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# **Indirect procurement management: Maturity model development and validation**

Operations and Supply Chain Management

Master's thesis

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Indirect procurement management still lags direct procurement in many aspects. Whereas the value creation capability and strategic contribution of direct procurement are widely recognized, indirect procurement is often seen as overly complex, minor, and irrelevant compared to direct procurement. As a result, it receives much less managerial attention and resources, degrading the efforts to manage them professionally. Yet, indirect procurement often represents more than 40 percent of all procurement spend – a share that no company should overlook.

With ever toughening competition, indirect procurement management development has the potential to offer a new source of savings and competitive advantage. However, there is only little academical support for developing indirect procurement management. The literature of indirect procurement is also very fragmented, and a large part of it dates to 1990s and 2000s. This study aims to create a synthesis of indirect procurement research and bridge the gap between academia and practice by creating a comprehensive research-based tool for measuring and developing indirect procurement management capability. Maturity models have been recognized as useful tools to measure current capability and guide development. Therefore, this study creates an indirect procurement management maturity model.

This thesis adopts a constructive approach to developing the maturity model. The first version of the model is created through an extensive literature review and is then empirically validated by conducting qualitative research utilizing semi-structured interviews. Two research questions are first posed to guide the process and later answered: *Which issues and management practices characterize indirect procurement management?* and *What are the characteristics of a comprehensive indirect procurement maturity model?*

The study identified multiple issues and managerial solutions characteristic for indirect procurement management that are present at different stages of maturity. The issues are intertwined in their root causes and require comprehensive development and implementation of best practices to be overcome. The developed maturity model was seen to accurately reflect reality and to be a useful tool to measure current capability and to guide indirect procurement management development in practice. Improvements with soft factors, such as communication, cross-functional cooperation, and managerial recognition, were recognized as key enablers and solutions for improving indirect procurement management performance. When properly resourced, correctly appreciated, and comprehensively developed indirect procurement can offer a sought-after source of untapped potential in cost reduction and value-creation and improve everything from functional performance to work-wellbeing of all employees in an organization.

**Key words:** Indirect procurement, Indirect procurement management, Procurement, Maturity model, Maturity measurement

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Epäsuorat hankinnat ovat jääneet suorien hankintojen varjoon niin yrityselämässä kuin tutkimuksessakin. Suorien hankintojen arvonluontipotentiaali ja strateginen merkitys ymmärretään käytännön yrityselämässä, mutta epäsuorat hankinnat nähdään edelleen usein kompleksisena ja merkityksettömänä osana hankintoja. Epäsuoriin hankintoihin ei kiinnitetä tarpeeksi huomiota eikä niille allokoida riittävästi resursseja, joka heikentää merkittävästi niiden johtamista ja kyvykkyyttä. Epäsuorat hankinnat vastaavat kuitenkin usein yli 40 prosentista hankintakuluja. Ne ovatkin siis merkittävä kokonaisuus, jota yhdenkään yrityksen ei tulisi väheksyä.

Epäsuorien hankintojen kehittämisessä piilee suurta potentiaalia kulusäästöille ja kilpailukyvyn kehitykselle. Akateeminen kirjallisuus tarjoaa kuitenkin vain vähän tukea niiden kehittämiselle. Epäsuorien hankintojen johtamisen kirjallisuus on hyvin hajanaista ja merkittävä osa siitä yli 20 vuotta vanhaa. Tämän tutkielman tavoitteena on luoda synteesi epäsuorien hankintojen kirjallisuudesta ja kuroa umpeen akateemisen maailman ja käytännön välistä kuilua luomalla kattava ja ajantasainen, tutkimukseen perustuva työkalu epäsuorien hankintojen johtamisen kyvykkyyden mittaamista ja kehittämistä varten. Maturiteettimallit on tunnistettu hyviksi työkaluiksi kyvykkyyden mittaamiseen ja kehitystoimien ohjaamiseen. Tässä tutkimuksessa luodaankin maturiteettimalli epäsuorien hankintojen johtamiselle ja validoidaan se empiirisesti.

Maturiteettimalli kehitetään konstruktiiivista tutkimusotetta soveltaen. Mallin ensimmäinen versio luodaan kattavan kirjallisuuskatsauksen pohjalta, jonka jälkeen se validoidaan laadullisen tutkimuksen avulla puolistrukturoituja haastatteluja aineistonkeruussa hyödyntäen. Tutkimuksen tueksi asetetaan kaksi tutkimuskysymystä, joihin vastataan lopuksi. Nämä kysymykset ovat: *Mitkä ongelmat ja hankintojen johtamisen käytännöt ovat tyypillisiä epäsuorille hankinnoille? Sekä Mitkä ovat kattavan epäsuorien hankintojen maturiteettimallin tunnuspiirteet?*

Tutkielmassa identifioitiin monia epäsuorien hankintojen johtamiselle tyypillisiä ongelmia ja ratkaisuja, jotka esiintyvät eri tavalla maturiteettipolun eri vaiheissa. Ongelmien juurisyyt liittyvät toisiinsa ja ratkaisujen implementointi edellyttää kokonaisvaltaista kehitystä. Kehitetyn maturiteettimallin nähtiin olevan realistinen ja hyödyllinen työkalu nykyisen kyvykkyyden mittaamiseen ja kehittämiseen. Viestinnän, poikkifunktionaalisen yhteistyön ja johdon huomion ja ymmärryksen lisääminen epäsuoria hankintoja kohtaan tunnistettiin olevan avainasemassa epäsuorien hankintojen johtamisen kehittämisessä. Asianmukaisen resurssoinnin, oikeanlaisen arvostuksen, sekä kattavan kehittämisen kautta epäsuorat hankinnat voivat tarjota arvokkaan kilpailukyvyn lähteen, sekä parantaa organisaatioiden sisäistä kyvykkyyttä jokaisella osa-alueella.

**Avainsanat:** Epäsuora hankinta, Epäsuorien hankintojen johtaminen, Hankinta, Maturiteettimalli, Maturiteettimittaus

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# 1 Introduction

## 1.1 Background and research problem

The role and status of procurement have experienced major changes over the last few decades. Up until the 1980s and even 1990s, many companies saw procurement as a mere administrative purchasing function with no inherent additional value creation capability. Over the last few decades, however, procurement has steadily gained increasing attention, both in academic circles and in businesses. Ever more companies have adopted a specialization strategy and outsourced their non-core activities to external suppliers (van Weele & van Raaij 2014). This in turn has increased the need for and importance of managing external resources (Tanskanen et al. 2017). Nowadays, many companies acknowledge procurement as either a core or strategic function. When properly recognized and managed, the procurement function presents companies with means to cut costs, improve performance, and even gain a competitive advantage in the market. (Jayaram & Curkovic 2018.)

As attention to procurement increased, the methods and strategies to manage it became more sophisticated. Management practices for different items were differentiated based on item characteristics and similar items were grouped to allow more efficient management. First there was Kraljic's matrix (Kraljic 1983), then category management and spend analysis. Categorically, procurement was also split into two: direct procurement and indirect procurement (IP). Direct procurement relates to the obtainment of services and materials for the end-products of the company, while indirect procurement consists of all the materials and services supporting the operations of a company (van Weele & Rozemeijer 2022). Direct procurement has stably been receiving more attention in both academics and businesses alike due to its higher share of total procurement value, bigger spend per supplier, and relatively more straight-forward nature (Jayaram & Curkovic 2018). Indirect procurement, on the other hand, has traditionally been considered an overly complex, minor, and irrelevant entity consisting of bits and pieces of spend here and there (Jayaram & Curkovic 2018; Cox et al. 2005). This has led to indirect procurement remaining a less researched area with much fewer academic publications focusing on it, while businesses have also been dedicating their resources to managing the direct side of procurement.

In practice, indirect procurement spend is not a mere drop in the ocean. A recent article estimates the size of the indirect procurement item and service market to be 200 billion Euros annually in Europe alone (Osto&Logistiikka 4/2023). In addition, Iloranta and Pajunen-Muhonen (2015) and Cox et al. (2005) point out that indirect procurement spend can represent even up to 50% of total procurement spend in a given company. As the category is receiving much less attention in both academics and real-life businesses, it usually is not managed as punctually, creating unnecessary and avoidable costs. Indirect procurement can also be just as relevant contributor for strategic targets of a company as direct procurement. For example, according to Giunipero et al. (2012) the relevance of sustainability and responsibility is increasing rapidly, and Meinschmidt et al. (2018) note that procurement has a vital role in actualizing the goals of companies related to them. Indirect procurement, with categories like travel and fleet management, can have a major impact on these targets. Additionally, the often substantially larger number of indirect procurement suppliers compared to direct procurement also exposes a company to a much higher degree of sustainability and compliance risks. Even a minor supplier's wrongdoing can smear a company's name and image, with many negative implications for the company. (Hingorani 2010.)

Evidently, there is a major need for improving indirect procurement management proficiency. As the competition grows ever tougher, improvements in the way of managing indirect procurement could untap its great savings potential. Tanskanen et al. (2017) advocate for an increase in the use of academic research in support of practical decision-making, as management decisions are too often made through intuition or with outdated information. However, indirect procurement management literature is scarce. Furthermore, academic literature is often aimed at academic audiences, which again decreases its practical usability (Tanskanen et al. 2017). Even if managers wanted to improve indirect procurement management through scientific research, the literature offers only scattered support for this and very little in terms of easily employable tools.

Maturity models have been recognized as good tools for measuring performance proficiency and for supporting and guiding development (Andreasen & Gammelgaard 2018; Wendler 2012). Maturity can be understood as a level of proficiency or capability (Rendon 2008). The higher the maturity, the greater the proficiency or capability. According to Maier et al. (2012), maturity models have the capability to bridge the gap between theory and practice, as they are based on a thorough literature review and

empirically evaluated. After this, the models can be utilized in practice to support decision-making. As there is a clear need for developing indirect procurement management proficiency, a maturity model for indirect procurement as a research-based tool seems an attractive option.

## **1.2 Research objective and questions**

The main objective of this research is to create a comprehensive, research-based maturity model for measuring and developing indirect procurement management proficiency and performance. This maturity model should be comprehensive, generic, easy to use, and understandable. In addition, this research is also aimed to contribute towards the literature of indirect procurement by providing an empirical update to it. In support of these objectives, two research questions are posed:

- RQ1: Which issues and management practices characterize indirect procurement management?
- RQ2: What are the characteristics of a comprehensive indirect procurement maturity model?

The purpose of the first question is to support in building an extensive knowledge of the area of indirect procurement management. The field of indirect procurement management is approached through the issues hindering its performance and solutions and best-practices employed to tackle the issues and proficiently manage the area. Furthermore, the first question acts as an enabler in answering the second research question, which is focused on the creation and contents of the actual maturity model constructed. In the search for answers to both questions, first an extensive literature review is conducted. Based on it, the first literature-based version of the maturity model is created. After this, the views of the literature are compared to and supplemented by empirical findings through interviews, resulting with an empirically validated maturity model.

## **1.3 Structure of the thesis**

This thesis is structured as follows. Chapter 2 contains a review of indirect procurement and relevant procurement literature, drawing a synthesis on the issues and solutions associated with indirect procurement management. Due to unestablished definitions and undisciplined use of different terms in procurement literature, terms such as procurement,

purchasing, and sourcing, as well as indirect, MRO (Maintenance, repair, operations), and NPR (non-production related) are all used in the search for literature. Chapter 3 covers the use and creation process of maturity models. In chapter 4, the two previous chapters are combined, and the first literature-based version of the indirect procurement maturity model is created.

Chapter 5 presents the methodology and positioning of the study. It also describes the research process, data, and its analysis, and provides an evaluation of the research quality. The results of the empirical study are presented in chapter 6. Based on the results, the maturity model is also refined. Finally, chapter 7 provides conclusions, limitations, and suggestions for future research.

## 2 Procurement management

### 2.1 From purchasing to procurement

Procurement, purchasing, sourcing, purchasing and supply management, and external resources management are all terms, roles, and concepts used for describing the area and activities of procurement function, both in literature and practice. The terms are also used to describe both activities and functional groups. (van Weele & Rozemeijer 2022, 2–14.) However, these terms lack proper, established definitions, and are used in an undisciplined fashion. They are often used as synonyms for one another or defined with slight differences from paper to paper and researcher to researcher. (Ellram et al. 2020.) For the sake of clarity, the term procurement will be used as the main term throughout this study. This subchapter examines how procurement has evolved from a clerical purchasing function towards a strategic one and defines the term procurement and its contents for this study.

Merriam-Webster's dictionary defines the word "purchasing" as the act of obtaining something by paying money or its equivalent for it (Merriam-Webster: purchasing). This alludes towards a transactional nature for the function and tasks performed. For the better part of the 20th century, what we today might call procurement function was in most cases doing exactly this: administrative and clerical purchasing-related tasks, subordinated to operations or production functions, with the simple aim of securing supply while reducing material costs (Poissonnier 2017; van Weele & van Raaij 2014).

Purchasing's recognition increased during the 1970s and early 80s for primarily two reasons. First, the economic landscape changed. The almost-continuous growth since the second world war came to a halt with the oil crisis. The ensuing supply disruptions and decline in sales forced companies to start paying increasing attention to their spending, while also securing adequate supply. The variety and importance of tasks performed by purchasing increased. Second, due to the aforementioned economic turbulence, the strategic management theory evolved to better explain and guide businesses with their decisions. Frameworks such as Porter's five forces model identified the bargaining power of customers and suppliers as critical forces, which in turn spurred interest towards purchasing. (Ellram & Carr 1994; Mena et al. 2018; van Weele & van Raaij 2014.) However, improvement efforts were still focused on developing purchasing's short-term

cost efficiency on a tactical level. The area lacked long-term thinking and strategic recognition and was not aligned with competitive strategy. (Spekman & Hill 1980.)

Porter (1985, 37–42) made another key contribution to the development of procurement, when he published his value chain model, illustrated in Figure 1. There he listed procurement as a distinct value-creating activity, implying that it had inherent value creation capability. He also opted to use the word procurement over purchasing, as he felt that the word procurement would better describe the variety of activities performed. van Weele and van Raaij (2014) argue, that Porter was one of the first key management theorists who steered more attention towards the area of procurement and argued for the strategic relevance of suppliers and their management.

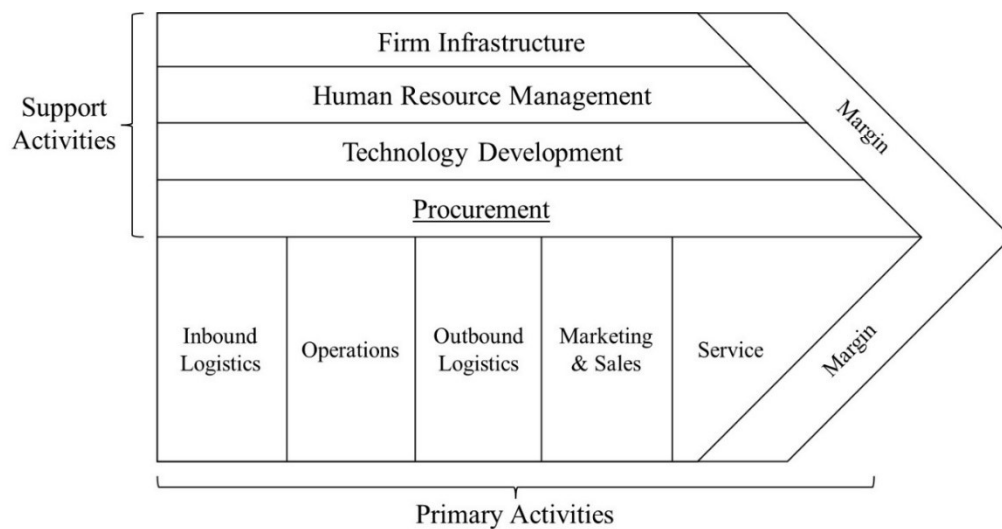


Figure 1 – Value chain (Porter 1985)

From the late 1980s onwards, the market environment became ever more competitive. Globalization, technological advancements, and later the introduction of internet and e-business forced companies to adopt new, more specialized strategies. Management literature introduced resource-based view, resource dependence theory and stakeholder theory. (Spina et al. 2013; van Weele & van Raaij 2014.) As a part of the resource-based view, Prahalad and Hamel (1990) encouraged companies to focus on their core competencies and to outsource non-core activities. As a result, firms became more dependent on their suppliers as the average purchasing spend as a percentage of total firm spend rose. As a solution to this, resource dependence and stakeholder theories advocated for the importance of managing the external resources of a company, resulting in a wider

spectrum of activities for the purchasing function, which again increased the strategic relevance of the function. (Mol, 2002; Spina et al. 2013; van Weele & van Raaij 2014.)

Over the decades, purchasing management literature has been organizing related activities into different process flow models. As the environment has introduced new demands, the number of activities has increased, and the process has become more complex and sophisticated. Figure 2 illustrates this on a process model adaptation. However, the problem of overlapping terms persists both in literature and businesses. According to Van Weele & Rozemeijer (2022, 2–9) procurement is the broadest of the terms, covering the activities of all the others, from internal stakeholder requirements to external stakeholder management. Johnsen et al. (2019, 8–11) also note that procurement has a strategic, long-term focus, while purchasing is perceived to be more tactical or operational by nature. Sourcing relates to the searching, evaluating, selecting, and contracting of potential suppliers (Johnsen et al. 2019, 8). Term purchasing and supply management (PSM) seems to combine the operational focus of purchasing to the more strategic focus of supply management, and to an extent be equal to procurement. However, according to van Weele & Rozemeijer (2022, 10) PSM has a distinct difference between the US and Europe, where in Europe it is considered more strategic than in the US.

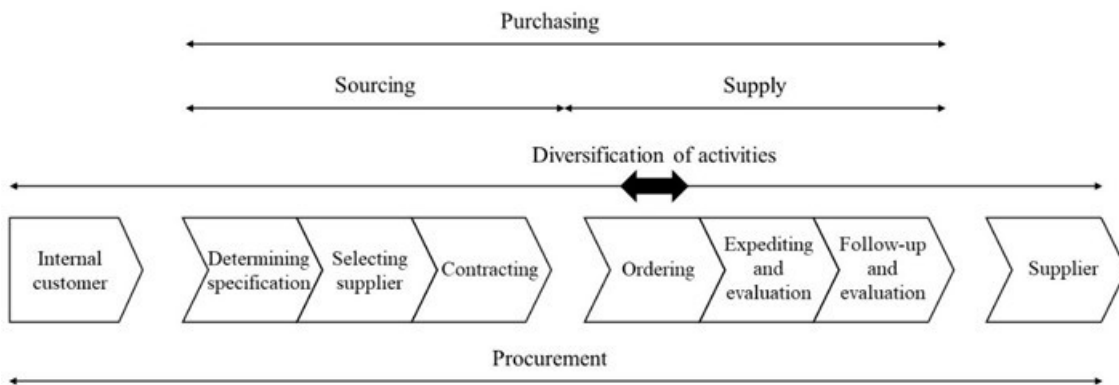


Figure 2 – Different concepts under procurement process model (Modified from van Weele & Rozemeijer 2022, 7)

The strategic relevance and value-creation potential of procurement activities have only become clearer over the years. Academic publications like Spekman and Hill (1980), Kraljic (1983), Elram and Carr (1994), Rozemaijer et al. (2003), Paulraj et al. (2006), Zimmermann and Foerstl (2014), and Ueltschy Murfield et al. (2021) have consistently



called for and shown that the recognition of procurement as a strategic function and developing it with a long-term view instead of a short-term cost reduction focus offers companies an edge in the competition through additional value creation capability.

Sustainability and responsibility are also factors that have recently emerged as drivers for the strategic role of procurement. According to Giunipero et al. (2012), the demands from both consumers and public authorities towards companies to adopt responsible and sustainable practices have increased dramatically. According to Chick and Hanfield (2015, 54) sustainable and responsible practices are increasingly becoming an order qualifier: A company must adopt both sustainable and responsible practices or experience decreasing demand and ultimately face bankruptcy. Conversely, both Giunipero et al. (2012) and Johnsen et al. (2019, 20–21) note that adopting sustainable and responsible practices can also create a competitive advantage for companies. As more and more companies adopt sustainability and responsibility into their strategies, procurement's role and strategic relevance are only increasing. Procurement acts as the link between companies and has the responsibility of managing suppliers. A company's responsibility extends only as far as their supplier's responsibility, thus stressing the importance of procurement's role in actualizing strategic responsibility and sustainability goals (Meinlschmidt et al. 2018).

Due to the discussed differences between the terms, and the inclusivity and strategic nature of procurement, this thesis will adopt the views and definitions of Johnsen et al. (2019) and van Weele & Rozemaijer (2022), where procurement will be used as the general term to cover all of the aforementioned terms, unless there is a specific reason to distinguish a certain part of the procurement process.

## **2.2 Distinction between direct and indirect procurement**

The entity of procurement can be split between direct and indirect procurement. This split is based on the differences in the place of consumption and the relation to a company's value proposition of the goods and services procured. Direct procurement consists of spend on materials and services which are used for the core business process of a company, to its end-products or services, and are eventually consumed by external stakeholders. Conversely, indirect procurement consists of spend on categories that are consumed by internal stakeholders and enable and support various activities performed by a company but do not directly deliver value to external stakeholders but rather to

internal ones. (Cox et al. 2005; Jayaram & Curkovic 2018; Carlsson 2019, 178; van Weele & Rozemeijer 2022, 4–6.)

The share of procurement spend of all company expenditure can vary a lot from company to company and industry to industry. According to Iloranta and Pajunen-Muhonen (2015, 21), on average, total procurement spend accounts for over 50 percent of all company expenditure, and in some instances, it can represent over 80 percent. The share of indirect procurement spend of the total procurement spend is highly dependent on the company and industry. Angeles and Nath (2007) propose a number between 30 and 60 percent. According to Iloranta and Pajunen-Muhonen (2015, 64), the share of indirect procurement spend of the total procurement spend is typically lower, around 30 percent, in raw material or commodity-heavy industries, such as food processing, construction, engineering, and pulp and paper. In others, such as services, education, and banking it can be up to 100 percent. A general estimation is that on average indirect procurement accounts for over 40 percent of total procurement expenditure (Cox et al. 2005; Iloranta & Pajunen-Muhonen 2015, 64). Table 1 illustrates these spend figures and highlights the scale and relevance of indirect procurement for any company. Even with the moderate, 40 percent estimate it can easily represent over 25 percent of the total expenses in a given company.

Table 1 – Hypothetical illustration of indirect procurement’s spend share of total company spend with two different percentages (based on Iloranta & Pajunen-Muhonen 2015; Angeles & Nath 2007; Cox et al. 2005)

Procurement spend as a percentage of total spend	40 %	50 %	60 %	70 %	80 %
Indirect Procurement spend as a percentage of procurement spend	40 %	40 %	40 %	40 %	40 %
<i>Indirect Procurement spend as a percentage of total company spend</i>	16 %	20 %	24 %	28 %	32 %
Procurement spend as a percentage of total spend	40 %	50 %	60 %	70 %	80 %
Indirect Procurement spend as a percentage of procurement spend	60 %	60 %	60 %	60 %	60 %
<i>Indirect Procurement spend as a percentage of total company spend</i>	24 %	30 %	36 %	42 %	48 %

According to Payne et al. (2011, 1–3) indirect procurement spend was traditionally considered to primarily consist of “administrative expenses” or maintenance, repair, and operations (MRO) costs. However, as aforementioned definition indicates, indirect procurement covers many more categories. These include the likes of marketing and sales services, travel management, facilities management, and utilities. Table 2 provides a non-exhaustive summary of the main categories.

Table 2 – Sample indirect procurement categories and examples (Iloranta & Pajunen-Muhonen 2015, 62-63; Payne et al. 2011, 3; van Weele & Rozemeijer 2022, 16–17)

<b>Category</b>	<b>Examples</b>
Marketing and sales related services & equipment	media visibility, promotion campaigns, exhibitions
IT-related services & equipment	software and hardware, support services
HR-related services & equipment	recruitment agencies, employee training, employee benefits
Finance-related services	payroll services, accounting services
Management consultancy services	strategy, change, etc. consultancy services
Office equipment & supplies	general office supplies, printers
R&D related services & equipment	laboratory equipment, research services, patents
Facility management	cleaning, catering, security
Utilities	electricity, water
Maintenance, repair & operations (MRO) services & equipment	spare parts, repair services for machinery and equipment
Travel management	plane tickets, hotels, taxi services
Fleet management	lease vehicles for employees, internal logistics vehicles
Investment goods	plants, machinery

Although investment goods technically fall under the umbrella of indirect procurement, they can and often are classified and handled separately from indirect procurement. This is due to a few major differences. Investment goods are often procured only once, and the procurement process has a project-like character. The value of individual investment is significantly greater than an average indirect procurement good or service, and the decisions about them are strategic, and often have a major influence on the company over the long term. Apart from a normal good, the expected life span of an investment good is expected to be years, if not decades. They are classified as investments in accounting, and their value is depreciated over their lifespan. The obtainment of investment items is often led by the Finance department. (Iloranta & Pajunen-Muhonen 2015, 61; Johnsen et al. 2019, 62; van Weele & Rozemeijer, 2022, 17.) Therefore, the category of investment goods will be excluded from the scope of this thesis.

There are many aspects that differ between direct and indirect procurement. This leads to them being quite different by nature and to manage. The categories and associated goods and services under indirect procurement are very diverse. For example, many of the items are bought in bulk, like IT equipment for company employees, whereas in other instances one-time purchase of one loosely specified service is required. Researchers such as Cox et al. (2005), Jayaram and Curkovic (2018), and van Weele and Rozemeijer (2022) identify many differences between direct and indirect procurement. Table 3 compiles the differences discussed in the sources.

