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Improving sustainability in indirect procurement by managing sustainability-related uncertainty

Operations and Supply Chain Management
Master's thesis

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Sustainability is an emerging theme in supply chain management and has affected the way how organizations do their procurement. Execution of sustainability in procurement has been studied before, but literature lacks the perspective on challenges and mechanisms suitable for indirect procurement specifically. Indirect procurement faces several challenges different to direct procurement, such as management of heterogeneous categories and numerous small suppliers. Therefore, the mechanisms suitable for management of sustainability might differ. This study aims to fill that gap in the literature and to help organizations to implement wider range of mechanisms to pursue sustainability.

Theoretical background of this study stems from Information Processing Model. According to the model organizations face sustainability-related uncertainty, which causes considerable sustainability risks. The model recognizes two groups of methods to reduce sustainability-related uncertainty: Information processing needs reducing mechanisms and Information processing capacity increasing mechanisms. With these mechanisms organizations can manage sustainability-related uncertainty and improve their sustainability performance.

The research is conducted as a qualitative multi-case study and answers the research question *How can sustainability be improved in indirect procurement by managing sustainability-related uncertainty?* The conclusions are derived from previous literature and results of this study. The data of this study is collected with semi-structured interviews from indirect procurement professionals working in organizations with recognized sustainability performance. In total, 9 interviewees from 7 organizations participated in this research. The data is analysed using the grounded theory approach.

In indirect procurement three kinds of sustainability-related uncertainties were recognized: task uncertainty, source uncertainty and supply chain uncertainty. To tackle these challenges mechanisms partly familiar from previous procurement literature were recognized. In indirect procurement the cooperation and coordination of activities with suppliers and other external parties was considered important. Especially when facing efficiency problems, external audits and sustainability mechanisms embedded into daily processes were considered keys to success. Additionally, organizational culture and attitudes are of utmost importance when implementing sustainability in indirect procurement.

Key words: Sustainability, indirect procurement, sustainability-related uncertainty, ESG, green supply chain management

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Kestävyys (sustainability) on nouseva teema toimitusketjun hallinnassa ja se on vaikuttanut siihen, miten organisaatiot tekevät hankintojaan. Kestävyyden toteuttamista hankinnoissa on tutkittu runsaasti, mutta kirjallisuudessa ei ole keskitytty haasteisiin ja mekanismeihin epäsuorien hankintojen ympäristössä. Epäsuorissa hankinnoissa on suorista hankinnoista eroavia haasteita, kuten laaja kirjo erilaisia hankintakategorioita ja suuri määrä pieniä toimittajia, ja siksi kestävyyden hallintaan sopivat mekanismit voivat olla erilaisia. Tämä tutkimus pyrkii täyttämään tämän aukon kirjallisuudessa.

Tämän tutkimuksen teoreettinen tausta juontuu Information Processing Model -mallista. Mallin mukaan organisaatiot kohtaavat kestävyyteen liittyvää epävarmuutta, mikä aiheuttaa merkittäviä kestävyyteen liittyviä riskejä. Malli tunnistaa kahdenlaisia menetelmiä kestävyyteen liittyvän epävarmuuden vähentämiseksi: informaationkäsittelytarpeen vähentämismekanismit ja informaationkäsittelykapasiteetin lisäämismekanismit. Näillä mekanismeilla organisaatiot hallitsevat kestävyyteen liittyvää epävarmuutta ja parantavat kestävyyssuorituskykyään.

Tutkimus on toteutettu laadullisena monitapaustutkimuksena Se vastaa tutkimuskysymykseen: *Miten kestävyyttä voidaan parantaa epäsuorassa hankinnassa hallitsemalla kestävyyteen liittyvää epävarmuutta?* Johtopäätökset johdetaan aiemmasta kirjallisuudesta sekä tämän tutkimuksen tuloksista. Tutkimuksen aineisto kerätään puolistrukturoiduilla haastatteluilla eri vastuullisuusteemojen parissa menestyneiden organisaatioiden epäsuorien hankintojen ammattilaisilta. Tutkimukseen osallistui yhteensä yhdeksän haastateltavaa seitsemästä organisaatiosta. Aineisto analysoidaan grounded theory -menetelmään pohjautuen.

Epäsuorissa hankinnoissa tunnistettiin kolmenlaista kestävyyteen liittyvää epävarmuutta: hankittaviin tuotteeseen, niiden toimittajiin ja toimitusketjuihin liittyvää epävarmuutta. Näiden kaikkien hallitsemiseksi tunnistettiin mekanismeja, jotka osin ovat yhtenäisiä kirjallisuudestakin tuttujen suorien hankintojen mekanismien kanssa. Epäsuorissa hankinnoissa yhteistyön niin toimittajien kuin muiden ulkoisten tahojen kanssa koettiin olevan merkittävässä asemassa. Etenkin tehokkuushaasteiden parissa työskennellessä ulkoiset audit-palvelut ja yhtenäisten prosessien koettiin olevan avain asemassa. Myös organisaation sisäisellä kulttuurilla ja asenteilla on merkittävä rooli kestävyyden toteuttamisessa.

Avainsanat: Kestävyys, vastuullisuus, epäsuorat hankinnat, vihreä toimitusketjujen hallinta

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LIST OF ABBREVIATIONS

CoC	Code of Conduct
IPC	Information Processing Capacity
IPM	Information Processing Model
IPN	Information Processing Needs
SCoC	Supplier Code of Conduct
SRU	Sustainability-related uncertainty
TBL	(Sustainability) triple-bottom-line

1 Introduction

1.1 Background and research problem

Procurement is a process of obtaining goods and services for organizations use. The process includes steps from identifying needs to purchasing and maintaining supplier relations. Challenges of procurement have been traditionally tackled with models that divide procurement into strategically different categories, for example with portfolio thinking introduced by Kraljic (1983) or purchasing chessboard by Schuh et al. (2012). The growing importance of sustainability has challenged some of these models. For example, according to Pagell et al. (2010) the traditional purchasing portfolio thinking introduced by Kraljic (1983) has become less valid in recent decades due to increasing importance of sustainable sourcing. A survey conducted on more than 1,000 CEOs in 2016 revealed that 87% of respondents think that their commitment to sustainability is translating into value creation in their industries. (Accenture, 2016.) That and many other studies suggests that sustainability is a theme to stay in procurement and supply chain management. It is also worthy to point out, that the earlier organizations begin to assess sustainability of their suppliers, the greater sustainability risk related capabilities they are expected to develop compared to their competitors (Foestrl et al. 2010), leading to firmer competitive advantage compared to late adaptors. Also, according to recent development, legislative environments are demanding more and more sustainability actions from companies.

While the sustainable procurement practices are not a new theme in literature, not many publications focusing on the sustainability practices on indirect procurement are published. Indirect procurement is a process of obtaining goods and services that does not directly make into the manufactured or sold goods and services, but rather are supporting business' daily operations. Due to different nature of the two purchasing functions, the suitable sustainability practices might differ. As indirect procurement typically deals with numerous small suppliers and differing procurement categories, the traditional (sustainability) management methods might be inefficient or even unsuitable for indirect procurement (Israel and Curkovic, 2020). Also, categories of indirect procurement are less visible to downstream stakeholders and therefore could be also more easily overlooked in terms of sustainability not only by customers and other external parties but also by management and operative level of organization itself.

There are numerous reasons why modern procurement functions are pursuing sustainability. Common way to divide the drivers of sustainability are organizations external and internal drivers. The external drivers guide or force organization towards sustainability. Guiding drivers include factors such as consumer demand and competitive advantage. In the context of indirect procurement there rarely is direct demand from customers of buying organization to pursue sustainability as it is not so visible for downstream customers. However, consumers are demanding companies to be more sustainable which drives companies to mitigate sustainability risks on all functions including supporting indirect procurement activities. Many major external driving factors encourage organizations to pursue better image and reputation. External forcing drivers include legal demands. Like the customer demands, also legal demands are less intense on many indirect procurement categories, as legislation is typically addressed directly towards the supplier itself rather than buying organization. (Haake and Seuring, 2009.) This can be problematic, as according to Villena and Gioia (2018) lower-tier suppliers face less legislative pressure on addressing sustainability issues than their customers. As a result, the suppliers of indirect procurement categories might not experience pressure to address these issues from neither the demand nor legislative stakeholders. There are some exceptional indirect procurement categories, for example energy, where legal demands play bigger role on driving sustainability.

Internal drivers include pressure from other stakeholders within organization itself. Internal drivers are less stressed on procurement sustainability frameworks than external ones, but strong support from executive groups, for example, tends to lead to better sustainability strategies. (Haake and Seuring, 2009.) In addition to executive groups, internal customers can turn out as a major internal driver for pursuing sustainability.

Indirect procurement deals with various purchasing categories that have different relevancies for the organization in terms of both spend and strategic factors. Indirect procurement categories tend to have “long tail”, meaning there are numerous suppliers with little cumulative spend. A common definition of tail spend refers to the number of items that constitutes the bottom 20% of the total spend. The long tail phenomenon occurs when a significant number, 80% or more, of suppliers are supplying this relatively minor 20% of items, in contrast to the dominant 80% of items that involve fewer suppliers. (Sievo, 2023.) Sourcing of these long tail items is typically inefficient to manage due to

their minor position in spend and strategic spectrum. This complexity of supplier base adds uncertainty when it comes to sustainability factors of the supply chain.

Even though the items of long tail are typically identified as “minor items”, their relevancy on sustainability perspective may be a lot bigger (Haake and Seuring, 2009). For example, categories such as travel and workwear might be considered minor on organizations procurement point of view, but the same products may have big implications on environmental and social sustainability of supply chain. That is due to travel being big source of emissions and clothing industry being focused on socially risky regions. Therefore, when talking about sustainability, Haake and Seuring (2009) suggest the minor categories should be re-evaluated in terms of their sustainability relevancy as sustainability evaluation requires the perspective wider than mere economic variables.

