the bonus is generally considered an additional payment on top of the salary, as a reward for good performance for example in the form of inventive activities having resulted in a patentable invention. Therefore, such recognition is not usually paid after the employment relationship is terminated because the basis for the payment no longer exists in the existing employment relationship and accompanying company policy. This scenario concerns the mobility of employees in general, unlike in the previous examples where mobility referred to employees moving within the same company. Indeed, the mobility of employees is also common between companies nowadays. Whenever inventors leave a company before the entire compensation for their inventions has been paid, the basis of earlier payments has relevance regarding further payments. The employee may have moved within the same company also in such a way that the employment contract has been changed along the movement, and thus there can be inventions made by the very

⁸⁰⁴ <https://www.collinsdictionary.com/>.

same inventor, to which different laws apply.⁸⁰⁵ It is up to the company's processes as to how inventions from the same inventor, albeit treated differently in respect of compensation, can be identified in the docketing system.

It is also a more general question of company policy as to whether compensation is actively paid out to inventors who have left the company, or whether the payment is left until the inventor requests it. Typically, the threshold for disputing the reasonability of compensation based on company policy tends to be lower with employees. Therefore, as concluded earlier, to avoid compensation disputes later, it might be better to have a proactive payment procedure in place at the company, rather than a payment system based on inventor claims, typically from persons who have left the company.

7.2.2.2 Discrepancy in pricing the cake

The following examples introduce some exemplary scenarios where the co-inventors originating from different countries are treated differently in respect of the compensation for the rights to their joint invention. In the first case scenario, *Case 13*, not all the co-inventors are paid compensation for their rights, either because the employer has taken only *partial rights* (*Case example 13a, compensation for partial rights paid only for part of the invention*), in which case not all inventors are entitled to additional compensation, or because some of the inventors are simply not entitled to *any* compensation even after having assigned *all* their rights to the invention (*Case example 13b, compensation for all rights paid only for part of the invention*). In the second case scenario, *Case 14*, such examples are presented where all the co-inventors are duly entitled to receive some additional compensation for the rights. However, there is discrepancy in the amounts due to the respective national laws applicable to them, providing different rules for determining the amount of the compensation, either a different basis for determining the compensation (*Case example 14a*) or a different compensation level (*Case example 14b*).

It should be noted that for the purpose of this thesis and the case examples introduced herein, the contributions of the co-inventors in the joint invention are assumed to be equally sized. It should be further noted that in order for the positions

⁸⁰⁵ For example, an inventor from Finland may have first moved to U.S. to work as an expatriate there, but after few years his employment agreement has been converted to temporary employment in the U.S. After several years of working in the U.S. the employee returns back to Finland. There could also be some expatriate period in Asia in-between. What is essential to understand is that there could be several laws applicable to the employment of the very same employee, having worked continuously for the same group of companies, and the company's invention management procedures need to address this in case there are lot of inventions made during this employment.

of the different inventors to be comparable, a further assumption still needs to be made that the employer has acquired the *same* rights from all the co-inventors. In other words, there is no discrepancy of rights in respect of the individual inventors. For example, in case example 13a, the employer has acquired only partial rights to the invention from all the inventors, irrespective of whether the employer would have been entitled to acquire all the rights from at least some of them. Similarly, in case examples 13b and in both of the case examples 14a and 14b, the employer has been duly entitled to all the rights to the joint invention from all the co-inventors. The difference in the sums to be paid to the inventors is based on the different rules regarding compensation, and not due to a discrepancy in the rights acquired by the employer from the individual inventors nor due to unequally sized contributions.

Case 13: No compensation to all parts of the invention

*Case example 13a: Compensation for **partial** rights paid only for part of the invention (FI + CN)*

In this case example a joint invention has been made by a Finnish and a Chinese inventor, both having worked in their respective home countries while making the invention in a cross-border collaboration project within the company. The invention is deemed to be patentable; however, the employer does not want to patent it and has only acquired the right to use the invention. The retaining rights, including the right to patent the invention, remain with the inventors. A question is whether the inventors are entitled to be compensated for the employer's right to use the invention, namely the partial rights the employer has acquired to their joint invention?

According to Finnish law, whenever the employer takes rights to an invention made by an employee, the inventor is entitled to a fair and reasonable compensation for the rights.⁸⁰⁶ The fact that the employer has only acquired partial rights to the invention may affect the amount of compensation to be paid but this does not change the fact that the inventor is entitled to compensation even for the partial rights. Thus, the Finnish inventor in the case example is duly entitled to receive compensation from the employer. It should be noted that whether the employer can ever factually use the invention in question is irrelevant. Instead, it is sufficient that the employer has reserved the right to use it.

Regarding the Chinese inventor, the situation needs to be explored from the point of view of the Chinese law. There are two types of material incentives for service

⁸⁰⁶ Act on the Right in Employee Inventions, 7.1§.

invention-creations, provided by the Chinese patent law⁸⁰⁷: A “reward” is triggered by a patent grant for such an invention whereas a “remuneration” is paid upon exploitation of the granted patent.⁸⁰⁸ Thus, in China no compensation is paid to the inventor unless the invention is patented, and also granted a patent for. Therefore, in this specific case the Chinese co-inventor is not entitled to receive any compensation.

Since the right to patent the invention remains with the inventors, could compensation also become topical for the Chinese co-inventor should the inventors patent their invention by themselves, with the employer’s permission, and manage to get it granted? It should be noted that if the co-inventors patent their invention and the employer has merely acquired a right to use it, this does not affect the right of the employer. That is, the employer still has the right to use the patented invention.

in China the law sets the duty to pay compensation for “the entity to which a patent right is granted”. In the case example the employer retains *only* the right to use the patented invention. The employer does not become an assignee for the patent. Thus, compensation seems not apply. This seems justified, given that the economic benefits derived from the patent are enjoyed by the inventors themselves. It is then another issue what kind of economic benefits the inventors can possibly gain from patenting an invention made in an employment relationship as typically the employees are not allowed to compete with their employer. However, given that the inventors have requested permission from their employer to patent the invention, they have probably investigated the opportunities for utilizing the granted patent for their own purposes.

Since the Finnish inventor is entitled to compensation even for the partial rights, the duty to pay compensation is not affected by the fact that the employer has the right to use the invention which is patented by the inventors. Nonetheless, the amount of compensation may be affected, which in Finland is linked to the economic value of the invention. However, when the inventors patent their invention, it is questionable whether there are any additional economic benefits for the employer.

Case example 13b: Compensation for all rights paid only for part of the invention

In this second case scenario, where not all the co-inventors who have contributed to the joint invention are paid compensation, the employer has taken *all* the rights to their invention. It should be noted that even if the employer acquires all the rights to the invention, it does not mean that the employer will always patent the invention. The employer can merely reserve the right to patent the invention, which admittedly

⁸⁰⁷ Article 6 of Patent Law of PRC.

⁸⁰⁸ Article 16 of Patent Law of PRC.

belongs to the definition of “all rights”, but to retain the option to patent it later if appropriate. Since there are jurisdictions where the entitlement to compensation is linked to the invention being patented or granted a patent for, the scenarios of patenting and not patenting will be presented separately.

If an invention is not patented by the employer who has acquired all the rights, then the result is the same for the inventors as in example 13a. That is, the Chinese inventor is not entitled to any compensation because no patents have been granted to the employer for the invention. In contrast, should the invention be patented, then the Chinese inventor would also be entitled to the compensation, as in this case example it is now the employer who has all the rights to the invention. However, to illustrate an example where the outcome is the same irrespective of whether the invention is patented or not, a case example with a US inventor is presented. Further, a case example is introduced where the outcome can depend on the value of the patent, as is the case with the inventors originating from the UK.

(i) Invention not patented (FI + US)

In this case a joint invention has been made by a Finnish inventor and a co-inventor from the U.S. As already concluded, the Finnish inventor is entitled to compensation irrespective of whether the invention is patented, based on the employer having acquired the rights to the invention. However, the legal position of the U.S. inventor needs to be explored from the point of view of the U.S. law.

As the U.S. has adopted the so called “paid-to-invent” –doctrine, according to which employees are considered to have also been compensated for their innovative activities in the form of a normal salary, the U.S. inventor is not legally entitled to be compensated for the invention on top of their salary. It is another issue that companies can voluntarily extend their reward systems in respect of patented inventions also to such inventors that are not legally entitled to compensation. However, from a strictly legal point of view the U.S. inventor in this case example is not entitled to additional compensation for the rights the employer has acquired to the invention, irrespective of whether the invention is patented or whether the employer has only reserved an option to. Any voluntary payment is considered as bonus for the inventive activities.

(ii) Invention patented (FI + UK)

As the legal position of the U.S. inventor is the same irrespective of the invention being patented or not, in this second case the joint invention is now assumed to be made between the inventors from Finland and the UK. The legal position of the Finnish co-inventor is again the same as in the preceding case examples, namely the

Finnish inventor is entitled to fair and reasonable compensation based on the economic value of the invention, regardless of whether the invention is patented or not and whether a patent has been granted or not. Patenting an invention surely has an impact on the value of the invention, which in turn forms the basis for compensation. However, it should be noted that this does not affect the entitlement. Even if the invention is of little value for the employer, the inventor is still entitled to receive fair and reasonable compensation.

In contradistinction, in the U.K., even entitlement to compensation is dependent on whether the invention is valuable to the employer or not. The current UK Patents Act⁸⁰⁹ provides that if an employee makes an invention which is of outstanding benefit to the employer the employee shall be awarded “fair” compensation.⁸¹⁰ “Outstanding” here means out of ordinary from the point of view of the inventor in question, namely an invention that was not reasonably expected from the employee in light of their regular duties. In this case, although the patent for the invention lacks value for the employer, it may still be something out of ordinary from the point of view of the UK co-inventor. Thus, compensation for the co-inventor from the UK could in fact be higher than that of the Finnish inventor, whose compensation is determined based on the economic value of the patented invention to the employer. This leads us to the next topic, namely different compensation, for assigning the same rights, to the co-inventors of the same invention.

Case 14: Different compensation for different parts of the invention

Case example 14a: Different basis for determining the compensation (FI + HU)

In the first example related to the case scenario all the co-inventors are duly entitled to receive compensation. However, they are awarded different amounts for their equally sized contributions. This potential discrepancy in the sums is due to the national laws providing a different *basis* for the compensation. In this case, the employer has again acquired all the rights to the joint invention and patented it. A patent for the invention has already been granted. The two co-inventors in the joint invention in this case are now from Finland and from Hungary. In Finland the basis for fair and reasonable compensation is the acquisition of the rights by the employer, irrespective of the scope of the rights and whether the invention is patented or not. However, the fact that the invention is patented can impact the level of the payment.

⁸⁰⁹ The Patents Act 1977 as amended by The Patents Act 2004 (22.07.2004).

⁸¹⁰ Sections 40(1) and 41(1) of the UK Patents Act.

In contrast, the legal basis for providing compensation to the Hungarian co-inventor is that the service invention is utilized.⁸¹¹ In addition to compensating patented service inventions, the law also provides compensation to the Hungarian inventor in cases where the employer has either deliberately or accidentally failed to keep the patent in force and where the employer has declared the invention secret.⁸¹² However, for the purposes of this case example the first option applies, namely where the service invention is protected by a patent. As yet a further requirement, the patented invention is also utilized. In this case example, it is assumed that the invention is utilized by both the employer and third parties. That is, the invention is part of the employer's own products or manufacturing processes, but the patent for the invention is also licensed out. Where could the discrepancy for compensation then arise if both inventors are entitled to compensation based on the utilized patent?

According to the Finnish law, compensation needs to be fair and reasonable. In Hungary the law provides that the amount of the remuneration shall be commensurate with that which would be payable by the employer for a patent license for such an invention.⁸¹³ If the patent has been licensed or assigned, then remuneration shall be commensurate with the value of such a license or assignment.⁸¹⁴ Despite the slightly different expressions used in the Finnish and the Hungarian laws, the definition used by Hungarian law is probably also deemed to constitute fair and reasonable compensation similar to that provided by the Finnish law. However, it should be noted that the Hungarian co-inventor is entitled to separate remuneration for each exploitation, namely for exploitation of the patented invention by the employer and by each of the licensees of the patent.⁸¹⁵ The amount of remuneration should be proportional to that payable by the employer for a patent license and in the case of an actual license or an assignment, to the value of such. Literally interpreting this, the Hungarian inventor shall thus be entitled to multiple remuneration both based on the employer's hypothetical patent license and based on the value of the actual licenses. However, the inventor is naturally entitled to receive only a fair share of the economic value since in assessing remuneration, the commensuration will be determined by taking into account the employer's contribution to the invention concerned.⁸¹⁶ In the case of an invention made in an employment relationship there is always a financial contribution by the employer involved in enabling conception of inventions. Still, given that the Hungarian co-

⁸¹¹ Article 13(1)(a) of the Act XXXIII of 1995 on the protection of inventions by patents.

⁸¹² Article 13(1)(b)(c) of the Act XXXIII of 1995 on the protection of inventions by patents.

⁸¹³ Article 13(7) of the Act XXXIII of 1995 on the protection of inventions by patents.

⁸¹⁴ Article 13(8) of the Act XXXIII of 1995 on the protection of inventions by patents.

⁸¹⁵ Article 13(3) of the Act XXXIII of 1995 on the protection of inventions by patents.

⁸¹⁶ Article 13(9) of the Act XXXIII of 1995 on the protection of inventions by patents.

inventor is entitled to fair compensation in respect of each the individual exploitation of the patented invention the total compensation may exceed the level of a fair and reasonable compensation that is payable for the Finnish inventor.

Case example 14b: Different level for determining the compensation (FI + CN)

Also, in the second case example all the co-inventors are duly entitled to receive compensation, yet they result in being paid different amounts for their equally sized contributions. This discrepancy in the sums is now due to the national laws, which provide a different *level* for compensation. In this case, the inventors are the same nationality as in the earlier case example 13a, namely Finnish and Chinese. However, unlike in case 13a, their common employer has now acquired *all* the rights to the joint invention and patented it, and at least one qualified patent has been granted for the invention. Both inventors are entitled to compensation for the rights acquired by their employer. The Finnish law provides compensation whenever the employer takes some rights to an invention made by an employee⁸¹⁷ while the Chinese law provides compensation based upon a patent grant and utilization of the patent⁸¹⁸. However, the level for compensation for the inventor is defined in a very different manner. For the Finnish inventor, compensation is defined in vague terms as fair and reasonable remuneration based on the value of the invention, whereas for the Chinese inventor, the amount of the two-fold compensation, namely a reward and remuneration, has a statutory basis and is defined in monetary terms.

Let us assume that the joint invention in question appears to be very valuable for the employer, in terms of both the employer's own use as well as from the point of view of patent licensing. The patent may even play a key role in patent litigation, for example, against a fierce competitor that is reluctant to take a license to use the patented invention, yet uses it in products competing with the employer's products. In the light of this scenario, the Finnish co-inventor should be in a relatively strong position to negotiate fair and reasonable compensation for the invention, alternatively be entitled to receive the highest level of compensation defined in the company's award scheme. However, with regard to the Chinese inventor, the minimum amounts for the patent grant (reward) and for utilization of the patent (remuneration) are derived from the law, defining the *minimum* compensation, applicable in case the employer and the inventor fail to *agree* on the appropriate

⁸¹⁷ Act on the Right in Employee Inventions, 7.1§.

⁸¹⁸ Article 16 of Patent Law of the People's Republic of China and Rules 77 and 78 of Implementing Rules of the PRC.

amount and manner of compensation, or to specify it in its legally enacted company rules.

The Chinese inventor is entitled to be compensated based on the exploitation of the invention by the employer and by a third party having licensed the patented invention. Remuneration has not been defined in terms as specific as monetary reward, but as a minimum percentage calculated from the profits generated from the exploiting the invention, or in the case of a license, from the respective royalty fee. If royalty fees are paid by third parties, it should be relatively straightforward to define the basis for such calculations.⁸¹⁹ However, in the case of mere utilization by the employer, it may be challenging to determine the profits that are generated from exploitation of the invention. Unless the invention is a product itself, typically there are multiple inventions incorporated into the products of the company, and thus the sales of the products cannot be taken directly as a basis for the profits generated from exploiting one invention. There are also many other factors than the inventions incorporated in the product that impact the sales. These include, but are not limited to, for example the company's brand. Then again, the minimum percentage defined for exploiting an invention by the employer is lower than the percentage for exploitation by a third-party licensee, which may take this aspect into account already. However, literally interpreting the Chinese law defines that the remuneration should be no less than 2% each year for the profits generated from exploitation of the invention, and not from the products incorporating the invention. The invention may not even be a product-related innovation but related to a manufacturing process for products, for example. In this case, defining the profits from exploiting of the invention is even more difficult.

Therefore, it would be easier for the employer and for the inventors if company guidelines existed, containing different levels of standard compensation, categorized based on the value of the invention. It would also be much easier and faster to map inventions to existing categories instead of calculating compensation and investigating the numbers as a basis, in every individual compensation case. The fact that the provisions apply only if there is no agreement between the employer and the inventor implies that it is a preferred way to agree the compensation in the company guidelines. Thus, it is of utmost important for the employer to attempt to create such guidelines for rewarding employee inventions that are considered to also fulfill the minimum level defined in the Chinese law, and which have been deemed duly accepted by employees, namely *legally enacted*. This issue will be discussed in chapter 7.3 “Trying to create a holistic approach – does one size fit all?”

⁸¹⁹ It is then another issue that license agreements, including the royalty fees, are usually confidential, and the employer may not be entitled to reveal those fees even to its own employees. This may make it difficult for the inventor to verify that the compensation is at correct level.

7.2.2.3 Different timing of the payments

Case 15: Addressing country-specific differences in respect of the timing of compensation

The final case examples relate to a scenario wherein all the co-inventors involved in the same joint invention originate from multiple countries. Each country provides a different basis for the *timing* of compensation for the rights to the invention. Thus, even if all the co-inventors are eventually entitled to compensation for assigning their rights to their employer, the payment of compensation for the individual inventors can be triggered at very different times. Furthermore, for some of the inventors the payment of compensation can take place in multiple parts, namely periodic payments can be triggered at multiple points in time.

The co-inventors who have contributed to the creation of the joint invention in question originate from Finland, China, Hungary and the United Kingdom. All the inventors have contributed to the invention while working in their respective countries. Thus, in this case example there is no dilemma present related to the choice-of-law regarding expatriates. Instead, respective national laws will be applied.

The following timeline (Figure 24) illustrates the process from the time the employer acquires the rights to an invention made by an employee and patents it, to the patent grant and finally to its utilization. The points marked on timeline describe the different stages which initiate the duty to pay compensation in the case examples:

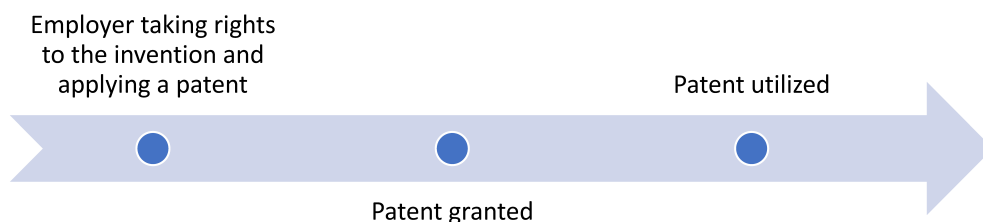


Figure 24. Timeline illustrating the different points of time triggering duty to pay compensation.

Case example 15a: Employer taking the rights to the invention and potentially applying a patent - FI

The first stage, acquiring the rights to an invention made by an employee, initiates the employer’s duty to pay compensation to the Finnish inventor, irrespective of whether the invention is patented or not. However, for other inventors the compensation is not yet initiated at this point. Therefore, based strictly on the rules of the respective national laws, in this case example only the Finnish inventor is

awarded compensation when the employer acquires the rights to the joint invention. It should be noted that the Finnish law defines that the compensation shall be fair and reasonable.⁸²⁰ However, at this point, the value of the invention, based upon which reasonability is defined, cannot be finally determined yet. As such, this reward is typically only a small first payment and the reasonability of compensation as a whole is evaluated at a later point in time. Typically, this first payment is defined in company guidelines as a standard reward. Nevertheless, the sum may differ depending on whether the invention is patented or not, and whether the employer has acquired all the rights to it or only partial rights. It could also be that two different rewards are paid, first for reserving the rights, a *reservation reward*, and then for patenting the invention, a *patenting reward*.

Typically, rewards can amount to five hundred euros.⁸²¹ In some cases these rewards may constitute the fair and reasonable compensation for the invention. This may be the case if an invention is not patented (and only the reservation reward is paid) or if the invention or patent do not generate any value. It is also possible that patents for an invention are never granted, for example because of a lack of novelty or inventive step. In this case, no compensation is paid for the co-inventors in the case example. However, in the case of the Hungarian inventor, compensation may be applicable if the patent is not granted due to an omission by the employer.⁸²² In this case example it is assumed that a patent will be granted for the invention.

Case example 15b: Patent granted for the invention – CN + FI

The next stage, when the invention is granted the first qualifying patent, triggers the duty to pay compensation (a reward) to the Chinese inventor. This can also be the next point in time for evaluating the reasonability of the compensation already paid to the Finnish inventor. This *patent grant reward* can be defined in the company guidelines too, but it needs to fulfill the requirements of the Chinese law for the minimum level of the reward, namely be no less than RMB 3.000⁸²³. This happens to be in the same range as the Finnish first reward for taking rights. Therefore, at a first glance, the common guidelines for this reward appear to be relatively easy to create, at least in respect of the co-inventors from Finland and China. However, the guidelines may define another award payable to Finnish inventor at the time of the

⁸²⁰ Act on the Right in Employee Inventions, 7.1§.

⁸²¹ This was the amount of “Invention Report Reward” and “Patent Application Reward” for example in Nokia Group Guidelines for Employee Inventions from 2001 that were published in Finnish as an appendix in Timo Kivi-Koskinen, Työsuhdekeksinnöt 2002.

⁸²² Article 12.1 of Act No. XXXIII of 1995 on the Protection of Inventions by Patents.

⁸²³ Rule 77 of Implementing Rules of the Patent Law of the People’s Republic of China (January 9, 2010).

patent grant, so the total sum paid to the Finnish inventor by this time may become higher than the amount defined in the Chinese law. Since the reward level defined in the Chinese law is the minimum level, it is of course possible to exceed it and adjust it to the same level as the reward(s) determined and paid to the Finnish inventor.