Table 3 – Differences of direct and indirect procurement (adopted from van Weele & Rozemaijer 2022, 6, supplemented from Cox et al. 2005; Jayaram and Curkovic 2018; Chick & Hanfield 2015, 17)

<b>Aspects</b>	<b>Direct Procurement</b>	<b>Indirect Procurement</b>
Managerial recognition	Some to strategic	None to recognized
Procurement organization	Organized per business requirements	from ad-hoc/decentralized to centralized
Customers/stakeholders	Limited, some internal and some external stakeholders	All internal functions/ stakeholders
Control & internal compliance	Operations demand, clear procedures	Limited, ad-hoc, often unclear procedures
Decision-making unit	Engineering or operations dominant	Fragmented, depends on each good/service
Product specification	Strict specifications	From strict to none
Product assortment	Limited to large	Very large, extremely diverse
Demand & Forecasting	Quite stable, possible and performed	From stable to very fluctuant, possible to impossible
Average order size	Very high	Small
Number of PO's (purchase orders)	Limited to large	Very large
Number of suppliers	Limited, transparent	Very large, not transparent
Procurement turnover per supplier	Often very high	Limited, minor with majority of suppliers

As the recognition of procurement has increased over the decades, the indirect part of it has been lagging behind (Barry et al. 1996). Even in the 2010s, indirect procurement's significance is still often not understood, and it is left to its own devices. Whereas direct procurement is usually organized into a function to match the operational requirements, the tasks of indirect are often decentralized among functions without a proper structure. (Jayaram & Curkovic 2018; Payne et al. 2011.)

The product assortment of direct procurement is usually well known. Organizations tend to have clear specifications for goods and services included in their final products, and established control procedures for ordering. Direct procurement works with specified operations and engineering stakeholders, and in some cases with external customers also. Demand is often quite predictable. (van Weele & Rozemeijer 2022, 5–17.) The product assortment of indirect procurement on the other hand can include pretty much anything, ranging from specified MRO items with stable consumption rates to one-time-buy critical services with sporadic, unpredictable demand. IP often lacks uniform processes and control structures (Jayaram & Curkovic 2018). Customers and stakeholders are located in every function of a company, and their knowledge and understanding of IP processes and requirements varies considerably.

Direct procurement is often more concentrated in terms of the number of purchase orders and suppliers, as well as the value per PO and turnover per supplier. Conversely, indirect procurement is in charge of numerous low value purchase orders and suppliers. According to Cox et al. (2005), there is often a 20-80 split between the two, where indirect procurement is responsible for 80 percent of both PO's and suppliers.

### **2.3 Indirect procurement management issues and proposed solutions**

Indirect procurement is generally considered to be the harder half of procurement to manage (Barry et al. 1996). Procurement literature has identified a myriad of reasons with intertwined causes and effects for this. One of the most commonly cited reasons is that compared to direct procurement, indirect procurement contains a vastly larger number of nearly everything: categories, suppliers, purchase orders, customers and stakeholders, goods and services, etc. This increases the complexity of indirect procurement exponentially and leads to it having a tendency to cause occasional headaches for everyone involved with it. However, complexity is only one issue, and there are many additional ones identified by researchers. Even worse, these issues often have a

compounding effect on one another. Interacting with one another, they create vicious cycles that are hard to break. Figure 3 compiles literature-recognized issues from multiple sources and illustrates which issues directly aggravate others in turn.

Issue \ Aggravates	Complexity	Lack of understanding	Lack of management recognition	Lack of standardization	Maverick buying	Suboptimal organizational structure	Lack of data	Lack of E-Tool use	Lack of resources/competence	High amount of manual work
Complexity	X	X			X		X		X	X
Lack of understanding		X	X	X	X	X				X
Lack of management recognition		X	X		X	X		X	X	X
Lack of standardization	X			X	X		X		X	X
Maverick buying	X			X	X		X		X	X
Suboptimal organizational structure	X	X		X	X	X	X	X		X
Lack of data	X	X	X	X	X	X	X	X	X	X
Lack of E-Tool use				X	X		X	X	X	X
Lack of resources/competence		X			X	X	X	X	X	
High amount of manual work	X			X	X		X		X	

Figure 3 – Indirect procurement issues and their intertwined causalities (compiled from Barry et al. 1996; Porter 1999; Carter et al. 2003; Cox et al. 2005; Angeles & Nath 2007; Karjalainen & van Raaij 2011; Payne et al. 2011; Jayaram & Curkovic 2018; COPC Indirect procurement standard 2019; Israel & Curkovic 2020; 2022 Indirect Procurement Report)

According to Barry et al. (1996) and Jayaram and Curkovic (2018), indirect procurement is often seen as an obscure entity by both regular employees and higher management. The general lack of understanding of what indirect procurement is or how it functions causes harm as management fails to recognize and resource it adequately (Porter 1999). Among regular employees, lack of understanding leads to problematic behavior such as maverick buying (Karjalainen & van Raaij 2011). Lack of competence on the part of indirect procurement personnel can induce distrust in the organization between the indirect procurement function and rest of the organization (Barry et al. 1996). This in turn leads

to even less managerial recognition and an increase in maverick buying, which in turn aggravates other issues.

Lack of standardization in terms of products, contracted suppliers, and processes is another commonly cited issue. A higher number of individual items, suppliers and processes all introduce additional complexity and increase costs, as more time and effort are required to obtain items and services required (Carlsson 2019). The absence of clear catalogues and poorly defined processes leads to an increase in maverick buying (Karjalainen & van Raaij 2011).

Maverick buying is the act of buying contracted goods or services outside of established contracts (Karjalainen & van Raaij 2011). According to Israel and Curkovic (2020), it also refers to the act of obtaining goods or outside the established procurement processes and without adhering to the organization's procurement policies and guidelines. Maverick buying aggravates many issues. It introduces new suppliers, items, and “processes” to procure them, increasing the complexity of indirect procurement and causing avoidable costs to mount up (Karjalainen & van Raaij 2011). According to Angeles and Nath (2007), the quality of procurement data deteriorates, as goods and services are being procured outside the established processes and information systems. This hinders the accuracy of any numerical analyses. In addition, maverick buying can cause over 20% additional costs. Compliance breaches caused by maverick buying also often introduce additional workload for indirect procurement, as their input is needed in resolving the issues.

According to Porter (1999) and Payne et al. (2011), indirect procurement is often poorly structured. Although there is no single optimal organizational structure for indirect procurement, it is often organized in a suboptimal, decentralized way. This causes many issues, ranging from differing practices and additional costs to indirect procurement activities being managed by personnel without any procurement knowledge. Suboptimal organizational structure also hinders development activities, as there is no consensus on how indirect procurement is and should be managed. (Jayaram & Curkovic 2018.) Reliable data to support decision making is scarce and scattered, and process automation initiatives are much harder to implement effectively when activities are dispersed around the company (Angeles & Nath 2007).



Lack of comprehensive and reliable data is arguably the most cited issue with indirect procurement. Practically all the sources used for Figure 3 identify it as a detrimental issue for indirect procurement. If there is little to no data available about the scale of indirect procurement spend, it is hard for the management to recognize the importance of indirect procurement and improve the status and resourcing of it. When there is no data to guide indirect procurement development, it is hard to make informed decisions. If there is limited data about goods and services procured or spend per each supplier, it is hard to standardize items and processes or perform spend analysis. Lack of data aggravates all the other issues directly, and conversely almost all issues aggravate it.

As Barry et al. (1996) and Cox et al. (2005) point out, indirect procurement activities are responsible for the majority of operational purchasing activities (POs, invoices, etc.) in a company. In the absence of automation and E-procurement solution adoption, these tasks require a high amount of manual work, which strains and employs indirect procurement resources on low-value operational activities (Angeles & Nath 2007). Lack of competent resources or resources in general is also an issue for indirect procurement, as this can hinder developmental actions. According to Karjalainen and van Raaij (2011), lack of resources can also cause maverick buying as regular employees take matters into their own hands when they perceive indirect procurement to function too slowly or otherwise unsatisfactorily.

Literature has also identified numerous solutions for the issues discussed. As with the issues, the solutions are also intertwined and co-dependent. No single solution will solve an issue, nor will a single solution work efficiently or even be possible to implement if nothing else is done. Figure 4 illustrates which proposed solutions would directly affect each identified issue.

Solution \ Issue	Issue									
	Complexity	Lack of understanding	Lack of management recognition	Lack of standardization	Maverick buying	Suboptimal organizational structure	Lack of data	Lack of E-Tool use	Lack of resources/competence	High amount of manual work
Promoting IP to management		X	X		X	X			X	
Optimization of IP organization	X	X			X	X	X	X	X	
Increasing IP resources					X				X	
Improving the competence of IP staff	X	X	X					X	X	
Improving internal communication		X	X	X	X		X			X
Standardization of processes	X	X			X		X		X	X
Standardization of items	X			X	X		X	X	X	X
Process automation							X	X	X	X
E-tool adoption	X	X		X	X		X	X	X	X
Outsourcing some of IP	X	X		X				X	X	X

Figure 4 – Literature-proposed solutions to indirect procurement issues (compiled from Barry et al. 1996; Porter 1999; Carter et al. 2003; Cox et al. 2005; Angeles & Nath 2007; Karjalainen & van Raaij 2011; Payne et al. 2011; Jayaram & Curkovic 2018; COPC Indirect procurement standard 2019; Israel & Curkovic 2020; 2022 Indirect Procurement Report)

The COPC Indirect Procurement Standard (2019) suggests that indirect procurement should strive to actively promote itself in the eyes of management. In the end, the perception of management influences their decisions related to indirect procurement, which in turn either positively or negatively influence the performance and actions of indirect procurement. According to Jayaram and Curkovic (2018), this can be done by both delivering adequate performance and providing data about the relevance and scale of indirect procurement operations. As the understanding of indirect procurement relevance and needs increases among management, they are expected to make more informed decisions, which in turn support the performance of indirect procurement. For example, management can approve more resources for the indirect procurement function, or re-structure it into better form. According to Karjalainen and van Raaij (2011), management can also directly affect maverick buying by implementing and periodically auditing compliance mechanisms.

Optimization of indirect procurement organization is another common solution cited in the literature. Quite self-explanatorily improvements to the indirect procurement organization's structure help to fix issues caused by it. According to Jayaram and Curkovic (2018), centralization or "center-ledzation" of indirect procurement helps to reduce complexity associated with indirect procurement, as there now is uniform indirect procurement organization serving the whole company. Uniform organization allows the standardization of software and introduction of better new E-procurement tools, while also improving the quality of indirect procurement data (Angeles & Nath 2007). However, Israel and Curkovic (2020) note, that the organization needs to be optimized based on the needs of the organization.

Investments in both additional indirect procurement resources and existing employee competence development are also seen as prominent solutions to some of the indirect procurement issues. Employee competence development both ensures the continuity of adequate performance and enables development of practices through learning new ideas (COPC Indirect Procurement Standard 2019). Results obtained by Karjalainen and van Raaij (2011) indicate that increase in indirect procurement resources can reduce maverick buying. Additional resources and improved practices also allow increased communication with stakeholders in the company. According to Cox et al. (2005), this helps to "educate" internal stakeholders about the requirements and practices of indirect procurement while also demonstrating IP capabilities to stakeholders and management. Improved communication also allows indirect procurement to obtain more soft data to factor in decision making and feedback on how to improve their own practices (COPC Indirect Procurement Standard 2019).

Lack of standardization was identified as an issue causing complexity and additional costs. Understandably, standardization of items and processes, whenever possible and sensible, is identified as a countermeasure for these issues. According to Carlsson (2019), standardization of items leads to savings though better deals of larger volumes. Standardization of items also helps to control the number of suppliers. According to Barry et al. (1996), simplified processes help to reduce the complexity of indirect procurement and make it more understandable for internal stakeholders. Standardization also helps to tackle maverick buying, as indirect procurement processes are simpler to understand, and product information (catalogues) more readily available (Karjalainen & van Raaij 2011). One additional benefit of standardization is that it reduces both the overall workload of

indirect procurement staff and the need for manual work, as activities, such as creating and sending PO's, can be bundled.

Angeles and Nath (2007) point out that standardization improves both the quality and quantity of data. This eases decision-making and the implementation of new and more sophisticated E-procurement tools and information systems. Both E-procurement tools and process automation-enabling systems are seen as great ways to improve indirect procurement efficiency. Both Carter et al. (2003) and Angeles and Nath (2007) recognize a positive cycle within standardization, data quality, and new information system adoption: standardization improves data quality and eases the implementation of new systems. New systems further improve data quality and support standardization efforts, which in turn allow the implementation of more efficient systems. Automation and E-tool adoption significantly reduce manual work, easing the lack of indirect procurement resources.

Carter et al. (2003) propose outsourcing indirect procurement activities as a solution to some of the issues. Outsourcing of indirect procurement can take multiple forms. In some cases, it might mean outsourcing all of indirect procurement, whereas in others maybe the outsourcing of some categories. According to Payne et al. (2011), outsourcing the procurement of non-essential or minor categories can be beneficial, as the suppliers can often achieve cost reductions through more efficient operations and larger volumes compiled from multiple customers. Procurement of some uniquely high-value or technologically complex items can also be outsourced in order to benefit from the knowledge and expertise of suppliers (Carter et al. 2003). Carter et al. (2003) also note that the suppliers offering outsourced indirect procurement services can rapidly improve the service level of indirect procurement activities in a company, especially if it was lagging behind in terms of endogenous capabilities.

### **3 Maturity models**

#### **3.1 Maturity models as assessment and development tools**

Knowledge and expertise accumulate in organizations over time. This accumulation leads to the development of organizational capabilities and implementation of more sophisticated business processes. However, the accumulation occurs at different rates, and every organization has its own individual level of development. According to Maier et al. (2012), the term maturity both depicts the process of growth or development, and when reached, is the highest and final stage of development. A maturity level is a plateau or stage somewhere along the path towards maturity (Rendon, 2008).

Maturity models have been developed as a way to assess and improve the performance of organizations, processes, or systems over time (Wendler, 2012). Röglinger et al. (2012) recognize three types of maturity models based on their practical applicability: descriptive, prescriptive, and comparative. Descriptive models provide the means for assessing the status quo and identifying the current stage. Prescriptive models introduce development-supporting aspects, indicating how to advance from one stage to the next. Comparative models allow benchmarking and comparison of practices both internally and externally. In practice, the models are usually a combination of the aforementioned types. Pullen (2007) defines maturity model as a structured tool consisting of different elements, that describes the different stages of development for each element with defined characteristics, as well as the means for advancing from one stage to another.

According to Maier et al. (2012), the models are usually organized as a matrix or a grid, with each cell containing a written description of the characteristics for each maturity stage concerning a certain element. It is important to note that the models are designed to assess and analyze complex real-world situations. In reality, the measurable elements have intertwined dependencies and influence the performance of other dimensions and processes. Changes or improvement efforts with one element or process will affect many others. Röglinger et al. (2012) note critique towards maturity models to stem from their tendency to oversimplify reality. In addition, maturity and its stages are also ambiguous and subjective concepts and are contingent on time and scale. Sending a fax and calling via landline might have been the pinnacle equipment in the process of communication in the 1980's but have since been made obsolete. Similarly, an ERP with top-of-the-line

functionalities could be the key enabler supporting the world-class processes of a multinational corporation, but in an SME would overcomplicate its actions.

According to Burnes (2004), organizations are subject to both internal and external change. In response to changes, organizations perform development actions. However, these are often executed as reactive ad-hoc solutions and with short-term perspective. As a result, their effectiveness soon degrades. This often leads to lost development opportunities as no lasting long-term improvements are made. By (2005) points out, that around 70 percent of development initiatives fail. This is due to the lack of a valid guidance framework and long-term vision. Many scholars have advocated for the importance of continuous change management practices. In procurement context, Axelsson et al. (2005) advocate for the importance of sustained, continuous development over one-off actions. Figure 5 depicts the difference between sustained development and one-off improvements.

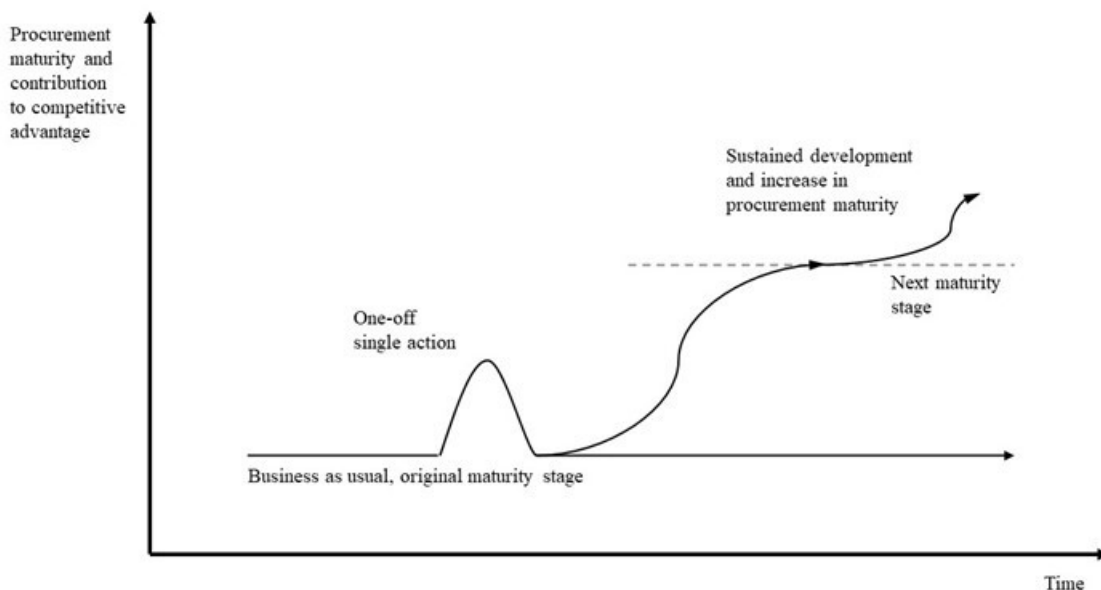


Figure 5 – Benefits of sustained development. (Modified from Axelsson et al. 2005, 23)

Maturity models take an evolutionary approach towards development. It occurs gradually over time, step by step. Pullen (2007) points out that maturity models can suggest means for advancing from one level to next. Subsequently, Andreasen & Gammelgaard (2018) argue that the models can be used to guide development, as they have the ability to act as roadmaps. Therefore, maturity models have the potential to be used as a framework supporting managerial decision-making on continuous development, simultaneously

providing long-term direction and intermediate milestones (van Weele & Rozemeijer, 2022, 66). However, the development must be gradual, as any development or improvement efforts for a certain element or process usually influences many others. There needs to be an established foundation to support new developments. According to Schiele (2007), prior stages of development must be systemically obtained before advancing to the next, as attempts to introduce too radical changes usually leads to more harm than good. This is supported by Lockamy & McCormack (2004), who argue that it is always necessary to have a solid foundation to build on, as each stage acts as an enabler for further development.

### **3.2 Maturity model construction process**

There are a few different approaches in the literature to the formulation or construction of maturity models. They are used in a wide range of different fields and functions from food production to project management to procurement. Still, they all usually follow the same basic principles throughout the construction process, regardless of the field of application or the specific construction framework.

According to Röglinger et al. (2012), there are three levels of design principles for maturity models. Basic design principles form the basis of construction for every model. These include defining the scope of the model and intended users, deciding which elements to include and basic maturity levels for these, and the definitions of concepts and terms. For descriptive use, the design adds depth to the criteria for different maturity levels, as well as definition how the model is to be used. Finally, the prescriptive level builds upon the basic and descriptive levels, adding targets and guidelines for improvement as well as providing support for decision-making on these actions. Figure 6 summarizes the hierarchy of design principles.

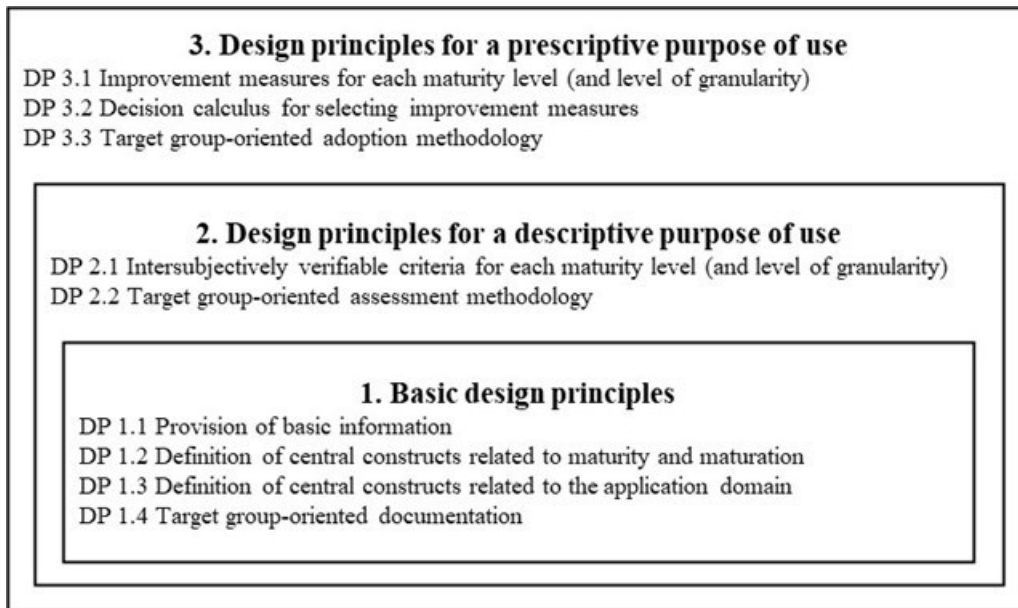


Figure 6 – Maturity model design principles (Röglinger et al. 2012)

Although referenced in chapter 3.1, Röglinger et al. (2012) do not provide design principles for comparative models, as in their view a model becomes comparative after it has seen proper use and a sufficient amount of data for comparative use has been collected. However, according to Maier et al. (2012) models can also be comparative if recognized best practices from literature or practice are included in the model already at the offset, although they also note that the comparative ability of the model improves after data collection.

The different development processes of maturity models generally consist of similar phases. According to de Bruin et al. (2005) and Maier et al. (2012), the phases should in general be followed in linear order, although there is always iteration between certain phases, as the model is refined and evolves over time. The model of de Bruin et al. (2005) is depicted in Figure 7.



Figure 7 – Maturity model development phases (de Bruin et al. 2005)



De Bruin et al. (2005) divide the actual development process of maturity models into six phases, scope, design, populate, test, deploy, and maintain. Maier et al. (2012) propose a four-phase model. These phases are planning, development, evaluation, and maintenance, with each phase containing certain decision points. This model is depicted in Figure 8. As the model by Maier et al. (2012) provides a clear and more in-depth structure to support the development process, this thesis will next utilize it as a framework for taking a deeper look into the actual development phases.

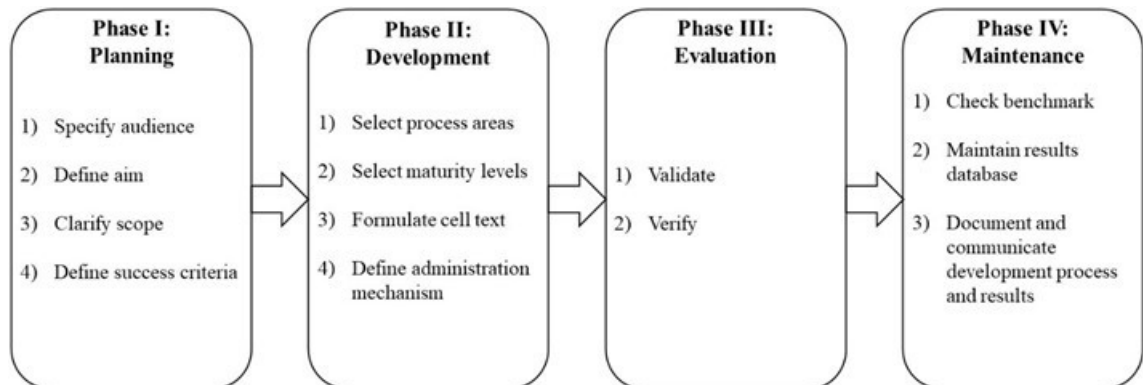


Figure 8 – Maturity model development phases and decision points (Maier et al. 2012)

### 3.2.1 Phase I: Planning

The planning phase acts as the foundation for the latter phases of model development. This phase defines to whom, why, and to what purpose the model is being created, and provides purpose and direction for it. The design principles by Röglinger et al. (2012) need to be taken into account. According to Maier et al. (2012) the first phase includes four distinct decision points. These are specifying audience, defining aim, clarifying scope, and defining success criteria. de Bruin et al. (2005) cover these topics under scope and design phases.

Specifying audience covers the definition of expected users. This can include multiple groups of stakeholders on different levels, such as subjects of the assessment and the managers making decisions based on assessment results. (Maier et al. 2019.) Defining aim specifies what the model is going to be utilized for. This decision point relates to the design principles of Röglinger et al. (2012), whether the model is going to be descriptive, prescriptive, or comparative. According to Maier et al. (2012), the model is most often a combination of these. Clarifying scope is the decision about the generalizability of the

model, whether it is designed for a specific process or company, or for general use across industries and fields (Maier et al. 2012). The final decision point in the first phase is the definition of success criteria. These need to be established in order for the model developers to know whether the model is good or not. According to Maier et al. (2012), two good criteria are the usability and usefulness of the model. Usability stems from the clarity of the model. As Röglinger et al. (2012) point out, the model needs to follow the basic design principles, such as clear definitions for concepts, in order to be usable. Usefulness could be measured in terms of the aim of the model. If its aim is to be prescriptive, the model needs to deliver guidance for development. (Maier et al. 2012.)

### 3.2.2 Phase II: Development

The first version of the actual model is built during the development phase. This phase also includes four distinct decision points: Selecting process areas, selecting maturity levels, formulating cell texts, and defining administration mechanism (Maier et al. 2012). According to Bruin et al. (2005), this phase defines what needs to be measured, and how and by whom the measurement is performed.

Selecting process areas is the first decision point. The aim in this step is to select key dimensions within the scope of the model defined in phase 1. These dimensions need to be simultaneously exclusive while collectively providing a thorough picture for assessment. The dimensions are then broken further down into measurable elements concerning the dimension in question. (de Bruin et al. 2005; Maier et al. 2012.) Example dimension in procurement context could be strategy and leadership, which could then be broken down into elements, measuring factors such as streamlining procurement strategy with corporate strategy, category strategy formulation, leadership of procurement function, etc. Both Maier et al. (2012) and Schiele (2007) recommend the utilization of a literature review of the field in question as a starting point for the dimension selection, provided that the field in question has accumulated a sufficient amount of prior research literature.