In addition to lack of resources and efficiency, organizations internal culture and attitudes can emerge as a major barrier on implementing sustainability. Procurement is a function that serves organizations internal customers. When there is no harmony within procurement function and customer function, conflicts of interest can occur on sustainability/cost ratios, for example. This emerges especially when organization is in its early stages of establishing sustainability values into organizational culture. (McMurray et al. 2014.)

All these factors add uncertainty to sustainability of procurement function, the uncertainty being the difference between information possessed and information needed to complete the task, namely operating in a sustainable way. According to information processing model (IPM) introduced by Tushman and Nadler (1978) sustainability-related uncertainty (SRU) needs to be countered with sufficient information processing capacity (IPC). The more organization faces uncertainty the bigger information processing needs (IPN), and therefore more IPC is required. This model has been previously utilized successfully in the context of sustainable supply chain management by Foerstl et al. (2018) and will be theoretical foundation for this research as well. Managing sustainability in procurement is a process that deals with many unknowns and multiple stakeholders, and therefore IPM is considered suitable model for approaching this problem.

1.2 Research question

An empirical multi-case study is conducted to find mechanisms suitable to handle sustainability-related uncertainty (SRU) in indirect procurement. To do so, this research answers the research question:

> How can sustainability be improved in indirect procurement by managing sustainability-related uncertainty (SRU)?

According to Foerstl et al. (2018) SRU can be managed by either increasing IPC or reducing IPN. This multi-case research is conducted by interviewing several organizations with recognizes sustainability agendas and performance about the use of such mechanisms in their indirect procurement functions. As a result, this benchmarking-style study provides collective overview of mechanisms used in sustainable indirect procurement to help organizations to implement those into their own operations. Academically, this study elaborates current sustainable procurement literature into the context of indirect procurement.

1.3 Assigning company

This thesis is conducted as a paid assignment from Finnish branch of global manufacturing corporation. The assigning department is organizations' indirect procurement department. All indirect procurement activities of Finnish branch of the organization are centralized for this department.

Sustainability has become increasingly important aspect of assigning company's business both strategically and in daily operations. They have knowledge on sustainability and sustainable procurement but are lacking means to implement it efficiently in indirect procurement. Problems arises especially in procurement categories where sustainability has not traditionally been a big topic, such as professional services or office supplies, for example. More sustainability-wise critical and business operations-wise relevant categories such as logistics and packaging are already better monitored when it comes to sustainability. A collective employed way to pursue sustainability in indirect procurement with all suppliers is requiring the signing of Supplier Code of Conduct, but such measure is not considered satisfactory guarantee of sustainable supply by the assigning organization. This research aims to collect the company a set of possible mechanisms to

further implement sustainability into their indirect procurement function in efficient manner.

1.4 Structure of thesis

The remainder of this thesis is structured as follows. Chapters 2 and 3 explore previous literature on the topics. In chapter 2 a look into the definition and dimensions of sustainability in the context of procurement is taken. Also, the concept of sustainability-related uncertainty (SRU) is presented. In chapter 3 the mechanisms to manage SRU studied in literature are presented. The mechanisms are based on prior literature without a focus on indirect procurement only, as indirect procurement specific literature is scarce.

Chapter 4 explains the methodology used in empirical part of this research. This chapter explains the reasons for chosen methods, describes collected data, data collection methods and explains how data is analysed. Additionally, a look into evaluation of the research is taken.

In chapter 5 the results of empirical study are presented. In the first part, a look into how companies interpret sustainability and what kind of challenges they are facing is taken. Later, the mechanism recognized in interviews are presented.

In chapter 6 the results are discussed with previous literature. The mechanisms found in the results of this study are targeted to mitigate certain aspects of SRU and to improve sustainability performance. Lastly, the limitations of this study and directions for future research are suggested.

2 Sustainability and sustainability-related uncertainty

2.1 Sustainability in procurement

Sustainability is a concept with many definitions. A classic often quoted definition is “a development that meets the needs of the present without compromising the ability of the future generations to meet their needs” (World Commission on Environment and Development, 1987). However, this classic definition is getting vague, and most commonly modern definitions of sustainability in business environment are connected to triple bottom line -concept (TBL) introduced by Elkington (1998) (see chapter 2.1.1). TBL includes three dimensions of sustainability; environmental, social, and economic. The economic dimension directly benefits the buying organization's business, while the social and environmental dimensions indirectly benefit the buying organization by reducing sustainability and reputational risks when dealing with more sustainable suppliers. Therefore, in context of procurement the TBL integrates organizations financial goals into the physical and cultural environment of its suppliers. In their literature review Carter and Rogers (2008) defined sustainable supply chain management as “the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key interorganizational business processes for improving the long-term economic performance of the individual company and its supply chains.” In today’s global economy companies are more often evaluated by the sustainability of whole supply chain, not only by internal efforts (Foerstl et al. 2018), and therefore considered only as sustainable as weakest organization in their supply chain. This study focuses especially on the sustainability of suppliers’ actions and products, and how improvements on those can be pursued by actions of buying organization.

2.1.1 Sustainability triple-bottom-line

Environmental dimension

In this study the environmental dimension of sustainability refers to “green supply”. Green supply meaning actions to minimize environmental harm caused by the purchased inputs and their suppliers (Bowen et al. 2001). Typical concepts of environmental sustainability include such as the reduction of emissions and waste, preservation of natural resources and achieving externally set environmental standards (Crespin-Mazer

and Dontenwill 2012). The overall goal of environmentally sustainable procurement is to obtain products and services that have minimum environmental impact compared to available substitutes and to minimize the need for environmentally harmful items (Ghosh 2018).

Social dimension

The social dimension considers human management and governance system related practices, often referred as corporate social responsibility (CSR). CSR includes concepts as health and safety, human rights, working conditions and wages. (Gimenez & Tachizawa, 2012.) While in modern world CRS practices within own organization should be well monitored, to better understand social dimension of sustainability organizations should be aware of CSR related practices of upstream suppliers as well. However, the modern supply chains being long, such understanding tends to be very hard to reach and is often limited to closer tier suppliers. (Meehan & Byrde 2011.) Monitoring of suppliers CRS practices is understandably more common within major suppliers and procurement categories, and on the industries with higher workforce intensity and higher overall level of CRS-related legislation. CRS monitoring also tends to be problematic because of the different standards on different spatial regions. (Zorzini et al. 2015.)

Economic dimension

The economic dimension refers to organizations responsibility to generate profit for shareholders and to operate on financially sustainable way. In terms of procurement economic sustainability is most often related to cost savings, quality, delivery, and flexibility of the supply. (Riikkinen et al, 2017.) The concept of economic sustainability can be defined as the value of output compared to the value of given input. Naturally, the overall value of the output should be maximized related to the corresponding inputs. The economic sustainability has traditionally been the leading dimension of sustainability when it comes to procurement, but recent trend of sustainable supply has increased the relevancy of other dimensions in many domains.

It is a common belief that improving sustainability on one dimension usually compromises advantages on one or two of the others. However, many studies argues that belief not to be true. For example, Ghosh (2018) found a positive link between improvements on firms' environmental performance and economic performance. These

win-win situations are typically achieved over a long period of time, as pursuing only economic wins typically leads business development to drop from the development of legislations and best practices, leading to high sustainability risks and needs of heavy investments later to catch with the progress. (Gibson, 2013.) Due to the hard to monetise nature of environmental and social dimensions of sustainability, the money-centric economic dimension is often not included in studies focusing on the two other dimensions. In this research the economic dimension is present especially when evaluating which mechanisms are and which are not efficient to implement for buying and supplying organizations.

2.1.2 Other elements of sustainability

While sustainability can be quite broadly defined with the concept of TBL, the business environment inevitably adds some layers to it. In their research Carter and Rogers (2008) found four additional commonly brought up elements that are tightly connected to sustainability of supply chains and procurement: risk management, transparency, strategy, and organizational culture.

Risk management

In management related decision making there is always a risk factor involved. In procurement there are various risks concerning availability, quality, and prices, for example. However, when it comes to sustainability, the concept of risk is especially prominent when balancing between the economic and the environmental or social performance. It is apparent that investing in other dimensions of sustainability might have negative implications on current economic performance, however such investments usually have major benefits in mitigating CRS and environmental regulation related risks (Paul & Siegel, 2006). Such financial trade-off however is not always the case. It has been proven that pursuing sustainability tends to have positive implications in financial performance in the long run (Orlitzky et al., 2003; Clarkson et al., 2008) which makes sustainability efficient way of executing long term risk management. When realising, sustainability risk related issues can have major impacts in both organizations' financial performance and its reputation (Anderson and Anderson, 2009).

Transparency

Being transparent is one of the key aspects of plausible sustainability. In the context of sustainable procurement, transparency refers to organization's internal knowledge on their own and their suppliers' actions as well as their ability to share it truthfully to external stakeholders. (Ruggie, 2011; Egels-Zandén and Hansson, 2015.) In the modern era the transparency has become easier and more important to manage, as technology allows advanced tracking and reporting methods, for example. On the other, hand risk of exposures is increasing and spread of information is faster in case of unwanted information leaks, making the transparency important risk management tool as well. (Gardner et al., 2019.)

Egels-Zandén et al. (2015) suggests that transparency in sustainable procurement consist of three disclosures: names of suppliers involved in company's operations, information about sustainability conditions in these suppliers' facilities, and the buying organizations sustainability practices. In terms of suppliers involved, the definitive goal would be to recognize and name all the suppliers involved in the chain from raw materials to end user. The sustainability conditions of suppliers can be evaluated and reported with audits, for example. Lastly, the purchasing practices includes such as codes of conduct and open sustainability strategy.