The reward for a granted patent to the Finnish inventor could be, for example, a thousand euros.⁸²⁴ It is also possible that the patent grant reward is embedded to a single “*patenting reward*” and integrated with the reservation reward. This patenting reward is paid at the time of acquiring the rights and filing a patent application. In other words, it is paid already at the beginning of the patenting process, for example when a first patent application for the invention is filed. It could be argued that such an integration of the different rewards makes no difference between compensating on one hand those inventions to which patents are duly granted and on the other hand inventions for which there will not be granted any patents as there is not any more an additional award for the patent grant. However, earlier payment of the bigger sum is assumed to motivate the inventors to help in drafting the patent application, which in turn serves as a basis for the good quality patent. The early payment benefits thus both the inventors and the employer.

Case example 15c: Patented invention utilized – CN + FI + HU

The next triggering stage in the timeline is the utilization of the granted patent. This initiates the duty to pay additional compensation to the Chinese inventor, namely remuneration.⁸²⁵ It is often also at this point in time that the overall reasonability of compensation is finally evaluated in respect of the Finnish co-inventor. This also forms a basis for the duty to pay compensation for the Hungarian inventor who is compensated for utilization of a service invention when it is patented. This is the case even if the patent protection has lapsed due to the employer surrendering or failing to surrender to pay the annuities, as well as if the invention is not patented and instead kept secret.⁸²⁶

Of all the points in time introduced for initiating the duty to pay compensation, only the utilization of the patent enables compensation to be truly determined based on the economic benefits for the employer, namely the value of the patented invention in question to be evaluated. In the earlier stages, it may be impossible to determine the true value of the invention yet, and thus typically the compensation

⁸²⁴ This was the amount of “Patent Grant Reward” for example in Nokia Group Guidelines for Employee Inventions from 2001 that were published in Finnish as an appendix in Timo Kivi-Koskinen, *Työsuhtekeksinnöt 2002*.

⁸²⁵ Implementing Rules of the Patent Law of the People’s Republic of China, Rule 78.

⁸²⁶ Act XXXIII of 1995 on the protection of inventions by patents, Art. 13.

paid at these points is defined as a standard reward applicable for all the inventions fulfilling the respective triggering criteria. However, when paying compensation based on utilization of the patents, compensation may differ for individual inventions because their economic value can be very different. In this example, the value of the joint invention is the same for all but compensation for the co-inventors is determined differently.

For the Finnish inventor all that is stated of the amount of compensation even in case of utilizing of the patent is that it should be fair and reasonable. There is no minimum percentage defined of the royalties, for example. However, there are some factors mentioned that need to be addressed in determining the amount of compensation in the law.⁸²⁷ In addition, some guidance is provided for defining the value of the invention in the decree.⁸²⁸ Both the value of the invention in the use of the employer and the benefit derived from the transfer of the rights shall be taken into account. The value of the invention shall be determined on basis of the measurable economic benefit derived by the utilization of the employer. In case this is not possible the determination shall be made by an analogy to licensing agreements, namely on basis of such licensing fee by which the employer could acquire the right to a corresponding free invention. Further, in case the patent is licensed out, the relevant net proceeds shall be taken to be the value of the invention. If these bases cannot be applied, the value of the invention shall be determined by assessing. Despite the value of the invention being possibly able to be determined – alternatively assessed – in accordance with the law, the definition of the amount of compensation, “fair and reasonable”, is very vague and the Finnish law does not give direct guidance as to what could be the percentage of the net proceeds or the value of the invention to be paid to the inventor.

In contrast, the Chinese law provides minimum level also for the remuneration paid for the utilization of the patent, just like there is the minimum sum defined for the reward for the granted patent. The percentage of the profits generated from the exploitation of the invention or patent shall be no less than 2% yearly and of the royalties paid by the third party exploiting the patent no less than 10%.⁸²⁹ The level is minimum, and thus can be exceeded, but the fact that it is minimum in China does not mean necessarily that it constitutes a sufficient, namely fair and reasonable, compensation also in Finland. The reasonability in respect each inventor shall be evaluated in light of the respective national law.

Timewise an invention can be utilized prior there is a granted patent. In such a case the compensation needs to be calculated or determined also based on the time

⁸²⁷ Act on the Right in Employee Inventions, 7.2§.

⁸²⁸ Decree on the Right in Employee Inventions, Section 3.

⁸²⁹ Implementing Rules of the Patent Law of the People’s Republic of China, Rule 78.

prior the patent grant, even if the compensation does not become payable until the grant. This is explicitly said for example in the Hungary law, which states that “Where a service invention is utilized, the inventor shall be entitled to remuneration: (a) if the invention is protected by a patent *from the beginning of its utilization up to the expiration of the definitive patent protection*; (b) if the definitive patent protection lapses due to surrender or failure to pay the maintenance fee by the employer, *from the beginning of the utilization up to the date on which the patent would have lapsed because of expiration*; (c) if the invention is kept secret *from the beginning of the utilization up to the disclosure of the invention or up to 20 years from the date on which the employer is notified of the invention*, whichever expires later.”⁸³⁰ The remuneration shall thus in all eligible cases be paid, namely determined, from the beginning of the utilization of the invention. However, it does not mean that in all cases where the invention is utilized there will be a remuneration paid, as the additional requirements are that the invention is protected by a patent or has been protected but ceased to be for the mentioned reasons. Thus, the remuneration is not paid until those requirements are fulfilled.

It was said that utilization of an invention can be taken into account in determining compensation already prior there is a granted patent for the invention. That is, the valuation of the invention can be extended to the time preceding the patent protection. But at the time of the remuneration that is paid due to the patent grant there is already patent protection in place and thus ultimately it is a question of valuation of the *patented invention*, even if extended to the time prior the patent grant. However, it should be noted that in some countries it is explicitly acknowledged that it can be the value of the *invention*, and not just *patent*, defining the compensation. What is then the difference between an invention and a patented invention, if it is anyhow question of the same invention that is patented? An invention can be broader than the patent granted for it as the patentable invention in a patent application is determined by the claims⁸³¹. However, the claims in the granted patent may be very different from the claims that were filed in the patent application. Namely, sometimes the scope of protection may need to be restricted during the prosecution due to prior art and thus the granted patent can protect a narrower invention than the one that was reported in the first place. Sometimes the patent protection may in the end cover only a small feature of the original invention, and the value for an invention with such a restricted scope is naturally lowered. It is also possible that already in the patent application the scope for the invention is defined to be narrower than in the invention report as the reported invention has been

⁸³⁰ Act XXXIII of 1995 on the protection of inventions by patents, Art. 13(1); emphasis added.

⁸³¹ For example, FI Patent Act, 8§.

too broadly defined. In the following it is presented yet one triggering factor for the compensation, not shown in the figure 24, the invention being valuable.

Case example 15d: Valuable invention - UK

Finally, for the co-inventor originating from the UK the compensation is based on the invention or the patent being of “outstanding value”.⁸³² As such, it is not tied to any specific point of time, but in practice the value of the patent cannot be defined until after the patent is granted and usually after the patent has been utilized for some time. It should be noted that the current UK law states that compensation is payable when the invention, and not just the patent as defined in the old law, has been of outstanding benefit. Therefore, for inventions where the current law applies, even if there is a requirement that a patent for the invention has been granted⁸³³, it should not matter that the scope of protection in the patent is narrower than the original invention, if only the invention is deemed to be of “outstanding value”.

What does it mean for an invention to be of outstanding value, if the scope of patent protection is more restricted? By no means can it mean that the invention as it has been described in the invention report can be the basis for evaluating the value. For example, if the employee in his opinion have invented Bluetooth®, an existing protocol for wireless connectivity, even if the contribution is a minor feature utilizing Bluetooth®, the value cannot be determined based on such an alleged extent of the invention. Yet, the law states that outstanding value of the invention or the patent, or combination thereof, triggers the duty to pay compensation.

The invention can have an independent value in at least two ways: 1) Via cost savings if the invention offers a more cost-efficient way compared to conventional technologies. The cost savings for the employer are a direct economic benefit caused by the invention, even if the patent scope needs to be restricted or even if no patent is ever applied for. 2) Secondly, the value of the invention can be linked to a commercial application for the invention. For example, a totally new kind of mechanical concept for a mobile phone such as in the past the clamshell or sliding phones can result in a major increase in the sales of such phones if the concept hits the market. These valuations are directly linked to an invention as such, and the fact that it is patented does not affect either the cost savings or the commercial success. Of course, when patented, there are increased opportunities for the company to benefit from the invention in the form of licensing. However, the value of the patent can also be based on the established monopoly to use the invention, such as a new phone concept, should the company not want to allow others to use it. Although an

⁸³² Sections 40(1) and 41(1) of the UK Patents Act.

⁸³³ Section 40(1)(a) of the UK Patents Act.

invention does not need a patent to be a success, a patent can enhance the value of an invention. While an unpatented invention can be commercialized, the opportunities to commercialize a patented invention are enhanced. Licensing the use of an invention to others provides revenue through royalty payments that would be lost if the invention was easily copied and unprotected. By licensing the company can also control the competition to its own advantage. Moreover, the rights to a patent can also be sold if the patent owner does not choose to directly commercialize the underlying invention. Thus, the patent itself can have market value.⁸³⁴

To conclude, the UK law requires that the value of an invention or a patent, or a combination thereof, is “outstanding” in order to trigger compensation to the inventor for the rights. Thus, it is not enough that some value is generated. According to one definition, the invention needs to be something special or out of ordinary, and more than would normally be expected to arise from the employee’s duties. In the end it is a matter of evaluation based on the individual circumstances as to whether the invention made by an employee in the UK is such that is considered to be of outstanding value and thus entitled to compensation for assigning the rights to it.

7.3 Trying to create a holistic approach - does one size fit all?

7.3.1 Is the holistic approach feasible?

The case examples illustrated the variety of rules regulating compensation for the rights to employee inventions. The situation becomes increasingly complex in the context of global inventions where co-inventors, originating from different countries, are treated differently in respect of compensating their rights to the very same invention because of the different laws that apply to them. This creates difficult situations for the employer, where a balance needs to be found between legality, namely strictly applying the legal requirements, and the equality of the employees. Therefore, it is worth asking whether it could be possible for multinational companies to try to create a holistic approach for compensating the rights? Such a holistic approach should address and fulfill all the national requirements that are relevant for the company. Next, a few alternative ways to implement a holistic approach to compensation are suggested, in terms of unifying the *basis*, *timing* and the *scope* of the compensation to be paid for inventions globally. Further, potential issues related to the corresponding suggestions are introduced.

⁸³⁴ Tom Bakos, *Valuing Innovations, Inventions and Patents*, Contingencies 27, published by the American Academy of Actuaries 2005.

A) *Common basis for compensating all inventions?*

First, as the *basis* for compensation differs from country to country, a holistic approach will need to address the strictest requirements when it attempts to unify the basis so that it is the same for all inventions globally. In other words, the payment should be linked to the earliest triggering event relevant for the company. For example, since in Finland the inventor is entitled to compensation already based upon the employer acquiring the rights, global compensation needs to be associated with this acquisition of the rights. However, it should be noted that the Finnish inventor is also entitled to compensation for the patentable inventions that the employer does *not* patent. This is an aspect that the company needs to consider when attempting to create a holistic approach based on common basis for compensation:

ISSUE: Does the employer want to extend compensation for the inventions that are not patented to the jurisdictions where the employer would not otherwise have to pay compensation for the rights to such?

Whether the employer wants to voluntarily extend compensation beyond the legal duty is a business decision. It might be easier to implement such an extension in a company where most of the inventions are patented. However, if innovation activity within the company is so fruitful that only the rights are retained to many inventions, without any patenting, then the decision may have a more significant monetary impact. In addition, the voluntary extension may also result in increased innovation activities and thus further increase innovation costs. Namely, the incentive for innovating can function as an efficient motivator among the inventors which in turn can either be a positive or a negative phenomenon for the company. An incentive can activate employees that would not be inclined to report their inventions - even if in many countries they are legally obliged to do so - that is to identify, and most importantly, to report, the technical enhancements in their daily work. This benefits the employer as it ensures that all technical improvements to the technologies being developed in the company are duly reported and potentially protected. However, the incentive can also have a negative impact in resulting in a flow of reports for minor inventions that closely relate to the work of employees, and thus the employer's business. The inventors may be aware, or at least hope, that their inventions are previously unknown and patentable, which means that the employer would then have to acquire the rights to them and pay compensation. Of course, such a phenomenon is possible even without any voluntary extension in those countries where the employer is legally obliged to compensate acquiring the rights to patentable inventions without patenting. Eventually, voluntary extension is ultimately a

business decision by the company, after evaluating its pros and cons and potential impact to inventive activities within the company.

B) Simultaneous payment for compensation worldwide?

The *timing* of payment is another issue to be addressed. As such, when trying to create a holistic approach to unify the timing of payment, the procedure needs to address the earliest point in time. Compensation in Finland is already associated with acquiring the rights; therefore, in a holistic approach payment should be made shortly after the acquisition of the rights. In terms of time, this could potentially be connected to filing the first patent application for the invention. The subsequent question for the company to consider is:

ISSUE: Can compensation for later triggering events, such as a patent grant and use of the patent, already be considered to have been paid at an earlier point in time, such as in connection of filing a patent application?

Even if compensation is paid as soon as a patent application is filed, this does not mean it cannot also be considered as compensation for future triggering events such as a patent grant or the use of the patent. However even if the compensation has been agreed to constitute compensation for all the future benefits derived from the invention, there is no guarantee that it will be sufficient, for example, if the invention eventually becomes valuable for the company. On the other hand, the compensation could be over-sized for inventions that will not, for example, end up being granted a patent or even if there will be patents, they are not utilized by anyone. But the essential question here boils down to whether the already paid compensation can constitute sufficient compensation even if paid timewise prior some of the triggering events. There is no clear-cut response here but the situation needs to be evaluated in light of the individual circumstances that vary in different cases and can vary even in the same invention, between the different co-inventors.

C) Same amount of compensation for inventions globally?

With regard to the *amount* of compensation the starting point for the holistic approach should be the minimum levels defined in the national laws. However, the national minimum level might not be sufficient compensation in all the countries. Thus, it can only act as a starting point for determining the level for the global compensation. Of course, nothing prevents paying the inventors more than the minimum compensation.

ISSUE: Does the employer want to exceed the compensation level defined in the law in those countries where the statutory minimum level is under the reasonable level of the compensation of another country?

The issue that raises most the fraction between the inventors is probably the different level of compensation in the different countries. The said is true even if in those countries where there is no legal duty to pay any compensation beyond the salary for the rights to employees' inventions the salary level may be higher than in the countries with such a legal duty. Especially in the joint inventions where the co-inventors originating from different jurisdictions are paid different amounts despite their equal contributions, the discrepancy can cause frustration and demotivation to contribute inventive activities in the future. Therefore, it should be also in the employer's interest to have a common compensation scheme for inventions.

D) One-time payment of compensation or multiple payments?

One option to try to find a balance in defining the compensation to inventions globally is to divide the payment of compensation to several parts, each time providing the same compensation for the inventions world-wide but only for those that fulfil the respective criteria. That is, whenever the specific point of time triggers a payment, the same amount is paid for all the relevant inventions, irrespective of the minimum level defined in the national laws. This way the employer does not necessarily have to extend the compensation for inventions where the triggering event will never be topical. Adopting this kind of approach would also duly address an additional compensation for the inventions that are not patented in the countries where a mere acquisition of the rights triggers the duty to pay compensation. However, a compensation for merely reserving the rights but not patenting the invention would not be extended beyond the legal duty. An exemplary compensation scheme following this approach could be for example as follows:

TIME OF PAYMENT	TYPE OF PAYMENT	COUNTRIES WHERE PAID
Acquiring rights to an invention, optionally reserving rights to patenting later i	Reservation reward	FI, DE
Declaring the invention secret	Special reservation reward	FI, DE, RU, HU
Acquiring rights to an invention and patenting it, payment when filing a first patent application	Patenting reward	FI, DE
A patent granted for invention	Patent grant reward	FI, DE, CN, RU
Patent utilization and valuation	Special Reward	FI, CN, HU (UK)

This kind of scheme can be considered as a *selective adoption of a holistic approach*, namely a holistic approach in respect of the amount of compensation. In other words, the *amounts* of the rewards are the same irrespective of the jurisdiction. However, with the *basis* and the *timing* of the payments, the scheme is applied according to the relevant national laws. The inventor is eligible for the respective reward only if legally entitled to. However, there also other alternatives for implementing a holistic approach in a selective manner:

E) Selective adoption of a holistic approach

Indeed, companies can adopt a holistic approach also in a selective manner, and in many different ways. One example is the aforementioned holistic approach applying only to the amount of the compensation when the inventor is entitled to the respective reward, but not extending it to the eligibility of such an award. Another option to selectively adopt a holistic approach is to categorize inventions to different categories and to pay compensation for all the inventions belonging to the certain categories, irrespective of the jurisdiction. Tish categorizing can be based on different aspects such as a *status* of the inventions and related *technology*.

Typically, in their compensation schemes companies tend to define a standard award for those inventions that are patented or granted patents for, to be applied world-wide. This is because there usually is measurable economic value associated with the patents, unlike with inventions that are not patented. As said, there might be friction between the co-inventors if they are paid different amounts for the very same joint invention. However, any dissatisfaction caused will probably be even greater in cases where inventors are not paid anything for their rights. Especially in the case of patented inventions, the higher the importance and the economic value of the patent for the employer, the bigger the dissatisfaction regarding the discrepancy.

The *standard award* for inventions that are patented can refer to a smaller reward paid at the time of filing a patent application for the invention (“a patenting reward”) or when a first qualified patent for the invention is granted (“a patent grant reward”) or to both, depending on the compensation policy in the employing company. Every time an invention is patented, it is paid the patenting reward irrespective of the jurisdiction the individual inventor originates from. Similarly, when a first patent is granted for an invention, the patent grant reward is paid for all the co-inventors having contributed thereto. These standardized awards facilitate managing payment procedures in the company. However, after the patent has already been utilized and proves to be valuable in terms of the economic benefits for the company, an additional award can be paid in the form of “a special award”, also referred to as a

“*a royalty award*”⁸³⁵. It is usually this level of reward that distinguishes the most valuable patents of all the patented inventions. All the patented inventions are equally awarded with the patenting reward but not all result in patents or at least are not necessarily equally valuable. In order to make a difference among the patents the employer needs to be able to make some selections.

One option is to categorize inventions so that only certain patents are compensated globally, for example those that have *standard-relevance*. All other patents, also referred to as implementation patents, are then compensated in accordance with the national laws. The employer is thus making a difference between the two groups of patents by evaluating one to be more valuable than the other. This categorization can be based on any kind of criteria, and not just based on standardizing. For example, certain *business-relevant technologies* could be prioritized over the others. Essentially, it is a matter of evaluating what type of patents are the most important for the company in question and applying the global compensation policy only for those.

There is at least one more option for the employer to try to find a balance between equal treatment of the inventors and applying strictly the legal rules. To avoid dissatisfaction between the co-inventors in joint inventions a decision could be made to compensate globally those inventions where co-inventors originate from different jurisdictions, and at least one of the inventors is legally entitled to the compensation. Even if not all inventors within the company were compensated equally, at least co-inventors in cross-border joint inventions are. It was asked earlier whether adopting a holistic approach could result in distortion of the innovative activities so that if compensating all inventions, even if they are not patented, many minor inventions would be reported? An equally relevant question is whether a selectively holistic approach could impact on how the inventive activities among the employees are arranged? This question will be next explored from the point of view of the territorial innovation activity as well as from the technological point of view.

⁸³⁵ For example, in Nokia Corporation Award Scheme for Employee Inventions from 2001 (the guidelines that have been published in Finnish as an appendix in Timo Kivi-Koskinen, Työsuhtekeksinnöt 2002) it is stated in the article 3.2. that “[t]he fixed award shall be paid by the Employer for every invention within the field of this Award Scheme.” The guidelines further state in the article 3.3: “For inventions, the economic importance of which is not a minor one, the Employer shall in addition to the fixed award pay to the employee *a royalty award*. The royalty award may be a fixed royalty award or a running royalty award.” (Emphasis added)

7.3.2 Can an adopted approach affect arranging inventive activities?

What if creating a holistic approach is too complex – or expensive - and employers decide to act strictly according to laws, only applying legal requirements, even in joint global inventions? Or, what would the consequences be if employers adopted a holistic approach only, for example, in joint inventions, or in respect of standard-related inventions? Can decisions such as these in some way affect the manner in which inventive activities are arranged within the R&D function of a company?

In theory, several activities are potentially impacted when incentives are the main driver for innovation. First, there could be an attempt to direct innovative activities *territorially* so that at least one of the named inventors will be engaged from a jurisdiction where the employer has an obligation to pay for the rights to the invention. Secondly, innovative activities can be directed *technology-wise*. If a company decides to prioritize inventions belonging to certain technologies and extends the compensation globally for any related inventions, this can direct innovative activities towards the prioritized technologies. Whether compensation functions as an incentive to innovate and can direct inventive activities is of course highly subjective issue. Therefore, the presented scenarios are highly hypothetical. However, they do represent factors in the risk analysis which the employer needs to take into account when making business decisions, especially regarding whether to extend payment of compensation beyond the legal duty also to other jurisdictions.