The second decision in the development phase concerns the number of maturity levels in the model. These levels cover the range of maturity from low or non-existent to the best, where an element has reached final maturity. The number of levels (or stages) varies from model to model, but according to Schiele (2007), is usually 3-5. de Bruin et al. (2005) suggest using 5 levels, but note, that the number of levels is irrelevant compared to the

quality of definitions on each level. According to de Bruin et al. (2005), the levels need to be distinct and well defined, while providing a logical progression from one to the next.

As a result of defining both the X-axis (levels) and Y-axis (dimensions and elements), an empty maturity grid is now waiting to be populated. Formulation of cell texts needs to be done with care. Each description should be clear, precise, and concise (Maier et al. 2012). Röglinger et al. (2012) note in their design principles that the cell texts need to be formulated in such a way that they are understood in the same way by every user of the model. According to Maier et al. (2012) a good approach for formulating the cell texts is to first determine both extremes, characteristics for worst and best levels, and then define the characteristics for the levels in between. The information used for defining the characteristics for each element and respective levels can be collected from multiple sources; literature, used practices, recognized best practices, and exploratory research (de Bruin et al. 2005; Maier et al. 2012).

The fourth and final decision point in the development phase is about defining the administration mechanism for the model, how it will be distributed and how the assessments are to be performed and utilized. According to Maier et al. (2012), the focus in the utilization can be either in raising awareness or benchmarking, or a combination of the two. When the focus is on raising awareness, the model is often distributed as a questionnaire to a small group of people, and the results are interpreted and discussed in workshops. Here, the focus is more on an internal analysis of the current state of affairs and how to improve. (Maier et al. 2012.) When the focus is on benchmarking, the model is distributed to a wider group of recipients. In this scenario, the model is used to assess the as-is situation in multiple entities (teams, divisions, companies), and to compare them against one another. (Maier et al. 2012; Röglinger et al. 2012.)

### 3.2.3 Phase III: Evaluation

The evaluation phase is where the main iteration and refinement work of the model takes place. Here, the model is tested for relevance, rigor, and generalizability (de Bruin et al. 2005). The validation of the model is performed through testing and feedback from individuals, preferably unrelated to the author(s) of the base model (Maier et al. 2012). Interviews and surveys are recognized as good methods for verifying the model (de Bruin et al. 2005.) According to Maier et al. (2012) the dimensions and elements of the model and the characteristics (cell texts) of individual levels need to be verified. The

intersubjective design principle of Röglinger et al. (2012) also needs to be verified, where the construct and contents of the model are tested to be understood in the same way by individuals.

Iterative validation can be performed until the results are saturated. After the saturation, no more significant improvements or changes are suggested by the participants, or the model is deemed to be satisfactory. After the validation is finished, the results provided by the model should be repeatable. (Maier et al. 2012.) Finally, as the second part of the evaluation phase, the model should be verified against the success criteria defined in phase I of the development, although if everything has been done correctly up to this point, the verification results should be positive (Maier et al. 2012).

#### 3.2.4 Phase IV: Maintenance

The maintenance phase covers the evolution of the model over its lifespan, while also extending it. The model needs to be regularly checked and updated to ensure that it remains valid for use. (Maier et al. 2012) As discussed in chapter 3.1, maturity evolves over time. Technological developments or new ways of working might pose requirements for changes to the model, as they might otherwise render it obsolete. The maintenance phase also includes the collection and storage of data. According to both Maier et al. (2012) and Röglinger et al. (2012), this improves the comparative capabilities of the model over time. Both also note that it is important to keep a record of the development and changes to the model, as this provides academical utility, while also providing findings for practical application use.

Although maintenance is a crucial part in the lifecycle of a maturity model, due to the required longevity, it will be excluded from the scope of this thesis when the actual model is built.

### 3.3 Existing procurement maturity models

Procurement maturity can be evaluated through different lenses and with a wide range of elements. Over the past three decades, many maturity models have been developed to measure procurement capability. These models have sought to capture the development level of procurement in different companies and industries, often through common yet sometimes unique dimensions of measurement. The majority of the models developed

have had their focus on direct procurement, as only one model, Barry et al. (1996), has been created with a specific focus on indirect procurement. Additionally, Jayaram and Curkovic (2018) have created an indirect procurement framework, which has many commonalities to a maturity model, and in their paper, they also create specific maturity ratings for few of the elements in their framework.

According to Schiele (2007) and Ubeda et al. (2015), most models base their lowest level of maturity on to an assumption that procurement function or a specific procurement practice is unrecognized, focuses on operative tasks and has little to no structured ways of working. Van Weele and Rozemaijer (2022, 66) also note that companies with low procurement maturity are also yet to recognize the value creation capability of procurement. Conversely, the most mature levels in the measured elements of the models are characterized by sophisticated processes, use of recognized best practices, strategic planning and recognition and will to utilize the value creation capability of procurement (Schiele 2007; Ubeda et al. 2015; van Weele & Rozemeijer 2022, 66–72).

As noted by de Bruin et al. (2005), the number of maturity levels is not as relevant as the quality of definitions and characteristics describing each level. Existing procurement maturity models have used a varying number of maturity levels, with each model containing between three and five levels (Schiele, 2007). The number of levels is either derived from the combination of theory and author's judgment, like in Schiele's (2007) model, or by first collecting and analyzing empirical data, after which a model and its levels are built reflecting the results of the analysis, like the model by Barry et al. (1996). The models use varying naming schemes for their levels. The majority of the models use descriptive names for the levels, depicting the capability of a particular level. The models by Schiele (2007) and Ubeda et al. (2015) make an exception to this, as they use only percentual or numerical levels.

The sophistication of the models has steadily increased over the years. The models developed in the 80's and 90's usually had around 10 individual measured elements, and lacked the structure where individual elements are grouped under dimensions (Schiele 2007; Ubeda et al. 2015). From 2000's onwards, the number of elements included in the models has commonly been closer to 50 than 10. In addition, many later models, like Schiele (2007) and Ubeda et al. (2015), and the framework by Jayaram and Curkovic (2018), have adopted a structure where the elements are grouped under dimensions. As

Maier et al. (2012) noted, this both improves the structure and usability of the models, while also providing better overview for high-level stakeholders examining results.

The quality of the characteristics provided for each level of an element, the texts in individual cells, have also improved significantly in later models, as the cells include more detailed descriptions. Whereas earlier models included one or two words in a cell, the later ones often have detailed descriptive texts. Both descriptive and prescriptive styles for writing cell texts are utilized in the formulation of different models. However, Schiele (2007) notes that descriptive writing style is better as it will improve the generalizability of the model.

According to Johnsen et al. (2019), the older models have inevitably become outdated to a certain degree. Factors such as contemporary thinking about procurement, technology, and ways of working have all evolved over the years, which has changed the game and moved the goal posts for the maturity models seeking to capture the essence of procurement capability. Therefore, Johnsen et al. (2019) argue that the use of earlier models should be avoided without some updates and adjustments.

Although there is a great deal of variety with the terms used for dimensions and elements, aspects measuring strategy, employees, procurement processes, supplier management, control, organizational structure, and performance measurement can be recognized from almost every model. Schiele (2007) has compiled a comprehensive overview of the elements included in models earlier than his and grouped them under six dimensions. Figure 9 is based on his classification and updated with later models. This classification will be utilized as a framework to discuss the dimensions and elements more in depth.

	Reck & Long (1988)	Freeman & Cavinato (1990)	Keough (1993)	Chadwick & Rajagopal (1995)	Barry et al. (1996)	Cousins et al. (2006)	Paulraj et al. (2006)	Schiele (2007)	Ubeda et al. (2015)	Jayaram & Curkovic (2018)	Johnsen et al. (2019)
Number of elements	11	9	8	9	20	24	42	47	30	28	13
	Dimensions										
Procurement Planning	X	X	X	X	X			X	X	X	X
Procurement Organization			X	X				X	X		X
Procurement Processes			X	X	X			X	X	X	X
Human Resources	X	X	X	X		X		X	X	X	X
Controlling	X	X		X	X	X	X	X	X	X	X
Collaborative supply relation	X			X		X	X		X	X	X

Figure 9 – Comparison of maturity models (Modified from Schiele 2007)

Schiele (2007) classifies the elements in models under six dimensions. In his view procurement planning dimension covers elements related to the future, both in the short and long term. Elements such as planning for operations' needs, supply market analysis, and innovation planning are included. In other models, like the framework by Jayaram and Curkovic (2018), these elements are included under planning, procurement process, and support process dimensions.

The second dimension in Schiele's (2007) model is procurement organization. This dimension includes elements measuring the structure, role, and both cross-functional and strategic integration of procurement. Although many of the models include these measures in some way at a first glance, Schiele's (2007) classification disqualifies them as being prescriptive rather than descriptive.

Procurement processes is the third dimension in Schiele's (2007) model. This dimension includes elements measuring procurement strategy, individual procurement processes (such as supplier selection and development), and procurement's collaboration with internal stakeholders. In other models these elements are often split, and in some cases, more individual procurement processes are measured. Elements related to supplier management are included in almost every model. However, by Schiele's (2007) definition some of the models (like Cousins et al. 2006 and Paulraj et al. 2006) are prescriptive in

nature and thus the supplier management elements are separated to their own sixth dimension, collaborative supply relation.

Elements measuring human resources can also be found in almost every model. According to Schiele (2007), this dimension includes elements like the competence of individual employees, career development paths within a company, and HR-staff and their competence to recruit employees with the right skillset. Jayaram & Curkovic (2018) and Johnsen et al. (2019) also include an element measuring employee training and development. Ubeda et al. (2015) introduce an element measuring the incentive program of procurement staff.

The fifth dimension is procurement controlling. In earlier models, like Freeman and Cavinato (1990) control is considered to be based on budgeting. According to Schiele (2007) controlling includes elements like performance targets, evaluation of the controlling system, and the IT-infrastructure to support it. Jayaram & Curkovic (2018) also introduce analytics as a control element.

The later models like the framework by Jayaram & Curkovic (2018) and especially the model by Johnsen et al. (2019) also introduce elements belonging to an area which could be considered as its own dimension. They introduce elements measuring sustainability, corporate responsibility, and compliance in their models, placing distinct emphasis on maturity measurement through sustainability indicators. This reflects the increased importance of these topics in the area of procurement.

There are two papers which are specifically aimed at indirect procurement. The one by Barry et al. (1996) introduces an indirect procurement maturity model, and the one by Jayaram and Curkovic (2018) a framework for indirect procurement development and benchmarking. The model by Barry et al. (1996) is centered purely around indirect procurement process, as it only measures elements depicting IP process steps. The elements describing these process steps in the paper can be classified under Schiele's planning, processes, and controlling dimensions. Barry et al. (1996) use a three-level model, where the levels and descriptions for each cell have been concluded from a prior empirical study. The cell texts are quite outdated, which according to Johnsen et al. (2019) restricts the usability of the model.



The indirect procurement framework developed by Jayaram and Curkovic (2018) is not a maturity model, but rather a standard for indirect procurement development. It has commonalities with maturity models in the sense that in the framework there are 28 elements grouped under five dimensions, most of which are also included in Schiele's (2007) classification. The standard is prescriptive in nature, depicting what should be done on a high performance or maturity stage. While heavy on process related elements, the framework also includes many non-process-related ones, providing breath to the measurement and development of indirect procurement activities. The framework also includes measures for responsibility and the use of IP-specific technology. The paper also includes a benchmarking study of few key elements, while also providing a maturity scale for them. The downside of the framework is that it lacks a proper matrix structure to become a real maturity model.

Both the model by Barry et al. (1996) and the framework by Jayaram and Curkovic (2018) seem to have some common deficiencies. They lack a couple of key elements that are often discussed in the literature of indirect procurement. Both articles imply that indirect procurement is not understood by higher management and as a result is often neglected, but yet do not include specific measures for this (Barry et al. 1996; Jayaram & Curkovic 2018). Moreover, as discussed in Chapter 2.3, indirect procurement is often decentralized among departments and handled by other personnel than procurement professionals. Even as Jayaram and Curkovic (2018) point this out as an issue in their own article, they still do not incorporate any elements to measure the organizational structure of indirect procurement. Both also lack a measure for the level of strategic integration of indirect procurement.

## **4 Maturity model for indirect procurement**

### **4.1 Developing a maturity model for indirect procurement**

The creation of indirect procurement maturity model in this study follows the design principles for maturity models outlined by Röglinger et al. (2012). The model itself is constructed following the maturity model creation process and its phases proposed by Maier et al. (2012). These were both discussed more in depth in chapter 3.2. The basis for the maturity model creation (phase I) and the actual creation of the first version of the model (phase II) are discussed in this chapter. This literature-based first version of the maturity model can be found in appendix 1. The empirical validation and verification of the model (phase III) will be discussed in chapter 6. It should also be noted again that the maintenance phase of the creation process (phase IV), is left out from the scope of this study. Therefore, it will not be covered in this nor the following chapters.

#### **4.1.1 Phase I: Planning**

The first three steps in the planning phase are defining the audience, defining the aim, and clarifying the scope (Maier et al. 2012). The model developed in this study is intended to be used by indirect procurement professionals of various positions and hierarchical levels, from procurement specialists to heads of procurement. Other relevant stakeholders are also welcome to use it, and their involvement could also provide valuable second opinions for indirect procurement staff. The model is written to be descriptive in nature, and the maturity evaluation is intended to be used for the as-is assessment and benchmarking of indirect procurement practices, and the identification of both potential development points and development targets. The results of the evaluation can be utilized by both indirect procurement teams and general management, hopefully stimulating thoughts and sparking insightful discussions among both groups, but especially within indirect procurement teams. In terms of scope, the model is intended to be a generic one that could be utilized by companies of various sizes, regardless of industry. However, it needs to be noted that this model probably offers a lesser amount of relevant content for smaller end SMEs, as in their scale many depictions and elements in the model are irrelevant in practice.

The fourth step in the planning phase is the definition of success criteria (Maier et al. 2012). Maier et al. (2012) suggest usability and usefulness as good success criteria.

Therefore, both are used as such for this model as well. The model needs to be easy to understand and easy enough to use. The model should also provide useful information about the state of indirect procurement practices for the user. In addition to providing information and support for decision-making, the model is also intended to build knowledge about indirect procurement. This is hopefully reflected in both improved indirect procurement practices and an increase in the status of indirect procurement in companies in general.

#### 4.1.2 Phase II: Development

The second phase starts with the selection of process areas (Maier et al. 2012). In the context of this maturity model, this means selecting the dimensions and elements to be included in the model. The selection is done through an extensive literature review of procurement literature, both direct and indirect. The selected dimensions and elements are derived from both existing maturity models and general articles based on their relevance and occurrence. The selection is also intended to reflect the indirect procurement-specific issues and their solutions recognized in the literature. As there is no single all-encompassing model to base this one on, the final selection of dimensions and elements has been made by the author using his own judgement and limited experience in the field of indirect procurement. After the selection process, 7 distinct dimensions were introduced to the first version of the model, under which a total of 42 elements were grouped. The selected dimensions are:

1. Strategy, planning, and leadership
2. Indirect procurement organization and integration
3. Key procurement processes
4. P2P process
5. Human resources
6. IT-systems and E-procurement
7. Measurement and control

The first dimension, strategy, planning, and leadership, consists of seven elements, which are listed below. The selection of this dimension is based on the models of Cousins et al.

(2006), Ubeda et al. (2015) and Paulraj et al. (2006). Nearly every model contains some elements measuring procurement's strategic involvement and leadership, so it is logical to contain these elements in their own dimension. This dimension is intended to reflect factors such as procurement's status in the company (as a whole, based on the assumption that if direct has low status, indirect has even lower status), strategic involvement and involvement in decision making, the role of indirect procurement in the procurement function, and leadership in indirect procurement. Additionally, elements measuring responsibility and sustainability are also included in this dimension, as they were recognized as strategic drivers by Giunipero et al. (2012) and included in the maturity model of Johnsen et al. (2019).

- E1.1 Procurement and corporate strategy
- E1.2 Indirect procurement recognition and involvement in decision-making
- E1.3 Procurement strategy and indirect procurement
- E1.4 Corporate responsibility and indirect procurement
- E1.5 Sustainability and indirect procurement
- E1.6 Change and development management
- E1.7 Indirect procurement business plan

The second dimension is indirect procurement organization and integration. It contains five individual elements, which are listed on the next page. This dimension covers topics like indirect procurement organization, mandate, and cross-functional integration and cooperation. These dimensions are selected based on the models of Schiele (2007) and Ubeda et al. (2015), and the framework by Jayaram and Curkovic (2018). Additionally, Cox et al. (2005) stress the importance of cross-functional communication between indirect procurement and other departments. IP involvement in product specification and standardization is included as an element based on the suggestions of Carlsson (2019) and Karjalainen and van Raaij (2011).

- E.2.1 Organizational structure
- E2.2 Mandate of IP department

- E2.3 Communication practices & plan
- E2.4 Cross-functional integration
- E2.5 IP involvement in product specification & standardization

Key procurement processes form the third dimension. This dimension includes eleven individual elements, all of which are widely covered in the literature, identified as key procurement processes, and included in some form or another in the existing maturity models. The procurement processes included in this dimension are selected based on their longevity, as they generally tend to exceed the duration of operational activities. Adjustment of process requirements is technically not a process but rather a design step for the requirements of other processes. It is added as an element based on the author's experience, where having one single process model for every indirect procurement case, regardless of value or significance, often complicates matters unnecessarily.

- E3.1 Adjustment of process requirements
- E3.2 Category strategies
- E3.3 Supplier strategies
- E3.4 Supplier selection
- E3.5 Supplier due diligence
- E3.6 Supplier contracting and contract management
- E3.7 Supplier management
- E3.8 Internal compliance
- E3.9 Risk management
- E3.10 Supply market intelligence
- E3.11 Internal partner management

The operational or daily activities of procurement are compiled to form the fourth dimension, the P2P process. This dimension includes four elements, which are listed on the next page. The importance of operational processes seems to be remarkably

overlooked in the existing maturity models, as only the relatively old model by Barry et al. (1996) seems to pay particular attention to their importance. Yet, one of the most cited headaches for indirect procurement is the high number of individual requisitions, POs, invoices, etc., which often creates an extensive amount of manual work while also aggravating other issues associated with indirect procurement (Barry et al. 1996; Cox et al. 2005; Angeles & Nath 2007). Therefore, operational processes are entitled to receive attention in the form of an individual dimension, as elements measuring the proficiency of operational activities are key indicators for indirect procurement maturity.

- E4.1 Requisition & approval
- E4.2 PO placement & compliance
- E4.3 Receiving and inspections
- E4.4 Invoice processing

The fifth dimension is human resources, which consists of seven elements. The importance of competent procurement, recruitment of the right skills, and talent retention and development has been widely acknowledged in academic literature (Schiele 2007; Ubeda et al. 2015; Bals et al. 2019). The elements are intended to reflect the need for diverse competences, recruitment competence, talent retention and skill development, and work well-being. As noted in Chapter 4.1, human resources are included in some form or another in almost every existing procurement maturity model, which again indicates the level of their importance as a relevant indicator for indirect procurement maturity.

- E5.1 Position descriptions and diversity of competences
- E5.2 Recruitment competency & methods
- E5.3 Staff onboarding, training, and competence development
- E5.4 Adequacy of resources
- E5.5 Performance evaluation
- E5.6 Career development and employee churn
- E5.7 Staff feedback

IT-systems & E-procurement are selected as the sixth dimension, and the elements included are listed on the next page. This dimension is mostly absent or only briefly covered with one or two elements in the existing maturity models. As discussed in Chapter 2.3, suitable IT-systems, availability of accurate data, process automation, and the utilization of E-procurement solutions are all very effective measures for improving indirect procurement performance. They help to tackle issues like high amount of manual work, lack of relevant data, lack of resources, and the lack of standardization. (Cox et al. 2005; Angeles & Nath 2007.) Bals et al. (2019) also note that procurement IT-solutions are constantly developing to become ever more sophisticated, enabling improvements in procurement management practices. As there is clear evidence for the relevance of IT-systems and E-procurement solutions as enablers for efficient indirect procurement management, they are important yardsticks for indirect procurement maturity.

- E6.1 IT-architecture and systems
- E6.2 P2P-process automation
- E6.3 Data collection, quality, and storage
- E6.4 E-X's

The seventh and final dimension in the model is measurement and control. Almost every existing procurement maturity model, except the model by Keough (1993), includes some elements measuring the controlling practices of procurement. Accurate measurement and control based on numbers are key managerial principles. Therefore, its importance cannot be understated, and measures of the level of their performance act as indicators for indirect procurement proficiency. Additionally, stakeholder satisfaction is an important indicator for indirect procurement. As the function serves internal customers and greatly affects most internal operations, measuring internal customer satisfaction can be considered a very relevant indicator of indirect procurement performance. Stakeholders can also provide valuable feedback for indirect procurement, which, properly utilized, can help indirect procurement improve.

- E7.1 IP business plan metrics & adjustment
- E7.2 Reporting & data analytics
- E7.3 Stakeholder satisfaction

- E7.4 Cost management & measurement

According to Maier et al. (2012), the second decision point in the development phase is the selection of maturity levels. As mentioned in Chapter 3.2.2, most existing procurement maturity models utilize between three and five levels. The models can be split in two in terms of their logic concerning the first level: It either represents non-existent maturity and practices or rudimentary maturity and practices. In practice, including or excluding the zero-level from the model makes no difference, as the user of the model should be capable of identifying a non-existent practice or level of maturity regardless of a visible 0-column. As noted by de Bruin et al. (2005), the number of individual levels is irrelevant compared to the quality of descriptions and the logical progression from level to level. Most of the procurement maturity models developed during the 2000s utilize either four levels (Cousins et al. 2006; Schiele 2007; Johnsen et al. 2019) or five levels (Ubada et al. 2015; Jayaram & Curkovic 2019, on the part of few elements they measure in maturity-model-like fashion), where the first level is again one of non-existent maturity or practices. Therefore, the zero-level is omitted from the model of this thesis, the number of levels selected is four, and a greater focus will be given to the level descriptions and progression of individual elements.

As discussed in Chapter 4.1, the existing models utilize either descriptive words or simple numbering, percentual or pure numbers, to name their levels. This model will utilize descriptive words to name four levels of maturity. These names are derived from literature, describing the level of maturity through four factors: capability, processes, technology, and status of indirect procurement. In Chapter 2.3 the literature review focused on the literature-recognized issues associated with indirect procurement and the solutions to these issues. In terms of logical progression, the maturity level descriptions should also adequately reflect a path where these issues are addressed, improved upon, and eventually resolved. Table 4 summarizes the names of the levels and their descriptions.



Table 4 – Maturity model level names and descriptions

Maturity level	Description
Clerk	IP is seen purely as a supportive, administrative function with no value-creation capability. It has non-existent or unsuitable processes and low capabilities in terms of both proficiency and technology.
Basic	IP is seen as an operational function with savings capability. Its capabilities range from elementary to good, and it even has a little bit of shine to it in some respects. It utilizes basic processes and technology.
Advanced	IP's value-creation capabilities and relevance for the execution of strategy are becoming increasingly recognized. IP has a good-to-high level of proficiency. It is able to act quite proactively, utilizing good processes and advanced technology.
Pioneer of maturity	IP is recognized as a value-creating contributor. It possesses a very high level of proficiency, utilizes best-practice processes and technology, and proactively seeks to improve its operations further, re-defining the top level of maturity.

The frame of the model has now been established, as the dimensions, elements, and levels have been selected. Figure 10 illustrates the skeletal frame of the model prior to the population of the cells, i.e., writing cell texts.

Dimensions and elements	Level 1: Clerk	Level 2: Basic	Level 3: Advanced	Level 4: Pioneer of maturity
<b>1. Strategy, planning and leadership</b>				
E1.1 Procurement and corporate strategy				
E1.2 Indirect procurement recognition and involvement in decision making				
E1.3 Procurement strategy and indirect procurement				
E1.4 Corporate responsibility and indirect procurement				
E1.5 Sustainability and indirect procurement				
E1.6 Change & Development management				
E1.7 Indirect procurement business plan				
<b>2. Indirect procurement organization and integration</b>				
E2.1 Organizational structure				
E2.2 Mandate of IP department				
E2.3 Communication practices & plan				
E2.4 Cross-functional integration				
E2.5 IP involvement in product specification & standardization				
<b>3. Key procurement processes</b>				
E3.1 Adjustment of process requirements				
E3.2 Category strategies				
E3.3 Supplier strategies				
E3.4 Supplier selection				
E3.5 Supplier due diligence				
E3.6 Supplier contracting and contract management				
E3.7 Supplier management				
E3.8 Internal compliance				
E3.9 Risk management				
E3.10 Supply market intelligence				
E3.11 Internal partner management				
<b>4. P2P process</b>				
E4.1 Requisition & Approval				
E4.2 PO placement & Compliance				
E4.3 Receiving/inspections				
E4.4 Invoice processing				
<b>5. Human resources</b>				
E5.1 Position descriptions and diversity of competences				
E5.2 Recruitment competency & methods				
E5.3 Staff onboarding, training and competence development				
E5.4 Adequacy of resources				
E5.5 Performance evaluation				
E5.6 Career development and employee churn				
E5.7 Staff feedback				
<b>6. IT-systems and E-procurement</b>				
E6.1 IT-architecture and systems				
E6.2 P2P process automation				
E6.3 Data collection, quality, and storage				
E6.4 E-X's				
<b>7. Measurement and control</b>				
E7.1 IP Business plan metrics & adjustment				
E7.2 Reporting & data analytics				
E7.3 Stakeholder satisfaction				
E7.4 Cost management & Measurement				

Figure 10 – The skeletal frame of the model prior to population

The third step in phase II is the formulation of the actual cell texts, which consists of three decisions. According to Maier et al. (2012), the first decision in this step is about the writing style of the cells, whether they are written descriptively or prescriptively. As noted earlier in phase I, this model is intended to be a generic one. Therefore, a descriptive

writing style is chosen for the cell texts, as there is much variation between the situations of organizations and the environments they operate in.