Strategy

Company's sustainability goals should not be managed as programs separate from the company's strategy, as sustainability from the very definition is about continuity. An efficient way to ensure continuity is to make strategic long-term decisions. In addition to longevity, implementing sustainable values adds limitations and opens possibilities to company's ways of doing, and therefore should be considered in strategic level decision making in organization. Pursuing sustainability affects great deal on how and which suppliers an organization should operate with. As one major driver for sustainability is the pressure from external shareholders, sustainability should be embedded as a visible part of organizations strategy to convince shareholders about organizations sustainability agendas. (Lloret, 2016.)

Culture

For company to achieve its' sustainability goals, the values of sustainability need to be embedded into company's internal culture. That means organization has internal consensus on values they are after, and knowhow on how those values should be executed. In procurement, implementation of sustainability practices might cause internal conflicts if procurements' internal customers are not on the same page with new sustainability values. (McMurray et al. 2014.) According to studies, companies that are visionaries in sustainability-related culture are more likely to be included in listings as *Fortune's 100 Best Companies to Work* and *Dow Jones Sustainability Indexes,* and therefore open new business possibilities and are exposed to good media reputation. These companies are described to naturally pursue values bigger than just economic bottom line. (Carter and Rogers, 2008.)

2.2 Sustainability-related uncertainty

2.2.1 Sustainability-related uncertainty and its management

Previously in this chapter the concept of sustainability was defined. The problem in (indirect) procurement is, that execution of sustainability is not in the hands of the buyer organization. When talking about sustainability of suppliers, there is always certain amount of uncertainty involved as buying organization does not have direct control or visibility over products and processes of their suppliers and supply networks. The underlying reason for procurement function to implement sustainability mechanism is to reduce the SRU related to upstream organizations of the supply chain, in other words, to reduce the unknowns related to the sustainability of sourced products or services and their suppliers. Naturally, there are ways buying organizations can directly improve their internal sustainability, but those are not relevant in the context of this research.

As SRU creates risk factors not directly concerning the operations of buying organisation, the management mechanisms and risk realisation differ from those of the ordinary supply chain risks (Figure 1). As described before, sustainability is a quality often originally driven by the external stakeholders. In the procurement perspective, also the execution of sustainability is in the hands of external stakeholders (suppliers). Therefore, unlike the ordinary supply chain risks actualizing through the disruptions that affect the organization directly, supply chain sustainability risks actualize through stakeholders' reactions to

arising sustainability issues at supplier's premises. Because of those qualities, in procurement it is important to understand the stakeholder expectations and to minimize the sources of SRU compromising those expectations. (Hoffman et al., 2014)

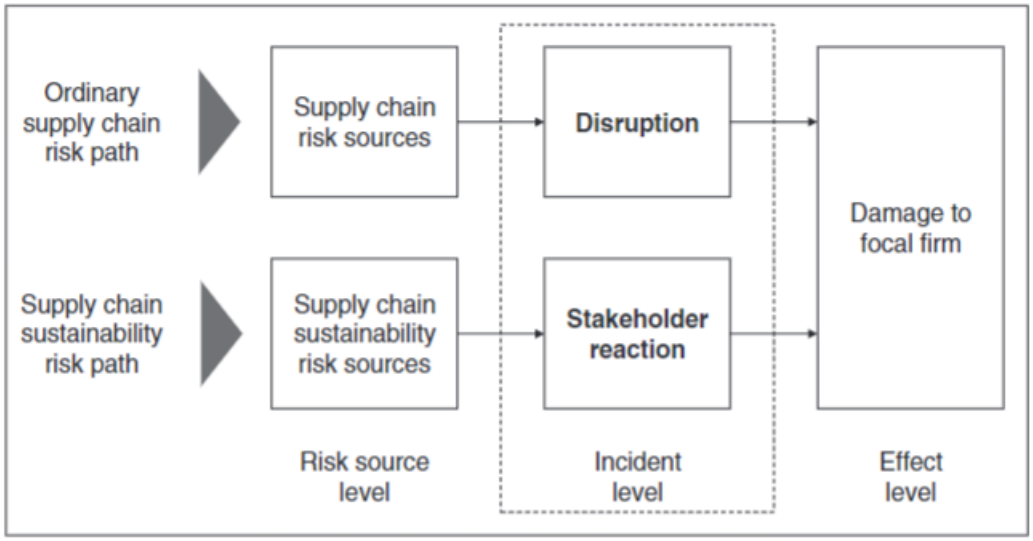


Figure 1 Ordinary supply chain risk and supply chain sustainability risk paths (Hoffman et al., 2014)

2.2.2 Sources of sustainability-related uncertainty

Busse et al. (2017) recognized three main sources for sustainability-related uncertainty (SRU): task uncertainty, source uncertainty, and supply chain uncertainty (Figure 2).

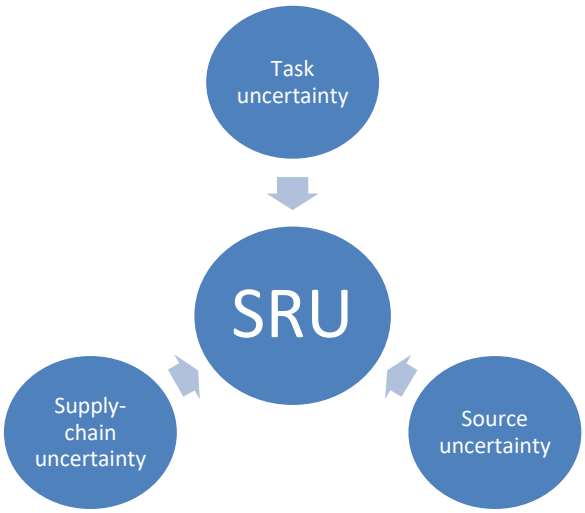


Figure 2 Sources of sustainability-related uncertainty according to Busse et al. (2017)

Task uncertainty

The task uncertainty arises from characteristics related straight to the products and services bought. It comes from variables like purchasing amounts, variety of purchased items and their novelty. In indirect procurement it is natural to face multiple sources of task uncertainty as sourced products and services are numerous. The higher amount and variety of items and the less detailed information about purchased items is known, the higher the task uncertainty. Also, the weight of specific procurement action relative to organizations operations affects the uncertainty faced through higher level of risk. In addition to features of task itself, the characteristics of purchased items affects the amount of uncertainty. Purchasing task dealing with products of dangerous materials, for example, face higher levels SRU. (Busse et al., 2017.)

Source uncertainty

The source uncertainty arises from characteristics of the suppliers and from the links to the suppliers. Major sources of source uncertainty are related to the relationship with the supplier. A long spatial distance or big differences in cultures and legislation between buyer and seller are key sources for SRU. Source uncertainty typically covers issues concerning social sustainability, especially on regions with weak legislation and visibility, and on fields with high labour intensity. Likewise, transactional relationships with suppliers are considered major cause of sustainability as supplier's behaviour remains relatively unknown to the buyer. (Busse et al., 2017.) In multinational supply chains the source uncertainty tends to be problematic even if operating fully within the legislative borders of the buyer and the supplier. To establish legitimacy on global scale, organizations are facing the challenge of meeting the cognitive and normative demands set by global audience of stakeholders. When dealing within regional legislative legitimacy, the risk of not complying with local or global cognitive and normative expectations often stays present. (Kostova and Zaheer, 1999.)

Supply chain uncertainty

Lastly, the supply chain uncertainty derives from structure of the overall supply chain and network. It includes horizontal complexity referring to number of suppliers per sourced product category, vertical complexity referring to number of tiers of suppliers on given supplied product, and spatial complexity referring to spatial distances between tiers of

given supply chain. Therefore, supply chain uncertainty expands otherwise transactional two-party source uncertainty into wider supply network perspective. (Busse et al., 2017.) According to Tachizawa and Wong (2015) the supply chain complexity makes sustainability mechanisms more inefficient especially in networks with low level of centralization on interorganizational management. This is apparent in indirect procurement where suppliers are not usually interconnected and does not share informal management mechanisms. The level of uncertainty rises considerably when the number of tiers on supply chain rises, as the acquisition of reliable sustainability data gets harder (Grimm et al., 2014).

3 Sustainability management mechanisms

To reduce the sustainability-related uncertainty (SRU) organizations can implement mechanisms trough which they try to manage the unknowns related to the sourced products or services and their suppliers. According to the information processing model (IPM), to operate efficiently organization should find balance between information processing capacity (IPC) and SRU stemmed information processing needs (IPN). While higher level of IPC and lower level of IPN helps to improve sustainability, going over or under needed thresholds is not efficient in terms of resources. (Tushman & Nadler, 1978.) Not only the use of resources may turn out to be inefficient, but excessive information has proven to be even harmful for decision making in certain scenarios (Glazer et al., 1992). Additionally, the balance between faced SRU and perceived IPN is not the same across different companies. Busse et al. (2017) identified companies of different industries to face different levels of IPN for similar sources of SRU. These differences, however, might be less relevant when talking about indirect procurement only, as indirect procurement categories are somewhat similar across the industries. Activities that can clearly be recognized as practices that only benefit direct procurement such as involving suppliers into product development will be ignored, as goal of this research is to study methods suitable for indirect procurement. Additionally, it is to be noted that majority of these mechanisms needs to be complemented with each other for efficient results. For example, Villena (2019) observed that organizations that interlink supplier assessment with incentives and supplier training are more likely to cascade the sustainability requirement further in the supply network.