Let us first explore a situation where the employer has decided to apply a holistic compensation policy globally in joint inventions involving inventors from multiple jurisdictions, wherein at least one of the co-inventors is eligible to compensation for the rights. In global cross-border projects, this kind of policy may result in an increasing number of joint inventions involving an inventor from a jurisdiction with a legal duty leading to compensation for all of the co-inventors. In other words, there may be attempts to arrange inventive activities to always *involve at least one inventor who is eligible for compensation*. As an example, knowledge of having a Finnish inventor involved in a joint invention resulting in applying the compensation policy to all the co-inventors could direct the innovating work so that Finnish inventors are especially desired to be collaborated with. It should be noted that this inventor cannot be named as a co-inventor without any contribution to the invention. Due to the true inventorship doctrine in the U.S, this could impose a risk to the validity of the granted U.S. patent.⁸³⁶

The selected approach, and even a non-holistic approach based strictly on legal requirements, could also have an impact on the mobility of employees, more

⁸³⁶ See footnote 190.

specifically the inventive activities of mobile employees. In fact, the prospect of compensation might cause inventive activities to be arranged even in sole inventions. For example, an expatriate could strategize about the place or the time for creating an invention so that an invention is conceived in a host country where the rights are compensated, or where higher compensation is paid than in the home country. This kind of territorial impact concerns the *place of invention*. In such a case there is an attempt to “relocate” the invention so that compensation will be applied. However, where the invention is conceived cannot be planned. Thus, in order to optimally “place” the conception in respect of the expatriate term, tactics need to be applied also in respect of the *time of the invention*. In practice this could mean that an invention that has been duly conceived already in the home country is not reported to the employer until the inventor is already working in the host country where they are eligible for compensation. In other words, the inventor delays reporting the invention so that it is docketed as being made in the country with a duty to pay compensation. Vice-versa, after already returning to the home country, the inventor could antedate some of the inventions, to allegedly have been made in the host country, if the legislation in the host country offers more favorable compensation.

However, the approach which is adopted can also direct the innovative activities *technology-wise*. For example, adopting an approach preferring standard-related inventions over implementation patents could result in an increase in standard-related inventions. This can of course be very beneficial for the company. Such an impact can also take place in categorizing based on specific technology. In this way, inventions concerning technologies that the employer has decided to incentivize globally take priority and direct the work accordingly, although at the cost of other technologies. Then again, both scenarios are based on a business decision made by the company to prioritize certain inventions. Therefore, increase in inventions concerning the prioritized technologies should be only a good thing for the company.

In the recent study mentioned earlier when discussing the different ways of crediting the employed inventors, it was investigated the effects of the rewards in R&D setting in which employees’ inventive efforts lead to patented inventions.⁸³⁷ The results suggest that internal withdrawal behaviors are strategically important. According to the study managers should recognize, from a predictive and proactive perspective, that increasing the number of rewards for patents will likely result in more “false positives”, namely of rewarding low-quality inventions but in a relatively smaller decrease in “false negatives”, namely possibility of overlooking high-quality inventions. A change to the compensation system could have both

⁸³⁷ Marco S. Giarratana, Myriam Mariani and Ingo Weller, Rewards for Patents and Inventor Behaviors in Industrial Research and Development (2018) 61(1) Academy of Management Journal, pp. 264-292.

positive and negative effects, but corporate scientists are likely to react negatively to increased reward breadth. But the study acknowledges that work motivations are difficult to observe, and it would be difficult to identify corporate scientists in an ex ante effort to control their behaviors. However, in the study it is noted that managers can carefully monitor signs of dissatisfaction and changes in behavior, especially after any change to the firms' compensation system. A further managerial implication of the study is that "[a]s complex managerial practices that serve different purposes and feature manifold uncertainties, compensation systems demand further research that can disentangle the contingencies of the partly contradicting forces and their interactions with employee motivations to predict their ultimate effects on employee behaviors and firm performance."⁸³⁸

Indeed, in order for the company to evaluate the impact of a decision to voluntarily apply its compensation policy, either partly or as a whole, outside the jurisdictions with the legal duty, it is always possible to launch a *fixed-term pilot program*. The policy would be applied globally during the piloted term. Then, afterwards it would be analyzed whether the program affected the inventive activities; whether there was an increase of the inventions falling within the scope of the pilot program and whether it took place with the cost of a decrease of other types of inventions. Depending on the outcome, the pilot program could then be stopped, or in case of some clear benefits were achieved, extended further, or even institutionalized to a policy.

7.3.3 Viewpoint: statutory bonus system for professional innovators?

There is a world-wide discrepancy between remuneration schemes for the employed inventors, from the countries where the employees are rarely awarded additional compensation for work-generated inventions in excess of their salaries to the countries where remuneration is common practice. Are the latter countries awarding "money for nothing" in comparison to the countries where the inventors are not compensated?⁸³⁹ It should be noted that in the current corporate environment, employees who regularly come up with patentable inventions are typically technology professionals, such as engineers, researchers and scientists. These experts work in the company's research centers where the mission is to develop new technologies and to identify technical solutions to already existing problems and improvements to the known solutions to such problems. Thus, it can be asked

⁸³⁸ Ibid., p. 284.

⁸³⁹ Jürgen Meier, Thure Schubert and Hans-Rainer Jaenichen, 'Employees' Invention Remuneration Money (f)or Nothing?' (April 2005) 24(2) Biotechnology Law Report, p. 9.

whether such professionals have in fact been hired to develop new and inventive solutions to technical problems? Since they are paid for doing the innovating work they are hired for, is the statutory compensation actually only an additional, legal bonus system provided for these professional innovators?

Going back to the industrial environment at time when, for example, the Finnish law was enacted in 1967, the company structures were much simpler and there were no large and organized R&D functions as in the current big industrial corporations.⁸⁴⁰ Fewer employees worked in duties which directly related to development and innovating, compared to current companies. Making employee inventions was not as common as it is nowadays. For an individual, it was probably something that took place once in a lifetime. Fewer inventions were patented and it can be assumed that those that ended up being patented were the most important inventions. Thus, in the law it was only fair to define mandatory, fair and reasonable compensation for assigning the rights to such. The Finnish law has been amended several times since it was enacted. For example, as a reflection to the changes which have taken place in company structures, the definition of an employer was broadened to cover a whole group of corporations, to meet the current complex company structures.⁸⁴¹ However, the mandatory compensation for the rights to inventions made by employees has not been changed despite changes in the way innovative activities in current companies are organized, not to mention the increasing trend to patent new technologies. Notably, before the law was enacted, there was a proposal by the Employee Invention Committee to introduce a provision to the law stating that in some cases the salary paid to the employee could constitute compensation for the right to an invention.⁸⁴² The suggested provision excluded the right to separate compensation in cases where the value of the right vested in the employer did not exceed what would be reasonably considered as a counter-performance against the salary and other employment benefits for the employee in question. This would suit well the current technology corporate environment, at least in less valuable inventions. However, the proposal was deleted in the Government's bill on the Act on the Right in Employee Inventions⁸⁴³ and it was not entered into the law. Thus, the law still provides the right for an employee to receive fair and reasonable compensation for the rights acquired by the employer, irrespective of the value of the invention, or whether the employee is hired for inventive activities.

⁸⁴⁰ For example Niklas Bruun, Karla Kilpeläinen and Marja-Leena Mansala, '*Työsuhte ja oikeus keksintöön*' (1992), p. 2.

⁸⁴¹ Act on the Right in Employee Inventions, 1.4§ (1078/2000).

⁸⁴² KM 1965:B 16, p. 6 grounds on p. 38.

⁸⁴³ HE 56/1967.

The question remains as to whether for at least such inventions where the value is low, and the employee has merely conducted their duties when making the invention, the compensation provided by the law is just another bonus system – with the difference that bonuses are typically voluntary-based rewards whereas employee invention remuneration is derived from the mandatory provision of law? Of course, it is always possible to take these aspects into account when evaluating the level of “fair” compensation. Indeed, in some cases a smaller standard reward is deemed to constitute such. To try to conclude whether a statutory (or implicitly binding) compensation scheme can be considered an additional bonus system for professional product technology developers on top of their salary, which is already compensation for development work related to their regular duties, the answer is two-fold: 1) In cases where the value of the invention is low, and especially when the invention in question has been created in connection with the duties that the employee has been hired and paid for, one can more easily consider the entitlement to a separate compensation as an additional bonus system without which the employee might not be entitled to get any extra compensation for assigning the rights to the invention. 2) However, in respect of the more valuable inventions, of which the employer gains substantial economic benefits, the statutory bonus system still serves its purpose as a rewarding system for the work beyond the normal duties. The fact that for example the Finnish law defines the level of compensation in very vague terms, leaving room for interpretation and thus increasing uncertainty among employers, is another issue that might need clarifying in the law.

7.4 Summary and transitional thoughts

Chapter 7 has provided an insight into invention management in respect of compensation, where the rules vary considerably, and in some cases do not even exist. Companies struggle in finding a balance between the legal requirements and the equal treatment of all inventors employed by the company, irrespective of their country of employment. Difficulties arise from the fact that in different countries the basis for compensation can vary, which also affects the timing of the payment. Further, the defined level of compensation differs. In some countries there is no requirement to pay any extra compensation. A truly holistic approach, which is applied equally to all employees irrespective of their jurisdictions, would address all the country-specific differences. Thus, it would necessarily extend the right to compensation voluntarily at least at some level also to countries without duty to pay such and raise the compensation level in the countries where the level is set lower.

The two preceding chapters 6 and 7 have focused on the “complex of laws” and the challenges arising in cross-border collaboration projects and inventive activities therein, something that employers confront in trying to comply with them all. The

challenge is that in respect of the very same invention, the acquisition of the rights and compensating them are subject to multiple different rules, based on the jurisdiction of the individual inventors. As a result, the rights to the same invention can be vested in the employer at the different times, and in different ways. Further, the compensation for the rights can be triggered at different points in time and be of different levels. However, there is a common factor in these confrontations. The parties to the acquisition of the rights and the payment of the compensation are the employer and the employee-inventor. It is in this relationship that the rights are assigned and compensated. In other words, the validity of the acquisition of the rights is dependent on the actions made in relation to the individual inventor(s). Nevertheless, after the valid entitlement to the *invention*, there are still specific legal issues derived from the national laws affecting the validity of the *patent*, to be addressed when seeking patent protection, irrespective of the validity of the entitlement to the invention or fulfilling the general patentability requirements set for the patents.

8 Patenting Inventions Made in Cross-border Collaboration

8.1 National security provisions in cross-border collaboration

8.1.1 National security provisions vs. Preceding conflicts of laws

In addition to the different national mechanisms for acquiring the rights to employee inventions, as well as the rules for compensating them, there are special provisions related to national security which determine the place for filing the first patent application for inventions fulfilling certain criteria. The criteria, which was introduced in chapter 5.2., relates to the place of invention and the residence of the inventor(s). In addition, there may be further requirements, for example, only inventions related to a certain technology area fall within the scope of the provision. The common global requirement for national security provisions, however, is that the first patent application for inventions fulfilling the respective criteria should be filed in the country of provision, absent of a foreign filing license, where available.

The challenges inherent to acquiring and compensating the rights to global inventions mainly relate to managing different rules and balancing between the legal duty to pay compensation and the equal treatment of the employed inventors. To acquire the rights to a joint invention involving multiple inventors from different jurisdictions, all the different rules must be complied with. This can be overcome by slicing the invention into pieces to which the rights are acquired in accordance with the laws applicable to the respective inventor. The compensation issue is then more of a moral nature, the invention again being considered as a cake with slices, but with a different price set for each slice. The employer then needs to decide whether to pay the same price for each slice, namely create a holistic approach which addresses all the country-specific differences, which is then applied to all the inventors, irrespective of their jurisdiction.

However, in joint inventions involving co-inventors from different jurisdictions there can also be a conflict between national security provisions. This may

potentially result in two or more simultaneous requirements concerning the place for filing the first patent application. However, in this situation the invention cannot be divided into slices and a patent application filed separately for each slice. As such, solving this conflict needs a different approach than in the earlier presented conflicts.

8.1.2 Managing simultaneously applicable national security provisions

When inventions are made in cross-border collaboration projects there may be multiple national security provisions that all need to be complied with simultaneously. For example, the place for an invention could be in a country where national security provision requires the first patent application to be filed within that country. However, one of the inventors may be a resident of another country where national security provision requires the inventions by the residents of the country to file the patent application first within that country. Furthermore, the invention may have been worked on in several places and research sites. In addition, several inventors may originate from different countries all of which require the first application to be filed in the respective country. Thus, to ensure the validity of the patent in all the respective countries, the criteria for two or more national security provisions may need to be applied in the invention in question. Therefore, the conflicts of law in these situations are not traditional conflicts of laws, where ultimately one law applies. Instead, the company must simultaneously comply with all the conflicting national security provisions in order to secure valid patent protection for the invention in relevant markets.

How can these conflict situations be solved where several national security provisions apply to the same invention, namely when the first patent application for the invention is required to be filed in all the relevant countries? The situation is challenging as only one first patent application (priority application) can be filed for the invention. Typically, only the priority application is filed shortly after the invention is made. The subsequent patent applications, so called “foreign applications” (even if the first application was already filed outside the domestic country) are not usually filed until the end of the priority year. In theory, nothing prevents filing the first patent application(s) for the invention simultaneously in two different countries. However, given the secrecy reviews in many national security provisions, the procedure might not comply with restriction periods. These require applicants to wait after filing the first patent application in the respective country, so that authorities can conduct a secrecy review. Therefore, the conflict between two first filing requirements generally cannot be overcome by filing the two first patent applications simultaneously in two countries, or in the case of more conflicts, in all the countries involved.

8.2 Relevance of several national security provisions in same invention

8.2.1 Multiple reservations for the same cake

In the case of several national security provisions applicable to the same invention, it is not possible to divide the invention into parts and apply them to the respective parts. Based on the cake metaphor used previously, the situation where multiple national security provisions need to be applied simultaneously and may also be in conflict with each other could be equalled to having multiple reservations for the same, unique cake. It is simply not feasible for both or all customers to have the same cake. In the previous examples the cake could be divided into slices based on individual contributions, and these slices were possibly priced differently. However, in patenting the invention can only be handled as one entity, which is patented in one patent application, and thus only one patent application can be the first to be filed.⁸⁴⁴

The following case examples are built on national security provisions and their requirements. For the sake of simplicity, in the case examples only two national security provisions are in conflict. In the first case there is a conflict between two national security provisions based on the place of invention. A joint invention is made by two inventors who have contributed to an invention in jurisdictions where the law requires the first patent application for an invention made in the country to be filed within that country. The invention is considered to have been made in both the respective countries, i.e. partly made in one and partly in the other (*Case example 16: Invention made in the US and China*). The second case example introduces a similar kind of conflict scenario, but the conflicting national security provisions are now based on the residence of the inventors (*Case example 17: Invention made by a resident of UK and India*). In this case it does not matter where the invention has been made and whether the inventors have been working in the same country or co-operated in a cross-border project from their respective countries, as long as their residences are different. The third case example is a combination of the first and second case example scenarios, namely a conflict situation between a national provision that is based on the place of invention and a national security provision based on the residence of the inventor (*Case example 18: Invention made in the U.S. and by a resident of India*). The case examples will now be elucidated further:

⁸⁴⁴ This should be differentiated from the fact that multiple patent applications for an invention can certainly be filed. As the patent provides territorial protection, separate patent applications need to be filed to obtain patent protection in desired countries. However, all those patent applications contain the invention as one entity, and not separate parts of it.

8.2.2 Case examples

8.2.2.1 Multiple places of invention for the same invention

Case example 16: Invention made in the US and China

In this case example a joint invention is made during a cross-border collaboration project of a multinational company by inventors originating from the U.S. and China. That is, there are two countries involved which both have a national security provision based on the place of invention, requiring an invention made in the country to be first patented in that country. The co-inventors have mainly contributed to the project from their own countries, by working both independently to solve the same technical problem, and also by collaborating via modern means of communications such as chat, e-mails and videoconferencing. Thus, the invention can be deemed to have been made partly in the U.S. and partly in China.

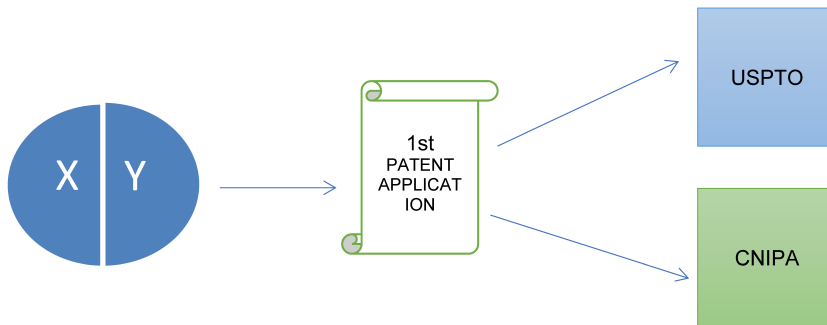


Figure 25. Multiple places of invention for the same invention.

According to the U.S. law the first patent application for the invention should be filed in the U.S., or a foreign filing license needs to be applied for⁸⁴⁵. Similarly, the Chinese law requires the first filing to take place in China, or alternatively submitting the matter for a confidentiality examination⁸⁴⁶. It has already been concluded that a priority application can typically only be filed at one patent office, but could two priority filings, taking place simultaneously at both the mentioned patent offices, USPTO and CNIPA, solve the conflict of the national security provisions here? Let us try to apply such an approach here:

⁸⁴⁵ 35 U.S.C. 184 and 37 C.F.R. 5.11(a).

⁸⁴⁶ Patent Law of the People's Republic of China, Art. 20.1.

In both countries, filing the first patent application would duly comply with the requirement of the respective national security provision, for the application filed within *that* country. That is, filing the patent application in the U.S. fulfills the requirement of the U.S. law, having special requirements only for applications *outside* the U.S. when the invention has been made in the U.S. Similarly, the patent application filed in China fulfills the requirement in the Chinese law, as the application is submitted to the patent administration department for a confidentiality examination. However, simultaneously filing to the patent office of the *other* country without any permission can contradict the mentioned national security provisions.

First, according to the U.S. law, a foreign filing license is required before filing a patent application in a foreign patent office if the invention was made in the U.S. and either no application has been filed in the U.S. or, an application has been filed in the U.S. less than six months ago.⁸⁴⁷ In this case example, the patent application filed in the U.S. has certainly been filed less than six months ago which means that any foreign patent application, such as the one filed in China, requires a foreign filing license from the Commissioner for Patents. Notably, the U.S. law does provide that the license may be granted retroactively where an application has been filed abroad through error and the application does not disclose an invention within the scope of section 181 regulating the secrecy of certain inventions and withholding a patent for such.⁸⁴⁸ However, in this case there is no such error involved, as the applicant is assumed to be duly aware of the national security provisions. Thus, the application filed in China absent of a foreign filing license contradicts the U.S. law.

Secondly, according to the Chinese law, any unit or individual intending to apply for a patent in a foreign country for an invention accomplished in China shall submit the matter to the patent administration department for a confidentiality examination.⁸⁴⁹ The patent application filed in China can surely be considered as such, but as the purpose of the confidentiality examination, also called “secrecy review”, is to monitor that no national secrets are exported outside the country in the patent applications filed abroad, merely submitting the patent application cannot be considered to fulfill the requirement of the law regarding filing foreign patent applications. Indeed, the Implementing Regulations of the Patent Law state that applicants who have not within four months of the request been notified of the confidentiality examination, which requires that inventions are kept confidential if they are considered *likely* to involve national security interests or substantial interests, can proceed to filing a patent application in a foreign country.⁸⁵⁰ Further,

⁸⁴⁷ 37 C.F.R. 5.11(a); 56 Fed. Reg. 1924, 1926 (Jan 18, 1991).

⁸⁴⁸ 35 U.S.C. 181 and 184 (a).

⁸⁴⁹ Patent Law of the People’s Republic of China, Art. 20.1.

⁸⁵⁰ Rule 9.1 of the Implementing Regulations of the Patent Law of the PRC.

if the applicant after receiving the notification has not had any decision within six months of submitting the request regarding whether confidentiality should be kept, the applicant can proceed to filing in a foreign country.⁸⁵¹ Neither of these conditions are however present in the case example at hand, and therefore the patent application filed in the U.S. is in contradiction with the Chinese law.

To conclude, the presented approach could not be used to solve the conflict of laws in the case example. The simultaneously filed patent applications, even if filed in compliance with the national security provisions of the respective countries do not comply with the other country's national security provision. A failure to comply with national security provisions can have a harmful impact on patent protection in the country of the provision, for example in China not granting a patent for an invention for which an application is filed in a foreign country in violation of the provision.⁸⁵² Thus, there needs to be an alternative solution to solve the problem, in order to achieve valid patent protection for the invention both in the U.S. and in China.

The first patent application in the case example can thus be filed only in one country. In this example, it is possible in either country, as both the countries have a foreign filing license system in place. However, practical issues can affect the decision regarding the place of filing for the first application, such as speed of processing the confidentiality examination or the foreign filing request, which in turn impacts the time of filing for the first patent application. Namely, as the joint invention in question is made both in China and in the U.S., filing the first patent application in either country requires permission to file abroad from the authorities of the other country. Thus, patent protection does not start until this permission has been received or is deemed to have been received as in China. Therefore, it makes sense to decide the country of the first filing based on efficiency factors. One could imagine that as the foreign license system has been in use in the U.S. for many years, it may work more efficiently than in China, where the procedure is fairly new for both the applicants and the authorities. Further, in the U.S., in cases of urgency, it is also possible to seek an expedited petition for a foreign filing license, obtainable in three days.⁸⁵³ Therefore, and as it is always wise to file a priority application as quickly as possible to ensure to be the first to file, seeking a foreign filing license from the U.S. might be a quicker process even if in practice the confidentiality examination in China does not necessarily take as long as four months.⁸⁵⁴

⁸⁵¹ Rule 9.2 of the Implementing Regulations of the Patent Law of the PRC.

⁸⁵² Patent Law of the People's Republic of China, Art. 20.4.

⁸⁵³ 37 CFR 5.12(b).

⁸⁵⁴ As a practical insight, the average time period from the submission of the confidentiality examination request to the issuance of the examination conclusion for the first time by CNIPA in 2014 has been two weeks, Source of information: Nannan, Lin and Qi Wang, 'Implications of country of completion in Chinese filing (March 1, 2014), ManagingIP.

Thus, no patent application is filed in the U.S. but instead, a foreign filing license is sought. When the foreign filing license is granted by the Commissioner for Patents, the first patent application in respect of the invention will then be filed in China, at the same time submitting the matter for a confidentiality examination.

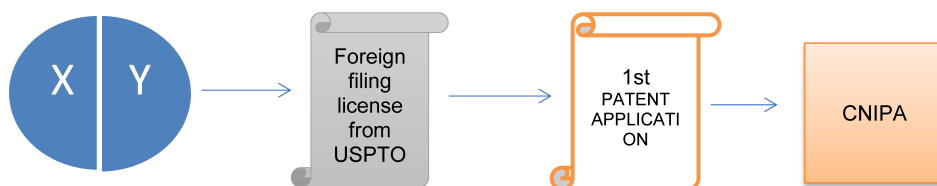


Figure 26. Problem-solving approach for complying with multiple national security provisions - place of invention.