The next decision in this step concerns the information sources used to populate the cells. According to Maier et al. (2012), academic literature, organizational publications, and the opinions of experts and eventual users of the model can be utilized here. For the initial version of the model, the cell texts are populated based on the author's synthesis of academic literature and organizational publications, which have been used as sources in the thesis. The model is later refined based on the feedback received from indirect procurement professionals.

The third and final decision in step three is about the strategy of writing the cell texts to an element. Maier et al. (2012) note that either an extreme approach, where the worst level and highest level are written first, or a description-based approach, where the cell text are written based on the maturity level descriptions and their underlying rationale, can be used. During the population of the first version of the maturity model mainly the first, extreme approach, is used. However, the writing of the cells is still an iterative process, where the cells are constantly compared against both one another and the level descriptions and refined. The populated first version of the model can be found in Appendix 1.

The fourth step of Phase II is about choosing an administration mechanism. However, as this step is irrelevant in the context of this thesis and the associated maturity model, it will not be covered.

## 5 Methodology

### 5.1 Research methods and positioning of the study

The objective of this research is to create a comprehensive maturity model for indirect procurement by identifying the underlying issues associated with indirect procurement, solutions to these issues, and how they are manifested at each level of maturity. As discussed in earlier chapters, as part of the maturity model creation process, an extensive literature review has been performed to gain an understanding of the underlying factors influencing indirect procurement maturity. The problems and solutions identified are often unstructured and highly complex, and each company has its own peculiar combination of issues and solutions. Therefore, the empirical validation of the model is performed qualitatively in order to gain a deeper understanding of the complex real-world situations and to formulate explanations and suggestions (Ghauri et al. 2020; Hirsjärvi et al. 2005). In order to improve the generalizability of the model, representatives from multiple companies are interviewed. According to Quintao et al. (2020) this allows the identification of trends and similarities from the data compiled from different sources.

The research approach of this thesis can be identified utilizing the framework developed by Neilimo and Näsi (1980) and later supplemented by Kasanen et al. (1993). This framework is illustrated in Figure 11. The framework is formed as a grid based on two dimensions. The first axis, Theoretical-Empirical, divides research approaches into two based on the data utilized, whether it is theoretical or empirical in nature. The second axis, Descriptive-Normative, divides research approaches based on whether their aim is to understand and describe a problem or phenomenon or propose solutions to problems. The first four approaches identified by Neilimo and Näsi (1980) are conceptual approach, nomothetical approach, decision-oriented approach, and action-oriented approach. In the conceptual approach, new knowledge is deducted from existing research. In the nomothetical approach, efforts are made to generate knowledge from empirical data. A decision-oriented approach is utilized when existing research is used to produce knowledge for guiding decision-making. Finally, an action-oriented approach is aimed at creating guidance for decision-making but is based on empirical observations. (Kasanen et al. 1993.)

Kasanen et al. (1993) also added a fifth, constructive approach to this classification, as they argued that the original approaches lacked suitability for solving practical problems of real-life businesses. The constructive approach expands action- and decision-oriented approaches in the sense that it is aimed at creating a construct of practical applicability based on empirical data that can be explicitly utilized by real-life organizations.

	Theoretical	Empirical
Descriptive	Conceptual approach	Nomothetical approach Action-oriented approach
Normative	Decision-oriented approach	Constructive approach

Figure 11 – Research approach categorization framework (Neilimo & Näsi 1980; Kasanen et al. 1993)

Judged through the lens of this categorization, this research utilizes a constructive approach. The objective of this research is to create a maturity model, a construct, for measuring indirect procurement performance and supporting the development of indirect procurement practices that can be utilized by organizations in practice. Lukka (2014) notes four elements of constructive research, which are centered around the construct itself: the focus on real-life problems, the practical applicability of the construct, close linkage to earlier research, and theoretical contribution through empirical findings. These are illustrated in Figure 12. Lukka (2014) also notes that the practical testing of the construct should be performed with experts and should result in lessons learned, further refining the construct.

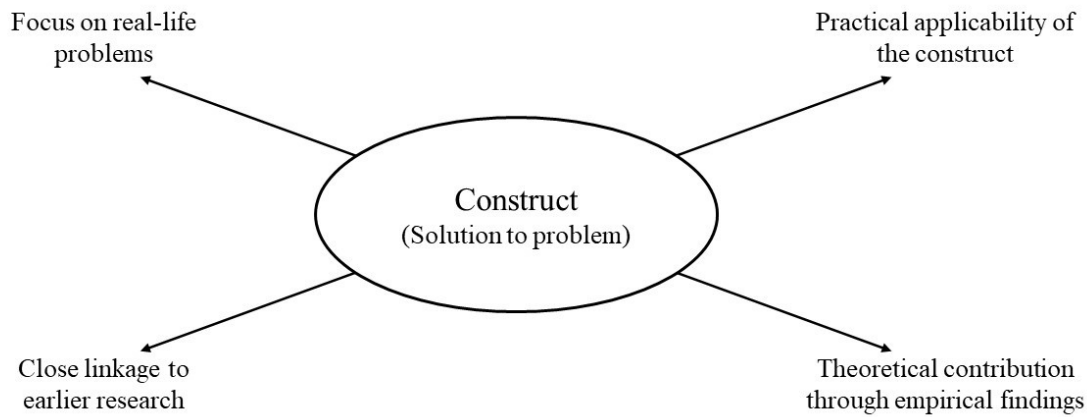


Figure 12 – Elements of constructive approach (Lukka 2014)

In their paper, Kasanen et al. (1993) present a process description for a constructive approach. This was later updated by Lukka (2014) and presented in Figure 13. The process has many similarities with the process and principles of maturity model creation introduced by Maier et al. (2012), which were covered in Chapter 3.2. This study first identified a practically relevant problem, a lack of practically usable scientific tools for supporting indirect procurement management. After that, a comprehensive understanding of the topic was obtained through a comprehensive literature review. After this, the first version of the construct was created based on the literature. The model, i.e., construct, is then tested for usability and applicability in cooperation with experts. Finally, the theoretical contribution is analyzed. In the end, this study contributes to both theory and practice, which is the ultimate goal of constructive research (Kasanen et al. 1993).



Figure 13 – The process of constructive research (Kasanen et al. 1993; Lukka 2014)

## 5.2 Data collection

Qualitative data can be collected using a variety of means. According to Ghauri et al. (2020) and Yin (2013), observations, interviews, and documents are useful sources of qualitative data. For this research, the data is collected through semi-structured interviews. Interviews, in general, are a good way of obtaining qualitative data. They are also the suggested method of empirically validating maturity models (de Bruin et al. 2005). According to Hirsjärvi et al. (2005), their greatest advantage is their flexibility;

they can be modified to suit each individual event of data collection. Interviews also allow the interviewer to observe the sense, tone, and feelings of the interviewees. Semi-structured interviews were chosen because compared to structured interviews, they allow the conversation to flow more freely and enrich the data being collected (Ghauri et al. 2020). They also help the researcher to avoid the downsides of open-ended interviews, steering off-topic and the high levels of time consumption, as they generally require multiple rounds of interviews (Hirsjärvi et al. 2005).

The data for this research has been collected from representatives of multiple companies. The companies and interviewees form a heterogeneous group, as they operate in different industries and scales, different roles, and have different backgrounds. The selection of interviewed organizations and individuals has been purposefully made diverse in order to improve the generalizability of the data and the model. According to Yin (2012), this allows the triangulation of evidence from multiple sources, which in turn increases the robustness of findings. Companies that had outsourced all or most of their indirect activities or were considered too small to be relevant for an all-around maturity measurement were excluded from the selection. All the companies included in the selection had global activities and were either Finnish or Finnish subsidiaries. In total, five indirect procurement professionals with varying roles from three different companies were interviewed. Three of the interviews were done face-to-face, and two of them over Teams. The interviews were conducted between 6th and 13th of June 2023. Each interviewee was interviewed once, and an individual interview lasted between 50 and 90 minutes. Table 5 compiles relevant information about the companies and the people interviewed.

Table 5 – General information about interview participants

<b>Interviewee</b>	<b>Position</b>	<b>Experience with IP/procurement</b>	<b>Industry</b>	<b>Relative size of the company</b>
SSM1	Sourcing Manager	9/17 years	Security and Defense	Small
SSM2	Sourcing Manager	1,5/17 years	Security and Defense	Small
ECM	Category Manager	5/17 years	Engineering	Big
EHIP	Head of Indirect Procurement	3/17 years	Engineering	Big
TSM	Sourcing Manager	10/10 years	Technology	Medium

The interviews contained two main sections, derived from the research questions of this study. The first section is centered around indirect procurement management in general, the issues interviewees have faced in practice, and the solutions that are being utilized to deal with these issues. The intention of the questions in the first sections was to compare indirect procurement literature propositions against the real-life experiences of indirect procurement professionals, validating the theoretical basis of the model. The second section brought the first version of the maturity model into focus. Here, the interviewees were asked questions concerning the structure and contents of the model and, if so, how they would improve it.

As typical of the semi-structured interview method, the interviews followed a pre-made interview frame. This interview frame can be found in Appendix 2. Interviewees received both the interview frame and the first version of the maturity model beforehand, so they could prepare by checking the topics to be discussed and familiarize themselves with the model. Four of the interviews were conducted in Finnish and one in English. Each interviewee allowed the interview to be recorded.

All the participants agreed to the interview on the condition that no identifiable information about them or the companies they represent would be included in the thesis. Therefore, only the roles and years of experience are included as information about the participants, and the industry and relative size of the company as information about the companies. All research data is in electronic format and is being stored only on a secure UTU network drive. The data has been separated into original and editable files. Only the recordings include personal information; however, this is limited to the names of the interviewees, the companies they work for, and their years of procurement working experience. Personal information has not been included in the transcriptions, and acronyms are used instead of the actual names of companies. Research data that does not contain any personal information will be stored on a secure personal web drive after the research process for five years. Interview recordings that do contain personal information will be deleted upon the finalization of the thesis.

### **5.3 Data analysis**

Interview recordings were later transcribed by the interviewer. The transcription was done manually, without transcription software assistance, in the original language of the interview while preserving the tone and meaning of the audio as well as possible. After



the transcription process, the text files were analyzed utilizing NVivo 12 qualitative data analysis software. According to Hirsjärvi et al. (2005), there is no single best practice for analyzing qualitative data, but the method of analysis selected should deliver the best answers to research questions and problems.

Coding is the process of reducing large quantities of data into a more interpretable form. During the process of coding, data is compiled and coded, and similar codes are arranged under labels. (Miles and Huberman 1994.) According to Saldana (2009), coding can be done inductively or deductively. Inductive coding is an emergent process where codes and labels are developed during the actual coding process. Deductive coding, on the other hand, starts with a set of predetermined labels, under which the data is then coded. According to Miles and Huberman (1994), these predetermined labels are derived from the theoretical framework of the research. According to Eriksson and Kovalainen (2008), the deductive coding style is more commonly used when research is aimed at testing a theory.

As the aim of the empirical research is to test the theoretical assumptions concerning the factors that influence indirect procurement maturity and the maturity model developed based on these assumptions, the data is coded and analyzed mainly using the deductive approach. The basic label structure is derived from the interview frame. The codes are split between the two main sections of the interview. This structure is illustrated in Appendix 3. The first part of the structure covers codes that are related to indirect procurement management in general, the issues interviewees have faced in practice, and the solutions that are being utilized to deal with these issues. The second part of the structure covers codes that are directly related to the model, as it is being discussed. This structure enables the validation of both the theoretical basis of the model as well as the construct of the model itself.

However, as Saldana (2009) notes, in practice, both inductive and deductive coding methods are often used in combination. During the interviews and later analysis, some themes or comments did rise outside of the theoretical frame, which could not be directly fitted under the premade coding structure. These were then coded inductively and added as labels under either the basis of the model or to the model part of the code structure.

## 5.4 Research quality

Research quality can be evaluated through a variety of measures. Eriksson and Kovalainen (2008) suggest using three measures for evaluating qualitative research; reliability, validity, and generalizability, while Quintao et al. (2020) suggest evaluating research based on reliability, construct validity, internal validity, and external validity.

Reliability is the measure of repeatability and consistency. According to Eriksson and Kovalainen (2008), the reliability of research is indicated by how consistently used methods produce similar results across time, even when used by another researcher. The higher the level of reliability, the more similar the results. According to Quintao et al. (2020), reliability can be increased through transparency. Stating how the research has been conducted and documenting the data used to draw conclusions both increase reliability. The research process of this study has been described in the thesis. Data is documented and saved in both recording and written formats.

According to Eriksson and Kovalainen (2008), validity indicates the extent to which the findings are accurate. In order for research conclusions to be valid, they must be supported by the evidence gathered and be truthfully presented. Quintao et al. (2020) divide validity of research into construct validity, internal validity, and external validity. For a research to be constructively valid, it must utilize data from different sources, and the conclusions must be triangulated from this data. Internal validity refers to the researcher's ability to draw rigid conclusions from the data. To improve internal validity, a researcher must thoroughly analyze the data and take alternative explanations into account. This research has collected data from multiple sources, which have been purposefully selected to be diverse. The results are triangulated through an extensive analysis from the sources, and other possible explanations have been considered.

External validity and generalizability are essentially the same thing. According to Quintao et al. (2020), this can be measured by the extent to which the results of the study can be generalized into a wider context. According to Eriksson and Kovalainen (2008), if the results can be connected to the theoretical assumptions, they can be considered generalizable. The findings of this study have been similar enough to the theoretical assumptions, providing generalizability for the results. However, there is still a certain degree of context-specificity included among the data, which stems from the differences in the environments the organizations selected operated in.

## 6 Results

This chapter presents the results of the empirical research conducted and continues the maturity model creation process into Phase III: empirical evaluation, where the maturity model is refined based on empirical feedback. Chapter 6.1 presents the results related to the theoretical basis of the model, as the issues and solutions recognized in indirect procurement management literature are compared to the views of the interviewees. Chapter 6.2 draws the focus to the first version of the model and covers the analysis of the data related to the model itself. Finally, in Chapter 6.3, the results of the analyses are combined and utilized as the model is updated to reflect reality more accurately. As a result, the final version of the maturity model is obtained. The presentation of results is supported by quotations from the transcripts. The quotations have been translated by the author. To further protect the anonymity of the participating individuals and organizations, the interviewees are not specified for the quotations.

### 6.1 Empirical validation of the basis of the model

All the interviewees noted an overall positive development trend for indirect procurement. Despite the organizations operating on different scales and industries, these positive developments were similar enough to support the assumption of a common maturity path. The maturity of indirect procurement had increased over the years, sometimes incrementally, sometimes by rapid leaps and bounds. In general, the status of and awareness about indirect procurement, both as a function and as a set of activities, has increased. The role of indirect procurement has become more recognized and better defined, and managerial attention has increased. This has been influenced by a variety of factors and their combinations, such as changes to organizational or operative structures, increased needs for cost savings, and availability of better cost data. The improvements have stemmed from both the overall organization and the indirect procurement function itself.

- *Our company and IP organization were restructured few years ago. Since then, we (IP) have been able to develop our processes with good results.*
- *We rearranged our procurement into categories a few years ago. This increased the focus on IP, as the categories became more visible.*
- *When I first started working in IP, it was like opening a pandora's box; everything was scattered all around the organization. Since then, category*

*by category, we have moved everything under one roof, into ERP-systems, and established formal processes for everything.*

- *Starting from the very basics, we have now captured all the low-hanging fruits [...] and are looking for the next steps of evolving.*

All the interviewees recognized a number of issues that had or were still hindering indirect procurement performance. The issues associated with indirect procurement were discussed using two approaches: first, through current weaknesses or issues of indirect procurement management practices in their companies, and later, by referring to the list of indirect procurement issues derived from the literature. Although some of the issues were more acute for some of the companies than others, all the literature-recognized issues were considered relevant and were experienced in practice. As one interviewee put it:

- *All the issues listed here are valid concerns (for IP).*

Table 6 summarizes the issues discussed and the number of their occurrences. Some additional issues that could not readily be fitted into the original list were also brought up during the interviews. These are added to extend the list in Table 6.

Table 6 – Indirect procurement issues experienced or recognized by the interviewees

<b>Issue</b>	<b># of mentions</b>
Complexity	5
Lack of understanding	5
Lack of data	5
Lack of resources/competence	5
High amount of manual work	5
Lack of management recognition	5
Lack of standardization	4
Lack of E-tool use	4
Maveric buying	3
Suboptimal organizational structure	2
Misaligned incentives	3
Development challenges	3
Lack of power	2

Complexity did not receive many particular comments but was rather seen as more of an underlying issue for nearly every other issue discussed. It was perceived as an integral part of the very nature of indirect procurement itself, resulting from a near infinite number of suppliers, items, needs, and stakeholders, with a certain level of uncertainty or unpredictability associated with everything.

- *The unpredictability of indirect procurement makes it very hard to manage, and it is so complex that you're often unable to grasp and make sense of it (through numbers).*
- *The number of unique items and need cases is so large that there is no way to have a proper level of competency for every case.*
- *Everything is related to everything, you should always remember to take everything and everybody into account, and every case is different.*
- *The smallest of items (in terms of monetary value) can cause the biggest problems, while the most expensive one might matter the least. There is no clarity for the importance.*

The nature of complexity would also evolve along the maturity path. At lower levels of maturity, for example, the large number of suppliers and items would cause more complexity. But after initial complexity-reducing improvements have been made, e.g., items have been standardized and suppliers consolidated, further improvements would become harder due to complexity evolving in terms of more stakeholders required to participate in order to make improvements.

- *Optimizing costs and negotiating better contracts might be easier, but to achieve the next level of maturity, for example introducing a new travel claims system, requires a shift in the ways of working for other functions also, introducing new kinds of cross-functional requirements and complexity.*

Complexity, coupled with and leading to other issues, such as a lack of clear data, can also lead to a lack of understanding about indirect procurement by both other functions and management. Complexity causes lack of data in many ways. First, as the number and nature of items and services procured is often very large and diverse, it is often hard to make sense of the numbers. Second, as a result of the high number of items or bad processes, the data is often poor in quality. Third, as there are a high number of unique

items or services bought only once, they're often bought using generic codes. Fourth, the volumes of individual items procured are often so low that there is no sensible way of making analyses based on the data, even if it is available. Due to complexity causing and coupling with lack of data, indirect procurement can struggle to present its arguments with solid enough numerical evidence. The opinion of indirect procurement can also easily be sidelined or subjected to the will of other functions during cross-functional cooperation when it fails to back up its arguments. IP can also find it difficult to get its voice heard in management when it cannot present solid numbers to support its relevance and position of importance. Compared to direct procurement, the KPIs needed to support the opinions of indirect are also often more diverse. Whereas it might be quite straightforward and informative to follow component cost development with a mass-manufactured product, following the cost developments of R&D projects or facilities can be hard to impossible. It can also be hard to find evidence to support developmental initiatives, as it can be nearly impossible to present numerical predictions of benefits or even results after successful actions.

- *The quality of our spend data differs. I might be able to see that country X uses this much money in this article, or country Y this much money on this supplier. But more often than not items or services are bought with generic codes, so there goes that data.*
- *We have little to no granularity or sometimes (afterwards) not even a clue of what we have bought, as the only data we have is a PO with one line, titled project X-related purchases.*
- *The complexity of KPIs is a challenge, making things comparable and benchmarkable is often difficult.*

Managerial focus on indirect procurement, or rather the lack of it, was also one of the most cited issues. In general, all the interviewees confirmed the assumption that managerial attention is targeted at direct procurement categories much more often and intensively. As previously discussed, lack of managerial recognition is closely linked with complexity and lack of data. If indirect procurement fails to deliver understandable and measurable information about its operations to management, their attention is usually very limited. Other contributing factors relate to the nature of indirect procurement; smaller costs and volumes equal less attention. Indirect procurement also serves a heterogenous group of internal customers and needs, compared to direct procurement

serving external, often substantial individual customers. This further guides managerial attention to direct procurement, as the impact of one dissatisfied customer or poor performance of direct procurement on the bottom line of the company can be direct, substantial, and clearly visible. In the case of indirect procurement, the impact (substantial or not) caused on the bottom line of a company by dissatisfaction of internal customers or poor indirect procurement performance is often less visible and indirect. In addition, management can more easily choose to shrug off the complaints of some employees (if they even become aware of them), than the complaints of a big external customer.

- *One of the biggest issues with indirect procurement is still the management recognition [...] Management is heavily focused on direct materials, as issues there are quickly realized negatively in terms of profitability and customer satisfaction.*
- *Management attention depends on the category. When the category is smaller, lacks a clear link to corporate strategy, or lacks indicators that would interest management, they are not interested.*
- *We still have issues with management not caring about indirect procurement or understanding its needs. The issue is often related to the small spend figures, even if the small spend has substantial effects (to somebody or something).*

The lack of management recognition is also closely tied to other issues, like lack of understanding of indirect procurement by both management and other functions. These two combined lead to the three emergent issues: misaligned incentives, developmental challenges, and lack of indirect procurement power, which in turn have their own ways of hindering efficient indirect procurement management. The lack of understanding presents itself and causes problems differently at lower and higher levels. The higher-level issues are discussed here, and the lower-level issues caused will be discussed a bit further. As an example, a lack of understanding combined with misaligned incentives can lead to management mandating the design and use of processes that are too strict and unfit for the diverse needs of indirect procurement. If a company introduces a strict NO PO-NO PAY rule (a PO is required in order for payment to be made to the supplier) to improve procurement compliance, some cases could become “illegal” and introduce a lot more lead time for obtaining items, leading to a lot of trouble for both indirect employees and internal customers in dire need. A hypothetical case could be the need to procure something online, for example, social media marketing services for the marketing

function, but the supplier considers the spend to be too small to receive PO's and offer invoicing and only allows credit card as a payment method. Judged through the internal compliance rules, this case would be illegal, yet the service is essential for the efforts of the marketing function. Both indirect procurement and marketing would be in trouble, but compliance would be happy.

- *We need flexible ways to handle a variety of cases [...] For example an interruption with our online marketing spend, however small, is a huge deal for them.*
- *A one small missing cable could interrupt a whole R&D project for a long time, if/when they wait for it be delivered according to process rules.*

Misaligned incentives, developmental challenges, and lack of indirect procurement power also present themselves in a variety of ways. Both business and management have the attitudinal option of “why fix it if it ain't broken” available to them. Even if indirect procurement could present arguments to alter or develop aspect X, business and management could just choose to ignore this proposition in order to not stir up anything unexpected. Arguably rightfully so, business often has decision-making power over indirect procurement, as they're the ones with budgetary responsibility. However, this causes issues and conflicts of interest when management expects IP to deliver savings or improvements on the procurement of different categories. Where indirect procurement is interested in improving procurement performance, business is centered more around the continuity and fluency of their operations and could overrule the opinions of indirect procurement, in turn hindering the efficient management and improvement efforts of indirect procurement.

- *Management attention is one (of the biggest problems), having focus or interest for cost reduction or other improvements, if business goes well, there is less willingness for changes [...] Other functions don't want to be bothered by IP.*
- *We have a discrepancy where management expects us to deliver improvements and savings, but our decision-making authority is subjected to the opinions and needs of business. We lack the power to say no in most cases.*
- *For us (IP) it is looking at a report of how much we're spending on what, and that's where we start from, but for business it's like I need to run a*



*certain business with certain budget, I need to certain essential services no matter how much they cost.*

As with all the previous issues, lack of resources, high amount of manual work, lack of standardization, and lack of E-tool use are all connected to one another and to other issues on some level. High amount of manual work and lack of resources present an obstacle to developing indirect procurement. When these two issues roam free, indirect procurement is in a sort of vicious circle: it suffers from inefficient ways of working that demand a lot of resources and as a result has no resources to spare for developmental actions (which themselves require a lot of resources), that would decrease the amount of manual work. If management fails to understand this dynamic and does not adequately support indirect procurement, it could condemn it to perpetual ineptitude. All the interviewees seemed to represent organizations that had already taken steps to improve the operational level resource constraints, but still identified manual work and lack of resources to cause issues. These included lack of focus and adequate support for some categories, lack of time to focus on developing IP practices and change management, and lack of time to focus on “higher-level” tasks, such as supply market intelligence and analytics.

- *We lack adequate resources to support every country and category equally, which in turn creates discrepancies in IP management proficiency within indirect organization.*
- *Due to the lack of resources, we can't sufficiently follow events and changes in the supply market.*

Lack of standardization, lack of E-tool use, lack of understanding (lower-level) and poor process design were seen as issues introducing additional manual work and straining IP resources. Lack of standardization increases the complexity of indirect procurement. The use of bad or unsuitable IT-systems, or the need to use too many systems, hinders efficient actions and creates waste as indirect procurement activities are handled with unsuitable systems, and the failure to adopt E-procurement tools prevents the realization of the benefits offered by these systems. Additionally, the introduction of E-procurement systems, while saving a lot of resources and improving the efficiency of IP operations, also introduced additional problems, especially during the early phases of adoption. Users needed to be trained to use the new systems and the mistakes made by users needed to be

fixed by indirect procurement personnel, and even after training they are prone to make mistakes while using the systems. Bad process design could also introduce unnecessary or double manual work.

- *Lack of standardization causes many issues with the categories I'm managing, as it increases the number of individual items and suppliers, making the management of the categories more difficult.*
- *SAP is SAP... (interviewee sighs in deep frustration)*
- *We have some issues with repetitive actions in our processes. Cost approvals are an example of this, where the approvers need to approve the same cost multiple times during different phases of the process.*

All the organizations participating in the interviews described their organizational structure employed for indirect procurement. They all felt that the current structure present was adequate for their needs, and in general worked well in practice. However, this led to them commenting on it as an issue to only a limited extent. As already discussed earlier when describing the general evolution of the companies, the participants described the organizational structure as being something that was fixed relatively early on during the development of indirect procurement in their companies. This could be interpreted as organizational structure being a central issue early on during the maturation of indirect procurement, but also something that is fixed relatively early. However, what they did comment on more was the integration of indirect procurement with other functions, or the need for closer cross-functional cooperation. Maverick buying was another widely cited issue in the literature which received relatively little attention during the interviews. The organizations seemed to have mostly gotten rid of it with a combination of flexible process design, suitable tools, and improved control. But it was still something that when not properly addressed, was seen as a catalyst for other issues.