3.1 Information processing capacity increasing mechanisms

IPC-increasing mechanisms increase organizations capability to process sustainability-related information. The increased processing capability increases organizations capability to identify and react to SRU. IPC-increasing mechanisms can be divided into two categories: optimizations of organizations internal structures and assessment of supplier's performance. These mechanisms may be used to mitigate all three sources of SRU. (Foerstl et al. 2018.)

3.1.1 Internal structures and information systems

Foerstl et al. (2018) found several IPC increasing mechanisms that can be further defined as mechanisms for modifying the organization's internal structures. The internal structures include the characteristics of professional roles, locations, how teams are built and so on.

Firstly, to increase IPC organizations can hire or train employees to increase their knowledge and skills related to sustainability. These mechanisms are twofold; organizations can acquire sustainability-related knowledge on a level of sourcing or on a level of strategic decision making. This systematically increases organizations capacity to deal with sustainability-related issues and decision making. On the other hand, organization can acquire sustainability-related knowledge on level of purchasing. This way the organization gains the ability to operate with sustainable values on the level of operative purchasing, too. In addition to the knowledge on topics of sustainability, it is important to gain spatial knowledge by hiring experts with knowledge on different regions procurement is dealing with, for example. (Foerstl et al., 2018.)

The knowledge generation does not always need to happen by acquiring it from outside the organization. It has been notes that lack of sustainability training and incentives within procurement department is a barrier to building sustainable supply networks. Sustainability-wise untrained procurement personnel might even continue buying from suppliers that continuously violate their sustainability standards. Therefore, it vital to keep procurement personnel up to date on sustainability topics and values by providing regular sustainability trainings. (Villena, 2019.)

Another structural mechanism is to form cross-functional teams on coordinating sustainability. When sustainability is managed consistently trough out the different functions the result will also be more consistent and better in line with the sustainability strategy. In addition to internal consensus, cross-functional cooperation helps to meet the requirements set by external stakeholders, as the fit between the demands of the internal customer and capabilities of certain suppliers, for example, is easier to address. (Foerstl et al. 2018.) It is also important to carefully think who is responsible for communicating the sustainability agendas for suppliers. A common approach has been that the sustainability audits and trainings are conducted by the sustainability team of buying organizations. However, it has been noted that sustainability professionals experience a

lack of leverage on suppliers compared to the procurement personnel. Therefore, it is vital that procurement and sustainability are in close coordination when conducting such activities for their suppliers. (Villena, 2019.)

3.1.2 Supplier assessment

Supplier assessment is a process, where buying organization monitors (sustainability) performance of its' suppliers to ensure they are dealing with suppliers that meet the strategic criteria, and to ensure that they are dealing with the best possible supplier for given good or service. Typically, assessment is done by auditing or other way measuring sustainability-related performance of the supplier. (Laosirihongthong et al. 2019.) Zimmer et al. (2016) have mapped the most relevant themes organizations from different industries typically evaluate on suppliers (Figure 3). The themes are grouped into three dimensions of TBL on hierarchical chart, hierarchies grouping more specific themes into main themes. These themes represent the topics of organizations sustainability evaluation criteria or group of criteria. Criteria being evaluative characteristic or measure of evaluated suppliers' performance. Defining suitable criteria is very case sensitive task as it depends heavily on capabilities and objectives of both organizations. To provide an example, ten most common economic, environmental and social criteria according to Zimmet et al (2016) are presented in Table 1.

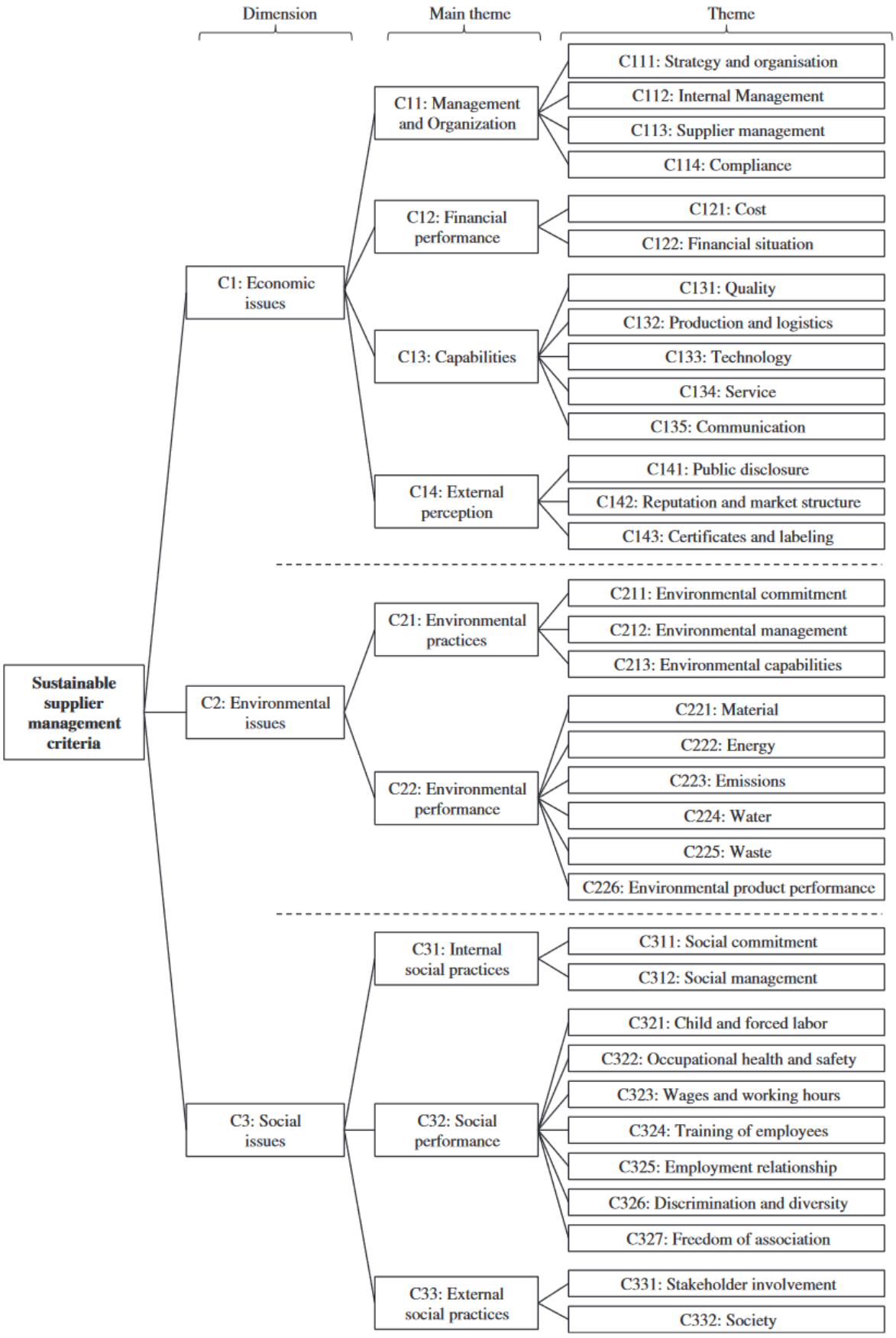


Figure 3 Supplier assessment themes (Zimmer et al. 2016)

Table 1 Most common evaluation criteria (according to Zimmer et al. 2016)

Economic	Environmental	Social
• Quality • Flexibility • Price • Lead time • Relationship • Cost • Technical capability • Logistics costs • Reverse logistics • Rejection ratio	• Environmental management system • Resource consumption • Eco-design • Recycling • Controlling of ecological impacts • Wastewater • Energy consumption • Reuse • Air emissions • Environmental code of conduct	• Involvement of stakeholders • Staff training • Social management commitment • Health and safety • Stakeholder relations • Social code of conduct • Donations for sustainable projects • The rights of stakeholders • Safety practices • Annual number of accidents

While all the dimensions of TBL should be considered when pursuing sustainability, according to prior literature, the social dimension is most often neglected. Many reasons for this have been identified. First of all, social aspects gained publicity in research decades later than environmental dimension, making it drag behind in progress. (Huang and Harshal 2007.) What has been holding up the development of social assessment is its challenging-to-measure and difficult-to-quantify nature. Many themes of the social dimension are argued to be dependent on cultural and regional variables, on different standards, and even on subjective views. (Baumann et al. 2013; Zimmer et al., 2016.) However, many universal boundaries for social themes are recognised. Those include ones like child labour, regional minimal wages, and human rights.

To evaluate suppliers' performance on all dimensions, multi-criteria evaluation must be made. Govindan et al. (2015) have constructed a classification for such evaluation. Tools are divided into two groups based on their approaches: decision-making approach and criteria selection approach.

The decision-making approach includes specific decision-making tools for multivariate problem solving. Tools can be used individually or as integrated entities. As an example, one of the most widely applied tools is analytical hierarchy process (AHP) (Govindan et

al. 2015). In addition to AHP, tools like data envelopment analysis (DEA), analytic network process (ANP), mathematical programming and linear programming are recognized (Ho et al., 2010). What these tools have in common is that sustainability performance is treated as an optimization problem. In the decision-making approach the principle is to implement continuous evaluation based on set sustainability key performance indicators (KPI)s. These KPIs are continuously used as a supporting factor for decision-making in daily and strategic procurement tasks.