8.2.2.2 Multiple residences of relevance for the invention

Case example 17: Invention made by a resident of UK and India

While in the previous example the conflict of laws occurred between two national security provisions based on the place of invention, the next example presents a case with a conflict of laws between two national security provisions, where the requirement of the first filing is based on the residency of the inventor(s). The co-inventors in the joint invention are now residents of India and the UK. Both Indian and UK law contain a national security provision which provides that a patent application for an invention made by a resident person therein shall not be filed outside the respective countries without written permission. The Indian law states that no person resident in India shall make or cause to be made *any* patent application outside India unless authorized to do so under written permission granted by or on behalf of the controller.⁸⁵⁵ In the UK, the provision is currently (since 1.1.2005) restricted to only such inventions which relate to military technology, or the publication of which would be prejudicial to the national security or the safety of the public.⁸⁵⁶ Without doubt, the ultimate objective for national security provisions is to safeguard national security.

As previously mentioned, the UK Patents Act does not provide much guidance about inventions which fall within the provisions relating to national security or to the safety of the public. However, a list of technical areas that may be subject to

⁸⁵⁵ Section 39.1 of the Indian Patents Act, emphasis added.

⁸⁵⁶ Section 23 of UK Patents Act, 1977, as amended in 2005.

Section 22 of the Patents Act exists. These areas have been outlined by the Secretary of the State of Defence to the Comptroller as areas constituting information which, if published, could be prejudicial to national security.⁸⁵⁷ However, this list is only intended for internal use by the UK Patent Office, and as such, it does not provide direct guidance to the applicants when considering the relevance of their inventions in this respect. Thus, ultimately, the onus is on the applicant to discern whether the provision is relevant. Nevertheless, it should be noted that the list, published by the patent office, contains a wide range of different and even highly generic technology areas, such as for example communication and encryption technologies. Therefore, the relevant scope is not restricted to specific technology areas such as military technologies. In fact, with regard to inventions related to military technologies the instructions specifically state that permission to file abroad must be requested regardless of whether the technology falls within any of the listed categories. The guidance also states that inventions falling into any of the listed categories are not automatically subject to directions under Section 22. Thus, it is extremely challenging for applicants to know whether their inventions, for example related to encryption technologies, are considered relevant. To be on the safe side, it is better to assume that the provision applies rather than to consider it irrelevant.

Since the invention is now partly made by a resident of India and of the UK, both the national security provisions initially apply. The relevance of the respective provision is clear in respect of the Indian resident. However, for the part made by the UK resident the question remains as to whether the invention falls within the scope of the provision. Given the aforementioned wide range of categories that can be subject to the restrictions, let us now assume in this case example that the applicant is uncertain about the relevancy of the provision and therefore, to be on the safe side, decides to act also according to the national security provision of the UK. Thus, the applicant cannot file a patent application for the invention in a foreign country neither in India nor the UK, without a permission. In practice, this means that filing a patent application in either country initially requires foreign filing permission from the other country. This starting point is illustrated in Figure 27:

⁸⁵⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307009/p-securitylist.pdf.

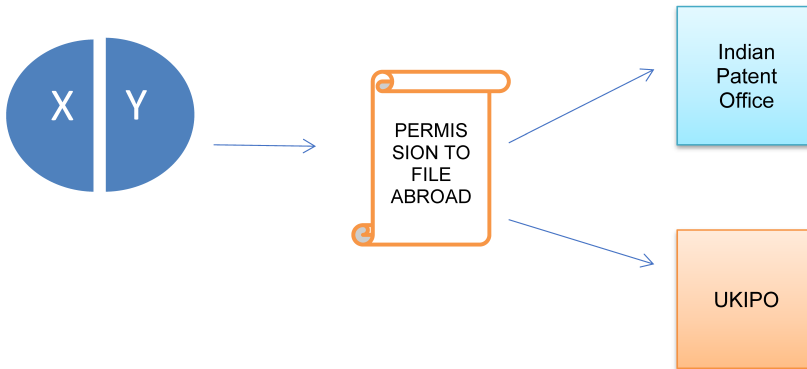


Figure 27. Multiple residences of relevance for the same invention.

In order to patent the invention of this case example, partly made by an inventor resident in India and partly by an inventor resident in the UK, the first patent application should be filed both in India and in the UK. However, both the provisions forbid filing a patent application outside the country for the inventions made by the resident in that country without specific permission. Therefore, in order to file a patent application in either country, permission to file abroad is needed. Or is it? Let us again approach the case example from different angles, in the light of both laws. The Indian patent law states: “No person resident in India shall, except under the authority of a written permit sought in the manner prescribed and granted by or on behalf of the Controller, make or cause to be made any application outside India for the grant of a patent for an invention unless (a) an application for a patent for the same invention has been made in India, not less than six weeks before the application outside India; and (b) either no direction has been given under sub-section (1) of section 35 in relation to the application in India, or all such directions have been revoked.”⁸⁵⁸ In other words, the patent application for this invention, which has a co-inventor resident in India, cannot be filed outside India without written permission, or if the application is first filed in India, not until six weeks post filing. From the point of view of the *Indian* law, it is thus possible to proceed to file a patent application in the UK without foreign filing permission six weeks after the Indian filing.

Since the invention also involves a co-inventor who is a resident of the UK, the UK provision needs to be addressed, too, when considering the aforementioned option of filing a first patent application in India, which duly complies with the Indian provision for national security. According to the UK provision, where an inventor resident in the UK has made an invention relating to military technology,

⁸⁵⁸ Section 39.1 of the current Indian Patents Act.

or the publication of which would be prejudicial to national security or to the safety of the public, a patent application for the invention should not be filed outside the country without written authority from the comptroller. However, in the UK there is also a restriction period of six weeks. In practice this means that if a first patent application for the invention has already been filed at UKIPO, then after this period the applicant is free to seek patent protection abroad, unless the applicant has been informed of directions which prohibit or restrict publishing information contained in the application or communicating it to any specified person, pursuant to Section 22 of the Act.⁸⁵⁹ From the point of view of the UK law, it would thus also seem possible to proceed without foreign filing permission six weeks after filing in the UK.

However, even if it seems possible to comply with both national security provisions by filing a patent application in the respective country and then, after six weeks, proceed with filing in the foreign country without permission, in both scenarios the filing of the patent application in the other country would violate the national security provision of the *other* country. Therefore, at least one foreign filing permission needs to be sought prior to filing any patent application for the invention. Both alternatives are now explored to establish whether there are any efficiency differences between the procedures in practice.

Let us first explore the procedure according to the Indian law which states that a written permit shall be sought in a prescribed manner. In practice this means completing a form entitled “Request for Permission for making Patent Application outside India” with a brief description of the invention, information regarding inventors and applicants, the country or countries in which the patent application is expected to be filed after obtaining permission and the reason for filing, as well as paying a requisite fee.⁸⁶⁰ Timewise, permission is usually received within twenty-one days from the date of filing the request, unless the invention relates to defence and atomic energy.⁸⁶¹ Thus, it typically only takes three weeks to conduct the necessary clearance for the joint invention in the case example, after which the patent application can duly be filed in the UK, without violating the Indian law.

Next the procedure will be explored from the point of view of the UK law where no prescribed manner for the request for permission is defined. Therefore, it is assumed here that an application providing sufficient details about the invention, the inventors, the countries for the planned patent protection and possibly also the reasons for seeking protection will fulfill the formal requirements. Regarding the schedule, in practice the applicant should be notified within six weeks if some restrictions are imposed. After the restriction period of six weeks, the applicant is

⁸⁵⁹ Section 23 of UK Patents Act, 1977.

⁸⁶⁰ Patent Rules 2003, Rule 71(1).

⁸⁶¹ Patent Rules 2003, Rule 71(2).

free to file the application abroad unless they have been informed otherwise. There may be differences in screening the patent applications that have been filed compared to mere requests to file abroad, which may be caused by the fact that patent applications describe the inventions better, which facilitates examining whether the invention falls within the scope of the provision.

It should be noted that even if in India a foreign filing license is needed for *any* inventions involving a resident Indian inventor, the procedure is still relatively efficient and straight-forward, as typically within 21 days of filing the request, permission is received by the applicant. In the UK, the procedure can take six weeks so double the time. On some occasions the difference of three weeks can be critical; in some cases it may be necessary to receive the clearance for filing a patent application even sooner. However, in standard situations, assumed to be the case here, the earlier filing of the priority application in the case example might be achieved by seeking the foreign filing permission first from India:

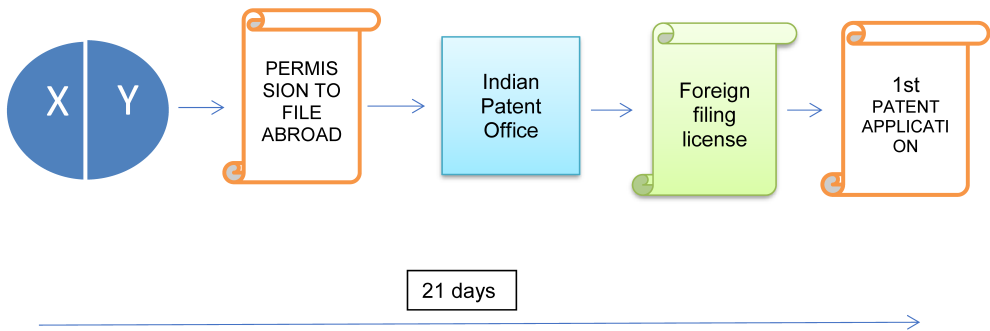


Figure 28. Problem-solution approach for complying with multiple national security provisions – residency.

8.2.2.3 Conflicting rules of place of invention and residence

Case example 18: Invention made in the U.S. and by a resident of India

The final case example presents a scenario where the conflict of laws takes place between two national security provisions, one of which is based upon the place of invention and the other based on the residence of the inventor(s). For simplicity, the same countries are used in this example as in the previous examples. The joint invention now involves co-inventors from the U.S. and India. More specifically, the invention is made in the U.S. and also by the Indian resident inventor(s) and therefore, the national security provisions of both the countries are applied.

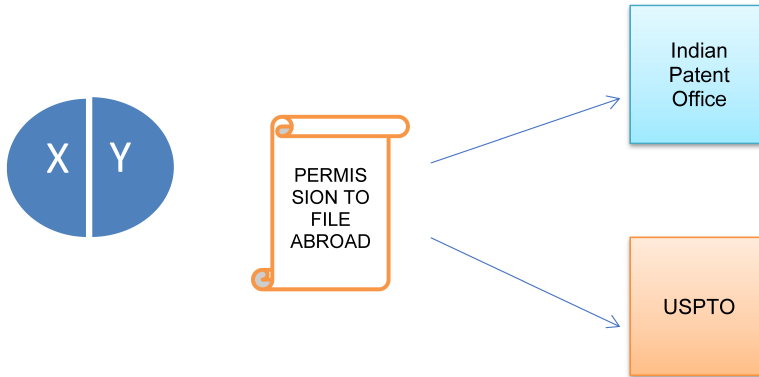


Figure 29. Conflicting rules of place of invention and residence.

As both the national security provisions of the U.S. and India are of relevance, an application cannot be filed in *either* country prior to receiving permission from the other country. Indeed, the situation is the same as in the previous examples: According to the U.S. law a foreign filing license is required before filing any patent application at a foreign patent office, if the invention was made in the U.S. and either no patent application has been filed in the U.S. or an application has been filed in the U.S. less than six months ago.⁸⁶² Regarding India, “no person resident in India shall make or cause to be made *any* patent application outside India unless authorized to do so under a written permission granted by or on behalf of the controller.”⁸⁶³

In the previous examples the procedures for getting a foreign filing license were presented and compared with different combination of countries, namely the U.S. was compared to China and the Indian procedure to that of the UK. The conclusion in the first case example was that it may be quicker to get the foreign filing license from USPTO instead of CNIPA, and therefore it would be more appropriate to file the first patent application in China after receiving the license from the U.S. to file an application for the invention abroad. Indeed, in the U.S. the foreign filing license is routinely granted and in addition, it is also possible to seek an expedited license that is generally granted in only three business days if there is no national security concern involved.⁸⁶⁴ The second case concluded that permission from the Indian patent office is usually received within a period of twenty-one days from the date of

⁸⁶² 37 C.F.R. 5.11(a); 56 Fed. Reg. 1924, 1926 (Jan 18, 1991).

⁸⁶³ Section 39.1 of the Indian Patents Act, emphasis added.

⁸⁶⁴ 37 CFR 5.12(b).

filing the request⁸⁶⁵, while in the UK getting permission to file abroad could take six weeks.

In this specific case example, at least in urgent cases, it would thus be most appropriate to seek an expedited foreign filing license from USPTO and, after it is granted to file the first patent application in India. After the restriction period of six weeks, the application can then be filed in the U.S., without any written authority from the Indian Patent Office, assuming that no direction to the contrary has been given. Then again, after the application has a priority date, there is usually no need to file the subsequent patent applications until at the end of the priority year. However, should the first filing in the U.S. be more important, or even necessary, then a foreign filing license can also be received from the Indian Patent Office as shortly as in twenty-one days, after which it is possible to file the patent application in the U.S. The filing route which will be used is, of course, a matter of business decision and evaluating the individual circumstances of each case.

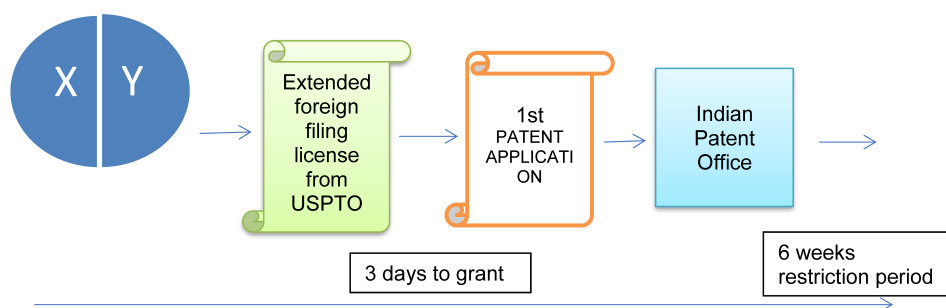


Figure 30. Exemplary problem-solution approach to comply with conflicting national security provisions.

In any case, the applicant still needs to wait at least the three days that it takes to get an expedited foreign filing license from the U.S. until any patent application can be filed. Normally, it should be enough, as for example in the case of business negotiations it is always possible to protect the patentable nature of an idea with a Non-Disclosure Agreement (NDA), prior to filing a patent application. Also, regarding a conference presentation, the invention must have been known for some time before the conference, so there should have been time to prepare for filing a patent application and possibly a foreign filing license. However, a person preparing a conference presentation does not always realize that the presentation, which will

⁸⁶⁵ Patent Rules 2003, Rule 71: “Permission for making patent application outside India under Section 39”.

be published at the conference, may contain a patentable invention which in an employment relationship could belong to the employer, who might have an interest to protect the invention. Thus, the situation could become an issue very late, just prior to the conference, in which case it might already be too late to act as it also takes time to draft a patent application. It should be noted that in practice, any employee planning to give a conference presentation that makes the content of the presentation public, on a subject matter that relates to the employer's business, should seek prior consent from the employer. The employer then has an opportunity, when considering permission, to address the need for protecting the potential invention. It is also possible that with regard to business negotiations a potential invention is identified too late to file a patent application prior to negotiations, but as mentioned, NDA can then be used to retain the patentability until the patent application can be filed, unlike with public conferences. Eventually it boils down to company procedures and how potential inventions are monitored within the company. Some companies apply a so called "push"-mode type of process wherein only such inventions which are reported to the employer are processed and protected. In more IPR-conscious companies, the potential inventions are also "pulled" out of R&D, in order to identify most valuable innovations and to protect the company's innovative assets.

It should be noted that the invention in this specific example does not necessarily have to be a joint invention. The conflict can occur even if the invention only involves one inventor, for example when an Indian resident has made the invention in the U.S. Thus, there can also be conflicts of laws in inventions made by a sole inventor, which means it is even more important for companies to monitor the circumstances related to individual inventions to ensure compliance. It should be noted that this scenario, where the conflict of laws can occur in an invention by a sole inventor, is not in any way limited to a multinational company as it can even occur in a domestic company located in the U.S. when the inventor working in the country is a resident of India. Nevertheless, the said also applies to domestic joint inventions. That is, the conflict pursuant to this case example could very well be illustrated also with such an example where all the joint inventors are located in the U.S. if at least one of them is an Indian resident.

As a further observation, if the company is purely domestic and does not have or plan to have markets outside the U.S., it is relevant to question the need for Indian patent protection. As mentioned earlier, the effect of non-compliance on the national security provisions is territorial, just like the patent protection itself is. Thus, typically the effect of invalidating the patent, which has already been granted, or preventing any grant, only impacts the granted patent or patent application filed in the jurisdiction in question. As such, this does not affect the filings and patent grants in other countries. However, in some countries criminal sanctions are also related to

non-compliance, and India is one of them. Thus, by not seeking a foreign filing license from the Indian patent office prior to filing a patent application in the U.S. for the invention involving an inventor resident in India, the applicant deliberately risks of criminal punishment according to the Indian law. In this case example, it is thus not wise to ignore the Indian national security provision, not even in cases where the Indian patent protection is unnecessary. However, regarding countries where non-compliance only affects the possibility to get a granted patent in the country in question, it is worth considering whether there is any harm of deliberately risking non-compliance, if the invention requires prompt action. This aspect will now be explored, partly with help of the already presented case examples.

8.2.2.4 Deliberate risk of non-compliance with the provisions?

What if there is an urgent need to file a patent application, for example when there is the threat of an invention which is not yet protected being published, and there is no time to wait for receiving a foreign filing license? Further, what if there is not a need for the patent protection in the country requiring the patent application for the invention to be filed first within that country? It could be that a company is a domestic-based entity, which has only domestic markets and therefore does not need to secure markets outside the country. In this case, delaying and complicating the patent protection purely for domestic purposes due to foreign filing license requirements seems an unnecessary burden. It is therefore worth conducting a risk analysis, in terms of the potential consequences to the company if a patent application is filed in the home country without first requesting authorization from the foreign country also involved in the case. An exemplary case scenario follows:

Case 19: US vs. China

In case example 16, a joint invention was made during the cross-border collaboration project of a multinational company wherein the inventors originated from the U.S. and China. In the case example, the first patent application in respect of the invention was filed in China, after receiving the foreign filing license from USPTO. The company of the example was a multinational company, and as the invention was partly made in the U.S. and partly in China, the company in question needed to have operations in both the countries. Therefore, there was also a great likelihood that the company needed to have patent protection for the invention both in U.S. and China. In fact, when a conflict of laws takes place between two national security provisions, based on the place of invention, it is difficult to find any example of a purely domestic company in either country, which would not be interested in patent protection in the other country. Namely, how could any invention in a strictly

domestic company have been partly made in another country? In the beginning of this thesis it was discussed how an invention can sometimes be raised during a business trip but it was also concluded that probably such an invention is not relevant for the national security of the country subject to the business trip, especially in case it is a question of a short visit during which an idea for an invention is raised or an idea that has been conceived already earlier is finally matured to an invention. However, when the inventor works temporarily as an expatriate in another country, then any invention conceived during the term of the expatriate contract can more easily be considered to have been made in the host country. Then again, expatriates refer to employees moving within the same group of companies, and in the case of domestic companies there are no foreign subsidiaries to which the employees could transfer to work. As such, in practice these kinds of conflicts of laws cannot take place in a purely domestic company.

The patent application in the case example 16 was thus filed in China, with authorization from the U.S. However, in situations where there is an urgent need to file a patent application for an invention and no time to wait the requisite three business days to receive an expedited foreign filing license from USPTO, the company may have to consider filing the patent application anyway, without the foreign filing license. What potential consequences could the company encounter if it decides to file a patent application in one country without needed permission?

Case example 19a: Filing a patent application in China without a foreign filing license from the U.S.

Let us first explore the outcome of the case example 16, namely filing a patent application in China, but now *without* the foreign filing license in the U.S. The sanction for this non-compliance with the U.S. law is that the patent will be barred. In other words, no patent in the U.S. shall be received for such an invention for which a patent application has been filed in a foreign country contrary to the provision. In the event that a patent has already been issued, and it is later found that the provision was violated, the patent will be invalid.⁸⁶⁶ However, if the failure to seek the license was through error, and the patent does not disclose subject matter within the scope of Section 181⁸⁶⁷, then there is no sanction. Here, the license may be granted retroactively.⁸⁶⁸ There is no error in this case example, but a patent application has been deliberately filed contrary to the U.S. provision and therefore, the company does not obtain valid patent protection for the invention there.

⁸⁶⁶ 35 U.S.C. 185, "Patent barred for filing without license".

⁸⁶⁷ 35 U.S.C. 181, "Secrecy of certain inventions and withholding of patent".

⁸⁶⁸ 35 U.S.C. 184, "Filing of application in foreign country".

Clearly, the company needs to decide whether it wants to risk patent protection in the U.S. market, which is very important in many areas of business. A decision of this nature could only be justified for particular reasons, for example when the invention relates to a very China-specific technology, such as in the past TD-SCDMA, which was the 3G format of choice for the national standard of 3G mobile telecommunication in China. An invention related to this particular technology would not be implemented in the U.S., and therefore it was unnecessary to protect it there. This means that the company could justify risking non-compliance with the U.S. provision if the Chinese patent application for an invention could not wait the three business days, for example, because the invention needs to be urgently submitted to a standardization body.

Case example 19b: Filing a patent application in the U.S. without a foreign filing license from China

What if the Chinese market is *not* relevant to an invention, and a patent application is filed in the U.S. without requesting a confidentiality examination in China, despite the invention having been partly made there? According to the Chinese law, in the event that a patent application has been filed contrary to the national security provision, namely in a foreign country without submitting the invention contained in the application for a confidentiality examination to the patent administration department in China, then an application filed for the same invention in China shall not be granted a patent for.⁸⁶⁹ However, if no application is filed in China, are there no consequences either? It should be noted that if the patent application filed in a foreign country without a confidentiality review is considered to disclose Chinese state secrets, then the penalties may range from disciplinary sanctions up to criminal prosecution.⁸⁷⁰ This raises an additional question that if no patent application for the invention is filed in China, how could the application ever be subject to a review whereby state secrets are monitored? Once again, the company needs to make a business decision based on the facts related to the individual invention. For example, if a company is producing sanitary napkins with aloe vera the likelihood of this invention flagging issues related to state security is highly unlikely. Conversely, when patenting, for example, new kinds of encryption technologies then the technology area may certainly relate to security. If such an encryption invention has been partly made in China, it would be wise to comply with the Chinese provision.⁸⁷¹

⁸⁶⁹ Article 20.4 of the Patent Law of the People's Republic of China.