- *We're missing this cross-functional category management approach; we're missing the kind of attention of other functions to the kind of cost sensitivity.*
- *Our IP organization is structured well, but not integrated enough with other functions. [...] We're still somewhat separate from budget planning.*
- *Maverick buying used to be the norm, causing all sorts of issues*

All the interviewees also recognized a number of solutions they had employed to improve indirect procurement activities and performance. The solutions were also discussed through two approaches: first, the interviewees were asked what works well for them at the moment and what are the strengths of their indirect procurement management practices. Later the literature-derived list of solutions provided in the interview frame was used as reference for discussion. All literature-proposed solutions were recognized as usable and employed in practice. Table 7 compiles the literature-recognized solutions and their mentions during the interviews.

Table 7 – Indirect procurement solutions employed or recognized by the interviewees

<b>Solution</b>	<b># of mentions</b>
Promoting IP to management	5
Optimization of IP organization	5
Increasing IP resources	5
Improving internal communication	5
Standardization of processes	4
Standardization of items	4
Process automation	4
E-tool adoption	4
Improving the competence of IP staff	3
Outsourcing some of IP	(1)

Similar to the issues, the solutions are also very much interconnected in practice. Employing one, for example new and better EPR-system or a P2P-solution helps to accumulate better quality data and eases the demand for manual work, which in turn improves the management of indirect procurement through numbers and helps IP to promote itself and its opinions to management with numerical evidence. As already discussed during the issues, optimization of indirect procurement organization seemed to be a solution employed early on during IP development. The procurement of IP categories is centralized under one function. Later, if required by the scale of the company, a more complex organizational structure is developed, such as a matrix organization. Fit for purpose seems to be the guiding principle in structuring indirect procurement. In addition to many internal factors, the centralized organization also helps to consolidate purchasing volumes and to gain more leverage with suppliers. Standardization of procurement processes and principles is also noted to be beneficial; this further solidifies IP under one

roof and helps to simplify the entity and practices of procurement for everybody in the organization. Employing smart, fit-for-purpose processes also helps to streamline activities, reducing e.g., the workload of indirect employees and the lead times of required items for internal customers. One interviewee also noted that the organization granting IP a certain level of autonomy with process design has helped them tremendously in designing and employing very lean and efficient processes.

- *Centralization of indirect procurement activities is very important.*
- *The matrix organization approach works quite well for us.*
- *We have been able to consolidate our purchasing volumes and have global volume leverage for some categories and items.*
- *We have very lean processes. We also have relative autonomy to develop our practices and processes, which enables us to react swiftly if we notice that something isn't working.*

Communication and cross-functional integration are also seen as very good practices to improve indirect procurement activities. Both enable indirect procurement staff to stay better on track of the events both within and outside the organization, to reduce the workload of indirect procurement staff, and to focus more on higher-level, value adding activities instead of manual and repetitive tasks. They also help to reduce the workload of indirect procurement as other functions have better idea of indirect needs and capabilities and vice versa, streamlining cooperation. This cooperation should be both formal and informal, as both provide advantages. Creation and adherence to formal cross-functional ways of working helps by establishing processes that are familiar, and informal cooperation can provide insight and whatever useful bits of information about anything. Communication is also important during developmental projects, e.g., launching a new P2P tool, as educating employees from other functions is a great way to reduce indirect procurement workload later on. Communication of procurement principles and rules coupled with better process design also helps to reduce unwanted employee actions, such as maverick buying, further reducing issues caused by it. Communication within the indirect procurement function is also important, as it is a mechanism for knowledge spillover, and allows greater flexibility during times of e.g., major events in the environment or simply employees falling ill and others needing to substitute them.

- *We are well organized and relatively well integrated cross-functionally. We also share a lot of information within our team. This allows us to stay on track of events both within the organization and on the market and work proactively.*
- *Increasing our communication and transparency helps to increase and maintain our focus and serenity.*
- *Having the right contacts and regular communication is important. As people know us, they involve us earlier, and we get our voice heard much better.*
- *Regular status updates and discussions, both formal and informal, help us and other functions to stay on track of details and supplement the big picture.*
- *Even as simple act as sitting beside people from both indirect and other functions and chatting with them as we do our daily things helps us to stay on top of things, learn useful bits of information, and often saves us the hassle of booking a meeting for something that can be resolved quickly through informal means.*

Item standardization, process automation, and the adoption of E-tools are seen as solutions that help to alleviate many issues. These solutions offer many benefits and work especially well in unison. First of all, standardizing items helps to remove some complexity. As noted earlier, indirect procurement is responsible for the majority of individual PO's and suppliers. As the number of differentiated items is reduced, the number of suppliers is also reduced, and procurement volumes can be consolidated, providing increased leverage. Standardization also has the additional benefit that it enables the collection of better and more relevant data. Both E-tools and process automation are viewed as offering many benefits. They enable indirect procurement staff to focus on value-creating activities instead of manual, repetitive tasks. They can also work well in specific applications, such as obtaining quotations or searching for suppliers. However, they are not equally useful to different organizations. E-tools and process automation work well in unison with standardization, each enabling and improving the other. E-catalogues and P2P-systems are good examples of this; catalogues include standardized items, which can then be procured through an automated process. The responsibility of indirect procurement staff is reduced to only maintaining and supervising the catalogue and the actions of end-users, and they are free to focus on higher-level activities. This was further supported by the views of some interviewees,

who expected a lot from the developments of AI, automation, and IT-systems in general. They expressed that in the future indirect professionals should be riden of any repetitive tasks and should be freed to focus purely on value-creating activities.

- *The standardization and cataloguing of items and services is a very good thing, however naturally it is not feasible nor sensible for everything.*
- *We have catalogued all the basic products, which helps us to focus on the important stuff.*
- *The introduction of a P2P-system has helped us a lot. Sourcing managers can now focus on supervision and actual value-creating sourcing activities. All purchasing data is also compiled into one system instead of multiple ones.*
- *In addition to E-catalogues, we're currently experimenting with an E-auction system for certain specific types of services.*

The improvements in the quality of data are also beneficial, as they enable indirect procurement to produce reports and analyses of higher quality. This in turn enables more efficient management of indirect procurement activities, and the reports can also be used to validate the opinions of IP with management, enhancing the status of IP. All the interviewees agreed that increasing the recognition and role of indirect procurement in the eyes of management is essential. As already discussed, a lack of managerial attention and support can have many detrimental effects on both IP and overall company performance. Improvements in this field offer many benefits. They help indirect to gain more leverage in internal negotiations, ease the handling of its activities on a daily basis, ease the development of IP actions, and can lead to it gaining more resources overall.

- *By having better data, we can provide better reports and more understandable KPIs for management and stakeholders. [...] This in turn makes people listen to us.*
- *Improving your status (the status of IP) is essential to gain power, which in turn leads to people listening to you and you being able to drive home your initiatives.*
- *We have a procurement representative in our leadership team, which is a huge thing for us. She is able to get our voice heard and gather support for us.*
- *We need to communicate our message in a way that catches managerial attention, through numbers and trends.*

Increasing indirect procurement resources and improving the competence of IP staff were also both seen as solutions to many issues. Simply put, having more resources would help to ensure more focus on even smaller categories. Additional resources could also help to reduce the burden of indirect procurement teams and allow more efforts to be directed on developmental activities in addition to maintaining current activities. Sufficient resources also enable proactive action instead of firefighting and ensure the smooth flow and progression of activities.

- *By having more resources, we could ensure adequate support and proficient management of every category.*
- *With more resources we could better develop our operations*
- *We can add more value with better tools and people with better analytical capabilities. Another option would be having analytical support in the background preparing analyses for IP staff, allowing them to spend more time with stakeholders and suppliers.*

Having competent IP staff can also help with many issues and make up for “missing things”. Employees with good communications skills, analytical capabilities, and strategic outlook in addition to “normal” procurement skills were seen as key for proficient management of indirect procurement activities. One interviewee also noted that indirect procurement professionals would benefit from having more sales skills, as this would get their voice heard more in the organization. The role of risk management and the importance of risk management skills in terms of factors such as sustainability, cyber security, AI, and geopolitics were also predicted to increase. This coupled with the role of analytical capabilities and the ability to process large amounts of information was seen to place new demands and stress the importance of SMI skills of indirect procurement professionals.

- *The right talent is key to have, in my point of view. We can make up a lot of missing things with the right talent, the right mindset, with strategic outlook.*
- *Procurement people are typically by nature not so much salespeople, and they would need to be much more. You need to speak the language of your customer. If you don't, another function will turn off the channel. But if you can convey your message in an appealing way, we get the attention we want.*
- *The importance of risk management is increasing. Factors such as geopolitics, responsibility, and the use of AI need increasingly more attention.*

- *One needs to be able to find and compile relevant bits of information from the market and understand how what factors influence which aspects.*

Not a single interviewee particularly commented on outsourcing some indirect categories as a solution. However, one of the participating organizations had outsourced some of its indirect categories to its parent company. This solution, where they had compiled the procurement of some indirect categories at a group-wide level, appeared to work well for them.

- *Basic office IT HW and SW, cleaning and real-estate services are managed at a group wide level.*

## **6.2 Empirical validation of the model**

In the second part of the interviews, the interviewees were asked to comment on the first version of the model. The model received mostly positive feedback and was considered very adequate in general. This appeared to actually reduce the number of comments about the model and its contents, as it was considered to reflect reality very well, and the interviewees found relatively few aspects that they questioned or that they would change in any way. The interviewees were also happy that a model like this is also created specifically for indirect procurement. In terms of practical applicability, the interviewees found the model to be very useful for real-life measurement of current capability and a good tool to support developmental actions.

- *The model is comprehensive and adequately reflects the entity of indirect procurement.*
- *The model has a lot of good content, and I am sure that it will raise discussions in our team. It is nice that a model like this is created for indirect procurement.*
- *From our company perspective the model is very relevant. We've had or are taking developmental actions with regards to every aspect covered in the model. This seems to be a very useful tool and checklist for developing indirect procurement, and why not also direct procurement.*

The structure of the model, dimensions, elements, and the number of levels and their names were all considered unanimously good. One interviewee even appeared to be



positively surprised by the comprehensiveness of the model. The interviewees agreed that the model contained all relevant dimensions to comprehensively measure indirect procurement maturity. The elements under each dimension were also mostly considered adequate, although some suggestions for improvements were made, which will be discussed further. The number of levels was also considered to be good, and the progression from level to level was deemed logical.

- *This has all the relevant dimensions and elements, and also includes specific important people-aspects like employee churn and feedback, which are often overlooked, as most models and activities are focused on hard facts and numbers.*
- *Improvements from level to level are logical.*

However, the interviewees also noted, as suggested by the literature, that not all aspects of the model are always applicable to different companies operating in different industries and environments. Some elements in the model might be much more important to some companies, whereas nearly or completely irrelevant to others. This is further evident when the cell texts were discussed. The interviewees noted that some cells, otherwise relevant, also contained some irrelevant requirements or descriptions with regards to their current situations. Some individual cell texts were also deemed to require a bit more clarity and unambiguity, and some of the terms or wordings used in the texts were thought to be too strict or unfitting. To one interviewees eye, the cells also contained a bit too much text overall. The interviewees also noted that the highest maturity levels aren't always desirable, but instead each company must find the fit-for-purpose level of good maturity for each aspect of their activities.

- *Some cells contained quite a bit irrelevant aspects or requirements in the context of our activities.*
- *Level four might sometimes be irrelevant to even such a big company as ours and could be feasible only to even much bigger companies.*

The elements under Strategy, planning, and leadership dimension accrued the most comments and suggestions for changes out of all dimensions relative to the number of elements. The relation between procurement, indirect procurement, and corporate strategy was seen as quite a complex one. On the other hand, all the interviewees agreed

that both procurement and indirect procurement require and deserve a lot of recognition and attention and should be seen as significant contributors to company performance. Indirect procurement especially should have its status improved due to lower current level. However, they also considered indirect procurement to be a part of procurement, not something that should be specifically distinguished from it. The role of IP was seen more as a strategy executor or contributor to strategic goals, rather than a strategy creator, and IP should link its own actions to overall corporate strategy. The interviewees advocated that the role of indirect procurement should be improved by increasing the role of procurement as a whole, and that indirect procurement should have its voice heard, but through a CPO or similar overall procurement executive, rather than its own individual executive. The interviewees also noted that indirect procurement does not specifically require its own strategy but should be part of and utilize the overall procurement strategy. The same was said about the indirect procurement business plan. Some interviewees thought that a basic long-term plan for indirect procurement could be useful, whereas others saw it as a waste of time due to the quickly changing environment or thought that category strategies already cover the role of a long-term business plan. Change management was viewed as important, but it should be constant, autonomous lower-level activity rather than one requiring specific guidelines.

- *Indirect needs to increase its visibility within the procurement organization and strategy and cascade it onwards from there.*
- *Indirect needs to link its actions to corporate strategy, e.g., through costs and sustainability. However, this is easier for some categories than others.*
- *We don't have any specific indirect procurement strategy, but rather category strategies that are created with business.*
- *Some sort of a long-term plan could be useful, but in our fast-paced environment it can quickly prove to be outdated empty work.*

The relation between corporate responsibility and sustainability and indirect procurement were seen similarly as with strategy. Both sustainability and responsibility should be implemented into indirect procurement actions, and IP should be contributing as much as possible to corporate sustainability and responsibility goals. However, the interviewees noted that implementing sustainability and responsibility into indirect procurement was much easier with some categories than others, due to the vast differences in the nature of

the categories. For example, it is much easier to make procurement decisions ensuring responsibility and contributing to sustainability goals with categories such as utilities (e.g., use of renewably produced electricity) and fleet (electric cars and green logistics), than for example with IT (e.g., software and hardware). But whenever possible, both sustainability and responsibility should be implemented into the actions of indirect procurement as much as possible.

- *We are yet to implement clear sustainability and responsibility criteria into our indirect procurement. With direct materials we have them, and they should be implemented into indirect decision-making as well.*
- *Sustainability and responsibility are much more relevant and implementable to some categories than others.*
- *Sustainability and responsibility should be implemented to indirect procurement decisions, but unfortunately they are still often subordinate to the need to get things done quickly.*

Indirect procurement organization and integration dimension also received many comments. The element measuring IP organizational structure was deemed to be somewhat unfitting. The interviewees commented that it was too strict and expressed their opinion that IP should be structured with a fit-for-purpose principle in mind. They agreed that all relevant categories should be centralized under one roof and that indirect procurement should be mandated to handle management of all of these, but the organizational of IP should still be designed according to the needs of the organization. For example, for a multinational company a centre-led matrix organization with global-local interaction is probably much better suited than a purely centralized one.

- *I think that centralization has been the traditional path for most organizations, but we might have reached the peak of it. Companies are maybe starting to regionalize their operations again and utilize a centre-led structure.*
- *IP should be structured on a fit-for-purpose basis.*
- *For us a matrix organization works well, and all relevant categories are managed by IP. In general, this is a good way.*

Cross-functional communication, cooperation, and integration was seen as very essential for indirect procurement management by all the interviewees. They generally seemed to

support the idea that there cannot be too much of it, and it should happen on every level all the way to the management. In their view, indirect procurement and business functions should exist in a state of symbiosis, both improving the performance of each other and having an equal say in matters. Item standardization was seen as one important aspect where cross-functional integration plays a key role in solving IP issues and enabling more efficient management of indirect procurement. However, one interviewee also noted that there should still be a balance between responsibility and power. As business is often the one with final responsibility for budgets and performance, they should also get the final say in matters. The interviewees generally agreed on the idea that cross-functional cooperation should happen on both formal and informal basis, some advocating for more formal cooperation and decision-making, while others expressed their liking and preference for more informal. In general, the cell texts in the model were deemed to lean too heavily towards “established and documented” processes, and that the texts should be softened a bit, and that they should promote equality and informality more.

- *Cross-functional communication is very important. For instance, sales personnel often have a lot of relevant “quiet” market information for procurement personnel and vice versa.*
- *Cross-functional cooperation should be constant practice at every level all the way to management.*
- *Targets, incentives, and structures between functions should be aligned.*
- *Direct materials often have cross-functional category teams. This should be the norm for indirect procurement also. [...] This could help a lot with many things, among them item standardization.*

Elements under the key procurement processes dimension received the most comments. All the interviewees agreed that the selection of included elements was a good representation of key procurement processes; thus, they did not want to remove or add any elements. They focused on describing their views, particularly the highest levels of maturity for each element, and proposed improvements to some wordings in individual cell texts. Most cell texts were still deemed to be very fitting and accurate descriptions of reality.

Most interviewees stressed the need for lean and fit-for-purpose processes. Internal compliance processes, or rather their bad design, are often one key headaches for IP. Due

to the enormous diversity of different IP cases, there needs to be flexibility in process design, while still maintaining structures to prevent e.g., maverick buying. One size simply does not fit all. As also discussed earlier, interviewees hoped and advocated for indirect procurement having autonomy in designing and changing processes. According to them, developmental freedom enables the creation of the best possible processes for each case. With regards to internal compliance element, they suggested modifying the wording in the cells to be softer and focused more on rewards instead of punishments.

- *There needs to be flexible processes for handling the variety of unique situations. There is a difference in negotiating a contract for long-term re-occurring need and a vital tool breaking down during customer project, which needs to be replaced asap.*
- *We have autonomy in designing our processes and modifying them if we notice that something isn't working. We have created a few distinct process flows with differentiated compliance requirements to serve diverse cases. Having this kind of flexibility is great.*

As previously discussed, the interviewees advocated for the importance of creating category strategies in cross-functional cooperation. This was seen as even more important than the creation of an indirect procurement strategy. According to the interviewees, category and supplier strategies, along with supplier selection decisions, are the places where corporate strategy, along with its targets like sustainability, is operationalized and executed when possible. The cell texts were deemed very fitting and accurate. No changes were suggested for supplier contracting and contract management and supplier management elements either.

The importance of supply market intelligence, risk management, and supplier due diligence were seen to increase every day. The changing environment constantly introduces new challenges for companies, which they need to be able to proactively prepare for. Risk management and supply market intelligence were seen to go somewhat hand-in-hand, as having knowledge of the events in the environment and supply market also helps to prepare for risks. The role of cross-functional communication and information sharing was also seen as an important contributor for both. The cell texts in these elements were seen as mostly fitting but could be improved by stressing the increased importance and need for constant market monitoring and risk assessment.

- *We need to pay increasing attention to risks in our supplier selection and contracting due to AI, cyber security, geopolitics, and sustainability questions.*
- *Changes in the regulatory environment will definitely affect us and our contracts.*
- *The role of risk management and the need for market intelligence capabilities is constantly increasing. Staying on top of things is vital in order to stay competitive.*

Internal partner management element was seen as sort of an extension to the dimension of cross-functional integration. Yet, having it recognized as key process was supported and the removal of the element was not deemed necessary. However, some modifications to cell texts were suggested, as the interviewees interpreted the texts to advocate for indirect procurement “dominance” over other functions, whereas they described the perfect relation to be symbiotic and equal.

- *Internal partners should be managed both as customers and as team members.*
- *There should be a symbiotic relation between IP and other functions. Neither side should overrule the other.*

The P2P-process dimension along with its elements was deemed very good, and only little comments or suggestions for improvements were made. The process itself was actually commented on more later during the discussions about IT-systems and E-procurement. Only the wording concerning quality assurance was found problematic by one interviewee. According to the interviewee, quality assurance is challenging with indirect procurement as the variety of cases is so large but volumes often very low. However, the interviewee wouldn't propose actual improvements to the text.

- *The elements are relevant and the cell texts well written.*
- *Standardized quality assurance for indirect procurement items is very hard. Needs are often unique, item volumes low, and issues usually occur only after some time.*

Human resources dimension also received very little comments. The dimension in itself was seen as a very good addition to the model and the associated elements were regarded as bringing depth into indirect procurement capability evaluation. The cell texts received only a few suggestions for improvements, and these were aimed at making the differences among levels clearer. Other than that, all the cell texts were deemed to be very accurate.

- *Adding human resources as a dimension in very good.*
- *Elements concerning and measuring capability in management of people, employee churn, career development, etc. are all very good inclusions.*
- *The cell descriptions look good.*

IT-systems and E-procurement dimension was also regarded as good addition, and the elements were found to be fitting. Cell descriptions were also regarded good. Upon further questioning the interviewees, they also described their visions of the best possible systems supporting indirect procurement. Their answers were mostly in line with the descriptions of the model. The IT-architecture of indirect procurement should be tailored to suit indirect procurement needs. An ideal system would combine data from multiple sources into one place, and all relevant IP activities from SMI to spend analysis should be able to be performed within one system. The interviewees also suggested that all processes that can be automated should be. This includes the likes of P2P-process. For example, one interviewee noted that in the future the role of a buyer should not exist anymore, or at least the responsibilities should shift into pure guidance and monitoring. Two of the interviewees also brought up the need for systems that can be configured and operated with a variety of devices, including phones and tablets, not just computers.

- *A perfect system would support and combine the operational and strategic aspects under one roof and all relevant data would be available in one place.*
- *In the long run I think there should not be any procurement role with repetitive tasks, those should be replaced by systems. E.g., a buyer should be a supervisor, or something that adds value to the process, not a person who manually converts PRs into POs.*
- *A system should also support mobile use, for example, that a worker in the field could place a PR for tools there.*

The dimension of measurement and control received relatively few comments. In general, the cell texts were regarded as fitting. The importance of data and analytics was highlighted by a couple of interviewees, as they hoped and envisioned indirect procurement to utilize them much more in the future. However, two of the interviewees noted again that, due to the diversity of indirect procurement categories, the KPIs used need to be creative and tailored for the needs of each category. Still very important overall, but cost-based measurement and KPIs are often not sufficient in and of themselves for many categories. Further on the topic of KPIs, and as the sensibility of having an indirect procurement strategy or business plan was questioned earlier, the element of IP business plan metrics & adjustment was seen as somewhat problematic. A couple of interviewees suggested rewording it more towards category-specific metrics. The importance of cross-functional cooperation was again highlighted, as stakeholder satisfaction was seen as a very important indicator of indirect performance.

- *The creation of suitable KPIs and utilization of data and analytics is very important and should be done much more.*
- *The term business plan in itself sounds more like indirect procurement is running an actual business. [...] Follow-up of long-term targets is important, but usually focused on category-specifics.*
- *Stakeholder satisfaction is very important KPI to follow.*

### **6.3 Refinement of the model**

The aim of the interviews was to test the literature-based first version of the model and collect feedback for further refining the accuracy of the model. This testing has followed the principles outlined in the literature and presented in chapter 3.2.3. Based on the feedback received, the model and its contents are refined. In general, the feedback and views of the interviewees were very similar. There were some differing opinions and comments on some individual cells of the model, but the modifications to the model can be made on consensus basis. As the views of the interviewees were in line with each other, a saturation of results can be claimed.

All dimensions included in the first version of the model remain unchanged. The number of elements also remains the same, however, some minor changes to the names of some elements are made. Some elements along with their cell texts received more comments



and suggestions for changes, whereas others received only approval and were deemed to be accurate and fitting the way they are. Based on the feedback received, a number of changes to the literature-based model were made and actions taken to obtain the final version of the model. These changes included modifications to the cell texts and element names and are listed below. The refined and final version of the model is presented in Appendix 4.

- The strategic relevance of indirect procurement is adjusted to reflect the views of interviewees
- Requirements of and references to a distinct indirect procurement strategy are removed
- Fit-for-purpose – notions are implemented more into the texts, e.g., in the context of organizational structure or long-term planning
- The importance of cross-functionality is promoted further
- References to strictly defined processes are softened, leanness and informality are promoted
- Emphasis on documentation is reduced
- The importance of diverse KPIs is brought up more
- Some terms, such as business plan, are changed to more universal ones or an explanation is added
- Intersubjectivity of the texts is improved
- Some wordings are softened
- Logical progressions from level to level is improved and ensured
- Contents are proofread

The success criteria set for the model were its usability and usefulness. The interviewees were very pleased with the model and appreciated the quality and clarity of it. The model was deemed to have both good structure and contents, and the comprehensiveness of it also received positive feedback. The model was viewed as a good tool for benchmarking

the state of current practices, and to provide a good framework to support developmental actions. Therefore, both criteria can be claimed to be fulfilled.

## 7 Discussion and conclusion

### 7.1 Discussion

The relevance of procurement and the importance of proficient procurement management have become increasingly evident over the years. The role and recognition of procurement has increased from a clerical support function to one of strategic contributor and value creator. However, in real-life businesses, direct procurement is still capturing most of the managerial attention, whereas indirect procurement is left on the back burner (Jayaram & Curkovic 2018). The same trend is also present in academic circles, where the vast majority of published research articles and education materials are centered around direct procurement management. Even worse, as noted by Israel and Curkovic (2020), the scarce research there is has issues with differing use of terms and definitions. Yet, according to Cox et al. (2005) and Iloranta and Pajunen-Muhonen (2015), the spend of indirect procurement categories can easily account for more than 20 percent of all expenses in a company. Therefore, for the sake of competitiveness, no company should overlook or manage these categories haphazardly.

As noted by van Weele and Rozemeijer (2022), indirect procurement has many features that differentiate it from direct procurement. These features present distinct issues and challenges to the management of indirect procurement and, in turn, require specific solutions. Maturity models have been recognized as good tools for measuring capability and guiding development (Wendler 2012). Some maturity models have been developed to measure procurement (Schiele 2007). However, they are relatively few in number, of varying quality, and mostly focused on direct procurement (Jayaram and Curkovic 2018). Therefore, this thesis set out to study indirect procurement management with the aim of creating a comprehensive indirect procurement maturity model that could be utilized in practice to measure and develop indirect procurement management proficiency. To support this aim, two research questions were placed:

- RQ1: Which issues and management practices characterize indirect procurement management?
- RQ2: What are the characteristics of a comprehensive indirect procurement maturity model?