Criteria selection approach is commonly used and more simple approach on evaluating suppliers' sustainability. On the criteria selection approach limits are set for sustainability measures that suppliers must exceed to be considered sustainable suppliers. Such limits are often focused on environmental and social dimensions of TBL, and ranking of applicable suppliers is made with more weight in economic measures. (Govindan et al. 2015.) The most common tool on setting sustainability limits is implementing code of conduct (CoC), or more precisely supplier code of conduct (SCoC). SCoC is a document that sets policies which suppliers need to sign and comply with. SCoC typically addresses policies on social and environmental dimension of sustainability. (Hoejmose & Adrien-Kirby 2012.) The criteria selection approach has been criticized to be inefficient alone. With lack of continuous monitoring organizations can fail to achieve continuous improvements and make lasting changes towards better sustainability. Without continuous monitoring and collaboration with supplier towards better environmental and social dimensions of sustainability, the economic dimension tends to drive development towards cost savings despite the signing of SCoC. (Jenkins, 2001.)

Assessment itself provides information about supplier's performance for the buying organizations. However, to have an effect on suppliers' actions and performance, a good practice is to give feedback and awards towards suppliers based on the shown performance. (Krause, 1998.)

3.2 Information processing needs reducing mechanisms

With the IPN-reducing mechanisms organizations can try to reduce the sources of SRU and therefore the needs for processing capacity of sustainability-related information as well. These mechanisms can be grouped into two sets of mechanisms: the collaboration with stakeholders and the modification of organizations own supply chain.

3.2.1 Collaboration with stakeholders

Collaboration within supply chains has long been recognised as a major way of improving sustainability on all its dimensions. Out of all the shareholders of supply chain, collaboration with suppliers has turned out to be the most common way. (Chen et al. (2017.) Collaboration with suppliers has turned out to be effective in procurement, because on collaboration between supplier and buyer, the pressure to pursue improvements is more towards the supplier side. In extreme cases, collaboration has recognized to make the buying organizations efforts more passive and to direct the sustainability responsibility towards the supplier. (Krause 1998.) However, in indirect procurement this might not be a considerable risk, as indirect procurement activities are not directly connected to the main operations of buying organization, and the sustainability performance of buying organization is mainly measured on sustainability of the bought products and their supplier.

One common way of collaboration is supplier development. Krause (1998) defines supplier development as set of activities taken by buying organization to identify and improve the suppliers' performance and overall value of goods or services supplied to buyer organization. In this context the performance and value are further defined to only include such features that can be considered part of sustainability. In addition to evaluative practices (see chapter 3.1.2) and supplier selection (see chapter 3.2.2) Mitra and Datta (2014) identifies two collaborative objectives with suppliers: educating and raising awareness about sustainability among suppliers, and helping suppliers to set up sustainable practices.

Collaboration can also be done by integrating operations or making joint efforts in sustainability-related objectives with suppliers (Gimenez and Sierra, 2013). For example, establishing proper evaluation system is a process that requires resources and time from both organizations. As many purchasing categories – especially in indirect procurement – include minor items, such investments might be considered unworthy. If lack of efficiency or resources on evaluation of suppliers' sustainability performance is recognized, Michelsen (2007) suggest closer cooperation between buyer and supplier as well as between buyers of the same supplier. Supplier integration can be pursued in different ways. Das et al. (2006) recognized two main ways of accomplishing integration: trough technological or knowledge generating resources. Technological resources include

such as the Electronic Data Interchange (EDI)-systems, and knowledge generating resources such as cross-functional teams or collaborative problem solving. Like many other mechanisms, also supplier integration has been mainly studied in context of direct procurement. That is because integration has been recognized as a major advantage in activities like product development, which usually is not relevant in many indirect procurement activities. However, studies also point out supplier integration's role in increasing procurement efficiency and therefore could be considered valuable mechanisms in indirect procurement too. (Das et al. 2006; Petersen et al. 2003; Fliess and Becker 2006.)

Vertical integration and transparency with suppliers can also be transitioned horizontally trough industry. Horizontal cooperation can make sustainability mechanisms more efficient as standards spread across industry and the suppliers does not need to comply with several audits and guidelines from several different buyers. (Carter and Rogers, 2008.)

3.2.2 Supply chain modification

Supply chain modifications includes mechanisms to modify supplier base in a way that less uncertainty is faced. This can be done by simplifying supplier base. Foerstl et al. (2018) identified three such mechanisms: reducing number of suppliers per product, reducing number of tiers, and reducing spatial distance to suppliers. Reduction of suppliers and tiers efficiently reduces the sources of uncertainty and therefore reduces the need for assessment as well, for example. With fewer number of suppliers the higher percentage of suppliers can be evaluated with same resources. On the other hand, Foerstl et al. (2010) points out in their research that supplier assessment is an enabling factor for effective supplier selection, resulting in undefined balance of assessment needs and assessment benefits. Due to these factors, it can be noted that the supplier assessment and the sustainability-based supply chain modification should go hand in hand. As it is with collaboration, without proper assessment there are no grounds for efficient supply chain modification either. Extreme case of supplier base simplification is insourcing. In their research Busse et al. (2017) interviewed a company that claimed to insource the production of products for which they cannot find a supplier that meets the satisfactory safety etc. standards.

Reducing spatial distance does not only affect sustainability by simply reducing the factors of uncertainty related risks. According to Brammer and Walker (2010) buying from a local supplier can improve both social and environmental dimensions of sustainability in several ways. On social aspect, buying from local suppliers helps to improve the local economy and more likely complies with buyers' local social standards. On environmental aspect, buying from local suppliers helps to reduce the environmental footprint of transportation when talking about physical goods or services that require transport or travel. However, it is worth noting that the environmental impact should be evaluated trough whole supply chain, not just from the tier 1 supplier to the buying organization. Brammer and Walker (2010) also points out buying from smaller local suppliers being socially sustainable, as it again helps to develop the local economy and employment and lowers sustainability risks.

3.3 Theoretical framework

The theoretical framework of this study (see Figure 4) follows the theory of Information processing model (Tushman and Nadler, 1978). According to the model, the information processing needs (IPN) should be countered with sufficient information processing capacity (IPC). In Tushman and Nadlers model, the IPN results from uncertainty that has three sources: task characteristics, task environment and inter-unit interdependence. Instead of the Tushman and Nadlers models' original sources of uncertainty, this research applies the concept of sustainability-related uncertainty (SRU) introduced by Busse et al. (2017). SRU was considered more applicable and accurate source for the uncertainty on the contexts of this research. The three main sources of SRU were further explained in chapter 2.2. The mechanisms of managing balance between IPN and IPC consist of two approaches: IPN reducing mechanisms and IPC increasing mechanisms that are explained in chapters 3.2 and 3.1, respectively.

The remainder of this study is built around this framework. As a result of this study, this framework is re-presented in chapter 6.2, where it is supplemented with the set of sustainability mechanisms applicable for indirect procurement found in this study.

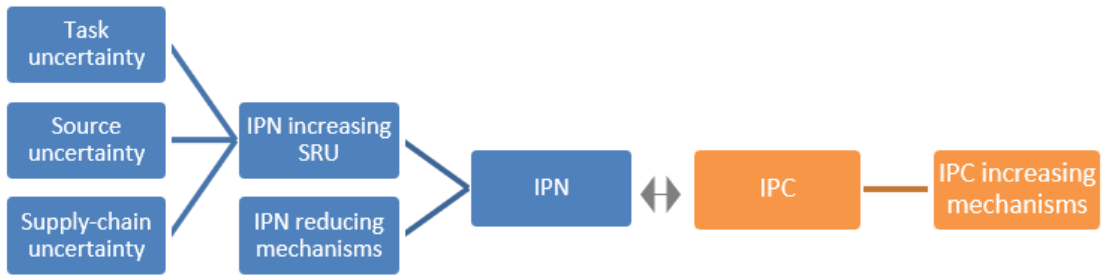


Figure 4 Theoretical framework (following Tushman & Nadler, 1978; Busse et al., 2017)

4 Methodology

4.1 Methodological approach

This research is conducted as a qualitative multiple case study. Qualitative study is known for characteristics as humans as source of data, appropriate sample selection and inductive analysis. Qualitative methods are proven to be suitable when goal is to interpret and gain holistic understanding of phenomena (Eriksson and Kovalainen, 2008). Goal of this study is to gain deeper understanding in management of SRU in context of indirect procurement, and therefore qualitative study was considered suitable.

The research approach grid developed by Neilimö and Näsi (1980) and supplemented by Kasanen et al. (1993) is presented in Figure 5. The grid describes the research approaches on two dimensions. The horizontal division between theoretical and empirical research is quite straightforward. It defines whether the research is based on existing theories or empirical observations. As the data for this research is collected empirically with interviews, this research positions in the right side of the grid.

The other dimension defines whether the approach is descriptive or normative. Descriptive approach aims to understand and describe the phenomena or problem in hand while normative aims to create solutions to problems. In the midfield of this dimension is action-oriented approach. This approach combines the elements of descriptive nomothetical approach and normative constructive approach. According to Kasanen et al. (1993) the action-oriented approach aims to developing deep understanding of the subject while actively trying to participate in the change process, too. What is also typical for action-oriented approach is that there is a high level of human interpretation involved in the analysis of research data. This fits into the setting of this research, as the goal is to gain an understanding of sustainability mechanisms utilized by the case companies and to create a toolbox and guidelines for companies to improve their performance on that field, while not constructing the methodology to do so on actual case, and therefore combining the elements of both ends of the scale.