⁸⁷⁰ Patent Law of the People's Republic of China, Art. 64.

⁸⁷¹ Patent Law of the People's Republic of China, Art. 20.1.

However, would it make a difference if, due to urgency, a patent application which is filed in the U.S. without authorization from China is a *provisional application*? A provisional application for a patent is a U.S. national application filed within USPTO, and it can be filed without a formal patent claim, oath or declaration.⁸⁷² As such, the provisional application provides a quick means to initiate the patenting process, via temporary filing, but not yet leading to a patent. It is sometimes beneficial to file a provisional application to secure the early priority date for an application, for example in the situation described above, where publishing the invention is closing by. However, in order to obtain a U.S. patent, a non-provisional patent application⁸⁷³ needs to be filed within 12 months from the filing of the provisional application, otherwise the provisional application is no longer pending, and the benefit of the established priority date will be lost. It should be noted that the patent office will not do anything for the application until the non-provisional application has been filed. Thus, in situations where an invention needs to be urgently filed, one option could be that a provisional application is first filed in the U.S., to initiate the patent protection, after which foreign filing permission from China is sought, for example by filing a Chinese patent application.

Case example 19c: Filing a provisional patent application without a foreign filing license from China

Let us explore the abovementioned scenario from the point of view of both the U.S. and the Chinese law. The questions raised are whether filing a provisional application can be considered to violate the Chinese national security provision if filed without a foreign filing license from the Chinese authorities or whether the provisional application is a safeguard in this respect as it has not yet been examined by the patent office? Could the provisional application be used to establish a priority date and then a foreign filing license from China sought prior to filing a non-provisional application? Yet another question is that since there is now a patent application filed in the U.S., can it be assumed that a foreign filing license from the U.S. authorities is no longer necessary to file a patent application in China? These questions need to be addressed separately, from the dual perspectives of Chinese law as well as the U.S. foreign filing requirement:

According to the Chinese provision “any unit or individual that intends to apply for a patent in a foreign country for an invention or utility model accomplished in China shall submit the matter to the patent administration department under the State

⁸⁷² 35 U.S.C. §111(b).

⁸⁷³ 35 U.S.C. §111(a).

Council for a confidentiality examination”.⁸⁷⁴ It is hardly questionable that an applicant who files a provisional patent application intends to apply for a patent for the invention. Thus, filing the provisional application in the U.S. for an invention that is partly made in China is definitely considered to be such an intent which requires the invention being patented to be submitted for the confidentiality examination. Therefore, by filing a provisional application for an invention that has been partly made in China, without first obtaining a foreign filing license from China, the company deliberately risks not being able to obtain valid patent protection for their invention in China. It is a different matter if the applicant in some cases is unaware of the Chinese provision or thinks that the provisional application is not perceived as a patent application that violates it. In this case the risk is not a deliberate act but rather the result of unintentional non-compliance. However, only the U.S. law provides the opportunity to obtain a retroactive foreign filing license in the event of an error in this case.⁸⁷⁵

Another question is that if there is also a wish to patent the invention in China, would there no longer be a need for a foreign filing license from the U.S., as a patent application has already been filed in the U.S.? In other words, is the provisional application considered to be the patent application which is referred to in the U.S. regulation, which specifically states that a foreign filing license is required before filing any patent application in a foreign patent office, if the invention was made in the U.S. and either no patent application has been filed in the U.S. or, an application has been filed in the U.S. less than six months ago?⁸⁷⁶ The regulation only mentions filing *a patent application*, without specifying the nature of such, so it could be assumed that a provisional application is considered a patent application referred to therein. However, it is also stated that a foreign filing license is required if the application has been filed in the U.S. less than six months ago. In practice this means that the company could proceed with filing a Chinese patent application after the restriction period of six months without any foreign filing license. From the *U.S. law* point of view there is no problem, as a non-provisional application can be filed 12 months after the provisional patent application. Also, from the Chinese perspective, any patent application filed within a priority year shall enjoy priority from the filing date of the priority application, so the timing of the filing six months after the provisional filing is not a problem. However, it has already been concluded that the provisional application that is filed without the foreign filing license from China is violating the Chinese national security provision and therefore, no valid patent can be obtained in China here.

⁸⁷⁴ Patent Law of the People’s Republic of China, Art. 20.1; emphasis added.

⁸⁷⁵ 35 U.S.C. 184 (a).

⁸⁷⁶ 37 C.F.R. 5.11(a); 56 Fed. Reg. 1924, 1926 (Jan 18, 1991).

Conclusion

To conclude, there is no option for an immediate filing a patent application for an invention made partly in U.S. and partly in China, without violating the provision of the other country. Even worse, if two identical patent applications were filed simultaneously in both the countries, in order to try to comply with both the relevant provisions, both of them would be violated and patent protection in both countries risked. However, in other situations than those requiring immediate filing for example because of publication closing by, where the company needs to make a business decision where to file such an immediate patent application with a risk of not being able to obtain a patent in the other country, it is always possible to seek an expedited foreign filing license from USPTO and get it within three business days after which a patent application can be filed in China.

Case 20: India vs. UK

Case example 17 in this chapter contained a conflict of laws between two national security provisions where the requirement of the first filing was based on the *residency* of the inventor(s). The countries of origin, or at least of the residence, of the inventors having contributed to the joint invention were India and the UK. It was concluded that a foreign filing license from the Indian Patent Office could be received in twenty-one days after which the patent application could be filed in the UK. No indication was given about whether the co-inventors of the different residences were working in a same country or in their respective countries when making the joint invention in question. Assuming this scenario of a multinational company, the invention is deemed to have been the result of joint efforts of cross-border collaboration, by the co-inventors working in different countries.

To establish whether the company can ignore the national security provision of either country, let us now assume that the company which employs the two inventors resident in the UK and India, is a domestic company in either country, and there is no need to seek patent protection outside that country. Could a patent application in one country be filed without seeking for a foreign filing license from the other country, and would there be any consequences for non-compliance with the national security provision? In the following, both scenarios are explored, namely a case with a domestic company based in the UK filing a patent application in the UK without any foreign filing license from the Indian patent office and vice versa, an Indian company filing a patent application in India without written authority from the UK.

Case example 20a: Filing a patent application in the UK without a foreign filing license from India

The outcome in the case example 17 was to file a patent application in the UK after receiving the foreign filing license, within twenty-one days, from the Indian Patent Office. However, if the application needed to be filed more urgently, how would this non-compliance with the Indian national security provision impact the company and the patent for the invention in question?

First, if the company fails to obtain a foreign filing license⁸⁷⁷ before filing the patent application in the UK, any patent application filed, or even granted, later in India will be abandoned or revoked.⁸⁷⁸ However, in this specific case example the domestic company located in the UK does not need to have patent protection for the invention in India. As the patent protection in India is not needed, deliberate non-compliance might be justified. However, not complying with the national security provision in India can also lead to criminal consequences. According to the Indian law, a person who has filed or caused a patent application to be filed contrary to the rules therein, namely without seeking prior permission to file the first patent application in a foreign country, shall be punished with fine or imprisonment, or both.⁸⁷⁹ It is another issue whether this has ever been implemented in practice, but the presence of this type of risk should remind company to seriously consider the consequences of non-compliance. This is also a risk for any patent attorney in the UK who files an application contrary to the relevant Indian legal requirement.

However, in the case of a domestic company in the UK, the external patent attorney might not be aware that one of the inventors is an Indian resident, and that as a result the patent application needs to be filed according to the Indian provision. Ignorance, however, is not an excuse for non-compliance with the law and therefore, it is important for both the applicant company as well as the outside filing attorney to always be aware of the relevant foreign filing restrictions and to monitor relevant information, such as the inventors' residencies.

Case example 20b: Filing a patent application in India without a foreign filing license from the UK

Would the situation be different if the invention was urgently filed in India, by a domestic company therein, without written authority from the comptroller in the UK? It should be noted that in the UK the national security provision is restricted

⁸⁷⁷ Section 39.1 of the Indian Patents Act.

⁸⁷⁸ Section 40 & 64 of the Indian Patents Act.

⁸⁷⁹ Section 118 of the Indian Patents Act.

only to inventions made by a UK resident inventor, wherein “the application contains information which relates to military technology or for any other reason publication of the information might be prejudicial to national security, or the application contains information the publication of which might be prejudicial to the safety of the public”.⁸⁸⁰ The onus is on the applicant to decide whether the provision is relevant in the case. This lowers the threshold for making the decision to potentially file a patent application in India without seeking written permission from the UK. More precisely, the company can now evaluate whether the invention falls within the provision and make the decision based on this, unlike in many countries where the requirement is to submit *any* inventions made in the country or by residents therein for special confidentiality examination.

However, in the UK a failure to comply with the requirements of Section 23, as well as any directions given under Section 22, is also a criminal offence carrying a maximum penalty on conviction on indictment of two years’ imprisonment and/or a fine, or, on summary conviction a fine not exceeding the prescribed sum.⁸⁸¹ Nevertheless, as mentioned, the applicant can use their own discretion in evaluating whether the invention to be patented contains a subject matter that could be considered prejudicial to the safety of the public, for example. Since the obligation to submit the application to the comptroller for review is restricted only to certain kinds of technologies, the failure to comply with the requirements can also only become relevant when the invention falls within these technology categories. Therefore, depending on the area of technology, the risk analysis is possible to be made, unlike in the previous scenario without any discretion on the relevance of the provision as *any* invention made by a resident inventor in India falls within the respective provision.

Case 21: US vs. India

Finally, case example 18 presented a scenario where there was a conflict of two national security provisions with a *different* basis, the U.S. provision based on the place of the invention and the provision in India based on the inventor’s residence. Thus, irrespective of whether a company in this case example is a multinational company which has subsidiaries in different countries, or operating only in one country, it is likely that the invention has been made in the U.S. Since both the

⁸⁸⁰ Section 23 of UK Patents Act, 1977, as amended in 2005.

⁸⁸¹ Sections 22(9) and 23(3) of UK Patents Act of 1977, as amended under Section 32(2) of the Magistrates’ Court Act 1980; the both provisions earlier defined a fine not exceeding 1.000 £, construed in 1980 as “...the prescribed sum.”

provisions have already been handled in the earlier case examples, it is adequate to summarize the findings of the previous cases to draw conclusions here.

Case example 21a: Filing a patent application in the U.S. without foreign filing license from India

In a first scenario the company, whether a multinational company having a subsidiary also in India or a domestic company located in the U.S. employing an inventor resident in India, needs to urgently file a patent application for a joint invention in the U.S. Thus, there is no time to wait for the foreign filing permission from India, not even for the twenty-two days. The previous case example already concluded that by not complying with the Indian natural security provision the applicant risks not obtaining valid patent protection in India, but in this case example there is not a need for this. However, even if an Indian patent is not needed, non-compliance with the provision can be associated with criminal consequences.

Case example 21b: Filing a patent application in India without a foreign filing license from the U.S.

In an opposite scenario, the company needs to urgently file a patent application in India but does not need any patent protection in the U.S. This kind of scenario should be rare though, given that the company is assumed to be a domestic U.S. company, unless it is manufacturing some Indian-specific products which need to only be protected in the Indian markets. However, irrespective of the company type, the consequences of filing a patent application outside the U.S. without a foreign filing license are still the same: a patent will be barred, namely no US patent shall be received for the invention for which a patent application has been filed in India.⁸⁸²

The foreign filing license can only be granted retroactively in cases where filing was the result of an error and the application does not disclose an invention falling within the scope of regulating the secrecy of certain inventions and withholding a patent for such.⁸⁸³ In other words, the violation of a national security provision can in some cases be corrected later, with certain conditions. In the following, a retroactive license is presented as one means for correcting the situation later, with some other alternative resolutions.

⁸⁸² 35 U.S.C. 185, "Patent barred for filing without license".

⁸⁸³ 35 U.S.C. 181 and 184 (a).

8.2.2.5 Post-correction of non-compliance

A) *Retroactive foreign filing license*

The U.S. law provides that a license may be granted retroactively where an application has been filed abroad through error and the application does not disclose an invention within the scope of secrecy for certain inventions and withholding a patent for such.⁸⁸⁴ However, since cases of this nature need to have been filed by error, a retroactive foreign filing license cannot be used as standard practice in situations requiring urgent filing outside the U.S.

An example of another country where it is possible to receive a retroactive foreign filing license is France. In cases where an invention filed outside the country contravenes the French national security provision, a foreign filing license can be granted retroactively.⁸⁸⁵ A requirement for such a retroactive license is, however, that the invention is not a “sensitive invention” in terms of the French law. If the invention is sensitive, and the requirement for filing in France has been violated, then the situation is very different because there cannot be any retroactive effect for establishing secrecy if the application has already been filed abroad.

B) *Withdrawing the violating application?*

What if the already filed patent application violating one or more national security provisions is later withdrawn? If, for example in the case of a U.S. provisional application, first the provisional application is filed, then the required foreign filing license is sought and duly received, a non-provisional application seeking priority from the provisional application is filed and after that the provisional application is withdrawn, would the violation also be withdrawn? In this scenario a priority date has been set at the time of filing the provisional application even if it is later withdrawn and the non-provisional patent application filed duly authorized with the foreign filing license received from the relevant country seeks priority from that earlier filing date. Thus, after the provisional application has been withdrawn, the violating application is no longer pending. Instead, a new patent application is now filed, according to relevant U.S. regulations. The effect of withdrawing the violating application is solved according to the relevant national laws.

C) *Change in the circumstances regarding the relevant criteria?*

The circumstances related to the place of invention rarely change. However, what if the inventors in the application are later changed, for example, because the claim(s) to which the specific inventor(s) had contributed are deemed to be non-patentable?

⁸⁸⁴ 35 U.S.C. 181 and 184 (a).

⁸⁸⁵ French Intellectual Property Code, Arts. L. 614-2 and L. 614-18.

As inventorship can evolve with the development of a patent application, the patentable invention at the end of the prosecution can be narrower than the original invention. Some contributions might have been completely carved out from the patent scope. In theory, a specific inventor, for whom the foreign filing license should have been sought, may eventually not appear as an inventor in the patent application filed without the required license. A literal interpretation here would be that there is no violation in respect of the later granted patent, in the event that inventorship has been duly updated in the application. The situation resembles the previous example where the patent application filed in violation of the foreign filing license requirement(s) was later withdrawn, after which there were no longer a patent application pending, filed contrary to the respective requirements. Any cases where the relevant circumstances change after the potential violation of the national security provision are solved individually based on the relevant national legislation of those countries where the foreign filing license had been omitted to be sought.

In the event that no changes have taken place in the claim scope that affect the inventorship, the applicant may still be able to take some actions, if the application has been filed contrary to the relevant requirements and there is a risk that the later granted patent will be therefore invalidated. Namely, should the contributions by the individual inventors in the joint invention be easily separated, and the contribution of the inventor whose residency is relevant for the omitted foreign filing license procedure is such that can be isolated from the application, then the applicant could try to divide the patent application filed contrary to the provision into two separate patent applications. One without the specific inventor's contribution should then be deemed to have been filed without any national security provision violation. Of course, it very much depends on the circumstances related to the individual invention whether contribution(s) having caused the violation are such that can be moved to another application. Rules regarding filing a divisional application also differ significantly from country to country. Therefore, this option to try to cure the violation is also something that needs to be considered except from the point of view of the individual invention, also in light of the relevant jurisdictions.

Since an inventorship as such in the multinational inventions is a rather problematic concept because it can be determined differently in different countries, a possibility has also been suggested to totally abolish the requirement of stating inventors in a patent application in case the stated ground for the applicant's rights to the invention is based on an employment relationship and it is represented that the inventors have waived their rights to be named. However, this suggestion relates more to harmonizing the national security provisions than to post-correcting the violations and therefore, it is discussed in more details in the following chapter.

8.3 Managing national security provisions – does one size fit all?

8.3.1 Viewpoint: do provisions still serve to protect security interest?

Before discussing the potential need and options for harmonizing rules regarding national security provisions in the chapter 8.3.2, especially in connection with multinational inventions where there can be conflicts of multiple provisions, it is worth inspecting national security provisions against their original purpose. National security provisions are meant to secure state secrets and to prevent inventions being published if they could have a harmful impact on national security. On the other hand, innovating is increasingly based on *international co-operation between the cross-border teams of multinational companies* and also within larger innovation ecosystems involving external parties. Since the purpose is to safeguard national information, innovations and knowledge, it is justified to ask whether in practice any secrets in a modern world of communicating over the internet to enable cross-border innovating between multinational project teams can truly belong to one nation only? If one means to safeguard secrets is to prevent the publication of such inventions which could be detrimental or prejudicial to national security outside the country, it seems rather late when the information has already been shared between the teams located in other countries.⁸⁸⁶ Is it reasonable to claim that the information is state secret if it is already legitimately in the possession of foreign citizens?⁸⁸⁷ Further, is it considered somewhat illogical to apply penalties based on the country for the filing of patent applications for multinational inventions?⁸⁸⁸ If they are multinational inventions, the invention has already left the country and is thus known abroad before any patent applications are filed. Therefore, a potential violation has already taken place at the time of the filing.

It is equally justified to ask whether the national security provisions, which prevent the technology being published in the form of patent applications, are sufficient means to secure national security? The national security provisions located in the patent laws, or even more dedicated laws, only restrict filing a patent application for technologies that are potentially detrimental to the national security, without addressing exporting the technology in a different context than its patenting.

⁸⁸⁶ It is also questionable, whether disclosing of the idea between the multinational team of inventors can be considered to endanger the purpose of the national security provisions.

⁸⁸⁷ This question was raised in AIPPI Group Report Q244 by National Group of Russian Federation.

⁸⁸⁸ This question was raised also in AIPPI Group Report Q244, by National Group of United Kingdom.

In fact, any state-secrecy concerns might be better dealt with through *export control or disclosure legislation and rules*, and not through patent legislation. Dedicated export control laws are already used in some countries, for example in the U.S. where the government controls exports of, for example, sensitive equipment, software and technology as one means to promote their national security interests and foreign policy objectives.⁸⁸⁹ Chinese law regulating the technology export and import explicitly mentions the technology to include assignment of the patent right, licensing for patent exploitation, assignment of technical secrets, technical services and transfer of technology by other means.⁸⁹⁰ Apart from administering the import and export of technology, the purpose of the law is to enhance national economic growth and social development.⁸⁹¹ In fact, some views consider that the first filing requirements serve two purposes: 1) to limit export and disclosure of certain technologies and 2) to promote national patent application filings.⁸⁹² Insofar as any first filing requirement serves the latter purpose, should the requirement be replaced with another mechanism, such as tax credit? The so-called Patent Boxes are an attempt to do that, by providing a reduced rate of tax on revenue from IP licensing or the transfer of qualified IP. The UK, for example, already has a scheme in place like this, based on an initiative announced by the UK Government in 2009 in response to high-tech company departures from the UK.⁸⁹³ The system has been in force from 1st of April 2013; however, from 1st of July 2016 the requirements for the qualifying IP were tightened along the introduction of a so called “nexus” fraction.⁸⁹⁴

⁸⁸⁹ The Export Administration Act of 1979, as amended, authorizes the Department of Commerce (or Bureau of Industry and Security, “BIS”), in consultation with other appropriate agencies, to regulate the export or re-export of U.S.-origin dual-use goods, software, and technology. BIS implements this authority through the Export Administration Regulations (EAR). Another U.S. export law, ITAR (International Traffic on Arms Regulations), is regulated by the Directorate of Defence Trade Controls (“DDTC”).

⁸⁹⁰ Regulations on Technology Import and Export Administration of the PRC, issued on December 10, 2001 and effective as of January 1, 2002, Art. 2.

⁸⁹¹ Regulations on Technology Import and Export Administration of the PRC, issued on December 10, 2001 and effective as of January 1, 2002, Art. 1.

⁸⁹² AIPPI Group Report Q244, National Group of Canada.

⁸⁹³ <https://www.gov.uk/guidance/corporation-tax-the-patent-box>.

⁸⁹⁴ In the context of IP regimes such as patent boxes, agreement in the OECD Forum on Harmful Tax Practices was reached on the “nexus approach” which uses expenditures as a proxy for substantial activity and ensures that taxpayers can only benefit from IP regimes where they engaged in research and development and incurred actual expenditures on such activities. <http://www.oecd.org/publications/countering-harmful-tax-practices-more-effectively-taking-into-account-transparency-and-substance-action-5-2015-final-report-9789264241190-en.htm>
The UK legislation bringing the UK Patent Box regime in lines with OECD recommendations was introduced with the 2016 Finance Act.

Regarding the scope of the provisions, one could ask whether those national security provisions which require *any* inventions made in the country or by the person resident therein to be first patented within that country, alternatively to seek a foreign filing license, are in fact too excessive? Since only a minor part of patented inventions can be considered as potentially detrimental to public safety, does this mean that most of the submissions for secrecy reviews are an unnecessary burden to the applicants as well as to the administrative staff? In connection with discussing compensating rights to the inventors it was asked whether the employers in countries with the duty to pay compensation for the professional innovators are actually awarding “money for nothing”.⁸⁹⁵ In the context of national security provisions, are inventions which are not considered to be relevant from the security point of view submitted to confidentiality and secrecy reviews “for nothing”? Certainly, some kinds of mechanisms are justified for ensuring that state secrets and inventions, which could potentially prejudice national security, are not published and revealed outside the country. However, regulations should be *in proportion to the purpose* of the provisions, and to restrict applying the requirements only to inventions which could duly cause a risk for the national security.