The issues-solutions approach for the first research question was adopted in preparation for the construction of the model. The basic assumption was that at lower maturity levels, issues characteristic to indirect procurement management are prevalent, and that maturity increases as the issues hindering performance are solved through the implementation of solutions and the adoption of best practices. The literature presented a variety of issues associated with indirect procurement management. Although differing in their use of terminology, all the issues covered in Chapter 2.3 were identified in multiple sources. Indirect procurement was seen as an overly complex, under-resourced, and under-appreciated function and entity, which lacked structure, proficiency, and suitable tools. These issues were all either directly or indirectly linked to each other and had compounding effect on one another. The empirical evidence supported the views of the literature, as all of the issues identified in the literature were also experienced by professionals in practice. The complex nature of indirect procurement was seen as a root cause of the issues. However, the empirical evidence seems to suggest that some issues are not as relevant today as they were 10 or 20 years ago. Issues such as poor organizational structure (Barry et al. 1996) and maverick buying (Karjalainen and van Raaij 2011) were not seen to cause as many challenges as the views of the literature would suggest. This hints at the maturation of indirect procurement practices in general and suggests that some issues are fixed earlier on during the maturation path than others. Another general observation about the differences in the views of literature and empirical evidence is that the literature seems to place more focus on harder, more quantifiable issues such as lack of E-tool use (Angeles and Nath 2007), whereas the interviewees were more focused on softer, more dynamic issues such as the lack of management recognition, lack of understanding, misaligned incentives, lack of power, and resulting developmental challenges. However, this could also be the result of academic research having very specific focuses on their topics.

The literature also recognized multiple solutions and best-practices to the aforementioned issues, which were presented in Chapter 2.3. Again, the suggestions of the literature were mostly in line with the empirical evidence, and the identified solutions and best-practices were widely acknowledged to be accurate and relevant by the interviewees. As with the issues, the interviewees placed more emphasis on softer solutions. Promoting IP to management, improving communication and cross-functional cooperation were seen as the keys to success in indirect procurement management. Furthermore, they were seen to

act as enablers for other aspects of development, a view which is also shared by the literature (Brandon-Jones and Knoppen 2018). Some of the suggested solutions, such as optimization of IP organization, standardization of processes, and automation of manual processes were already more widely adopted than others, such as E-tools, again suggesting that some aspects are developed earlier than others during the maturity path. The importance of developing indirect procurement employee competence was also highlighted in the empirical evidence. However, whereas the literature of indirect procurement discusses competence development on a more general level, the interviewees placed special emphasis on some skills, such as SMI, risk management, and analytical capabilities of employees. The importance of these skills for procurement professionals has also been highlighted in the literature, e.g., by Lorentz et al. (2020), and the empirical evidence suggest that these skills are just as important for indirect procurement personnel. Outsourcing of some or all indirect procurement categories was the solution where the views of literature and empirical evidence diverged the most. Whereas e.g., Carter et al. (2003) and Payne et al. (2011) propose it as a prominent solution, the empirical evidence provided only limited evidence to support this view as it received no particular promotion. However, the fact that rationales behind outsourcing indirect categories (consolidation of volumes, increased proficiency, cost savings, etc.) were supported and one of the organizations had outsourced some of the categories to its parent company, suggests that it can also be a usable solution in some instances.

The second research question posed in this thesis concerned the maturity model itself. Literature suggests a few approaches for constructing a maturity model. In essence, these approaches introduced very similar processes, albeit with slight variations. For the creation of the model presented in this thesis, design principles proposed by Röglinger et al. (2012) were adopted, and the process presented by Maier et al. (2012) was followed. The model was developed iteratively, first through a comprehensive literature review and later validated by interviewing indirect procurement professionals and updated based on empirical evidence. Although interviewees did not comment on the creation process in particular, they appreciated the structure and clarity of the developed model. Based on this, following characteristics for a comprehensive indirect procurement maturity model were identified:

- The model is clearly structured

- It includes a variety of elements to comprehensively measure every aspect of indirect procurement management
- There are 4 levels of maturity
- The cell texts reflect reality accurately
- Progression from level to level is logical
- Cell texts are written descriptively and intersubjectively
- The model can be readily applied to practice

In the end, the refined version of the model after empirical validation came to include the same number of dimensions and elements that were identified by the literature review. The same characteristic issues and management practices, solutions to the issues, were identified by both literature and interviewees. The literature-based version of the model required only a relatively small number of updates to its terminology and cell texts and no changes were made to the structure of the model. This suggests that the literature of both indirect procurement management and maturity models, although scarce and partly outdated, mostly of good quality and in line with practice and practical expectations and needs.

From a broader perspective, maturity models generally appear to be a tool more used by consulting firms and seem to be underutilized or under-researched in academics. There are at least two potential explanations for this. First, as pointed out by Schiele (2007), maturity models, however generic, are still bound to present one “optimal” solution or set of propositions, which often gathers criticism in academic circles. The second possible explanation relates to the nature of constructive research itself. Kasanen et al. (1993) note, that constructive research is often criticized for the lack of objectivity on the part the researcher, as it is hard for the views of the researcher not to somehow influence the construct, which in turn decreases the academic credibility of the research.

In practice, however, as also evidenced by the results of this study, maturity models are seen as very useful tools, and there is a clear demand for tools such as the one developed in this thesis. In addition, academic researchers such as Tanskanen et al. (2017) also advocate for bridging the gap between academia and practice and support the notion of using scientific research in support of real-life business decisions. This thesis and the

model developed fill that gap. However, it needs to be noted that the model developed is intended to be a general one. To tackle the aforementioned critique towards constructive research and maturity models, the statements in the model cannot be taken for granted. The model was created as a generic tool, to support and encourage organizations and indirect procurement professionals to think and find optimal solutions for developing indirect procurement management in their unique situations. Each user of the model must think through the extent to which it applies to each situation and find the fit-for-purpose optimal solutions in their context.

## **7.2 Conclusion**

This thesis has answered the calls of both academia and practice and developed a research-based tool to support decision-making in indirect procurement management context. While doing so, it has made both theoretical and practical contributions. On a theoretical side, it has performed a systematic and comprehensive literature review of the fragmented indirect procurement management literature and formed a synthesis of it, while supplementing the gaps in it with the views of procurement literature where applicable. Based on the literature, the thesis identified issues and managerial solutions characteristic for indirect procurement. As a large part of indirect procurement management specific literature dates to the 1990s and early 2000s, this thesis has also provided a much-needed update and supplementation to the views and gaps of the existing literature through empirical data. The thesis has also identified and filled a gap between literature and practice, and created for the first time, a comprehensive, up-to-date indirect procurement management specific maturity model.

In terms of practical contributions, this thesis has created a research-based tool to support real-life decision-making. The model is intended to help organizations to overcome the issues characteristic for indirect procurement by presenting and promoting managerial solutions to them identified by scientific literature. The maturity model can be used to comprehensively benchmark and measure current capability, identify weaknesses, and to guide developmental actions and progress.

The thesis has also shown that indirect procurement is a diverse and complex field to understand and manage. The development of indirect procurement requires consistency, long-term focus, and a comprehensive, all-around understanding of the area, as both the characteristic issues and solutions are interconnected and affect one another. Maturity

development is a gradual process that does not tolerate shortcuts, as previous development steps act as a foundation for the next ones and developing one aspect while neglecting others will not truly develop anything. Furthermore, as the field of indirect procurement is often hard to quantify, developing it also requires the ability to see beyond numbers and tolerate risk. As one interviewee put it:

*Too often people don't see the forest from the trees. Even if management and stakeholders in principle understand the implications and benefits of developmental initiatives, they are too focused on short-term gains and numbers, and afraid to commit resources now.*

Yet, when resourced, developed, and appreciated correctly, indirect procurement can offer a sought-after source of untapped potential in cost reduction and additional value creation. As the function serves internal customers and keeps the wheels of an organization turning, it affects and has the potential to improve everything from functional performance to work-wellbeing of all employees in an organization.

### **7.3 Limitations and future research**

This research also has some limitations. First, the empirical research was conducted within the limits of the workload of a master's thesis. Although the views of the interviewees were in general in line with each other and a saturation of results could be claimed, the reliability and saturation of results of the empirical research could have been further improved by introducing more organizations and interviewees. The second limitation of this research relates to the quality of the model. It is intended to be a generic model which can be utilized by various organizations operating in different industries. As suggested by the interviewees, the model in fact is very generalizable, and to a large extent also applicable for direct procurement. However, there still are some limitations to its use. First, it probably offers more relevancy for organizations larger than an average SME. Second, as there are as many different situations and environments as there are companies, the model will inevitably be more relevant for some organizations than others.

This thesis and indirect procurement management in general offer multiple avenues for further research. The first suggestion for future research is to extend the creation of the indirect procurement management maturity model into Phase IV of maturity model development. Collecting data about the utilization of the model in terms of results and



keeping it updated over time could provide intriguing possibilities for further research into indirect procurement maturity development in real-life organizations, both on a more general level and also deeper into the factors most influencing it. The usability of maturity models in general as practical tools is another area which could be investigated further. Lastly, as indirect procurement management in general is still a very under-researched area, one could pick up almost any topic mentioned in this thesis, or an element included in the maturity model and research it further.

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# Appendices

## Appendix 1: Literature-based maturity model

Element	Question	Level 1: Clerk	Level 2: Basic	Level 3: Advanced	Level 4: Pioneer of maturity	Current level	Is this relevant element? Y/N/?	Comments / recommendations for changes
<b>1. Strategy, planning and leadership</b>								
E1.1 Procurement and corporate strategy	How is Procurement recognized in corporate strategy?	Procurement as a whole has little to no recognition in corporate strategy. Procurement is not expected to deliver value.	Procurement is recognized as a potential contributor for strategy. It is included to it based on management's perception of it.	Procurements value creation capability and relevance for the actualization of strategy is recognized, and the organization utilizes procurement near its potential.	Procurement in its diversity is an integral part of the corporate strategy. Its value creation capability is emphasized, and it is seen as a major source of competitive advantage.			
E1.2 Indirect procurement recognition and involvement in decision making	Is the scale and relevance of Indirect procurement recognized? Is IP included in strategic decisions?	Management has little to no knowledge of indirect procurement. CPO has little say in strategic decisions. IP's reports are sporadically utilized in decision making.	The scale and relevance of IP is starting to emerge. CPO is sometimes consulted during decision making, IP's voice is heard in some instances.	Management recognizes IP as a relevant contributor to the bottom line. CPO is on the board, but largely focused on direct procurement.	IP is well known and recognized. CPO actively contributes to the formulation of strategy, and the capabilities and needs of IP are taken into account.			
E1.3 Procurement strategy and indirect procurement	How indirect procurement is viewed in procurement strategy? Does indirect procurement have its own strategy?	Organization has only vaguely defined procurement strategy. There is no mention of IP.	Organization has formulated a clear procurement strategy document. IP's role however is limited.	Procurement has a comprehensively formulated and documented strategy. IP is distinct part of this strategy with its own objectives.	IP has its own independent strategy with IP specific policies and objectives. The strategy is aligned with procurement and corporate strategy, and is extensively documented.			
E1.4 Corporate responsibility and indirect procurement	Have corporate responsibility policies been included to indirect procurement strategy and policies?	Indirect procurement lacks any written policies about sustainability. Some corporate initiatives are introduced by individuals.	Indirect procurement has a documented sustainability policy. Its implementation varies between each individual, and it is not systematically followed.	Corporate responsibility policy is noted in IP strategy and included as a key part of IP policy. Responsibility is implemented to a high degree, and is being monitored.	Corporate responsibility policy is integrated into IP strategy and policies both in action and on paper. Responsibility implications of decisions and actions are proactively evaluated, and periodically audited.			
E1.5 Sustainability and indirect procurement	Have sustainability initiatives and policies been included to indirect procurement strategy and policies?	Indirect procurement lacks any written policies about sustainability. Some corporate initiatives are introduced by individuals.	Indirect procurement has a documented sustainability policy. Its implementation varies between each individual, and it is not systematically followed.	Sustainability is noted in IP strategy and included as a key part of IP policy. Sustainability initiatives are implemented to a high degree, and are being monitored.	Sustainability is integrated into IP strategy and policies both in action and on paper. Sustainability implications of decisions and actions are proactively evaluated, and periodically audited. Procurement's vital role in sustainability efforts is recognized and exploited for additional value.			
E1.6 Change & Development management	How does indirect procurement manage change and development? How autonomously can it operate?	IP does not have any notable development ideas nor is it allowed initiatives of its own. It reacts to external changes on must-basis and waits for management to tell it what to do.	Changes often have IP on the passengers seat. There are some irregular development initiatives, but these come as given or must each be approved by higher management.	IP strives to proactively manage change and continuously develop its operation. There is a policy for change management and development. IP needs management's approval for most of its initiatives.	IP has a documented, structured approach to proactive continuous development. It is rooted in the department's culture. Change is seen as an opportunity to develop and improve current practices. IP has a high level of trust and autonomy to develop itself.			
E1.7 Indirect procurement business plan	Has IP developed a long-term business plan? What is included in this plan?	IP does not have a recognizable business plan.	IP has a basic business plan for the year. The plan is loosely based on procurement strategy and includes some quantitative, mostly price reduction-related targets.	IP has formulated its own annual business plan. It includes some analysis of past and current situation. It defines multiple business targets for the year.	IP has an annual documented business plan based on procurement strategy. The plan includes analysis of the environment and past performance, and also both quantitative and qualitative targets for IP activities.			
<b>2. Indirect procurement organization and integration</b>								
E2.1 Organizational structure	How is IP structured?	Indirect procurement activities are dispersed to individual functions, which have individuals handling IP tasks.	Organization has dedicated IP staff, who are mostly under centralized IP department. The department is looking for its place in the company and lacks relevancy.	Organization has centralized IP department under procurement function, but the department still sits quite low in the hierarchy.	Organization has a centralized IP department under procurement function. CPO is a board member and Procurement a 1st tier function. Structure is continuously developed to answer business requirements.			
E2.2 Mandate of IP department	To what extend IP department handles IP activities?	Nearly every function has their own ways of procuring IP goods and services. Official guidelines or compliance policies do not exist or are not enforced.	IP department is established and handles >50% of IP activities, but many categories are still scattered. Compliance guideline exists, but is not enforced. Maverick buying is still a commonplace practice.	IP department handles >80% of IP activities. Some categories still remain scattered. Compliance is enforced, but some forms of maverick buying still remain.	Centralized IP organization handles nearly all IP related activities, deviations only on-need basis. There are clear compliance processes in place, enforced by sanctions.			
E2.3 Communication practices & plan	How does IP communicate with other departments? Is there a communication plan? How known are IP needs and capabilities within the organization?	IP is scattered, no official guideline exists. Communication is siloed within functions.	IP is centralized, but lacks a communications plan. Communication with other functions happens on as-needed basis. IP needs and capabilities are not widely known.	IP department has a communications guideline. Communication with other functions on a regular basis. IP strives to communicate its needs and capabilities to all employees, but is yet to reach that goal.	IP department has an established communications plan. IP requirements and capabilities are known to everyone within the organization, and changes/updates are communicated to all employees in every function.			
E2.4 Cross-functional integration	How are tasks and responsibilities for cross-functional co-operation defined and agreed?	There are some established practices with some departments, but little structure to majority of cross-functional co-operation. Most of it happens on ad-hoc basis.	Most cross-functional co-operation is quite regular, practices have become somewhat established. Responsibilities for both parties are generally agreed on, but no official guidelines exist.	Cross-functional co-operations is now standardized & catalogued, which has in part decreased the demand for new items. There is a general guideline for all cross-functional operations.	There are established guidelines and SLA's for cross-functional co-operation. Responsibilities are clearly defined. Co-operation is continuously developed.			
E2.5 IP involvement in product specification & standardization	How is IP involved in product or service specification? Is there an effort to standardize items & services?	IP is rarely included in product specification, products & services come as given. The number of goods and services keeps mounting, and there are no efforts to reduce or standardize them.	IP is still commonly excluded from specification. Majority of purchases are for unique items or services. However, there are some efforts to standardize and catalog some items or even categories.	IP is regularly included or consulted in specification. Many categories have been standardized & catalogued, which has in part decreased the demand for new items. The number of unique item & service purchases has greatly decreased.	There is a systematic cross-functional process for new item or service introduction. Uncatalogued items or services are checked for existing substitutes and added to catalogues if deemed necessary. Uncatalogued ad-hoc purchases are also supported when needed.			
<b>3. Key procurement processes</b>								
E3.1 Adjustment of process requirements	Are processes designed for IP? Are processes and requirements being adjusted based on the significance of the matter, e.g. monetary value?	Processes and requirements come straight from direct procurement, and are not being adjusted. E.g. Heavy compliance processes impede efficient handling of minor actions.	Many IP processes and their requirements are adopted from direct procurement. They are modified with a varying degree to fit IP purposes.	Most processes along with their requirements are designed and fitted to IP needs. There is some degree of adjustability in the processes based on the significance of the matter.	Processes and requirements have been designed specifically for IP, and are being adjusted based on the significance of the matter. IP operations remain agile, there is a great fit between process requirements and purpose.			
E3.2 Category strategies	Are goods & services categorized? Are there strategies for different categories?	IP does not differentiate between categories, and there are no formal category strategies.	IP has identified few key categories and formulated basic approaches for them. These have not been documented and are not executed with rigor.	All goods & services are group into categories. Most categories have differentiated strategies, which are executed in practice.	IP has structured approach for creating category strategies. A differentiated strategy is formulated for each category based on a thorough analysis of multiple factors, and executed rigorously.			
E3.3 Supplier strategies	How are suppliers analyzed? Do suppliers or supplier groups have different strategies or management approaches?	Suppliers are neither analyzed nor grouped by any indicator. There are no formal strategies for major individual suppliers or groups of suppliers.	Suppliers are analyzed irregularly. They are grouped by some indicators, mainly spend, and there are some common practices for each group.	Suppliers are regularly analyzed for many factors. Biggest suppliers and most important groups have their own strategies which are generally executed in practice.	Suppliers are continuously analyzed based on multiple factors. Supplier strategies are formed and executed for big individual suppliers and groups of suppliers.			
E3.4 Supplier selection	How are suppliers selected? Is there a defined process?	There is no formal process for supplier selection. Suppliers come often as given to procurement.	There is established undocumented procedure for selecting suppliers. Selection is usually performed by IP.	There is a uniform process for selecting suppliers, which is usually followed. Selection is usually done in co-operation between procurement and users.	There is a structured and documented process for supplier selection. Suppliers are selected based on clear criteria. Decisions are done in co-operation with stakeholders.			
E3.5 Supplier due diligence	How are suppliers' backgrounds checked? What aspects are checked, are responsibility and sustainability measures included?	There is no formal due diligence check done for new suppliers. DD is entirely up to each individual staff member.	There is a simplistic due diligence procedure in place. Most suppliers go through it, but some exceptions are made. Major suppliers are seldomly audited.	There is quite extensive due diligence procedure performed for almost all new suppliers. Responsibility and sustainability aspects are also included. Major suppliers are sometimes audited.	All new suppliers need to pass an uniform due diligence process. This check includes wide range of measures, including responsibility and sustainability aspects. Major suppliers are periodically audited.			



<p><b>E3.6 Supplier contracting and contract management</b></p>	<p>How are contracts issued? How are they managed?</p>	<p>There is no formal process or requirements for contracting. Contracts are created for ad hoc purposes and they contain deficiencies. Contracts are not systematically stored, and their information is scattered around the organization.</p>	<p>Requirements for contracting are set. Contracts are created on regular basis, but there are some deficiencies both in the process and contracts. In most cases, they are only revisited in case of problems with deliverables. &gt;50% are stored centrally.</p>	<p>There are established guidelines to support contracting. Negotiations and contracts are punctual, and delivered quality is regularly measured against the contract. Most of the contracts are stored centrally, and their status is regularly monitored.</p>	<p>There is a structured process in place for contracting. Contracts are drafted and revised multiple times. Deliverables are measured against the contract. Contracts are managed systematically and their information is readily available for use.</p>		
<p><b>E3.7 Supplier management</b></p>	<p>How are suppliers managed? What is the management approach based on?</p>	<p>Supplier management is performed haphazardly. Decisions are based on the gut feeling of individuals. There is no effort to manage the supplier base.</p>	<p>Supplier management is still highly dependent on individuals. Most important suppliers have been recognized and relations with them are being managed &amp; developed. Most of the supplier base is yet to receive attention.</p>	<p>Supplier management is a regular activity. Supplier base has been segmented, and recognized valuable suppliers are managed and developed. Supplier management strives to complement category strategies. Some termination effort takes place.</p>	<p>Supplier management is a continuous process, decisions are based on data. Suppliers are actively evaluated, tiered, and developed, and relationships are managed or terminated. Supplier management decisions support category strategies.</p>		
<p><b>E3.8 Internal compliance</b></p>	<p>Are there internal compliance processes in place for IP activities? How is the compliancy of IP ensured?</p>	<p>There are no documented compliance processes to adhere to. The level of compliance is dependent on the integrity of individuals.</p>	<p>There are either defined compliance processes which are not adhered to, or ones that are overly heavy, include double elements and unnecessarily complicate many activities.</p>	<p>Compliance processes are mostly good fit for purpose, and are generally adhered to. Non-compliance is sanctioned.</p>	<p>There are established compliance processes for IP activities, which are adhered to within the organization. Non-compliant actions are a only when-necessary exception, unauthorized actions are sanctioned and adherence rewarded. Compliance processes are robust but lean.</p>		
<p><b>E3.9 Risk management</b></p>	<p>How does IP approach risk management?</p>	<p>There is no proactive risk management. Risks are only dealt with upon materialization.</p>	<p>Risk management is still more reactive. Some of the most severe risks have been identified, and plans have been drawn up to deal with them. Many risks are still unidentified, and efforts to reduce exposure are sporadic.</p>	<p>Organization has a structured approach to risk management. Risks are periodically assessed and efforts made to prepare for &amp; reduce exposure to risks.</p>	<p>Risk management is a continuous proactive process. Risks are constantly assessed, efforts made to reduce exposure, plans drawn for potential events, and actions taken to mitigate the effects of occurred events.</p>		
<p><b>E3.10 Supply market intelligence</b></p>	<p>How does IP collect and utilize external information?</p>	<p>There is no formal effort to collect or utilize supply market information. Information is asymmetrically bound to and utilized by individuals.</p>	<p>Information is collected when needed in reactive fashion. Information is still accrued unevenly between individuals and teams. There are no systematic practices for storing or distributing information.</p>	<p>Information is collected and analyzed in both proactive and reactive fashion. Efforts are made to have accrued information readily available for everyone. Supply market information is increasingly utilised in decision making.</p>	<p>There is a proactive, systematic process for gathering, storing, and analysing supply market information. This information is accessible and widely utilized in decision making.</p>		
<p><b>E3.11 Internal partner management</b></p>	<p>How are internal partners managed? Is this happening both ways?</p>	<p>There is little effort made to manage internal stakeholders, neither as customers nor suppliers. The internal acknowledgement of IP is poor, and it is often the one being managed.</p>	<p>IP is a recognized internal function. Different functions place unequal value on the partnership with IP. Co-operation and management of some functions is easy, but with others exceedingly difficult.</p>	<p>IP is generally recognized as a valued internal partner. It is able to favourably manage partner relations and co-operation. IP provides internal customers with value, and in exchange receives needed services and support from other functions on a satisfactory level.</p>	<p>IP is seen as a trusted supplier and preferred customer by internal partners. Partners are continuously managed. In supplier role, IP is able to meet stakeholder requirements while being able to manage them in a beneficial way. As a customer, internal partners deliver best possible service for IP and constantly strive to improve their efforts. IP is able to manage their actions.</p>		
<b>4. P2P process</b>							
<p><b>E4.1 Requisition &amp; Approval</b></p>	<p>How is the requisition for goods &amp; services set up? How are requisitions approved?</p>	<p>A requisition process and an approval logic are poorly defined and end-users have limited knowledge about them. Requisitions come in random forms and have insufficient information. Approval bureaucracy is unnecessarily complicated and time consuming. Cycle time of requisitions varies wildly and end-users have little visibility over the status of requisitions.</p>	<p>Requisition and approval process has been defined and is generally known within the organization. Requisitions still lack relevant information causing delays and approvals take time, but requisition rules have been modified to reduce the number of requisitions and PO's. There are efforts to further streamline the process.</p>	<p>Requisition and approval is an established process. Requirements for requisitions have been streamlined and distinguish between trivial and non-trivial needs. Approval process is swift, and many requisitions lead to an automatic PO's as the quality of requisitions is sufficient. Procurement/purchaser involvement is reduced to special/problematic cases.</p>	<p>Requisition and approval process is well defined and known throughout the organization. There are different flows based on the value and triviality of the need. Requisitions are of uniform quality, contain all relevant information, and after lean approval process lead to an automatic PO in most cases. End-users are able to follow the status of their requisitions.</p>		
<p><b>E4.2 PO placement &amp; Compliance</b></p>	<p>How is the creation and delivery of PO's set up?</p>	<p>Virtually all PO's are created and delivered manually. Sometimes there is not even a PO, orders are placed via email or in a vendor web-shop. Compliance of PO's is questionable or unnecessarily heavy.</p>	<p>PO's are created and delivered manually, but their number has been reduced through the utilization of blanket PO's and systems contracting. Compliance of PO's is rationalized.</p>	<p>The creation and delivery of PO's is mostly automated, but sometimes requires manual steps due to system malfunctions or complexity of individual cases. There is some interconnectivity between the systems of organization and vendors. Compliance is streamlined.</p>	<p>The creation and delivery of PO's is automated in most cases. Organization and vendor systems are often interconnected. Requisition information and approvals are sufficient. In most complex cases manual efforts are needed for creation and delivery of PO's.</p>		
<p><b>E4.3 Receiving/inspections</b></p>	<p>How is receiving of goods and services set up? How is quality assurance performed?</p>	<p>There is no established process for receiving and quality assurance is reactive. Efficiency is low, as PO creator must also ensure and update orders as delivered.</p>	<p>There is an established process for receiving. End-users are supposed to notify procurement and sometimes update delivery information to ERP. Quality assurance mechanisms have been introduced to most important categories.</p>	<p>Receiving and inspections are mostly integrated to the same process as requisitions and PO's. End-users are expected to confirm deliveries and periodically report quality. Procurement involvement and manual action is greatly reduced. Responsibility for quality assurance is increasingly on the supplier.</p>	<p>The systems between organization and vendors are often interconnected. Deliveries are automatically matched to PO's and with some categories also confirmed. End-users receive notifications, and are expected to confirm deliveries of some goods or services. QA is mostly on suppliers, and end-users audit &amp; report the performance. Procurement receives regular updates on supplier quality.</p>		
<p><b>E4.4 Invoice processing</b></p>	<p>How are invoices processed?</p>	<p>Procurement manually checks invoices against contents and delivery statuses of PO's and approves them for payment. Accounting matches invoices with PO's for payment.</p>	<p>Many invoices are still manually checked by procurement. Workload has been reduced by the use of blanket PO's and systems contracting, for which invoices are only reviewed periodically or when a budget is reached. Accounting still needs to match all invoices by hand.</p>	<p>Invoice checking is now automated. Procurement is still quite regularly involved due to discrepancies between invoices and PO's. Once end-users have confirmed a delivery and check is ok, invoice is automatically matched for payment and paid according to contract or vendor data.</p>	<p>Invoices are automatically compared to and matched to PO's if there are no issues reported. Payments are automated per contract or vendor information. Procurement involvement is reduced to problematic cases and spot audits.</p>		
<b>5. Human resources</b>							
<p><b>E5.1 Position descriptions and diversity of competences</b></p>	<p>Are the tasks and responsibilities of different positions defined? Are the competences required for these positions known?</p>	<p>Positions are not defined, tasks and responsibilities vary by individual employee regardless of position. Competence requirements for positions have not been set. Competence of individuals vary, and their competence areas do complement one another.</p>	<p>Most procurement positions along with their competences have been defined. Competence of employees is on a satisfactory level, although there still is much variation in responsibilities and competences of individuals in same positions.</p>	<p>Positions are defined, and the competencies required are well known. Overall competence of employees is on a good level, and each individual offers unique skills for the IP function.</p>	<p>All procurement positions are defined and competencies required for each position are known and documented. Positional competence requirements are updated regularly and adjusted based on e.g. categorical and geographical differences. Individual staff members offer unique areas of competence, complementing one another.</p>		
<p><b>E5.2 Recruitment competency &amp; methods</b></p>	<p>How are recruitment decisions made? Does HR understand IP competence requirements?</p>	<p>There is no formal process for recruitment, previous experience is heavily emphasized. HR does not have any particular knowledge of the skills and competences required by IP. Recruitment decisions are often made by individuals.</p>	<p>There is a general process for recruitment which is mostly followed. HR has some knowledge IP competence requirements. However, as there is limited cross-functional evaluation, this leads to a few competence areas dominating recruitment decisions.</p>	<p>Recruitment decisions are a result of a structured process. HR has good knowledge of competence requirements and consults IP about recruitment decisions.</p>	<p>Recruitment process is well defined and modified based on the particular position. HR has excellent knowledge about the skills and competences required from IP personnel. Recruitment decisions are made through cross-functional evaluation of candidates, and external consultants are utilized when necessary.</p>		
<p><b>E5.3 Staff onboarding, training and competence development</b></p>	<p>Are there training plans available for IP staff? Are other kinds of development possibilities offered?</p>	<p>There are no formal training plans for employee onboarding. Newcomers are usually taught the basics, but after that left to fend for themselves. There are little to no trainings or educational possibilities offered for the IP staff. Each employee is responsible for their competence development, in most cases on their own time.</p>	<p>There is a general training plan for all newcomers. IP specific aspects are taught on the side of other tasks. Organization offers limited training and development opportunities.</p>	<p>There is a structured training plan for all IP newcomers, which also includes some cross functional elements. Newcomers have named support persons. Organization offers regular training opportunities to ensure and improve the competence of employees.</p>	<p>There is a structured process for employee onboarding. Each employee receives extensive, cross-functional training that is modified depending on their position. Newcomers also have a dedicated contact persons for support and to help them adapt. Organization encourages employees to develop their competence by offering regularly updated trainings and endorses participation in further education.</p>		
<p><b>E5.4 Adequacy of resources</b></p>	<p>Do available IP resources match the IP workload? How much time is spend firefighting vs. development tasks?</p>	<p>IP is drastically under-resourced. The workload and prevalence of manual tasks makes most days a struggle. Excessive workload prevents meaningful development work, as there is no time for it. Response time to issues is long, as there are many to begin with.</p>	<p>IP is under-resourced on average. Focus is still much on the daily tasks and issues often overload the capacity of IP for extended periods of time extending response times to any particular request. During quieter times IP is able to focus on strategic topics and development initiatives.</p>	<p>IP is appropriately resourced. Automation of many daily activities allows IP staff to increasingly focus on higher-level activities. IP is still sometimes overwhelmed, but not for extensive periods of time.</p>	<p>IP's resourcing level is very good. Most daily activities have been automated, thus relieving IP staff to focus mostly on developmental and strategic tasks. In case of issues IP has the capacity to resolve them quickly and efficiently.</p>		