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

Figure 5 Research approaches (following Neilimö & Näsi, 1980; Kasanen et al., 1993)

4.2 Data collection

The main sources of data in this research are selected informants from the companies participating in the research. The research data is collected with semi-structured interviews. In semi-structured interviews the interviewees are asked open questions without prior set answer options (Eskola, 1998). This setting allows interviewees to give more in-depth answers for the questions that may not have definitive correct answers. The semi structured approach also allows ad hoc tailoring of the interview to focus on topics considered more relevant for potential and knowledge of the given interviewee. This turned out to be essential as the participating organizations had limited time to arrange the interviews. Semi-structured interviews are optimal to seek answers to "how" questions such as the research question of this study, and therefore found suitable for this study (Eriksson and Kovalainen, 2008). The questions are formulated around theoretical framework presented in chapter 3.3. Interviews consist of three themes. The first theme maps the structure and background of indirect procurement in organization. Second theme is about the concepts of sustainability and SRU. Aim is to recognize organizations perception and drivers of sustainability, the state of sustainability in the organization, and the biggest challenges and sources of uncertainty they perceive. In third part, the mechanisms employed by the organizations to tackle these challenges are discussed. In this part the objective is to recognize IPN-reducing and IPC-increasing mechanisms without directly bringing up these concepts in the interview, as the information processing

theory might not be familiar for all the interviewees and could therefore turn out to be misleading for them. Additionally, as the analysis stage of this research is done using the grounded theory methodology (chapter 4.3), the theoretical categories were tried not to define at the stage of data collection, as they are to be formed later in the process according to data (Charmaz and Bryant, 2010). Instead, the recognized mechanisms are later grouped into the IPN-reducing and IPN-increasing mechanisms utilizing the definitions of prior literature. The complete interview structure is presented in the Appendix 1. The interview structure was provided to all the interviewees beforehand, so that they were able to prepare and recall to the topics in advance.

The participating organizations were selected based on their sustainability agendas. Only organizations with clearly stated sustainability goals or publicly recognized good sustainability performance and image are invited to participate in the study. Sustainability listings, business news and connections of assigning organization were utilized to recognize the potential organizations. No further limitations for industries participants operate on were set, as the SRU challenges of indirect procurement are assumed to be universal across most of the industries. Appropriate (purposeful) sample selection was considered justifiable as the goals was to find the best practices and not to map the state of sustainability in general. Appropriate sampling differs from probability samplings methods in a way that only information rich cases are selected as information sources (Walle, 2015). The carefully selected samples provide relevant information more efficiently than larger random sampling. Chosen cases in this research presents good performing organizations without trying to identify extreme cases, thus following the intensity sampling presented by Patton (1980). Appropriate sampling has been found a typical way of sampling in in-depth research (Walle, 2015). All participating organizations operate in Finland, yet majority of them have global presence as well. Interviewees consist of seven team lead level indirect procurement professionals, and two category managers on indirect procurement categories. As a data source, the interviewees presented their companies and not their personal selves. All participating organizations are presented in Table 2. All the interviews scoped in overview of the whole indirect procurement function, and two of the organizations also involved one of the category managers to provide concrete examples implemented in their activities. Therefore, the unit of analysis was the whole indirect procurement in each case. Both category managers involved in the interviews led a major indirect procurement category in terms of volumes

and spends. The participating organizations were from different industries and had different sizes of indirect procurement teams. The C4 had the smallest team with 2 persons responsible for national level indirect procurement, while the biggest ones were around 10+ persons.

Table 2 Participating organizations.

Company	Category scope of interview	Relative size of the team	Field of business	Role of interviewee
C1	Indirect overview	Medium	IT consulting	Director, Global Procurement
C2	Indirect overview	Large	Chemical industry	Head of Indirect & Sustainable Procurement
C3	Indirect overview	Large	Technology industry	Country Manager Indirect Procurement
C4	Indirect overview	Small	Telecommunications	(2) Team leader in procurement + Multi-category manager
C5	Indirect overview + major category	Large	Chemical industry	Development manager in sustainable procurement
C6	Indirect overview	Large	Forestry industry	Director Supplier Quality and Sustainability
C7	Indirect overview + major category	Large	Textile rental services	(2) Director Sustainable Procurement + Category manager

The interviews lasted from 30 to 60 minutes and were recorded with the permission of interviewees. Recorded interviews were transcribed to ease further analysis. A transcribing tool of Microsoft Teams was used to produce a draft of transcript. Additionally, all the draft transcripts were proofread and compared to recorded audio before starting of the analysis. The recordings and the transcript data are stored on the university cloud service and deleted within six months after the thesis is published. Majority of interviews were conducted in Finnish, and all references in this thesis are translated to English by author and therefore not marked as quotes in this paper. When translated, the original meaning and tone of the interviewee was tried to preserve. All participating organizations and interviewees are to be kept anonymous, and no names or other personal detail was included in the transcripts. Permissions to point out their field

of business and role in the organization was granted by all participating organizations and interviewees.

4.3 Data analysis

The analysis on this research follows the principles of grounded theory approach developed by Glaser and Strauss (1967). The grounded theory has been utilized to great extend in qualitative research and is proven to be a systematic methodology for theory construction from empiric qualitative data (Charmaz and Bryant, 2010). The methodology is considered suitable, as the aim of this research is to expand the current theories by linking empirics of this research to the prior theory of IPM. The grounded theory approach follows three main steps of data coding: open coding, axial coding, and selective coding. Coding in done using a qualitative data analysis software NVivo 20.

In the first step – open coding – the transcribed interview data is explored line by line, and key words and phrases are identified and coded into simple quotes. These quotes may or may not be related to each other, but somehow helps to understand the sustainability management mechanism used in participating organizations indirect procurement, or the organizations background. These quotes are then grouped to form 1st order concepts by labelling quotes that share the same properties under the same code. After this step a low-level understanding of concepts emerging from data is understood. (Eriksson and Kovalainen, 2008.)

The second step – axial coding – helps to move top higher level in concepts. On this stage the 1st order concepts formulated on previous step are further grouped into 2nd (and so on if needed) order concepts that represent more explanatory upper-level categories. Each higher-level category explains and combines the properties of the lower-level categories and quotes included in them. (Eriksson and Kovalainen, 2008.)

Lastly, the third step is selective coding. In selective coding the categories of previous steps are connected to theory level themes. The purpose is to find entities in the codes that enrich the theoretical framework of this study. In this study these themes are derived from both directions; from the lower-level code categories formulated so far in the coding process, and from the theoretical framework of managing SRU in indirect procurement. This way the theoretical framework can be enriched by expanding the sources of SRU, the IPN-reducing mechanisms and the IPC-increasing mechanisms with findings of

empirical study. (Eriksson and Kovalainen, 2008.) Contrary to traditional grounded theory methodology, in this study the first step of open coding was already done by dividing the quotes to the highest end categories “sustainability and SRU” and “mechanisms” to ease the classification of codes. These two categories are to formulate their own data-structures as they fundamentally differ from each other, and therefore such division was considered justifiable. “Sustainability and SRU” explores the organizations perceptions of sustainability and the sources of SRU, while “mechanisms” maps the methods employed in the organizations. No further upper-end classification is made in the beginning to avoid the confirmation bias. However, according to prior literature and the theoretical approach chosen for this study, IPN-reducing and IPC-increasing (+others) division for mechanisms is to be formed with the selective coding.

4.4 Research evaluation

Qualitative research methods and their evaluation practices are numerous, but according to Eriksson and Kovalainen (2008) there are three concepts that provide the basic framework for evaluation of business research: reliability, validity, and generalizability. Research evaluation is an important process during and after the research work to ensure that the research complies with good research practice. The following paragraphs explores this research through the lens of those three evaluative concepts.

Reliability determines the repeatability and consistency of the methods used in research. High level of reliability means that results are trustworthy instead of a random occurrence at given research setting and could be repeated by another researcher with similar kind of results. (Eriksson and Kovalainen 2008.) The methodology of this research is explained in methodology chapter and all the steps are documented to ensure reliability of the research. The transcripts or the audio files of the interviews, however, are not published to protect the anonymity of participating organizations and interviewees. Thematic choices in the interviews are made based on prior literature and a framework proved suitable for the context of this study. Additionally, used interview structure and basic attributes of participating organizations are provided. Also, the conclusions of the study are linked to previous literature and findings of the study for transparent reasoning.

Validity means that the results truthfully present the studied phenomena. High level of validity means that results are certain and backed up with proved evidence. However, the classic definition of validity is argued in qualitative research, and the adjusted meaning

refers to the guarantee that report or description is correct. To ensure validity in qualitative research, researcher needs to show analytic induction and reflexivity. (Eriksson and Kovalainen 2008.) This research follows the grounded theory methodology, which itself is recognized as “inductive theory” (Strauss, 1987). This combined with transparency in the descriptions of usage of the methodology ensures certain level of validity. The research is conducted on multiple organizations on different fields to gather wide range of perspectives and holistic results. The use of multiple data sources and methods reduces the risks of personal biases is called triangulation. Triangulation ensured validity of the research (Brink, 1993).

Generalizability explains if the results can be extended into wider range of theories and environments. High level of generalizability means that the research cases are carefully and well-grounded chosen. If the results connect to an existing theory, generalizability could be claimed. (Eriksson and Kovalainen 2008.) This research aims to elaborate current theories of sustainability mechanisms in procurement to indirect procurement, and the existing and new theories are compared and analytically discussed, ensuring a degree of generalizability.

5 Results

This chapter presents the empirical result of this research. First, a look at organizations perception on sustainability and challenges related to it are presented. Second, the recognized IPC-increasing and IPN-reducing mechanisms are presented. The classification of mechanisms is a result of analysis and previous literature on the topics. All the paragraphs present certain topic of the results and are backed up with translated excerpts from the interviews. Connections between the results and the supporting excerpts are presented with superscripts. Behind every excerpt the information source of the excerpt is presented in the parentheses. The transcript excerpts are presented to provide an example of the data and to connect the theory with empirics. No ranking of the companies based on utilization of different mechanisms can be deducted from this thesis, as it not indicated if more than the company chosen as an example utilized the same mechanism. The same applies with their perceptions on sustainability and faced challenges.