8.3.2 Suggestions for harmonizing and some practical insights

Based on above, national security provisions are potentially outdated and too excessive. As a result, there is an immense need to address national security in multinational inventions so that filing a patent application would not be overly complex and would not violate any of the applicable provisions for joint inventions in which two or even more national security provisions apply simultaneously. In 2015, I was part of the Finnish National Group responding to the AIPPI Group Report Q244 concerning “Inventorship of multinational inventions”. The purpose was to seek input from the national groups of experts in the field of patenting from each the participating countries and to address, for example, issues related to the national security provisions.⁸⁹⁶ Since the problem is very practical and based on the responses also highly topical, it is worth introducing some of the national concerns and the proposals for alternative rulings raised in the reports when discussing the aspect of possible harmonizing the national security provisions in the multinational inventions. The suggestions include restrictions to the current provisions, unifying

⁸⁹⁵ Jürgen Meier, Thure Schubert and Hans-Rainer Jaenichen, ‘Employees’ Invention Remuneration – Money (f)or Nothing?’ (April 2005) 24(2) Biotechnology Law Report. p. 9.

⁸⁹⁶ National Group Reports regarding Q244: <http://aippi.org/committee-publications/?committee-id=27501>.

the basis of the provisions, establishing specific administrative procedures and some common rules of interpretation to help ensuring the compliance with the provisions, contractual problem-solution approach and few totally new suggestions to handle the conflict situations causing challenges in managing the global inventions.

1) Restricting the scope of the national security provisions

It was concluded that many of the national security provisions may be too excessive in requiring that *any* inventions made in the respective country or by the resident inventor therein is subject to the filing restrictions. Therefore, a logical approach to improve the situation would be to restrict the scope of applying these provisions, most appropriately only to *certain field of technologies*. Such a restriction has already been implemented in many countries where the provision relates only to the inventions which relate to the national security.⁸⁹⁷ A specific recommendation from the national group responses could be picked, according to which all patent applications except those directed to *military or dual-use technologies* should be exempted from the first filing requirements.⁸⁹⁸ However, the term “dual-use” might still leave room for interpretations. For example, it is a question mark whether the mere existence of theoretical use of biotechnology for military purposes is of relevance and make patent secrecy orders a significant problem for biotechnology.⁸⁹⁹ The same applies in case of advanced encryption technologies that can be effectively taken advantage of in national security related communications. In any case clear guidance should be available as to which inventions are relevant for the national security, particularly in the multinational inventorship scenario. It should be made possible for the applicant to determine with a sufficient degree of certainty if the invention can be patented abroad without breaching the legal provisions.

2) Unifying the basis for applying the provisions

Indeed, challenges in global inventions arise when there are multiple conflicting requirements relevant in the very same invention. The place of invention can trigger one national security provision to be applied while another provision requires filing with the country based on the residency of the co-inventor involved. Matters would be simplified if the provisions had *a unified basis for the appliance*. For example, the decisive criteria for where to file a secrecy review could relate only to the applicant instead of also including where the invention was made, namely be *the domicile of the applicant*.⁹⁰⁰ According to another view any requirements to be

⁸⁹⁷ For example, Finland.

⁸⁹⁸ AIPPI Group Report Q244, National Group of France.

⁸⁹⁹ Commercial Biotechnology: An International Analysis (Washington, D.C.: U.S. Congress, Office of Technology Assessment, OTA-BA-218, January 1984), page 459.

⁹⁰⁰ AIPPI Group Report Q244, National Group of Sweden.

harmonized on the international level could be based exclusively on *the nationality or registered office of the applicant*.⁹⁰¹ In both the mentioned suggestions, the preferred basis for the national security provisions is the domicile or nationality of the applicant, instead of the place of invention. It is noteworthy that *the applicant* is suggested as the basis for restrictions and not *the inventor*. This would certainly simplify patenting for multinational inventions, at least when there is only one applicant in the application. It is possible to have multiple applicants in a patent application, for example when it is a question of a joint patent between two companies who both are named as applicants in the patent application. In this case, it is possible that the domicile of the applicants differs, so the question remains as to where to file the patent application first. But another question raised is, whether the national security in respect of each of the countries involved is any more addressed if the work around the invention, possibly detrimental to the national security, is still conducted in different countries? It should be noted that sometimes the domicile of the applicant may not be the domicile of any of the inventors, for example in the case of a multinational company, so the domicile of the applicant as a basis does not necessarily serve the national security of any of the countries involved.

Alternatively, the law governing the multinational inventions could always be the law of the country in which the invention was conceived, namely *the place of the invention*. One suggestion for the purpose of determining whether a country is allowed to require that a patent application for an invention be first filed in that country is that *the most substantial intellectual contribution to the invention has been made therein*.⁹⁰² According to yet another suggestion worth mentioning is that there should be an additional requirement for the first filing requirement, that *the invention is intended to be used in the country* in where the invention was made.⁹⁰³ It should be noted that the suggestion is based on an intention to use, and not an actual use, the latter of which is very difficult to foresee at the time of filing a patent application for an invention at its early stage. At the time of filing it is not necessarily even known whether the protected technology will ever mature to a product or a process that will be implemented. Thus, it is questionable whether there can then be any intention to use the invention, unless “use” can be interpreted to cover plans to productize the conceptual invention that is patented. Notably, this suggestion is

⁹⁰¹ AIPPI Group Report Q244, National Group of Belgium. According to the Belgian Group, if the system proposed by them were adopted, namely the harmonization would take place at international level based exclusively on the nationality or registered office of the applicant, there would be no objective necessity for a system of foreign filing license as there would never be two or more competing first filing requirements. However, this may not be entirely true, cf. the situation mentioned above where there are two applicants named in the case of a joint patent.

⁹⁰² AIPPI Group Report Q244, National Group of Spain.

⁹⁰³ AIPPI Group Report Q244, National Group of Paraguay.

concurrent with the working requirements of certain countries, such as of India, where patented inventions need to be worked in the country after a certain period of time has passed, since the patent grant and where the non-working may form a ground for a compulsory license.⁹⁰⁴

3) *Establishing administrative procedures or rules of interpretations*

If the national security provisions were restricted only to the inventions related to defence of territory or national security, then additional certainty and guidance is required in defining which inventions are relevant in this respect. One means would be to create an administrative procedure, which applicants could use, absent of urgency to file the application, to obtain a precedent of the relevance of the provision to the situation in question. A specified instance could provide a *pre-ruling* decision that helps the applicant to make a right decision as to where to file the patent application first. It would then be another issue how acceptance by all the relevant countries could be obtained, unless clear guidelines and a commonly accepted instance applying them were first established. On a further practical note, it would be difficult to create a mechanism that could cover all types of conflicts, only some of which are presented in this thesis. Alternatively, the applicants could have an opportunity for a *review by a judicial authority* of the final administrative decisions relating to foreign filing licenses.⁹⁰⁵ Such a mechanism would thus be directed to the timing *after* the foreign filing license decision has already been made, unlike the aforementioned pre-ruling decision. It is questionable though whether in a situation requiring an urgent decision to file abroad there is time for the applicant to submit any undesired decision to such an authority for a re-consideration.

Instead of administrative procedures some *common rules of interpretation* could also be established to help deal with situations where there is a conflict between the national security provisions. For example, *international applications could be considered as valid (single) first filing* in all requiring countries.⁹⁰⁶ This would of course require that all the countries involved are also the members of the relevant international treaty. The suggestion also leaves open as to how to determine the filing office for the international application involving inventors from different

⁹⁰⁴ Patent act 1970, Arts. 146(2) and 122. The time in India is three years and the reasoning being that “the quid pro quo” the society received in return for the grant of the monopoly could only be ensured if the patent is used for the purpose for which it was granted. See Shri Justice N. Rajagopala Ayyangar, Report on the Revision of the Patents Law (1959), p. 51. This policy document forms the basis of the Indian Patent Regime.

⁹⁰⁵ AIPPI Group Report Q244, National Group of Spain.

⁹⁰⁶ AIPPI Group Report Q244, National Group of Austria.

countries.⁹⁰⁷ Another suggestion addressing the aforementioned concern proposes a *joint filing mechanism* between the countries involved.⁹⁰⁸ According to the proposal the countries involved would allow filing in either country, or in case of more than two, in all of them. The filing in one country would be deemed to be filed in each affected country on the same day and complying with the first filing requirement of the respective countries. According to yet another proposal, where there are inventors from the different countries and each of them require a foreign filing license, an international standard would allow *load balancing*, namely distribution of workloads across multiple resources, to take place between the different patent offices. For example, one foreign filing license request acceptable to each of the several involved patent offices could be prepared and filed in several countries. After approval from one patent office, the decision would be informed to the other offices, which would allow the request automatically, as *a matter of deference*.⁹⁰⁹

4) *Contractual problem-solution approach at different levels*

Applicants do not have contractual freedom to decide the place of first filing in cases where there are restrictions derived from the national security provisions. However, there could be *specific contractual arrangements* such as the possibility for an applicant belonging to a country that is a party to the North Atlantic Treaty Organization (NATO) Agreement on Safeguarding Defence-Related inventions⁹¹⁰, or to an international treaty containing similar secrecy obligations for the parties to the treaty, to file a first application in any of the countries which are a party to the relevant treaty.⁹¹¹ Further, if the invention is made in a country that is a party to the already existing “Letter of Intent” agreement, a patent application could be filed in that country.⁹¹²

⁹⁰⁷ Interestingly, the Singapore Group specifically recommended to limit the scope of their Patents Act to exclude the PCT applications filed overseas and entering national phase in Singapore, since the Registrar would not have the ability to prevent the publication of such patent applications outside Singapore in any case which is true.

⁹⁰⁸ AIPPI Group Report Q244, National Group of the United States.

⁹⁰⁹ Ibid.

⁹¹⁰ The NATO Agreement for the mutual safeguarding of secrecy of inventions relating to defence and for which applications for patents have been made was signed in Paris on September 21, 1960. It entered into force on January 12, 1961 following deposit of the instruments of ratification by the first two countries, the United States and Norway.

⁹¹¹ AIPPI Group Report Q244, National Group of Spain.

⁹¹² The Letter of Intent (LoI) Framework Agreement (FA) Treaty was signed on 27 July 2000 by the defence ministers of France, Germany, Italy, Spain, Sweden and the UK. It aimed to create the political and legal framework necessary to facilitate industrial restructuring in order to promote a more competitive and robust European Defence Technological and Industrial Base (EDTIB) in the global defence market. This initiative will be further elucidated when presenting the past harmonizing efforts, in the chapter 9.3.1.3.

The procedure could also be based on *an agreement on an international level*. Indeed, according to one proposal the members of the World Trade Organization should, in due course, negotiate an international agreement on “multinational inventions” called “Rules on Multinational Inventions” that could be inspired by some of the standards on which the “Agreement on Rules of Origin”⁹¹³ is based. As an alternative, new governing “Rules on Multinational Inventions” could be introduced in a future amendment of the TRIPS Agreement.⁹¹⁴ This option would, however, likely be less preferable, taking into account the foreseeable political difficulties that amending the TRIPS agreement would entail.

5) *Suggestions for alternative rules and ways of working*

Given the different kinds of national mechanisms, with sometimes conflicting requirements, new innovative problem-solutions may be required to overcome challenges. For example, *a central deposit for filing patent applications* could be established which would secure a filing date without breaching the national law(s).⁹¹⁵ The earlier mentioned *abolishment of the requirement to state the names of the inventors in the patent application* in case the stated grounds for the applicant’s acquisition of the rights to the invention is an employment relationship with the inventor and the applicant represents that the inventor has waived the rights to be named would open the possibility to file patent applications on the result of research made in the multinational groups of companies, without having to include the names of the inventors.⁹¹⁶ However, implementing such a suggestion would require intervening with one of the most fundamental rights of inventors, namely their right to be mentioned in the patent application.⁹¹⁷ In some jurisdictions the inventors themselves can waive the right to be mentioned in the application, and it is indeed a requirement in the proposal. Nevertheless, using such a right by the inventors to create a practice that is possible only in a limited range of countries would be complex and require permissions from each of the inventors. Further, this suggestion

⁹¹³ The Rules of Origin Agreement as of January 1, 1995, of the World Trade Organization (WTO) requires that WTO members apply their rules of origin in an impartial, transparent, and consistent manner. The Agreement also requires that rules of origin not restrict, distort or disrupt international trade. https://www.wto.org/english/docs_e/legal_e/22-roo_e.htm.

⁹¹⁴ AIPPI Group Report Q244, 9th of July 2015, National Group of Spain.

⁹¹⁵ AIPPI Group Report Q244, National Group of Switzerland. The deposit should be independent and neither accessible to the public nor to any official body.

⁹¹⁶ AIPPI Group Report Q244, National Group of Sweden. Consequently, no detailed assessment of the inventorship would have to be made for purpose of those patent filings. This would help also in difficulties to name inventors when it is a result of brainstorming.

⁹¹⁷ E.g. FI Patent Law 8§, EPC Art. 62, Intellectual Property Clause in US Constitution, Art. 1, Section 8, Clause 8.

does not facilitate dealing with conflicting national security provisions in situations where the requirement is based on the place of the invention.

Conclusions

Inventions created by a group of multinational inventors are common nowadays. However, the first filing requirements may represent a *serious hurdle to the IP system*, which may lead to the rejection of the patent application or the annulment of the patent in certain countries.⁹¹⁸ Divergent or even contradicting requirements place an *unnecessary burden on the applicant* and also create *legal uncertainty to third parties* with regard to the potential invalidity or unenforceability of the patent.⁹¹⁹ Indeed, invalidity is a relevant concern also in this thesis, even if inspected from the perspective of the patent right holder. A further practical concern is that requirements of filing the first application abroad *increases the costs for patent protection*. This is caused by a requirement to apply for a foreign filing license, or even by a requirement to file an additional patent application in the jurisdiction of the inventor, although the applicant did not intend to do so. The requirement of obtaining a foreign filing license may also substantially *delay the filing of the patent application*. In some cases, close to the publication of the invention in question, the requirement may even endanger the filing of the patent application.

According to some views, foreign filing requirements are contrary to the realities of the 21st century in cases related to multinational inventions. As such, these requirements should be abandoned as an international standard.⁹²⁰ Indeed, a suggestion worth mentioning is to restrict the scope of appliance based on *an exclusion based on the fact that there is a foreign element involved in the invention*.⁹²¹ This would certainly make managing national security provisions in global inventions easier. However, if the requirements for first filing cannot be abandoned entirely, then there is very strong support for at least ensuring that the so called “Catch 22” situation is avoided for multinational inventions involving inventors residing in countries with first filing requirements that conflict.⁹²² Regarding penalties, some reports suggest different rules for violations involving

⁹¹⁸ AIPPI Group Report Q244, National Group of Brazil.

⁹¹⁹ AIPPI Group Report Q244, National Group of Austria.

⁹²⁰ This view was presented by the national Group of Czech Republic.

⁹²¹ AIPPI Group Report Q244, National Group of Russian Federation. The Russian Federation suggests that applications with at least one non-Russian citizen should be exempt from the foreign filing requirement. It should be noted that there is currently no foreign filing license system in Russia. Therefore, the suggested exclusion would remarkably improve the current situation of Russia.

⁹²² AIPPI Summary Report regarding Q244, p. 24.

national security –related technologies than for unrestricted technologies, while others suggest different rules for violating a first filing requirement rather than for a security review. There is, however, a clear trend emerging in seeking *a balance between allowing a cure for genuinely inadvertent errors and providing appropriate motivation for applicants to comply with the different national requirements.*⁹²³

Here it is also worth mentioning few specific statements: “One of the ideas for avoiding the problem caused by a secrecy review seems to be *not conducting multinational R&D in the areas in which inventions subject to a secrecy review are created...*” and “If standards for the areas and scope to which a secrecy review applies in all countries with a secrecy review system are made clear, it would be possible *to make clear the countries from which one should stay away in multinational R&D or the areas in which there is no problem with conducting multinational R&D, including such countries.*”⁹²⁴ In other words, the suggestion appears to be to completely refrain from multinational co-operation in areas falling within the scope of secrecy reviews. This is a rather radical proposal as it would dilute all the benefits that are achievable from multicultural and –national co-operation and deteriorate the efforts by multinational companies to co-operate in cross-border teams.⁹²⁵

Harmonization needs the viewpoint of international law, when considering the legal framework of multiple jurisdictions to bring them closer to each other and create *coherent legal rules*. An attempt to do this this was presented in the adopted resolution on multinational inventions.⁹²⁶ The resolution addressed multinational inventions in such a way that first, the first filing requirement should not apply to multinational inventions and second, one foreign filing license should be sufficient even if there are inventors from multiple countries in the joint invention. The first

⁹²³ AIPPI Summary Report regarding Q244:
<http://aiippi.org/wp-content/uploads/2015/10/SR244English.pdf>.

⁹²⁴ AIPPI Group Report Q244, National Group of Japan.

⁹²⁵ Interestingly, this aspect was raised also when I was presenting my dissertation topic to the researchers of Global Innovation Management in Turku School of Economics in spring 2018. When introducing the complexity of the conflicting national security provisions in joint inventions, a lady in the audience questioned whether the companies should then simply refrain from co-operation between the countries with such contradicting provisions. This is an interesting viewpoint, and probably worth further discussion, as to whether national security provisions can affect the decisions the companies are making when locating their R&D functions, but in this thesis, it cannot be discussed in more detail. It could also be an important addition to the research around the global virtual teams (GVC), which was the research focus in the group. The successful patterns of managing the global virtual teams and increasing their co-operation in innovation may indeed be diluted if the legal requirements for filing patent applications are ignored.

⁹²⁶ AIPPI Resolution, Question Q244, Inventorship of Multinational Inventions. Congress Rio de Janeiro 2015. <http://aiippi.org/wp-content/uploads/2015/10/2015-Resolution-Inventorship-of-Multinational-inventions-Q244.pdf>.

resolution sounds relatively straight-forward, by excluding the multinational inventions from the first filing requirements. However, the other resolution would require further guidance as to whether a foreign filing license can be freely obtained from any country related to the invention or whether there needs to be a pre-agreement between the authorities of the countries involved in the invention. However, this would then be a matter of implementing the suggestion, subject to the approval of all the countries. The resolution also addresses the urging need to make the foreign filing license less burdensome and more straight-forward for applicants, by setting a requirement for a reasonable cost and time to handle the request, and automatic permission to file in the event that the time period is passed. Further, the secrecy reviews should be limited to certain technologies.

8.4 Summary

Chapter 8 has introduced the legal challenges related to the complex of laws when patenting inventions made in cross-border collaboration. Conflicts result from a need to simultaneously apply two or more national security provisions to multinational inventions. These conflicts can take place between the national security provisions in many ways. Some provisions define that the first filing for an invention made in the country should be made within the respective country, while other provisions require that an invention made by a resident (or in some cases national) inventor within the country should first be filed therein. In addition, provisions also differ in respect of the scope of the inventions they apply to. Conflicts can then take place between national security provisions with the same or a different basis.

Depending on the country, it may be possible to use an alternative route, namely seek a foreign filing license to file the first patent application abroad. However, this mechanism does not exist everywhere, for example in Russia. Even when this alternative does exist, it is not straight-forward that a foreign filing license can be sought from any of the countries involved, prior to filing first in one of them. Namely, in some cases, seeking a foreign filing license and submitting material to the patent office of the respective country already violates the national security provision of the other country involved. This is due to disclosing the invention already at a certain level outside the country. Further, there are differences in the handling times of foreign filing licenses which might also affect decisions about where to file the application first.

9 Does One Size Fit All?

9.1 Challenges in interfacing different employment and patent regimes

Part II of this thesis introduced a variety of scenarios to illustrate the complex of laws at a multinational company which has global R&D and cross-border collaboration, and inventive activities crossing the national borders. When joint inventions are the result of cross-border collaboration, the rights to an invention may vest in the employer in different manners and at different times, in respect of the individual inventors. In some countries, obtaining the rights requires the employer to be active, while in other countries the rights may by default belong to the employer based on the employment relationship. Further, the employer might ultimately result in having a different scope of rights from some co-inventors and possibly no rights from others. The entitlement to the invention may be divided between the employer and the inventor(s), and third-party companies might also be involved and entitled to some rights. Therefore, the company desiring to obtain full and valid entitlement to the inventions needs to ensure that the rights to each inventors' part are acquired according to the relevant national laws and that the employment agreements sufficiently address the transfer of the rights in a manner resulting in the *valid assignment*.

The abovementioned also applies to *compensating the rights to inventions*. First, the timing of compensation for inventors may vary, mainly because of differences in the basis for compensating. This in turn can result in discrepancies in the amount of compensation paid to the co-inventors. Furthermore, some inventors in the joint invention are not necessarily entitled to any extra compensation in addition to their regular salary. This places the employer in an awkward situation where a balance needs to be found between strictly legal obligations and the equal treatment of the co-inventors. On the other hand, any policies which voluntarily extend legal obligations beyond their scope could have an impact, for example, on inventive activities within the company.

When the rights to inventions have been duly vested in the employer, in patenting the inventions some country-specific requirements in the national laws still need to be complied with, to ensure valid patent protection. These validity requirements,

derived from *national security provisions*, are different from general requirements for the patent validity. Many countries use these protective measures for national security purposes and require the first patent application of an invention made within the country or by the resident inventor therein to be filed within the respective country. Alternatively, it may be possible to seek a foreign filing license to file the first patent application abroad. In joint inventions, where several of these kinds of requirements apply simultaneously, the applicant needs to comply with them all.

When companies attempt to secure the rights to the global inventions made by their employees and third-party collaborators, they face different and sometimes contradictory requirements and rules within the national employee invention regimes and patent laws. As a result, multinational companies need to comply with complex obligations when managing these inventions. Interfacing the different employment and patent regimes with the diversity of the regulations is challenging. One way to overcome these challenges is to integrate the invention management process. This, however, also requires organizational integration. Indeed, in a multinational company, *striving for a holistic approach* all the local knowledge of the relevant national laws needs to be efficiently leveraged throughout the organization(s), in order to ensure compliance. Thereafter, global innovation management policy is established as a basis for a holistic approach which addresses all the mandatory requirements of the laws and rules which are relevant to the company in question.