<p><b>E5.5 Performance evaluation</b></p>	<p>Is there a policy for performance reviews? How is employee performance tracked?</p>	<p>There is no official policy for performance reviews. Performance targets are only set for higher management or heads of teams or departments. For lower-level staff, reviews are performed based on request with little to no continuity.</p>	<p>There is a common guideline for performance reviews, but not all managers or team leaders follow it. Reviews are done in somewhat regular intervals, with no or just a few targets set for the next evaluation period.</p>	<p>Performance reviews are done with regularity with all employees. Key performance targets are set periodically for every employee; results followed and targets updated.</p>	<p>There is a policy of regular performance reviews with every employee. Reviews are performed at least annually, or when needed. Performance targets are individualized and include both qualitative and quantitative measures. Reviews promote continuous improvement.</p>		
<p><b>E5.6 Career development and employee churn</b></p>	<p>What kind of career development opportunities does the company offer? Is there a structured process to identify potential candidates?</p>	<p>Organization has very little career development opportunities, or does not value internal employee advancement. Employee churn is high.</p>	<p>Organization offers limited career development opportunities. It is able to retain some talent, but still suffers from relatively high churn rate.</p>	<p>Organization offers many possibilities for career development. Employee performance is monitored and talented individuals retained.</p>	<p>The organization offers employees numerous options for advancement, both within IP/Procurement and cross-functionally. Organization has an aptitude to recognize talent and is successful in retaining competent employees.</p>		
<p><b>E5.7 Staff feedback</b></p>	<p>How is staff feedback collected and utilized?</p>	<p>There is little to none staff feedback collected let alone utilized.</p>	<p>Staff feedback is collected irregularly for ad hoc purposes. It is utilized to some extent in decision making.</p>	<p>Staff feedback is collected regularly. Results are compared and management decisions adjusted based on it.</p>	<p>Collecting staff feedback is continuous process. Periodical surveys are also performed. Feedback is seen as a valuable source of information, and is systematically analyzed and utilized in decision making.</p>		
<b>6. IT-systems and E-procurement</b>							
<p><b>E6.1 IT-architecture and systems</b></p>	<p>How suitable are current systems for IP? Have/are IP needs been identified &amp; taken into account when selecting IT-solutions?</p>	<p>Current systems degrade the efficiency of IP. IP is forced to handle activities with a mixture of different systems, which for the most part are neither designed nor suited for handling IP activities. IP was/is not involved in any way in systems selection, and little to no configuration is done.</p>	<p>IP is forced to rely on a mixture of systems with varying quality. Some are decently fit for purpose, some aren't. IP is supported by some configuration effort, and often consulted before making decisions.</p>	<p>Systems used by IP enable efficient performance. They're generally fit for purpose. IP is always consulted before decisions about new systems, and there is always effort to configure the systems per IP requirements.</p>	<p>Systems greatly enhance the performance of IP. The systems are top-tier solutions, integrated with both internal and external systems. They are either designed or configured for IP per its requirements.</p>		
<p><b>E6.2 P2P process automation</b></p>	<p>To what extent is P2P process automated?</p>	<p>There is very little to no automation in P2P process. It is almost fully manual, and includes some physical paperwork.</p>	<p>There are some automated elements in the P2P process, mainly with regards to invoice processing. Major IP benefits are yet to be obtained.</p>	<p>The majority, if not all, steps of the P2P process have been automated and moved to end-users. IP involvement has been reduced considerably but is still often required due to issues with the automation.</p>	<p>The P2P process is end-to-end automated. It is easy to use for end-users, and nearly carefree for IP, whose involvement is only needed in case of issues. The system is also accessible on mobile devices.</p>		
<p><b>E6.3 Data collection, quality, and storage</b></p>	<p>How is data being collected and handled?</p>	<p>Only a small amount of data is being collected. Most of it is general P2P-process data. It is generally of poor quality and is stored here and there.</p>	<p>There are some generalized procedures in data collection. Good amount of P2P process data and also data from other processes is available. There is variation in the quality of data, and it is being stored in multiple locations.</p>	<p>Data collection is partly automated. Large amounts of manual work is still required, but the data is generally of good quality and readily available from multiple processes. Data storage is being centralized. IP is able to obtain some cross-functional data.</p>	<p>There are extensive, mostly automated processes for data collection. Some additional data is inputted by hand. The data is of uniform quality, stored centrally, and readily available for use. Cross-functional data is also readily available for IP.</p>		
<p><b>E6.4 E-X's</b></p>	<p>Does IP utilize E-catalogues, E-RFX's etc.?</p>	<p>IP utilizes email and google as their most advanced E-tools.</p>	<p>Some basic ERP ad-ons and compulsory websites are used from time to time. However, their usage varies between individuals.</p>	<p>E-catalogues have been introduced. E-sourcing solutions are under investigation and some are already in use.</p>	<p>Many IP processes utilize automated E-tools. Most categories have been introduced into E-catalogues. Contracts are awarded based on E-RFX's and E-auctions. Tools provide in-depth data and ready-made analyses for IP personnel.</p>		
<b>7. Measurement and control</b>							
<p><b>E7.1 IP Business plan metrics &amp; adjustment</b></p>	<p>Are the metrics in business being followed? How are measurement results utilized?</p>	<p>Business plan is either non-existent or includes only a few quantitative metrics. These are not actively followed, and are analyzed only annually or so. Results are used to define targets for next period.</p>	<p>Business plan included a few quantitative metrics, that are monitored from time to time. Results are used to squeeze more price reductions &amp; savings from where they can be found.</p>	<p>Most quantitative and qualitative KPIs set in the business plan are monitored on regular basis. Measurement results are used for some adjustment in activities.</p>	<p>Business plan included multiple quantitative and qualitative KPIs. These are continuously monitored, and activities are regularly adjusted based on the performance data. Targets set in the business plan could also be altered.</p>		
<p><b>E7.2 Reporting &amp; data analytics</b></p>	<p>How is data utilized in decision making?</p>	<p>Reports are utilized only for ad hoc purposes. They're based on poor quality or limited data, which severely limits the use of data analytics.</p>	<p>There is some regular reporting. P2P process data is analyzed periodically, and used to support decision making. Quality and amount of data still restricts analytics utilization.</p>	<p>The organization has placed emphasis on data analytics and is able to bring forward valuable insight to support decision-making. Some reporting is being automated.</p>	<p>The organization is able to implement top-of-the-line data analytics as there is an abundance of good quality data available. Regular reporting has been automated and the reports are utilized in decision making. Ad hoc analyses are able to provide deep insight.</p>		
<p><b>E7.3 Stakeholder satisfaction</b></p>	<p>How is stakeholder satisfaction measured? How is the information utilized?</p>	<p>Stakeholder satisfaction is not measured. Opinions of stakeholders are rarely taken into account in IP decision making.</p>	<p>Stakeholder satisfaction is measured irregularly. Only quantitative indicators are used. Little emphasis is placed on the opinions and feedback of stakeholders.</p>	<p>Stakeholder satisfaction is recognized as an essential measure of IP performance. It is measured regularly with both quantitative and qualitative indicators. IP activities are adjusted based on the information.</p>	<p>Stakeholder satisfaction is measured nearly continuously with multiple indicators, and sudden issues resolved quickly. Stakeholders are consulted and their opinions appreciated in IP decision making. Special emphasis is placed on the opinions of most important stakeholders.</p>		
<p><b>E7.4 Cost management &amp; Measurement</b></p>	<p>What cost-related KPI's are measured? Are measurement results utilized in decision making?</p>	<p>IP does not actively manage costs or measure cost-related KPIs. Decisions are solely based on and aimed at achieving price reductions.</p>	<p>IP performs some spend analysis. Efforts are still mainly focused on price reduction.</p>	<p>Spend data is regularly analyzed, and costs are being managed based on the analysis. Analysis extends from the use of pure price indicators towards measuring TCO and cost reductions.</p>	<p>IP has a structured approach to cost management and measurement. Volumes of spend data is continuously collected and analyzed. Decisions are based on multiple KPI's, such as TCO, Cost savings, Spend under management, etc.</p>		

## Appendix 2: Interview frame

### Do you allow this interview to be recorded?

#### Background:

The aim of my thesis is to create an all-around maturity model, which can be utilized by organizations to measure their indirect procurement maturity and plan for improvements. I have created the first, literature-based, version of the model. I have done my best to write the cell texts in way that they reflect what assumes a proficiency or practices to be at a given level.

This interview aims to improve the validity of the model by collecting qualitative data about the issues and best practices of indirect procurement recognized and used in practice. This data will be analyzed and used to refine the model.

1. What is your current position and what responsibilities does it include?
2. How long have you worked in this position?
3. How long have you worked in similar/related positions, and in indirect procurement?
4. What companies and in which positions?
  
5. How have the role, activities, and practices of indirect procurement evolved during your career/time working with indirect procurement categories?
  
6. How indirect procurement is organized in the company / What are the management principles of indirect procurement in your organization?
  
7. What are the strengths of your current practices / approach to managing indirect procurement?
  
8. What are the weaknesses?
  
9. What do you consider to be the biggest problems hindering indirect procurement performance and causing issues for its management? What of these have or are affecting your company?
  - a. What do you think about these / have you recognized additional issues in practice?
    - i. complexity
    - ii. general lack of understanding
    - iii. lack of management recognition
    - iv. lack of standardization/high number of different items
    - v. maverick buying
    - vi. lack of data
    - vii. poor organizational structure
    - viii. lack of E-tool use
    - ix. high amount of manual work.
  
10. What are the best solutions for the issues previously discussed in your view? How have these issues been tackled or resolved in your company?

- a. What do you think about these / have you come up with additional solutions in practice?
- i. Promoting the relevance of IP among management
  - ii. process automation
  - iii. centralization of IP activities/organization
  - iv. increasing IP resources
  - v. Standardization of processes and items
  - vi. improving communication with internal partners
  - vii. use of E-tools
  - viii. improving the competence of IP staff

11. What factors do you see or consider affecting the role and activities of indirect procurement the most in the future? (E.g., new technologies (what?), sustainability, responsibility, any others?)

Questions about the model:

If an element is marked as relevant:

12. Do you consider cell texts to adequately reflect reality and your views about each level of maturity?
13. How would you change them?

If an element is marked as irrelevant:

14. Why is this element irrelevant in your view?
15. How would you change it, or would you leave it out completely?

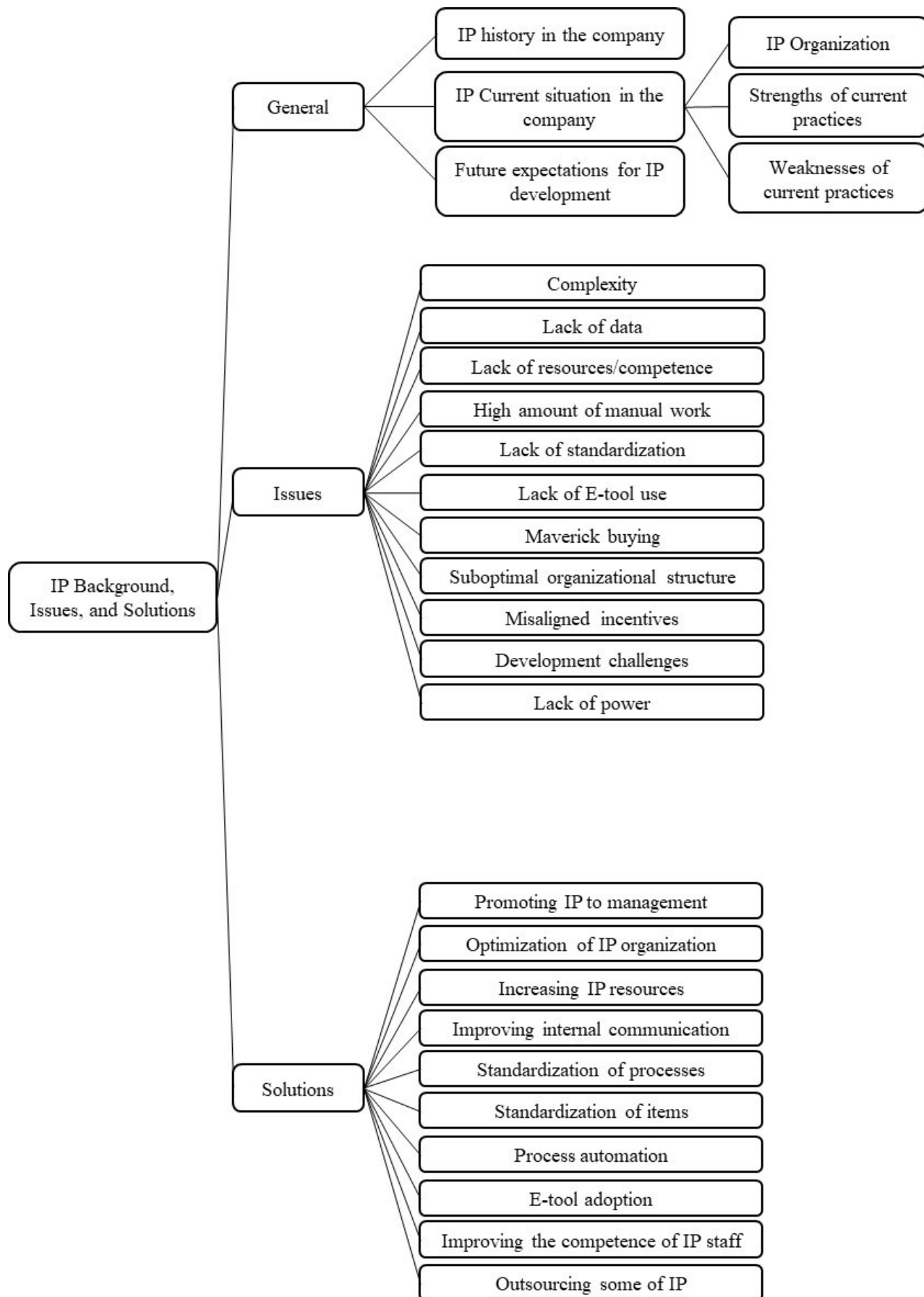
Dimension related questions:

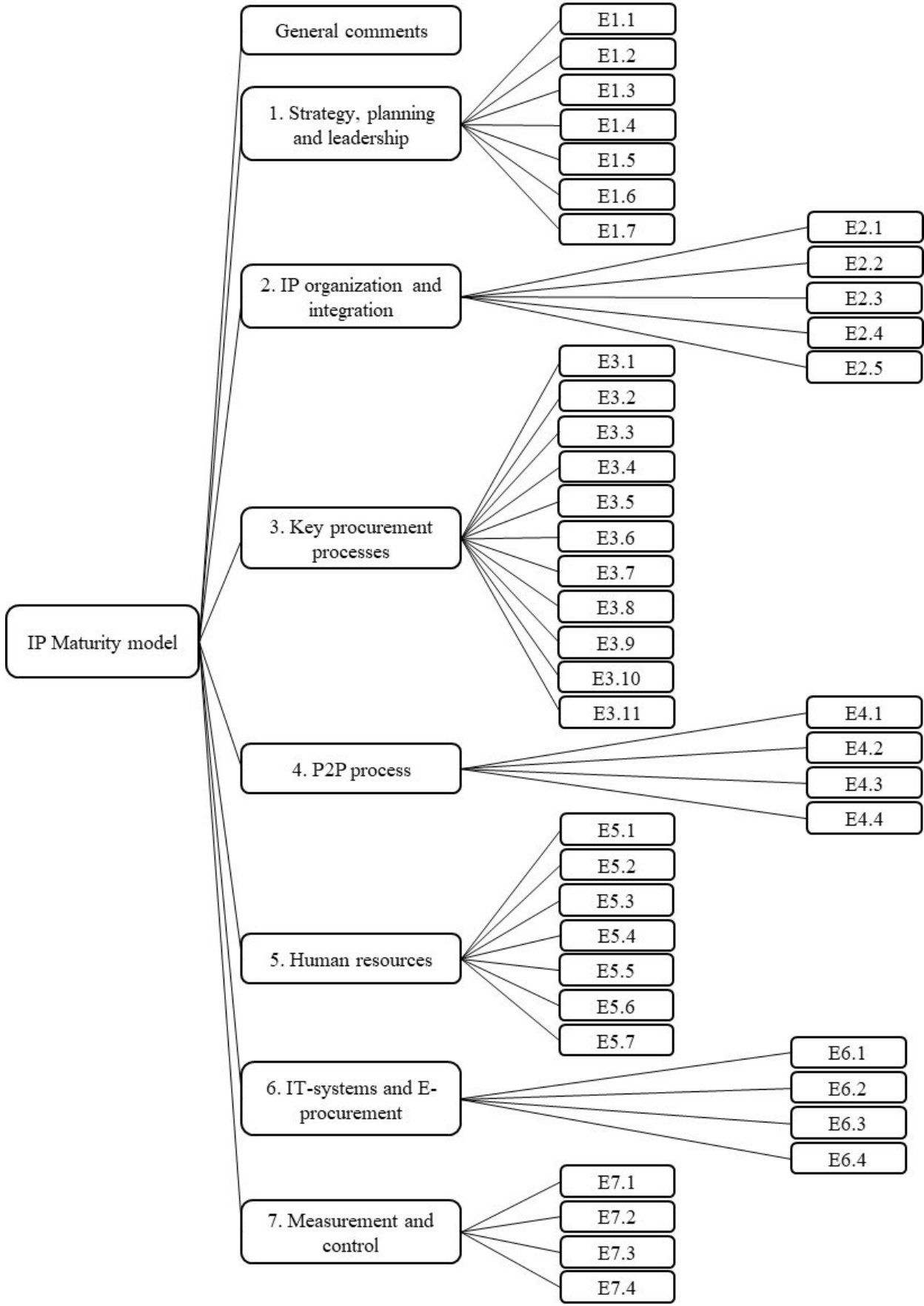
16. Do you consider that this dimension should include some additional elements? Is there something missing from the model?

Finally:

17. To conclude, what is your general view of the model as a whole?

### Appendix 3: Data structure





**Appendix 4: Refined maturity model**

Element	Question	Level 1: Clerk	Level 2: Basic	Level 3: Advanced	Level 4: Pioneer of maturity	Level
<b>1. Strategy, planning and leadership</b>						
<b>E1.1 Procurement and corporate strategy</b>	How is Procurement recognized in corporate strategy?	Procurement as a whole has little to no recognition in corporate strategy. Procurement is not expected to deliver value.	Procurement is recognized as a potential contributor for strategy. It is included to it based on management's perception of it.	Procurements value creation capability and relevance for the actualization of strategy is recognized, and the organization utilizes procurement near its potential.	Procurement in its diversity is an integral part of the corporate strategy. Its value creation capability is emphasized, and it is seen as a major source of competitive advantage.	
<b>E1.2 Indirect procurement recognition and involvement in decision making</b>	Is the scale and relevance of Indirect procurement recognized? Is procurement included in strategic decisions?	Management has little to no knowledge of indirect procurement. CPO (or similar) has little say in strategic decisions. IP's reports are sporadically utilized in decision making.	The scale and relevance of IP is starting to emerge. CPO (or similar) is sometimes consulted during decision making, IP's voice is heard in some instances.	Management recognizes IP as a relevant contributor to the bottom line. CPO (or similar) is on the board, but largely focused on direct procurement.	IP is well known and recognized. CPO (or similar) actively contributes to the formulation of strategy, IP gets its voice heard when needed.	
<b>E1.3 Procurement strategy and indirect procurement</b>	How indirect procurement is viewed in procurement strategy?	Organization has only vaguely defined procurement strategy. There is no mention of IP.	Organization has formulated a clear procurement strategy document. IP's role however is limited.	Procurement has a comprehensively formulated and documented strategy. IP is a part of this strategy with some own objectives.	Procurement has a comprehensively formulated and documented strategy which is actively executed and developed. If needed, IP has its own independent strategy with IP specific policies and objectives. The strategy is aligned with procurement and corporate strategy.	
<b>E1.4 Corporate responsibility and indirect procurement</b>	Have corporate responsibility policies been included to indirect procurement policies and activities?	Indirect procurement lacks policies about responsibility. Realization of corporate policies is not measured, and is dependent on the integrity individuals.	Indirect procurement has a responsibility policy, its implementation varies between each individual, and it is not systematically followed.	Corporate responsibility policy is noted in IP planning and included as a key part of IP policy. Responsibility is implemented to a high degree, and is being monitored.	Corporate responsibility policy is integrated into IP activities and policies in practice. Responsibility implications of decisions and actions are proactively evaluated, and audited.	
<b>E1.5 Sustainability and indirect procurement</b>	Have sustainability initiatives and policies been included to indirect procurement policies and activities?	Indirect procurement lacks policies about sustainability. Some corporate initiatives are introduced by individuals.	Indirect procurement has a sustainability policy, its implementation varies between each individual, and it is not systematically followed.	Sustainability is noted in IP planning and included as a key part of IP policy. Sustainability initiatives are implemented to a high degree, and are being monitored.	Sustainability is integrated into IP activities and policies in practice. Sustainability implications of decisions and actions are proactively evaluated and audited. Procurement's (as a whole) vital role in sustainability efforts is recognized and exploited for additional value.	