The resulting complete data structure of the grounded theory analysis is presented in Appendix 2.

5.1 Sustainability in indirect procurement

5.1.1 Sustainability in case companies

To further understand mechanisms employed by the companies, a look into companies' perception of sustainability and SRU was taken. The most emerging concept when talking about sustainability and its dimension within the participating organizations was ESG[1]. However, some companies – especially those working in manufacturing or sustainability-sensitive industries – tend to have some aspects they pay more closer focus on such as safety or pollutions[2]. This was especially when company's operations are closely tied to such qualities. For example, a company dealing with dangerous chemicals puts a lot of weight on safety when assessing their suppliers. This was critical especially with the ones visiting the faculties of the company. Most of the organizations recognized their own definition of sustainability to derive from strategic guidelines or from corporate level sustainability teams[3] and being universal for all of organization, but some defined it more closely to procurement activities following principles of sustainable procurement[4].

- [1]*Quite closely constructed around ESG, including the environmental and social aspects and also governance principles. (C5)*

- [1]*Sustainability includes of course environmental sustainability, social responsibility, also so called "legal compliance". They are the founding elements. (C7)*

- [2]*But all these in a way go under the umbrella of sustainability, even though safety is very often brought up.(C5)*

- [3]*Our corporate responsibility organization have defined us specific guidelines. (C2)*

- [4]*We have a shared code for both direct and indirect procurement sustainability. (C6)*

5.1.2 Drivers of sustainability

Organizations shared quite universal thoughts on drivers of sustainability. These drivers can be divided into internal and external drivers. The internal drivers are more relevant for indirect procurement alone, but on a wider perspective, interviewees recognized external drivers to be the underlying source of demand for sustainability in whole organization. Majority of internal drivers derived from organizations strategy and goals[1]. In some organizations sustainability was described to be in the core of doing[2], and therefore finding place not only in the strategy but deep in the organizational culture, too. Others found sustainable procurement as a tool to meet customer and investor demands or to protect the brand image[3].

- [1]*We follow our upper stage sustainability strategy. (C1)*

- [1]*It (sustainability) is driven by our Science Based Initiative targets. (C4)*

- [2]*In our company the sustainability is part of the business, part of what we do. (C5)*

- [3]*And the investors, nobody wants to fund a business that buys stuff from unresponsible suppliers. (C6)*

5.1.3 Challenges in sustainability

Resulting from the analysis, discussed challenges were classified into three major categories: complexity, resources, and attitudes, as well as two smaller: problematic categories and lack of options (Table 3). As it shows on Table 3 the organizations with larger indirect procurement team recognized wider range of challenges. The quantities of references are not shown, as sampling and coding technique of this study does not allow legitimate numeric observation. Also, it is to be noted that there was more large teams participating in the research, and larger teams may have more resources to recognize these challenges.

Table 3 Size of indirect procurement team and perceived challenges in sustainability

Size of team	**Small/ Medium**	**Large**
Complexity	Number of suppliers Suitable assessment metrics/ methods across suppliers	Number of suppliers Number of categories Number/visibility of tiers Spatial complexity
Resources	Resources on assessment	Resources on assessment Cost of sustainability
Attitudes		Cost driven goals Ununified perceptions and values
Problematic categories		Sustainably challenging product categories Lack of information
Lack of options		No suitable suppliers

The complexity related challenges include those already familiar to theory of SRU. The most common challenge was recognized to be the heterogeneity among both indirect procurement categories[1] and suppliers[2]. The sustainability risks and sources of SRU are very different depending on a category and therefore organizations are finding it hard and inefficient to implement assessment metrics and sustainability guidelines across all the

categories. Among suppliers it is the heterogeneity in the size and sustainability maturity of supplier that was found to be causing problems. Some suppliers are recognized to be ignorant or unconscious of sustainability-related topics while others were described to possess wider knowledge than the interviewed organization. In terms of size, organizations found it difficult to find mechanisms suitable for both, bigger and smaller organizations simultaneously[2]. Usually, the mechanisms suitable for bigger suppliers are too heavy for the smallest ones, while ones aimed for the smaller ones are not comprehensive enough for assessment of the bigger organizations. Also, the spatial heterogeneity was mentioned as a major challenge by many interviewees, as the state of overall sustainability and legislation is different across different countries. In addition to heterogeneity, also the invisibility beyond tier1 suppliers[3], and finding suitable metrics for sustainability[4] was noted among complexity related challenges.

- [1]*One of the biggest challenges is losing the golden thread because there are so many different categories. (C5)*

- [1]*Which sustainability topics are relevant varies a lot depending on a category. (C2)*

- [2]*There is heterogeneity in the suppliers' maturity as well as the absolute company size. When talking to the bigger ones, sustainability is often recognized and even implemented to good standard, but in the smaller ones they tend to have holes in the understanding. (C3)*

- [3]*The contract maintenance company easily outsources workforce to the 7th tier. How do we know that the guys really get paid money and not just pocket money? (C6)*

- [4]*Most (of the suppliers) know what sustainability is, but how to make it really show? (C5)*

The resource-related challenges mostly consist of those related to the inefficiency in terms of costs. Cost issues arise especially with smaller suppliers, as supplier spend per cost of assessment typically gets low, and on the other hand there are rare indications of such suppliers joining sustainability-related programs or acquiring sustainability certificates[1]. With these suppliers the most common way of managing these issues is to have them sign the Code of Conduct -style document and trust them fulfilling the requirements.

Resources may also become issue when the cost of more sustainable supplier option is relatively high compared to less sustainable counterparts[1], making it considerably less efficient option in terms of costs to source from the better performing supplier.

- [1]*We use a lot of one-man companies, and they do not usually join these kinds of programs. (C1)*

- [2]*When we are thinking of switching to green energy, for example, we need to consider the cost factor. In some countries is has been easier than in the others. (C7)*

The third major emerging challenge was attitudes. The attitudes here refer to organization's internal mindsets and perceptions of sustainability. It is not rare that organizations have very cost oriented attitudes especially when it comes to the strategically less important procurement categories[1]. This was recognized to be strongly country dependent issue and less severe is Finnish organizations. In addition to costs, also personal bonuses might sometimes clash with the sustainability agendas if investments in sustainability lowers personal or common awarding metrics for example[2]. It is not only the negative attitudes but also differing perceptions and unintended ignorance that was brought up. When sustainability is not well defined and embedded into the organizations culture, there can be functions where it is not implemented to full extend. For example, uninformed buyers might accidentally not follow the organizations sustainability guidelines if not trained or might not be even aware of them[3].

- [1]*"Do we need to pay for the waste recycling? Wouldn't just burning it be cheaper?" they (internal customers) said. It is obvious that not every organization is mature on everything. (C7)*

- [1]*It (sustainability) takes resources and in a way slows down and may make processes difficult if you consider it as a necessary evil. (C2)*

- [2]*Distribution cost per revenue is one of our bonus metrics, so one might think do I really want to push this sustainable option when there is this cheap option that favours my bonuses. (C7)*

- [3]*Lets' have the business unit buyers for example, there is plenty of work to do to have sustainability embedded into daily doing and to have it considered in daily actions. (C7)*

In addition to these three main categories of sustainability-related problems, some challenges that are worth mentioning were brought up. When talking about procurement categories, it is not only complexity of different categories that causes SRU, but some categories are more problematic in nature. One interviewee brought up energy as an example, saying than no matter how educated you are about sustainability risks on that category, there is always risk of major noncompliance especially when assessment is not strong. These problems arise especially in places where unsustainable options are significantly cheaper.

- *We operate in so many different countries with so different energy markets. When we are in China, India and across the Europe, the energy solutions and prices vary a lot. (C7)*

Even if rare in indirect procurement, there is also a chance of running out of options causing uncertainty. One of the interviewees brought up an issue where they had only one potential supplier on given product, and no supplier selection let alone sustainability-based supplier comparing could have been done. This category, however, was very industry specific and does not make it into usual indirect procurement portfolio.

- *It is easier to have leverage (in sustainability targets) if there is more than one supplier in a country. (C7)*

5.2 Information processing capacity increasing mechanisms in indirect procurement

The IPC-increasing mechanism turned out to be more numerous than the IPN-decreasing on participating organizations indirect procurement activities. Common for these mechanisms is that they aim to increase organizations knowhow on sustainability and abilities to obtain and to process sustainability-related information. All the recognized IPC-increasing mechanisms are presented in Table 4. These mechanisms were utilised to some extend in majority of the organizations, bigger indirect procurement teams recognising a bit wider portfolio of mechanisms.

Table 4 Information processing capacity increasing mechanisms

Size of team	Medium/Medium	Large
Internal training	Corporate-wide sustainability training	Periodical up-to-date training Sustainability support by sustainability department Ecovadis etc. tools
Professions, roles	Sustainability manager ESG-lead	Head of sustainable supplier management Sustainability managers In house sustainability team
Internal encouraging	Announcing, newsletters etc.	Bonuses, awarding Embed sustainability into existing tasks
Databases and IS for risk analysis		Sustainability data banks
Roadmapping, strategizing		Category strategies Sustainability roadmap
Assessment	Science based target iniative Ecovadis	Ecovadis Own audits

5.2.1 Internal training

One of the most recognized ways to increase IPC was training of the own employees, including but not limited to procurement personnel. Sustainability training has been conducted with two different approaches: whole organization-wide sustainability principles training[1], and more frequently mentioned procurement-specific sustainability training[2]. While organizations-wide training provides rough knowledge to unify the whole organizations sustainability perception and targets, procurement-specific training

can be focused to more substantial concepts and skills. The common way is to train the procurement personnel into new sustainability-related processes. These trainings may be about procurement category related risks or how to use newly implemented assessment tool, for example. In-house training was usually conducted by the sustainability team of the organization[3]. In addition to inhouse training, some of the organizations encouraged their employees to educate them via external training platforms, namely Ecovadis and LOGY-forum which provide both, overall and industry specific trainings to keep up with recent developments[4].