Addressing diverse requirements is relevant for many multinational companies. Based on this, would it not be pertinent to harmonize these issues at an international level? This could create a more economic and rational solution, also from the perspective of the world economy. But more importantly, harmonization would allow companies globally to focus on their core business as opposed to investing effort into fulfilling their complex compliance obligations. After all, patenting process has already been extensively and successfully harmonized, which has simplified applying for a patent globally. However, this harmonization has not solved the challenges in obtaining truly valid patent protection for global inventions, which is subject of this thesis. Could a feasible solution to be to harmonize the aspects that also relate to securing the necessary rights to inventions and managing the multiple requirements derived from national security provisions in patenting those inventions? The next chapter discusses the feasibility of a holistic approach which addresses the differing requirements and the related challenges for company procedures, pertaining to the research questions. Thereafter, a few previous attempts to harmonize these issues at the regional level, and the challenges related to harmonization are discussed, to draw a conclusion as to whether it would be possible to reach common global rules for these issues in the future.

9.2 Is a holistic approach feasible?

9.2.1 Addressing national differences in invention management

Applying the different rules to the different inventors is challenging, especially when an invention is created by a joint effort during cross-border collaboration. Therefore, it would certainly be in the interest of multinational companies to have a holistic company procedure which could be applied globally and would sufficiently address all the relevant legal issues in the different jurisdictions. In order for the procedure to be truly holistic, namely “*one size fits all*”, it needs to address even the strictest requirements of the relevant laws for the company. When it is a question of securing the rights to inventions made by employees to the employer, the strictest requirements are derived from the statutory jurisdictions where the employer needs to actively acquire the rights. These requirements relate to the timing and the form of the acquisition. Thus, for the holistic process to be applicable to all inventions, irrespective of their origin, acquisition should take place in the strictest form and within the shortest time defined in the relevant national laws. Further, in certain jurisdictions some specific obligations are associated with acquisition, such as always filing a patent application, assigning the rights to a third party or keeping the invention secret.⁹²⁷ Applying the strictly holistic policy would mean that the employer also voluntarily adopts the obligations in other jurisdictions, which it would not otherwise have done. Therefore, a truly holistic approach in securing the rights to inventions may not be the optimal approach but some exceptions should be made to the procedure in respect of the specific countries.

It should be noted that whether or not the rights to employee inventions are acquired via a holistic approach does not affect the legal rights of the respective employee-inventors. In any case, the employer needs to comply with the relevant laws applicable to them. However, it is entirely different issue that by adopting a truly holistic approach the employer may provide some of the inventors with rights that they would not necessarily have had, for example, the right to be compensated for assigning their rights to the inventions to the employer.

⁹²⁷ Civil Code of Russian Federation, Art. 1370.4(2).

9.2.2 Compensating the rights to multinational inventions

In both holistic and non-holistic procedures, the common outcome is that the rights to inventions are ultimately vested in the inventor's employer. However, in certain jurisdictions the individual inventor may receive different compensation through the holistic and strictly legal approach. This is because a variety of different mechanisms exist for compensating the rights to inventions by employees, not to mention that in some countries, employees are not entitled to any compensation. Therefore, any decision to adopt a holistic approach when compensating inventions within a multinational company cannot merely be based on harmonizing and unifying the internal processes. Rather, the decision also calls for the *ethical consideration regarding the equal treatment of inventors globally*.

A truly holistic approach should again address the issue of compensation from the perspective of the strictest requirements. Despite the different bases and timing for payment, the compensation payable via the holistic approach should be paid based on the earliest triggering event relevant for the company. In the event that a relevant regulation requires the compensation to be paid as soon as the employer acquires some rights to the invention, then strictly interpreting that point in time should form the basis for compensating all the inventions within the company, irrespective of the legal requirements. However, just as in voluntarily adopting extra obligations associated with the acquisition of the rights, it is a business decision if the employer wants to extend compensation to all the inventions that are not patented, also in jurisdictions within which compensation is not triggered until the invention is patented. The same also applies to the amount of compensation. In a truly holistic procedure, all inventors enjoy the benefit that compensation is determined as being at highest level. Especially in case of joint inventions where the co-inventors originating from different jurisdictions are paid different amounts despite their equal contributions, or some inventors are not paid at all, the discrepancies could result in frustration and decreased motivation to contribute to any inventive activities in the future. Therefore, it may be also in the employer's interest to have a common compensation scheme for inventions, at least for joint inventions where some co-inventors are entitled to compensation whereas some are not. Such a selectively holistic approach, however, may result in inventive activities being rearranged within the company, a risk that the employer needs to consider. Likewise, adopting a partly holistic approach based on the technology of the inventions may re-direct activities in R&D. However, in this case the employer's strategic choice determines what technology the voluntary compensation is extended to and the potential increase in innovations for the specific technology area serves the employer's interests.

9.2.3 Managing multiple national security requirements

Just as a multinational company may experience difficulties addressing the different mechanisms for acquiring and compensating the rights to the employees' inventions in a multinational company, subsequent patenting procedure encounters challenges too. This is especially the case when multiple requirements are derived from different national security provisions and they all need to be simultaneously applied. However, can a holistic approach be adopted when interfacing the different patent regimes for patenting global inventions? Notably, a holistic approach to the acquisition of the rights to employee inventions and compensating them meant that the company procedure is the same for all inventions. However, such approach is not feasible or possible with national security provisions. Namely, a truly holistic company policy for national security provisions should streamline filing patent applications and foreign filing procedures so that they would be uniform for all the inventions. Literally interpreting, filing the first patent application would always be determined based on the strictest filing requirements relevant for the company. The strictest requirements are those where all inventions made within the country or by the resident therein are first filed within that country, irrespective of the technology of the invention in question. However, it would be irrational to apply this procedure to the inventions where the filing requirements are less restricted or where there are no filing restrictions at all. Further, it would not help to overcome the challenges where different national security provisions need to be simultaneously applied. In other words, companies do not possess the same flexibility with national security provisions as with adjusting their procedures when acquiring the rights to inventions and compensating them. Further, it is difficult to perceive any aspects that could be streamlined in managing the multiple national security requirements applicable to global inventions. Indeed, the holistic approach for national security provisions might be more feasible in the context of harmonizing the provisions, in attempting to *create global rules that would suit all the countries*.

9.3 Could harmonizing be a solution to overcome these challenges?

9.3.1 Earlier attempts at the regional level

9.3.1.1 Harmonization of rights to employee inventions – European proposal

At least one past attempt to harmonize issues related to the rights to employee inventions is worth mentioning here. A proposal by *Villinger*, for harmonizing the

rights for employee inventions was first elaborated in German in 1989 and later in English, in 1994.⁹²⁸ The proposal provides a detailed suggestion for European provisions, which regulate a variety of issues from rights to compensation. The provisions are “applicable to inventions of employees (inventors) under employment contract with an enterprise, where the employment is ruled under work law applicable in the European Union (EU)”.⁹²⁹ The proposal is very much based on the German law.⁹³⁰ As such, it contains amendments, clarifications, completions, rearrangements and simplifications to the German law, but also omissions therefrom, resulting in the *proposal for the European harmonization*.⁹³¹ A wide range of the European provisions proposed are presented with ready-made language for the suggested articles, all of which are somehow linked to following ten aspects, which Villinger considered to have a common basis when comparing the national laws which existed at the time in countries other than Germany: 1. Definition of a “Service Invention”, 2. Duty to report a Service Invention, 3. Declaration for a “Bound Service Invention”, 4. Rights under Bound Service Inventions, 5. Rights under Open Service Inventions, 6. Rights under Free Inventions, 7. Free decisions to file, maintain or drop patents, 8. Compensation claim for Bound Service Inventions, 9. Compensation claim for Open Service Inventions, 10. Calculation of the compensation. The European proposal is then compared from the point of view of these aspects to the legislation of twenty-four selected countries.⁹³² This is to demonstrate whether the proposal is broader, roughly equal in scope or weaker than the respective national laws it is compared with.

⁹²⁸ Bernhard Villinger, *Materials for a Harmonization of the Right in Employee Inventions*, compiled by Ilse Villinger. © Bernhard and Ilse Villinger, Weissach. Printed by: Dissertations Druck Darmstadt GmbH 1994. The proposal followed an expert conference on law comparison relating to the employee inventors’ law, held at Würzburg in 1989 (to see the conference report, see GRUR Int 5/1990, p. 339-369). It is not a result from that conference, instead it was prepared because the experts in the mentioned conference did not make concrete proposals for the harmonization. Bernhard Villinger, *Materials for a Harmonization of the Right in Employee Inventions*, p. 2.

⁹²⁹ Ibid., p.45.

⁹³⁰ Ibid., p. 10. “Of course, a recourse to the ArbErfG and the RL as well as demarcation from such provisions are obvious, and in fact this way I have developed the details of my proposal. (--) I have implemented in the proposal some complementary provisions, which in the FRG are applied from other laws additional to the ArbErfG and the RL, and of which I assume they do not exist in other countries, at least not in all countries concerned and not at all as a common European law.”

⁹³¹ Ibid., p. 34.

⁹³² As listed in the proposal: Austria, Brazil, China, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Japan, Korea, Netherlands, Norway, Poland, Portugal, Romania, former Soviet Union, Spain, Sweden, Switzerland, United Kingdom and Vietnam. It should be noted that not all these countries are located in Europe or within EU.

The proposal is now thirty years old, but it still serves as a good basis for comparing differences in national laws. Unfortunately the proposal never led to any implementation, nor did Villinger's later attempts to harmonize the same issues.⁹³³ This was apparently also disappointing for Villinger who later concluded that "[i]n any case of co-operation between companies of different countries the disharmonized law is a hindrance for negotiations, a hindrance for the prosecution of the projects, and a hindrance for the exploitation of the results".⁹³⁴ It should be noted that at that time the drawbacks were mainly related to co-operation between companies which originated from different countries. However, in the current globalized world they even apply within the same group of companies, namely in the multinational companies, which are the subject of this thesis.

9.3.1.2 Proposal for compensation for patented inventions

The aspects listed in the European proposal referred to earlier also includes issues related to compensation. Different compensation claims are proposed for "Bound Service Inventions" and "Open Service Inventions", synonymous with the terms "(tied or bound) service invention" and "free invention" used earlier in this thesis.⁹³⁵ In the European proposal the claim for compensation for the first mentioned (tied) inventions is justified by the effective or possible monopoly profit. Where directly evident (royalty income or purchase price for patents), compensation is derived from profits. In cases where it is not directly evident (use by the enterprise with a fictive benefit), compensation is defined based on the fictive monopoly benefit.⁹³⁶ For the

⁹³³ Bernhard Villinger, 'Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity', Workshop on Innovation Support Services and their Management organized by the World Intellectual Property Organization (WIPO) and the Carl Duisberg Gesellschaft (CDG) in co-operation with the German Patent and Trademark Office (GPTO), the Aachen Corporation for Innovation and Technology Transfer (AGIT) and the European Patent Office (EPO), Munich, Nurember, Aachen (Germany), June 12 to 22, 2001, p. 10. Other attempts as listed with Villinger, with mention that all of them have been without success so far: 1. 1957 Obligation under treaty of Rome, Art. 2 + 3 (h), 2. 1963 AIPPI Congress in Berlin, 3. 1977 Comparison of Expert Group for 6 EC countries, 4. 1987 ILO Tripartite meeting in Geneva on Salaried Authors and Inventors, 5. 1990 Conference in Würzburg, 6. 1991 Publication of the Villinger's own proposal, 7. 1993 (?) EU Questionnaire on Inventors Compensation, 8. 1994 Publication of the Villinger's proposal in English, 9. 1997 EU hearing in Luxembourg, 10. 1998 Start of Activities in the GRUR Working Group for Amending the German Law.

⁹³⁴ Ibid., p. 9.

⁹³⁵ See footnotes 212 and 213.

⁹³⁶ Bernhard Villinger, *Materials for a Harmonization of the Right in Employee Inventions*, compiled by Ilse Villinger. © Bernhard and Ilse Villinger, Weissach. Printed by: Dissertations Druck Darmstadt GmbH 1994, p. 138.

latter (free) inventions, compensation is based on the fictive benefit the enterprise may have from protecting the invention when using it. However, according to the proposal compensation for free inventions does not exist if the employer has not protected or used the invention.⁹³⁷ The proposal implies a certain justification for the standard parameters to be used for patented free inventions as well as for own use of the service inventions, however certain parameters are left open to discussion and political decisions. According to Villinger, the principle of certain standardization has many advantages over attempting to realize the correct compensation case by case. According to the proposal, calculating compensation is based on the monopoly benefit. Further, a corrected license analogy is used to estimate the fictive monopoly benefit from use of the invention.⁹³⁸

Ten years after this proposal, Villinger created a document “Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity” to the workshop organized among others by WIPO and EPO. The document outlines for example the problems with disharmonized compensation. Villinger concludes in the document rather provocatively: “Governments and EU authorities advocate for equal treatment and reduction of unreasonable distortions in competition. However, in this legal field they maintain any possible barriers though having a clear political task to harmonize!”⁹³⁹ Indeed, discrepancies in the national laws can also have a wider societal impact, beyond the individual companies. The disharmonized rules could result in competition distortions between the companies located in the different jurisdictions. Multinational companies may base their decisions on industry sites based on the simplicity of the legal mechanisms in acquiring and compensating the rights and possibly opt out of countries where the rules are very strict.

⁹³⁷ Ibid., p. 138.

⁹³⁸ Ibid., pp. 138-139.

⁹³⁹ Bernhard Villinger, ‘Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity’, Workshop on Innovation Support Services and their Management organized by the World Intellectual Property Organization (WIPO) and the Carl Duisberg Gesellschaft (CDG) in co-operation with the German Patent and Trademark Office (GPTO), the Aachen Corporation for Innovation and Technology Transfer (AGIT) and the European Patent Office (EPO), Munich, Nurember, Aachen (Germany), June 12 to 22, 2001, p. 10.

9.3.1.3 Harmonization regarding national security interests

In the area of national security provisions, harmonization has succeeded on some levels. However, this has also happened at the regional level. A special Implementation Arrangement (IA) referred to as TTI 118 addresses “patent applications and the like relevant to defence”.⁹⁴⁰ The purpose is to provide the means to safeguard and harmonize provisions within the LoI territories for inventions potentially incorporating classified information, which require protection, for example, by patenting. Furthermore, it aims to provide a mechanism for deciding where applications arising from cross-border activities among the LoI countries should first be filed.⁹⁴¹ TTI 118 streamlined the process for classified patent applications and resolved the areas of conflict between the national laws of the Letter of Intent (LoI) states relating to where a patent application may be made.⁹⁴²

The LoI Framework Agreement Treaty was signed on 27 July 2000 by the defence ministers of France, Germany, Italy, Spain, Sweden and the UK. It aimed to create a political and legal framework needed to facilitate industrial restructuring for promoting a more competitive and robust European Defence Technological and Industrial Base (EDTIB) in the global defence market. One established sub-committee, SC5, is concerned with implementing the LoI Treaty elements which relate to the treatment of technical information. The aim of SC5 is to simplify the transfer of technical information, to establish harmonized principles for the treatment of Intellectual Property Rights amongst the LoI nations and to reduce the restrictions placed upon the disclosure and use of technical information. This work has resulted, for example, in the successful conclusion of the IA TTI 118. However, despite streamlining the patenting process and resolving the conflicts of laws between the

⁹⁴⁰ Implementing Arrangement to the Letter of Intent Frame Agreement concerning the Treatment of technical information TTI 118 relating to patent applications and the like relevant to defence: Implementing Arrangement pursuant to Article 43 of the Framework Agreement dated 27 July 2000 between Ministry of Defence of the French Republic and The Federal Ministry of Defence of the Federal Republic of Germany and the Ministry of Defence of the Italian Republic and the Ministry of Defence of the Kingdom of Spain and the Government of the Kingdom of Sweden represented by the Ministry of Defence and the Ministry of Defence of United Kingdom of Great Britain and Northern Ireland concerning patent applications and the like relevant to the defence (hereinafter called TTI 118 Implementing Arrangement). Link to material published on 29 May 2012: <https://www.gov.uk/government/publications/tti-118-implementing-arrangement-to-the-loiframework-agreement>.

⁹⁴¹ TTI 118 Implementing Arrangement, S. 1(1).

⁹⁴² Letter of Intent: Restructuring the European defence industry, Guidance by UK Ministry of Defence, published 12 December 2012: <https://www.gov.uk/guidance/letter-of-intent-restructuring-the-european-defence-industry>.

LoI states, the relevant national authorities in each LoI state should be contracted for information on how its provisions have been implemented in each territory.⁹⁴³

According to the Implementation Arrangement the participant countries will provide contractually, or otherwise, that any Classified Applications are filed at a Special Facility determined in accordance with the Implementing Agreement.⁹⁴⁴ The participants need to have Special Facilities⁹⁴⁵ to receive the relevant applications to ensure that their content will not be published or disclosed.⁹⁴⁶ It is specifically stated that the participants will take steps to ensure that no Classified Applications are forwarded to WIPO or EPO.⁹⁴⁷ As a main rule, the “Participant of Origin” ensures that no Classified Application is filed outside its territory without its consent. However, such consent will be given to participants who file in countries which have arrangements through the IA and the NATO agreement or any other inter-Government agreement or arrangement ensuring that: (a) the application will be allocated a security classification in the other country that is at least as high as in that of the Participant of Origin, (b) the application is retained in facilities appropriate to the classification and (c) the application is not released for publication until the Participant of Origin sends notification of the possible declassification of the application in question. To enable filing applications in further countries, a declassified application will not be published until at least eight weeks have passed from the notice unless earlier publication is requested by the applicant.⁹⁴⁸

To summarize, whenever there is a joint invention where the contributing inventors originate from the countries that are parties to the TTI 118 Implementation Arrangement, no foreign filing licenses are needed when the patent application for such an invention is filed at the Special Facilities of another party to the treaty. As such, the arrangement is regional and does not apply if the countries that are involved have national security provisions which require first filing within that country but who are not part of the TTI 118 arrangement. Thus, the harmonizing arrangement in question only partly solves the problem of the global complex of laws.

⁹⁴³ Ibid.

⁹⁴⁴ TTI 118 Implementing Arrangement, S. 4(1)(b).

⁹⁴⁵ According to the Section 2 of the IA, the Special Facilities and Competent Authorities therein are set out in the Annex to the IA. It should be noted that the Special Facility may or may not be the same as the Competent Authority. Furthermore, any Professional Representative engaged in the handling or prosecuting of a Classified Application should have appropriate security clearance and storage facilities that are acceptable to the Security Authorities of the Participant(s) concerned, see S. 8(1).

⁹⁴⁶ TTI 118 Implementing Arrangement, S. 5(1).

⁹⁴⁷ TTI 118 Implementing Arrangement, S. 5(4).

⁹⁴⁸ TTI 118 Implementing Arrangement, S. 5(5)(6)(7)(8).

9.3.2 Challenges, future prospects and practical insights

9.3.2.1 Entitlement to employees' inventions

The rights to employee inventions are regulated by a mixture of different laws, including contract laws, employment laws, employee invention laws and in some countries patent law. Even within the same jurisdiction, different laws may be involved. However, for the purposes of this thesis the focus has been on the differences between the laws of different countries. The challenging situations introduced in this thesis especially occur when a joint invention involves contributors from different jurisdictions where different national laws apply in respect to the co-inventors. The *disharmonized rules in different jurisdictions* could also result in some competition distortions if multinational companies, instead of trying to cope with these difficult situations, start to locate their research centers in countries with more simple mechanisms for the transfer of the rights. As a result, this places countries where the issue of the invention rights cannot be agreed upon, namely statutory regimes, at a disadvantage in respect of the contractual jurisdictions.

Based on the research conducted for this thesis there seems to be a somewhat *global consensus regarding the ownership of inventions made by employees*. Despite different mechanisms, especially between statutory and contractual regimes, the employer should be granted ownership to the creations carried out by employees within the framework of the employment relationship. Since the desired outcome is globally the same, would it be feasible to also harmonize the mechanisms for achieving this in the different regimes?

The challenge related to harmonizing attempts is that in work with uniform rules it is important to find *a proper balance between the interests of the employer and the employee*. On one hand, a system that gives employers control over employee inventions is desirable, on the other hand recognizing creativity is important.⁹⁴⁹ However, the most relevant challenge pursuant to this thesis is reaching a consensus between the different regimes, namely to find *a balanced approach between the different regimes*, not just from the perspective of the desired end result but also with regard to the potential creation of uniform rules. The problem is that the mechanisms in statutory and contractual regimes differ so greatly that in order to create global, harmonized rules to regulate the rights to employee inventions, both regimes should remarkably change their existing legislation and practice or create a totally new mechanism. In both these options, even if a common approach to ruling the issue of

⁹⁴⁹ Sanna Wolk, 'EU Intellectual Property Law and Ownership in Employment Relationships', in *Community Intellectual Property Law and Ownership in Employment Relations* © Scandinavian Studies in Law 2010, p. 426.

rights was identified, the legal certainty in the individual countries may hinder changing the established, prevailing rigid rules.

Villinger attempted to create a European proposal based on the German law. Indeed, regarding future prospects it might be more feasible to strive for harmonization at a regional level where the differences between different countries may not be as fundamental as between the statutory and the contractual regimes. This was also the conclusion of an older AIPPI resolution Q183 regarding Employers' Rights to Intellectual Property, 15 years ago: "The harmonization of the rules of ownership of intellectual property rights should be encouraged particularly at the regional level and the intergovernmental agreements regulating regional IPR should provide rules on the ownership of those rights."⁹⁵⁰ Whether Villinger's proposal would have been accepted by the European countries with less regulation on the subject matter, remains unanswered. As said earlier, the problems at the time of the proposal were probably mainly related to the co-operation between different companies operating in different countries within Europe. The harmonized approach would have certainly been helpful in managing inventions resulting from such collaboration. However, in the current globalized world the dilemma of the complex of laws is present even within the same group of companies, namely in the multinational companies, subject to this thesis.

To conclude, due to the challenges related to harmonizing these aspects, it may be more appropriate for multinational companies to strive for a holistic approach in their own internal procedures when ensuring the rights to the inventions made by the employees. It has already been concluded that adopting a truly holistic approach, which is adjusted based on the strictest requirements relevant for the company, is not necessarily an optimal solution. Instead, it is a selective kind of holistic approach, which streamlines procedures for the most part, yet does not extend certain obligations beyond the legal duty voluntarily to the countries without such an obligation. In conclusion, however, the *holistic approach within the company*, in managing the company's inventions when ensuring the rights to the employees' inventions is a preferred way of overcoming the challenges, as opposed to harmonization.

⁹⁵⁰ AIPPI Resolution, Question Q183, Employers' Rights to Intellectual Property, Congress Geneva, June 19-23, 2004. Yearbook 2004/II, pp. 701-702.