<p><b>E1.6 Change &amp; Development management</b></p>	<p>How does indirect procurement manage change and development? How autonomously can it operate?</p>	<p>IP does not have any notable development ideas nor is it allowed initiatives of its own. It reacts to external changes on must-basis and waits for management to tell it what to do.</p>	<p>Changes often have IP on the passengers seat. There are some irregular development initiatives, but these come as given or must each be approved by higher management.</p>	<p>IP strives to proactively manage change and continuously develop its operation. There is a policy for change management and development. IP needs management's approval for some of its initiatives.</p>	<p>IP has a structured approach to proactive continuous development. It is rooted in the department's culture. Change is seen as an opportunity to develop and improve current practices. IP has a high level of trust and autonomy to develop itself.</p>
<p><b>E1.7 Indirect procurement long-term plan</b></p>	<p>If deemed necessary, has IP developed a long-term business plan? What is included in this plan?</p>	<p>IP does not have a recognizable long-term plan.</p>	<p>IP has a basic long-term plan for the year. The plan is loosely based on procurement strategy and includes some quantitative, mostly price reduction-related targets.</p>	<p>IP has formulated its own long-term plan. It includes some analysis of past and current situation. It defines multiple business targets for the year.</p>	<p>IP has a long-term plan based on procurement strategy. The plan includes analysis of the environment and past performance, and also both quantitative and qualitative targets for IP activities.</p>
<p><b>2. Indirect procurement organization and integration</b></p>					
<p><b>E2.1 Organizational structure</b></p>	<p>How is IP structured?</p>	<p>Indirect procurement activities are dispersed to individual functions, which have individuals handling IP tasks.</p>	<p>Organization has dedicated IP staff, who are mostly under centralized IP department. The department is looking for its place in the company and lacks relevancy.</p>	<p>Organization has centre-led or fit-for-purpose designed IP department under procurement function, but the department still sits quite low in the hierarchy.</p>	<p>Organization has the best possible fit-for-purpose IP department under the procurement function. CPO (or similar) is a board member and Procurement is a 1st tier function. Structure is continuously developed to answer business requirements.</p>
<p><b>E2.2 Mandate of IP department</b></p>	<p>To what extent IP department handles IP activities?</p>	<p>Nearly every function has their own ways of procuring IP goods and services. Official guidelines or compliance policies do not exist or are not enforced.</p>	<p>IP department is established and handles &gt;50% of IP activities, but many categories are still scattered. Compliance guideline exists, but is not monitored. Maverick buying is still a commonplace practice.</p>	<p>IP department handles &gt;80% of IP activities. Some categories still remain scattered. Compliance is monitored, but some forms of maverick buying still remain.</p>	<p>Fit-for-purpose designed IP organization handles nearly all IP related activities. Clear compliance processes are in place, which are actively monitored.</p>
<p><b>E2.3 Communication practices</b></p>	<p>How does IP communicate with other departments? What is the level of cross-functionality? How known are IP needs and capabilities within the organization?</p>	<p>IP is scattered. There is little cross-functionality, communication is siloed within functions.</p>	<p>IP is centralized, but communication with other functions happens on as-needed basis. IP needs and capabilities are not widely known.</p>	<p>IP department has established communication practices. Communication and cooperation with other functions happens on a regular basis. IP strives to communicate its needs and capabilities to all employees, but is yet to reach that goal.</p>	<p>IP has highly established communication practices. Cross-functional cooperation is very fluent and happens all the time. IP requirements and capabilities are known to everyone within the organization, and changes/updates are communicated to all employees in every function.</p>



<b>E2.4 Cross-functional integration</b>	How are tasks and responsibilities for cross-functional cooperation defined and agreed?	There are only some established practises with some departments, but little structure to majority of cross-functional cooperation. Most of it happens on ad-hoc basis.	Cross-functional cooperation is quite regular, practises have become somewhat established. Responsibilities for both parties are generally agreed on, but no official guidelines exist.	Formal and informal cross-functional cooperation is commonplace practice with all functions. There established practices for all cross-functional operations.	Cross-functional cooperation is the norm on both formally and informally. When needed, responsibilities are clearly defined, even through SLAs. Cooperation is continuously developed.
<b>E2.5 IP involvement in product specification &amp; standardization</b>	How is IP involved in product or service specification? Is there an effort to standardize items & services?	IP is rarely included in product specification, products & services come as given. The number of goods and services keeps mounting, and there are not efforts to reduce or standardize them.	IP is still commonly excluded from specification. Majority of purchases are for unique items or services. However, there are some efforts to standardize and catalog some items or even categories.	IP is regularly included or consulted in specification. Many categories have been standardized & catalogued, which has in part decreased the demand for new items. The number of unique item & service purchases has greatly decreased.	There is a well-established cross-functional process for new item or service introduction. Uncatalogued items or services are checked for existing substitutes and added to catalogues if deemed necessary.
<b>3. Key procurement processes</b>					
<b>E3.1 Adjustment of process requirements</b>	Are processes designed for IP and can IP influence their design? Are processes and requirements being adjusted based on the significance of the matter, e.g. monetary value or impact?	Processes and requirements come straight from direct procurement, and are not being adjusted. E.g. Heavy compliance processes impede efficient handling of minor actions.	Many IP processes and their requirements are adopted from direct procurement. They are modified with a varying degree to fit IP purposes.	Most processes along with their requirements are designed by and fitted to IP needs. There is some degree of adjustability in the processes based on the significance of the matter.	Processes and requirements have been designed specifically by and for IP, and are being adjusted based on the significance of the matter. IP operations remain agile, IP has autonomy in process development, and there is a great fit between process requirements and purpose.
<b>E3.2 Category strategies</b>	Are goods & services categorized? Are there strategies for different categories?	IP does not differentiate between categories, and there are no formal category strategies.	IP has identified few key categories and formulated basic approaches for them. These are executed to a varying degree.	All goods & services are group into categories. Most categories have differentiated strategies, created with other functions, and which are executed in practice.	IP has structured approach for creating category strategies in cross-functional category teams. A differentiated strategy is formulated for each category based on a thorough analysis of multiple factors, and executed in practice.
<b>E3.3 Supplier strategies</b>	How are suppliers analyzed? Do suppliers or supplier groups have different strategies or management approaches?	Suppliers are neither analyzed nor grouped by any indicator. There are no formal strategies for major individual suppliers or groups of suppliers.	Suppliers are analyzed irregularly. They are grouped by some indicators, mainly spend, and there are some common practices for each group.	Suppliers are regularly analyzed for many factors. Biggest suppliers and most important groups have their own strategies which are generally executed in practise.	Suppliers are continuously analyzed based on multiple factors. Supplier strategies are formed and executed for big individual suppliers and groups of suppliers.

<b>E3.4 Supplier selection</b>	How are suppliers selected? Is there a defined process?	There is no formal process for supplier selection. Suppliers come often as given to procurement.	There is an established undocumented procedure for selecting suppliers. Selection is usually performed by IP.	There is a uniform process for selecting suppliers, which is usually followed. Selection is usually done in co-operation between procurement and users.	There is a structured and documented process for supplier selection. Suppliers are selected based on clear criteria. Decisions are done in cooperation with stakeholders.
<b>E3.5 Supplier due diligence</b>	How are suppliers' backgrounds checked? What aspects are checked, are responsibility and sustainability measures included?	There is no formal due diligence check done for new suppliers. DD is entirely up to each individual staff member.	There is a simplistic due diligence procedure in place. Most suppliers go through it, but some exceptions are made. Major suppliers are seldomly audited.	There is quite extensive due diligence procedure performed for almost all new suppliers. Responsibility and sustainability aspects are also included. Major suppliers are sometimes audited.	All new suppliers need to pass an uniform due diligence process. This check includes wide range of measures, including responsibility and sustainability aspects. Major suppliers are periodically audited.
<b>E3.6 Supplier contracting and contract management</b>	How are contracts issued? How are they managed?	There is no formal process or requirements for contracting. Contracts are created for ad hoc purposes and they contain deficiencies. Contracts are not systematically stored, and their information is scattered around the organization.	Requirements for contracting are set. Contracts are created on regular basis, but there are some deficiencies both in the process and contracts. In most cases, they are only revisited in case of problems with deliverables. >50% are stored centrally.	There are established guidelines to support contracting. Negotiations and contracts are punctual, and delivered quality is regularly measured against the contract. Most of the contracts are stored centrally, and their status is regularly monitored.	There is a structured process in place for contracting. Contracts are drafted and revised multiple times. Deliverables are measured against the contract. Contracts are managed systematically and their information is readily available for use.
<b>E3.7 Supplier management</b>	How are suppliers managed? What is the management approach based on?	Supplier management is performed haphazardly. Decisions are based on the gut feeling of individuals. There is no effort to manage the supplier base.	Supplier management is still highly dependent on individuals. Most important suppliers have been recognized and relations with them are being managed & developed. Most of the supplier base is yet to receive attention.	Supplier management is a regular activity. Supplier base has been segmented, and recognized valuable suppliers are managed and developed. Supplier management strives to complement category strategies. Some termination effort takes place.	Supplier management is a continuous process, decisions are based on data. Suppliers are actively evaluated, tiered, and developed, and relationships are managed or terminated. Supplier management decisions support category strategies.
<b>E3.8 Internal compliance</b>	Are there internal compliance processes in place for IP activities? How is the compliancy of IP ensured?	There are no established compliance processes to adhere to. The level of compliance is dependent on the integrity of individuals.	There are either defined compliance processes which are not adhered to, or ones that are overly heavy, include double elements and unnecessarily complicate many activities.	Compliance processes are mostly good fit for purpose, and are generally adhered to. Non-compliancy is monitored.	There are established, fit-for-purpose designed and differentiated compliance processes for IP activities, which are adhered to within the organization. Non-compliance is monitored and adherence rewarded. Compliance processes are robust but lean.

<p><b>E3.9 Risk management</b></p>	<p>How does IP approach risk management?</p>	<p>There is no proactive risk management. Risks are only dealt with upon materialization.</p>	<p>Risk management is still more reactive. Some of the most severe risks have been identified, and plans have been drawn up to deal with them. Many risks are still unidentified, and efforts to reduce exposure are sporadic.</p>	<p>Organization has a structured approach to risk management. Risks are periodically assessed and efforts made to prepare for &amp; reduce exposure to risks.</p>	<p>Risk management is a continuous proactive process. Risks are constantly assessed, efforts made to reduce exposure, plans drawn for potential events, and actions taken to mitigate the effects of occurred events.</p>	
<p><b>E3.10 Supply market intelligence</b></p>	<p>How does IP collect and utilize external information?</p>	<p>There is no formal effort to collect or utilize supply market information. Information is asymmetrical bound to and utilized by individuals.</p>	<p>Information is collected when needed in reactive fashion. Information is still accrued unevenly between individuals and teams. There are no systematic practices for storing or distributing information.</p>	<p>Information is collected and analyzed in both proactive and reactive fashion. Efforts are made to have accrued information readily available for everyone, and information is exchanged between functions. Supply market information is increasingly utilised in decision making.</p>	<p>There is a proactive, cross-functional, and systematic process for gathering, storing, and analysing supply market information. This information is accessible and widely utilized in decision making.</p>	
<p><b>E3.11 Internal partner management</b></p>	<p>How are internal partners managed? How is the balance of power?</p>	<p>There is little effort made to manage internal stakeholders, neither as customers nor suppliers. The internal acknowledgement of IP is poor, and it is often being dominated.</p>	<p>IP is a recognized internal function. Different functions place unequal value on the partnership with IP. Co-operation and management of some functions is easy, but with others exceeding difficult.</p>	<p>IP is generally recognized as a valued internal partner. Cooperation between IP and other functions is fluent and equal. IP provides internal customers with value, and in exchange receives needed services and support from other functions on a satisfactory level.</p>	<p>IP is seen as a trusted supplier and preferred customer by internal partners. There is a symbiotic relation between IP and other functions. In supplier role, IP is able to meet stakeholder requirements. As a customer, internal partners deliver best possible service for IP and constantly strive to improve their efforts.</p>	
<p><b>4. P2P process</b></p>						
<p><b>E4.1 Requisition &amp; Approval</b></p>	<p>How is the requisition for goods &amp; services set up? How are requisitions approved?</p>	<p>A requisition process and an approval logic are poorly defined and end-users have limited knowledge about them. Requisitions come in random forms and have insufficient information. Approval bureaucracy is unnecessarily complicated and time consuming. Cycle time of requisitions varies wildly and end-users have little visibility over the status of requisitions.</p>	<p>Requisition and approval process has been defined and is generally known within the organization. Requisitions still lack relevant information causing delays and approvals take time, but requisition rules have been modified to reduce the number of requisitions and PO's. There are efforts to further streamline the process.</p>	<p>Requisition and approval is an established process. Requirements for requisitions have been streamlined and distinguish between trivial and non-trivial needs. Approval process is swift, and many requisitions lead to an automatic PO's as the quality of requisitions is sufficient. Procurement/purchaser involvement is reduced to special/problematic cases.</p>	<p>Requisition and approval process is well defined and known throughout the organization. There are different flows based on the value and triviality of the need. Requisitions are of uniform quality, contain all relevant information, and after lean approval process lead to an automatic PO in most cases. End-users are able to place and follow the status of their requisitions with a variety of devices, including mobile.</p>	

<b>E4.2 PO placement &amp; Compliance</b>	How is the creation and delivery of PO's set up?	Virtually all PO's are created and delivered manually. Sometimes there is not even a PO, orders are placed via email or in a vendor web-shop. Compliance of PO's is questionable or unnecessarily heavy.	PO's are created and delivered manually, but their number has been reduced through the utilization of blanket PO's and systems contracting. Compliance of PO's is rationalized.	The creation and delivery of PO's is mostly automated, but sometimes requires manual steps due to system malfunctions or complexity of individual cases. There is some interconnectivity between the systems of organization and vendors. Compliance is streamlined.	The creation and delivery of PO's is automated in most cases. Organization and vendor systems are often interconnected. Requisition information and approvals are sufficient. In most complex cases manual efforts are needed for creation and delivery of PO's.	
<b>E4.3 Receiving/inspections</b>	How is receiving of goods and services set up? How is quality assurance performed?	There is no established process for receiving and quality assurance is reactive. Efficiency is low, as PO creator must also ensure and update orders as delivered.	There is an established process for receiving. End-users are supposed to notify procurement and sometimes update delivery information to ERP. Quality assurance mechanisms have been introduced to most important categories.	Receiving and inspections are mostly integrated to the same process as requisitions and PO's. End-users are expected to confirm deliveries and periodically report quality. Procurement involvement and manual action is greatly reduced. Responsibility for quality assurance is increasingly on the supplier.	The systems between organization and vendors are often interconnected. Deliveries are automatically matched to PO's and with some categories also confirmed. End-users receive notifications, and are expected to confirm deliveries of some goods or services. QA is mostly on suppliers, and end-users audit & report the performance. Procurement receives regular updates on supplier quality.	
<b>E4.4 Invoice processing</b>	How are invoices processed?	Procurement manually checks invoices against contents and delivery statuses of PO's and approves them for payment. Accounting matches invoices with PO's for payment.	Many invoices are still manually checked by procurement. Workload has been reduced by the use of blanket PO's and systems contracting, for which invoices are only reviewed periodically or when a budget is reached. Accounting still needs to match all invoices by hand.	Invoice checking is now automated. Procurement is still quite regularly involved due to discrepancies between invoices and PO's. Once end-users have confirmed a delivery and check is ok, invoice is automatically matched for payment and paid according to contract or vendor data.	Invoices are automatically compared to and matched to PO's if there are no issues reported. Payments are automated per contract or vendor information. Procurement involvement is reduced to problematic cases and spot audits.	
<b>5. Human resources</b>						
<b>E5.1 Position descriptions and diversity of competences</b>	Are the tasks and responsibilities of different positions defined? Are the competences required for these positions known?	Positions are not defined, tasks and responsibilities vary by individual employee regardless of position. Competence requirements for positions have not been set. Competence of individuals vary, and their competence areas do complement one another.	Most procurement positions along with their competences have been defined. Competence of employees is on a satisfactory level, although there still is much variation in responsibilities and competences of individuals in same positions.	Positions are defined, and the competences required are well known. Overall competence of employees is on a good level, and each individual offers valuable skills for the IP function.	All procurement positions are defined and competences required for each position are known and documented. Positional competence requirements are updated regularly and adjusted based on e.g. categorical and geographical differences. Individual staff members offer unique areas of competence, complementing one another.	

<p><b>E5.2 Recruitment competency &amp; methods</b></p>	<p>How are recruitment decisions made? Does HR understand IP competence requirements?</p>	<p>There is no formal process for recruitment, previous experience is heavily emphasized. HR does not have any particular knowledge of the skills and competences required by IP. Recruitment decisions are often made by individuals.</p>	<p>There is a general process for recruitment which is mostly followed. HR has some knowledge IP competence requirements. However, as there is limited cross-functional evaluation, this leads to a few competence areas dominating recruitment decisions.</p>	<p>Recruitment decisions are a result of a structured process. HR has good knowledge of competence requirements and consults IP about recruitment decisions.</p>	<p>Recruitment process is well defined and modified based on the particular position. HR has excellent knowledge about the skills and competences required from IP personnel. Recruitment decisions are made through cross-functional evaluation of candidates, and external consultants are utilized when necessary.</p>	
<p><b>E5.3 Staff onboarding, training and competence development</b></p>	<p>Are there training plans available for IP staff? Are other kinds of development possibilities offered?</p>	<p>There are no formal training plans for employee onboarding. Newcomers are usually taught the basics, but after that left to fend for themselves. There are little to no trainings or educational possibilities offered for the IP staff. Each employee is responsible for their competence development, in most cases on their own time.</p>	<p>There is a general training plan for all newcomers. IP specific aspects are taught on the side of other tasks. Organization offers limited training and development opportunities.</p>	<p>There is a structured training plan for all IP newcomers, which also includes some cross-functional elements. Newcomers have named support persons. Organization offers regular training opportunities to ensure and improve the competence of employees.</p>	<p>There is a structured process for employee onboarding. Each employee receives extensive, cross-functional training that is modified depending on their position. Newcomers also have a dedicated contact persons for support and to help them adapt. Organization encourages employees to develop their competence by offering regularly updated trainings and endorses participation in further competence development.</p>	
<p><b>E5.4 Adequacy of resources</b></p>	<p>Do available IP resources match the IP workload? How much time is spend firefighting vs. development tasks?</p>	<p>IP is drastically under-resourced. The workload and prevalence of manual tasks makes most days a struggle. Excessive workload prevents meaningful development work, as there is no time for it. Response time to issues is long, as there are many to begin with.</p>	<p>IP is under-resourced on average. Focus is still much on the daily tasks and issues often overload the capacity of IP for extended periods of time extending response times to any particular request. During quieter times IP is able to focus on higher-level topics and development initiatives.</p>	<p>IP is appropriately resourced. Automation of many daily activities allows IP staff to increasingly focus on higher-level activities. IP is still sometimes overwhelmed, but not for extensive periods of time.</p>	<p>IP's resourcing level is very good. Most daily activities have been automated, thus relieving IP staff to focus mostly on developmental and higher-level tasks. In case of issues IP has the capacity to resolve them quickly and efficiently.</p>	
<p><b>E5.5 Performance evaluation</b></p>	<p>Is there a policy for performance reviews? How is employee performance tracked?</p>	<p>There is no official policy for performance reviews. Performance targets are only set for higher management or heads of teams or departments. For lower-level staff, reviews are performed based on request, with little to no continuity.</p>	<p>There is a common guideline for performance reviews, but not all managers or team leaders follow it. Reviews are done in somewhat regular intervals, with no or just a few targets set for the next evaluation period.</p>	<p>Performance reviews are done with regularity with all employees. Key performance targets are set periodically for every employee, results followed and targets updated.</p>	<p>There is a policy of regular performance reviews with every employee. Reviews are performed at least annually, or when needed. Performance targets are individualized and include both qualitative and quantitative measures. Reviews promote continuous improvement.</p>	

<b>E5.6 Career development and employee churn</b>	What kind of career development opportunities does the company offer? Is there a structured process to identify potential candidates?	Organization has very little career development opportunities, or does not value internal employee advancement. Employee churn is high.	Organization offers limited career development opportunities. It is able to retain some talent, but still suffers from relatively high churn rate.	Organization offers many possibilities for career development. Employee performance is monitored and talented individuals retained.	The organization offers employees numerous options for advancement, both within IP/procurement and cross-functionally. Organization has an aptitude to recognize talent and is successful in retaining competent employees.	
<b>E5.7 Staff feedback</b>	How is staff feedback collected and utilized?	There is little to none staff feedback collected let alone utilized.	Staff feedback is collected on irregularly for ad-hoc purposes. It is utilized to some extent in decision making.	Staff feedback is collected regularly. Results are compared and management decisions adjusted based on it.	Collecting staff feedback is continuous process. Periodical surveys are also performed. Feedback is seen as a valuable source of information, and is systematically analyzed and utilized in decision making.	
<b>6. IT-systems and E-procurement</b>						
<b>E6.1 IT-architecture and systems</b>	How suitable are current systems for IP? Have/are IP needs been identified & taken into account when selecting IT-solutions?	Current systems degrade the efficiency of IP. IP is forced to handle activities with a mixture of different systems, which for the most part are neither designed nor suited for handling IP activities. IP was/is not involved in any way in system selection, and little to no configuration is done.	IP is forced to rely on a mixture of systems with varying quality. Some are decently fit for purpose, some aren't. IP is supported by some configuration effort, and often consulted before making decisions.	Systems used by IP enable efficient performance. They're generally fit for purpose. IP is always consulted before decisions about new systems, and there is always effort to configure the systems per IP requirements.	Systems greatly enhance the performance of IP. The systems are top-tier solutions, integrated with both internal and external systems. They are either designed or configured for IP per its requirements.	
<b>E6.2 P2P process automation</b>	To what extent is P2P process automated?	There is very little to no automation in P2P process. It is almost fully manual, and includes some physical paperwork.	There are some automated elements in the P2P process, mainly with regards to invoice processing. Major IP benefits are yet to be obtained.	The majority, if not all, steps of the P2P process have been automated and moved to end-users. IP involvement has been reduced considerably but is still often required due to issues with the automation.	The P2P process is end-to-end automated. It is easy to use for end-users, and nearly carefree for IP, whose involvement is only needed in case of issues. The system is also accessible on mobile devices.	
<b>E6.3 Data collection, quality, and storage</b>	How is data being collected and handled?	Only a small amount of data is being collected. Most of it is general P2P-process data. It is generally of poor quality and is stored here and there.	There are some generalized procedures in data collection. Good amount of P2P process data and also data from other processes is available. There is variation in the quality of data, and it is being stored in multiple locations.	Data collection is partly automated. Large amounts of manual work is still required, but the data is generally of good quality and readily available from multiple processes. Data storage is being centralized. IP is able to obtain some cross-functional data.	There are extensive, mostly automated processes for data collection. Some additional data is inputted by hand. The data is of uniform quality, stored centrally, and readily available for use. Cross-functional data is also readily available for IP.	

<p><b>E6.4 E-X's</b></p>	<p>Does IP utilize E-catalogues, E-RFX's etc.?</p>	<p>IP utilizes email and Google as their most advanced E-tools.</p>	<p>Some basic ERP ad-ons and compulsory websites are used from time to time. However, their usage varies between individuals.</p>	<p>E-catalogues have been introduced. E-sourcing solutions are under investigation and some are already in use.</p>	<p>All possible IP processes utilize automated E-tools. Most categories have been inducted into E-catalogues. Contracts are awarded based on E-RFX's and E-auctions. Tools provide in-depth data and ready-made analyses for IP personnel.</p>
<b>7. Measurement and control</b>					
<p><b>E7.1 IP category strategies and long-term plan metrics &amp; adjustment</b></p>	<p>Are the metrics in category strategies and/or long-term plans being followed? How are measurement results utilized?</p>	<p>Category strategies and/or long-term plans are either non-existent or include only a few quantitative metrics. These are not actively followed, and are analyzed only annually or so. Results are used to define targets for next period.</p>	<p>Category strategies and/or long-term plans include a few quantitative metrics, that are monitored from time to time. Results are used to squeeze more price reductions &amp; savings from where they can be found.</p>	<p>Innovative quantitative and qualitative KPIs set in the category strategies and/or long-term plans are monitored on regular basis. Measurement results are used for some adjustment in activities.</p>	<p>Category strategies and/or long term plans include multiple innovative, fit-for-purpose KPIs. These are continuously monitored, and activities are regularly adjusted based on the performance data. Targets set in the strategies or plans could also be altered.</p>
<p><b>E7.2 Reporting &amp; data analytics</b></p>	<p>How is data utilized in decision making?</p>	<p>Reports are utilized only for ad hoc purposes. They're based on poor quality or limited data, which severely limits the use of data analytics.</p>	<p>There is some regular reporting. P2P process data is analyzed periodically, and used to support decision making. Quality and amount of data still restricts analytics utilization.</p>	<p>The organization has placed emphasis on data analytics and is able to bring forward valuable insight to support decision-making. Some reporting is being automated.</p>	<p>The organization is able to implement top-of-the-line data analytics as there is an abundance of good quality data available. Regular reporting has been automated and the reports are utilized in decision making. Ad hoc analyses are able to provide deep insight.</p>
<p><b>E7.3 Stakeholder satisfaction</b></p>	<p>How is stakeholder satisfaction measured? How is the information utilized?</p>	<p>Stakeholder satisfaction is not measured. Opinions of stakeholders are rarely taken into account in IP decision making.</p>	<p>Stakeholder satisfaction is measured irregularly. Only quantitative indicators are used. Some emphasis is placed on the opinions and feedback of stakeholders.</p>	<p>Stakeholder satisfaction is recognized as an essential measure of IP performance. It is measured regularly with both quantitative and qualitative indicators. IP activities are adjusted based on the information.</p>	<p>Stakeholder satisfaction is measured nearly continuously with multiple indicators, both formal and informal, and sudden issues resolved quickly. Stakeholders are consulted and their opinions appreciated in IP decision making. Special emphasis is placed on the opinions of most important stakeholders.</p>
<p><b>E7.4 Cost management &amp; Measurement</b></p>	<p>What cost-related KPI's are measured? Are measurement results utilized in decision making?</p>	<p>IP does not actively manage costs or measure cost-related KPIs. Decisions are solely based on and aimed at achieving price reductions.</p>	<p>IP performs some spend analysis. Efforts are still mainly focused on price reduction.</p>	<p>Spend data is regularly analyzed, and costs are being managed based on the analysis. Analysis extends from the use of pure price indicators towards measuring TCO and cost reductions.</p>	<p>IP has a structured approach to cost management and measurement. Volumes of spend data is continuously collected and analyzed. Decisions are based on multiple KPI's, such as TCO, Cost savings, Spend under management, etc.</p>