9.3.2.2 Compensating the rights to inventions

The *discrepancy between the different compensating systems* creates “a complex compliance obligation for international organizations and an unclear compensation regime for inventors”.⁹⁵¹ In other words, there are disadvantages both for employers and inventors. Furthermore, public interest can also experience some disadvantages, for example, unreasonable influence on flexibility and fluctuation of employee inventors as well as for the decisions on the industry sites, the aspect that is relevant also in a context of the rights to the inventions.⁹⁵²

Is there a consensus that the rights to inventions assigned by the employee to the employer shall be compensated? It should be noted that in the so-called paid-to-invent countries the regular salary is also considered as pay for the inventive activities of employees. Yet, assignment of the rights requires some consideration to have taken place. Admittedly, a weak conclusion might be drawn that also in the compensation issue, the desired outcome is that the inventive activities shall be rewarded. However, the mechanisms differ even more than in the acquisition of the rights, as the contractual regimes do not recognize additional compensation in addition to the salary. In contrast, in statutory regimes the law often provides a statutory right to the inventor to be compensated for the rights.

Similarly to the need to balance the rights of employers and employees, it would be important to find *a balanced approach between inventors originating from the different jurisdictions* to prevent a harmful effect on inventive activities. The disadvantages for the inventors include general demotivation without compensation, and increased demotivation in joint inventions resulting from co-operation projects. Indeed, the equal treatment of inventors is especially important in joint inventions where different laws and rules apply to the same invention, in respect of the individual co-inventors. The challenges for possible harmonization arise from the underlying cultural differences related to ownership of inventions made in the employment relationship, which also affects the overall compensation system. For example, if the invention assignment is based on an employment agreement, this may have been taken into consideration when defining the salary level of the employees. Vice versa, in countries where the rights need to be individually acquired

⁹⁵¹ Quoting AIPPI Standing Committee on Patents, Study on Inventor Remuneration, July 21, 2017.

⁹⁵² Bernhard Villinger, ‘Legal framework of the relationship between employed inventors and employers – incentive systems encouraging creativity’, Workshop on Innovation Support Services and their Management organized by the World Intellectual Property Organization (WIPO) and the Carl Duisberg Gesellschaft (CDG) in co-operation with the German Patent and Trademark Office (GPTO), the Aachen Corporation for Innovation and Technology Transfer (AGIT) and the European Patent Office (EPO), Munich, Nurember, Aachen (Germany), June 12 to 22, 2001, p. 9.

and extra compensation to be paid, the duty to pay compensation on top of the employee's regular salary could be a factor which lowers the salary level. Thus, the same dilemma persists here as in harmonizing the rules regulating the rights to the employee's inventions: The mechanisms for compensating the rights in the statutory and the contractual regimes are so clearly different that to try to establish a common scheme for compensating the rights to the inventions globally, significant changes to the existing legal framework should be made in both regimes. Further complexity is caused by the fact that the issue in the contractual regimes is dealt with the labor laws, and not the IP law.

Few attempts have been made to harmonize the compensation system. Regarding future prospects, however, the same conclusion needs to be made here as with the rights to the inventions. It might not be possible to implement global harmonization. In harmonizing the system either way, be it the current mechanism of the statutory regimes or of the contractual regimes, it would probably require intervening with the established salary rates in the changing regime. Such an intervention is regulated according to the national employment laws and local labor union practices and it would be impossible to implement the change globally. The complexity of this topic was just recently also acknowledged by AIPPI in its annual world conference, where the need for harmonizing the mechanisms for resolving conflicts of laws regarding the remuneration was raised.⁹⁵³ The conclusion there, too, was that remuneration as such is more related to labor laws than IP law, and no general harmonization in this area was sought for. The resolution planned to be provided in the conference in question was postponed, which is an unprecedented thing to happen.⁹⁵⁴

9.3.2.3 National security provisions

Based on this research it is apparent that there is *no global consensus* on national security provisions, not in respect of an outcome nor of a mechanism. The provisions do not exist everywhere and where they do, there are very different mechanisms for controlling or prohibiting the export of sensitive technologies. National security, as the name suggests, is even more closely linked to the culture and the history of the individual nations. Indeed, national security laws of every sovereign country are a very sensitive and subjective issue, rendering harmonization extremely difficult. This has also been acknowledged in the AIPPI resolution concerning the

⁹⁵³ AIPPI Standing Committee on Patents, Study on Inventor Remuneration, July 21, 2017 and AIPPI Summary report on Inventor Remuneration, September 11, 2018: http://aippi.org/wp-content/uploads/2018/09/Summary-Report-Inventor-Remuneration_11Sept2018.doc.pdf.

⁹⁵⁴ AIPPI Congress News, 49th World Congress Cancun, 24 September 2018: "No resolution on remuneration": <http://www.managingip.com/pdfs/01-AIPPI-Congress-Monday-online.pdf>.

Inventorship of Multinational Inventions.⁹⁵⁵ In one of the group reports the dilemma of harmonizing the national security provisions is concluded as follows: “Harmonization of the laws requiring first filing of inventions made in a country and a secrecy review of patent applications to address, in particular, multinational inventions are an attractive proposition. However, it appears unrealistic to expect that states would give up their right to conduct secrecy reviews before patent applications, especially when related to the national security, will be filed in other jurisdictions, unless it is on the basis of *reciprocity*.”⁹⁵⁶

Successful harmonization between the LoI countries proves that practices and processes for resolving conflicts in joint inventions can be established based on mutual acceptance of the countries involved, thus complying with the requirement of reciprocity. However, reaching a point where a harmonized approach of this nature would occur on an international level, resulting in truly global harmonization, would require significant effort and negotiations. The most convenient approach would be to work within the context of an existing international treaty, such as the TRIPS agreement. Nonetheless, it should be noted that the TRIPS agreement has been changed only once during its effective time.⁹⁵⁷ Therefore, but especially because of a lack of normative consensus for any global harmonization, it is not foreseeable that this would take place on an international level in the near future.

9.4 Concluding remarks

The study of innovation management has drawn on a wide range of academic disciplines. However, it has focused mainly on strategic activities within innovation ecosystems, with differing purposes such as how to stimulate the creation of inventions or how to respond to, for example, disruptions in technologies or markets. However, the role of law in the literature on creativity and innovation management has been peripheral, and law needs to be injected into the innovation management discourse.⁹⁵⁸ This thesis tries to accomplish this and to partly fill the gap. As opposed to tending to be an innovation management study, it is rather a complementary approach to the existing discourse. Nevertheless, the actual topic and the research questions belong to a strictly legal framework. The specific legal framework of this

⁹⁵⁵ AIPPI Resolution, Question Q244, Inventorship of Multinational Inventions. Congress Rio de Janeiro 2015.

⁹⁵⁶ AIPPI Group Report Q244, 7th of June 2015, National Group of Norway.

⁹⁵⁷ https://www.wto.org/english/news_e/news17_e/trip_23jan17_e.htm.

⁹⁵⁸ James Tunney, ‘The Problematic Role of Lawyers in the Creativity and Innovation Process’ (2000) 9(4) Creativity and Innovation Management (CIM), Abstract.

thesis resides in a *multi-regime intellectual property management*, exploring how to interface or to harmonize the different intellectual property regimes.⁹⁵⁹

The starting point and ecosystem for this thesis was a multinational company that relies on patents as a tool of protection. The legal analysis conducted in this thesis was related to *complexity of the legal system related to different employment and patent regimes, from the point of view of a company*. The relevant question in this respect was, how the international legal system affects the company when it comes to managing rights to employees' inventions and creating a patent portfolio to protect company assets globally, and how can that complexity be legally governed? In responding to this question this thesis has addressed the company needing to cope with the complexity as a legal organization – the *legal governance*. From the governance point of view, the topic of this thesis covers the legal status of patent portfolio of a company, in terms of patent validity. However, it is also a question of company's legal mechanisms and tools, such as contracts, and whether they can affect the validity of entitlement to inventions. Yet further dimension in the analysis relates to organizational mechanisms within a company, such as innovation management and incentive policies, for example. The analysis thus explores also issues beyond the law which means that it falls within the Sociolegal Theory.⁹⁶⁰

The objective of this thesis has been to present the legal framework and the challenges related to the *complex of laws* pertaining to innovation management within a multinational company, operating in a global business wherein patents play a significant role and inventions made by employees are valuable assets for the company. The aim has been to explore how to manage the process of building a legally valid patent portfolio, namely creating “durable assets”, in the context of the complex of laws.⁹⁶¹ Company's intellectual assets, in this thesis patents, need to be truly valid, for them to be capable of being utilized in value creation processes such as licensing. In order to achieve a sustainable competitive advantage, it is not sufficient for a company to merely ensure the necessary rights to inventions made by company employees. In addition, inventions also need to be secured, in this thesis using patent protection, in a valid manner. However, the validity of patents in this

⁹⁵⁹ Ove Granstrand (ed), *Economics, Law and Intellectual Property, Seeking Strategies for Research and Teaching in a Developing Field*, Center for Intellectual Property Studies, Department of Industrial Management and Economics, Chalmers University of Technology, Göteborg, Sweden, 2003, p. 230.

⁹⁶⁰ See for example Ulf Petrusson and Mats Glavå, 'Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociolegal Theory' © Scandinavian Studies in Law 1999-2012.

⁹⁶¹ Ulf Petrusson, “Intellectual Property & Entrepreneurship, Creating Wealth in an Intellectual Value Chain”, CIP Working Paper Series, Center for Intellectual Property Studies, Chalmers University of Technology, Göteborg, Sweden. 2004, p. 29.

thesis does not only mean the general requirements of patentability but also compliance with special national security provisions, through which individual countries control, and in some cases also prohibit, the export of certain technologies in the form of patent filings outside their national boundaries. Not complying with these provisions can affect the patent's validity, which is not a risk any technology company wants to be taking.

It should be noted that the process of establishing a start-up venture in the modern high-tech sector necessitates an international approach from the very start.⁹⁶² This means that for a technology company, the process of creating a global patent portfolio needs to be international from day one. Drafting employment agreements needs to sufficiently address the issue of rights to inventions made by employees, before any inventions have even been made. Taking rights to inventions in statutory regimes where pre-assignment by virtue of employment agreements is not allowed needs to be made in a legally valid manner. The valid assignment may in some jurisdictions involve consideration, namely paying compensation for the rights. The place of filing a first patent application for an invention needs to comply with filing requirements in relevant national security provisions. This may be challenging with global inventions involving inventors from multiple jurisdictions.

To achieve the objective, a first research question explored in this thesis, represented by one of the circles in the figure(s) describing the complex of laws, was the *property aspect related to employee inventions*, namely valid entitlement. The different kinds of mechanisms for transferring the rights to inventions made by employees in the different employment regimes cause *challenges in addressing the variety of country-specific differences in a company's invention management procedures*, with additional complexity resulting from third party collaboration.

A specific aspect constituting valid entitlement in certain regimes, i.e. the *compensation to be paid for the rights to the inventions*, was discussed from the perspective of differing views on recognizing inventive activity, with the potential to encourage inventions, as well as from the perspective of *how to manage disharmonized compensation systems* when the inventors originate from different jurisdictions. The issue of compensation may place the company in an awkward position between strictly legal obligations on the one hand and equal treatment of employee-inventors originating from the different jurisdictions with the different rules on the other hand.

The second research question and represented by another circle in the figure(s) describing the complex of laws was the *effective securement of inventions* from the point of view of the specific national security provisions that establish requirements

⁹⁶² Ulf Petrusson and Mats Glavå, 'Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociological Theory' © Scandinavian Studies in Law 1999-2012, p. 95.

for the place of filing a first patent application for an invention in certain cases and *managing the compliance with national security provisions in a multinational company*. National security provisions were also questioned as to whether they anymore serve their original purpose to protect the national security and whether some of the provisions are in fact too excessive. This question, however, goes beyond the company procedures and legal governance.

Thirdly, this thesis explored how to deal with all of the aforementioned legal issues in the *complex of laws -situations taking place in cross-border collaboration within a multinational company* where an invention is the joint effort of multiple contributors originating from different jurisdictions. The arising conflicts of law are not traditional conflicts of laws, where ultimately one law applies, but the company must comply with all the conflicting or mutually exclusive national laws in order to secure valid entitlement to and global patent protection for the invention in relevant markets. This is the core of the research regarding *interfacing different employment and patent regimes* in this thesis. It has been presented via the lens of a multinational company needing to be able to efficiently manage its invention and patenting procedures despite disharmonized and even contradictory requirements and rules. The thesis provides an insight into efficiently succeeding in this challenge, to which the numerous practical case scenarios provide a problem-solution approach.

The discrepancy in the different employment regimes, including the disharmonized compensation system, creates complex compliance obligations for multinational companies. In truly global organizations the variety of different laws and rules needs to be adopted and awareness of such leveraged throughout the organization to prevent a loss of the rights due to non-compliance with mandatory regulations. Therefore, it is in the interest of companies to try to create *a holistic approach that sufficiently addresses all the relevant requirements of the different national laws*, instead of having to apply different rules in the individual cases.

However, a truly holistic approach addressing all the relevant country-specific requirements in acquiring the rights to inventions made by employees of the company would mean that the company policy should be adjusted based on the strictest requirements of the relevant national laws. Depending on the company, there could be some very strict obligations derived from certain national regulations which, by adopting the holistic company procedure, the employer would voluntarily adopt and extend beyond the legal duty. Therefore, one cannot recommend such a strictly holistic company policy without any country-specific exceptions.

Regarding compensating the rights to employees' inventions, adopting a holistic company policy would help to avoid the so called "envy debate"⁹⁶³ between

⁹⁶³ Sebastian Wündisch, 'Employee-Inventors Compensation in Germany - Burden or Incentive?' (2017) LII(3) les Nouvelles – Journal of the Licensing Executives Society, p. 110.

inventors originating from the different jurisdictions, and to ensure that the inventive activities and reporting innovations are not affected due to decreased motivation. Equal treatment and compensating rights are especially important in cross-border collaboration where the invention is a joint effort of the co-inventors originating from different compensation regimes. It is a question of balancing between legal requirements and equal treatment of company's employees, whether a company wants to extend the additional compensation system beyond the legal duty to do so.

In respect of the national security provisions, it has traditionally been an area belonging to the sovereignty of each nation. Therefore, any attempt for a holistic approach would be more appropriately implemented by harmonizing the national security provisions, namely by striving for a global approach that would suit all the countries. This question is beyond the legal governance of a company, even if it certainly affects company's filing strategies and in the end the validity of patents.

Any attempt to harmonize the rights to employee inventions needs to identify a suitable *balance between the employer and the employee*. On the one hand, the employer should benefit from the results of the company's investments, on the other hand it is important to encourage and compensate inventive activity. Regarding national security provisions, the process further involves interest of the different countries. As such, global harmonizing in this area might be a challenging and lengthy process. However, as some harmonization has been successful in the past, streamlining could be reached at least at the regional level. Successful harmonization would allow companies globally to focus on their core business as opposed to investing effort into fulfilling their complex compliance obligations.

This thesis contributes to the literature on innovation management from the perspective of *Legal Innovation Management*, something that has not been addressed previously for the entire process of securing the employees' inventions, from ensuring the rights to the company to securing the global validity of the patents. Prior research, most notably the legal discourse, has focused on aspects related to ensuring the rights to inventions and patenting inventions separately. No comprehensive approach to the entire process has been presented earlier. Further, the few prior studies on the cross-border complexity of these issues has concerned patenting inventions, and little attention has focused on the preceding phase of acquiring the rights and compensating them. This thesis provides such a comprehensive approach and addresses the *pitfalls of the invention management process as a whole*, covering constructing patent portfolio from an invention to a patent.

Business strategies could significantly benefit from understanding the legal environment in which a business operates, and law may be the source of a sustainable

competitive advantage.⁹⁶⁴ Yet, management scholars have rarely included legal and regulatory factors in their discussions of organizational assets that drive effective strategy.⁹⁶⁵ This thesis aims to do so, by applying a business-school-style approach unusual for legal dissertations, and providing legal tools to manage complex case scenarios that multinational companies need to cope with in their invention management procedures related to their daily business.

“Law and strategy research examines the ability of managers to extract competitive advantage in a legal environment that is already established”.⁹⁶⁶ Also this thesis represents an attempt to proactively educate managers and other professionals to deal with the already existing complex of laws in such a way that the company’s intellectual property rights result in “durable assets” of which a sustainable competitive advantage can subsequently be gained and value creation achieved. *Proactive law* is based on a strong belief that legal knowledge is at its best when applied before things go wrong. It seeks to promote and strengthen approaches to use the law to create value, to do what is right, and to build a solid foundation for business.⁹⁶⁷ Indeed, the goal of proactive law is to merge business and legal foresight by stressing inter-professional collaboration.⁹⁶⁸ It is not enough that lawyers and regulatory experts know the requirements that apply: management and employees need to be aware of and comply too.⁹⁶⁹

As to managerial implications, the complex of laws presented in this thesis calls for legal knowledge to be efficiently leveraged and its diffusion optimized throughout the organization to ensure *compliance*.⁹⁷⁰ How this *internal IP due diligence* is implemented in practice is another issue. One solution is introduced by Siedel and Haapio in the form of the Manager’s Legal Plan™, which enables managers to actively and proactively use the law to uncover and develop new forms of competitive advantage. Essentially, the concept contains four steps: 1) Understanding the law, 2) Knowing how to cope with legal problems and learning from them, 3) Developing business strategies and solutions to prevent future problems and 4) Climbing to the balcony to see the big picture and becoming more

⁹⁶⁴ Robert C. Bird, ‘Law, Strategy, and Competitive Advantage’, Connecticut Law Review (2011), 44(1), p. 71.

⁹⁶⁵ Robert C. Bird, ‘The Many Futures of Legal Strategy’, American Business Law Journal (2010), 47(4), p 577.

⁹⁶⁶ Robert C. Bird, ‘Law, Strategy, and Competitive Advantage’, Connecticut Law Review (2011), Vol, 44, No. 1, pp. 67-68.

⁹⁶⁷ Haapio, Helena, ‘Introduction to Proactive Law: A Business Lawyer’s View’ in Peter Wahlgren (ed), *Scandinavian Studies in Law, Volume 49: A PROACTIVE APPROACH*. © Stockholm Institute for Scandinavian Law 1957-2010, Stockholm 1999-2010, p. 21.

⁹⁶⁸ Ibid., p. 31.

⁹⁶⁹ Ibid., p. 23.

⁹⁷⁰ Robert C. Bird, VUCA (2018) 12(3) Virginia Law & Business Review, pp. 367-368.

proactive.⁹⁷¹ Notably, these steps have clear synergies with the central tenets of this thesis: 1) Compliance, 2) Managing with the complex of laws, 3) Identifying the pitfalls and 4) Adopting a bird's eye view. In a related book review the Manager's Legal Plan™ is referred to as an analytical approach to integrating legal matters into general management.⁹⁷²

Admittedly, this thesis could also be considered as a kind of "IP department's Legal Plan", namely an analytical approach to integrate the explored legal issues into business environment and construction of legal governance. In future this could very well be associated also with "legal innovations" mentioned in the introduction. Namely, new technologies may be very helpful in monitoring compliance with the national laws. For example, the requirements related to timely action in acquiring the rights and to a place of the first filing could be linked to the relevant factors pertaining to individual inventors, such as their employment regime or the residence of the inventor already at the phase of docketing inventions. In other words, "*Legal Tech*" could help controlling and monitoring compliance with different national laws, as a technology-aided means to manage the complexity of disharmonized requirements. Implementing an analytical method for integrating legal matters into general management is certainly something that could be easily accomplished facilitated by the innovative Legal Tech. However, implementing any such system that would intelligently control, monitor and notify of the relevant legal requirements requires knowledge of the relevant laws and rules, as a prerequisite for establishing a system. Whether any artificial intelligence (AI), even after having learnt the relevant rules, could apply them in a context of complex of laws presented in this thesis, is questionable. Namely, it is one prerequisite for succeeding in handling different kind of conflicts, such as those presented in this thesis, to understand how legal constructions de facto consist of power processes and different values and interests, within and outside the legal machinery.⁹⁷³ This thesis has tried to accomplish that, by presenting the complex of laws from the point of view of a multinational company, in a context of its de facto legal governance.

⁹⁷¹ George J. Siedel and Helena Haapio, *'Proactive law for managers, A hidden source for competitive advantage'*, Gower Publishing 2011, pp. 13-15.

⁹⁷² Antoni Brack, 'Book review: George Siedel and Helena Haapio, *Proactive Law for Managers – A Hidden Source of Competitive Advantage*' (2013) 24(1) *European Business Law Review* 2013, p. 162.

⁹⁷³ Ulf Petrusson and Mats Glavå, 'Law in a Global Knowledge Economy – Following the Path of Scandinavian Sociolegal Theory' © *Scandinavian Studies in Law* 1999-2012, p. 104.

Future management research may identify some aspects from the limitations of this thesis. For example, some empirical research could be done to find out whether and to which extent multinational companies have adopted a holistic approach in trying to manage the disharmonized system of acquiring rights and to compensating them. Further, research related to behavioral strategies may find it noteworthy to explore the effect of a selected compensation policy on the arrangement of inventive activities within a company. Global innovation management research related to global virtual teams, which has been studied for example from the perspective of operational efficiency, could add value to the mechanisms and reasoning for forming global virtual teams. This could explore whether companies in the patenting business are – or would gain a competitive advantage from – refraining from co-operation and from establishing global virtual teams between countries where national security provisions impede effectively applying a company's filing strategies that are typically based on other factors than the laws.

Research in international business and strategy has already studied the factors that influence the choice of R&D location for multinational companies. These different factors have mainly related to effectiveness. The research has been done from the point of view of companies, which is the case also in this thesis. However, there could also be room for research addressing the distorted competition between operating countries if multinational companies started to locate their research centers in countries which provided simpler (such as contractual) mechanisms for the transfer of the rights. As such, the countries where the issue of the rights cannot be agreed upon would be placed in an unfavorable position in respect of the contractual jurisdictions. Eventually, also in a scenario like this, it is a matter of the competitive advantage for countries who do not set overly excessive first-filing requirements for inventions made within their territory, or by their residents. Thus, the subject might also be of interest to more general research related to studying the efficiency of national IP policies.

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