- [1]*We have had an online sustainability training for our whole organization, not only for procurement. (C4)*
- [2]*Every year we have an up-to-date training about sustainable procurement process, how the process has evolved. (C2)*
- [3]*Our own sustainability team is always present to help and conduct trainings if needed. (C5)*
- [4]*Through Ecovadis we get a lot of materials about sustainability, and about different categories to know what topics should be considered. (C2)*

5.2.2 Professions, roles

Organizations employ different sustainability-related professionals to support sustainability activities in procurement and in organization in general[1]. The most common approach is to have a person or a team in lead of sustainability in county specific organization[2]. Some of the bigger sustainability teams had procurement specific sustainability lead positions as well[3]. The procurement specific sustainability leads, however, were shared with all the procurement and not focusing only on indirect procurement.

- [1]*In house we have a big sustainability team of tens of people. (C5)*
- [2]*We have ESG lead in our Finnish organization. (C1)*
- [3]*We have a global level head of sustainable supplier management. (C3)*

5.2.3 Internal encouraging

Organizations identified couple of methods to encourage their personnel into sustainability. The most common was bonuses. In these organizations, the employers' bonuses are affected by chosen sustainability metrics, examples given were organizations CO2 emission and safety numbers[1]. All the bonuses mentioned were company-wide and no procurement specific awarding bonuses were utilized, even though one of the companies was planning to implement sustainable procurement specific awarding into the personal bonuses as well. This was in a planning stage and more details were not shared. Sustainability is encouraged in non-monetary ways as well[2]. Organizations mentioned to bring up sustainability topics regularly in different meetings, and signalling non sustainable proposals not to be considered, for example. Sustainability metrics has been adopted in periodical performance reports too. To make sustainability mechanisms more effortless and efficient, one of the interviewees noted that it is important to embed them into existing processes as much as possible[3]. Mechanisms adding up daily work were not perceived motivating to use by employees and makes the early implementation phase harder.

- [1]*We are bringing CO2 numbers into our awarding criteria. (C6)*
- [2]*It is important to get the sustainability motivation communicated to people, the soft side is important. (C1)*
- [3]*We thrived to embed sustainability mechanisms into existing processes to make it less workforce intensive. (C2)*

5.2.4 Databases and Information Systems

Some of the organizations have built or acquired sustainability-related datasets and IS to increase their sustainability knowledge and to ease the daily sustainability tasks. These systems are used to identify county and category specific sustainability risks. For example, one of the organizations had collected the major sustainability risks and the needed specific process knowledge of all the procurement categories at given countries for procurement and purchasing personnel to refer to when needed.

- *We did a standardized sustainability assessment for every category, including the country specific risks and the needed process knowledge related to sustainability. (C5)*

5.2.5 Strategy work

While the organizations strategy was recognized as a major sustainability driver in indirect procurement, strategy work was recognized one of the mechanisms to pursue sustainability in the indirect procurement functions as well. The indirect procurement functions are building common or category specific strategies and implementing sustainability agendas into them. These strategies may include roadmaps on how to achieve given goals for example[1]. One of the organizations is inviting suppliers of given category to participate in constructing such roadmap, and to learn from their sustainability knowledge[2].

- [1]*One of the tasks is to create a roadmap on how we achieve more responsible supply. (C7)*

- [2]*We are collecting information from our suppliers on how they are driving this agenda, then we group their roadmaps together and implement best practices in our own doing and build a shared roadmap. (C3)*

5.2.6 Supplier assessment

Perhaps the most well-known and complex mechanism is the supplier assessment. The participating organizations were not unified on who and how to assess, and how to make it efficient across all the categories and suppliers. Most common approaches to who to assess were risk-based and size-based limits, often complementing each other[1]. In the risk-based approach the critical suppliers are recognized, and their sustainability performance is audited regardless of if they fill the other requirements to become one of the assessed suppliers. The risky suppliers were defined in two different approaches. A supplier can be risky in a way that it is vital for the company's operation and therefore noncompliance would cause several harms in daily operations or reputation, or it may operate on sustainably sensitive industry or region. On the other hand, the risk factor might be defined by suppliers' attendance on other audits and programs. For example, one of the companies does not assess suppliers' sustainability if they are participating in

the Ecovadis assessments. One of the respondents working in labour-based industry said that working conditions and safety measures are audited for all the suppliers entering the factory-area of theirs. Size-based limits are more straightforward. The sustainability-audited suppliers are selected based on if they exceed certain spend, or by the revenue of the supplier[2].

The mechanisms employed for assessment were twofold. Organizations used external tools trough which they get ratings and audits for suppliers' sustainability on a wide scale, or on some cases more limited internal audits. The most mentioned external tool was Ecovadis[3], which seems to be the common standard on cross-industry sustainability ratings. Ecovadis and other external programs and audits are used especially with bigger suppliers, as those were recognized to be too heavy for the smaller ones to complete. However, the suppliers are proactively encouraged to participate in these audits. In addition to the external tools, companies had implemented their own assessment tools as well. These are conducted as self-questionnaires and visits at suppliers' facilities. The aim of these audits is often to fill the gap of suppliers not joining Ecovadis or other third-party audits, or to mitigate risks on major suppliers' non-compliance. That being said, a couple of the organizations said that they are ignoring the sustainability aspect on their audits, if the supplier is participating in Ecovadis and exceeds certain ratings. Own assessments were mentioned to be even more focused on selected critical categories and suppliers. Often these assessments are done as campaigns on groups of critical suppliers based on procurement category, for example[4].

- [1]*When I say we audit biggest suppliers it is part of the truth. We also audit so called critical suppliers. (C7)*
- [2]*Smaller ones are cut of, we have a Euro-limit on who to assess. (C4)*
- [3]*We use Ecovadis for example, it is a good tool for bigger suppliers. (C1)*
- [4]*For now, we have had to go through assessing categories in campaigns, choosing those categories that have biggest sustainability risks. (C2)*

5.3 Information processing needs reducing mechanisms in indirect procurement

Companies also mentioned mechanism that can be classified as IPN-reducing mechanisms trough which they modify supplier base directly in a way that less uncertainty is faced in the first place. These mechanisms can be roughly divided into three groups. These groups are presented in Table 5. IPN-reducing mechanism were widely used in all of the organizations.

Table 5 Information processing needs reducing mechanisms

Size of team	**Small/ Medium**	**Large**
Supplier selection	CoC Assessment Involvement in tenders	CoC Assessment Involvement in tenders
Supplier training	Webinars for suppliers	Supplier training days Webinars for suppliers Ecovadis
Supplier encouraging	Announcing desired values Encouraging Ecovadis	Announcing desired values Bonuses, awards

5.3.1 Supplier selection

Out of the three, the most mentioned one is supplier selection. The aim of supplier selection is to choose suppliers with which less sustainability-related uncertainty is faced. One of the most widely employed mechanism was Code of Conduct -document. By signing this document, a supplier is obligated to follow the principles set by buying organization, including the set minimum requirements in sustainability, typically following regional laws and commonly recognized good principles. At every participating organization a CoC or similar document is mandatory appendix of new supplier agreement. In CoC it is typically stated that the conditions apply to higher tier suppliers of given supplier as well, extending requirements further in supply chain.

However, common consensus was that this document is more of a formal declaration and not satisfactory guarantee for sustainable supply.[1]

In addition to signing on CoC some organizations had clear upper-level guidance not to include suppliers not exceeding certain sustainability level into their supplier portfolio. This is done by setting thresholds for metrics and sustainability audits, or by having sustainability as one of the metrics when bidding suppliers. Again, this was mentioned to be problematic on smallest of the categories as formal bidding might not be conducted. Assessments done followed the same principles as ones for existing suppliers presented in chapter 5.2.6, being conducted either inhouse or by external metrics/audits. [2]

- [1]*We have a Code of Conduct we require all the suppliers to sign, but it is more of declaration and not true action towards better sustainability. (C7)*
- [2]*We have three equally weighted criteria in our supplier bidding: cost, quality, and sustainability. (C7)*
- [2]*In our RFP-documents we ask them to bring up how sustainability is considered in their actions. (C1)*
- [2]*Procurement team always keeps eye on these sustainability ratings. (C3)*

5.3.2 Supplier training

Just like internal training, also supplier training has been executed through external and internal sources. Once again, most mentioned tool for external trainer was Ecovadis, to which organizations try to get their supplier join for its educative purposes too. Another mentioned channel for supplier training was industry specific forums, which on the other hand is mainly aimed for direct suppliers. Some of the participating organizations had conducted their own training for indirect suppliers as well. A common concept was “supplier days” where the suppliers of a company gather for meetings and workshops regarding sustainability, among other things. [1] These can also be conducted as online webinars. [2] The topics in these ranged but are focused mainly in sharing the recent sustainability goals, best practices, sustainability demands for suppliers and so on. Smaller suppliers are harder to engage in these kinds of trainings, but one of the organizations recognized the need to bring it for them as well. [3]

- [1]*We organized a "climate day" where we talked about our climate actions and latest news. (C6)*

- [2]*We organized one hour webinar where our sustainability person explained what the SBTi (Science Based Target initiative) and UN (United Nations) targets are and where our company stands on them. (C3)*

- [3]*Training smaller suppliers and bringing them sustainability knowhow is something that still should be developed. (C5)*

5.3.3 Supplier encouraging

In addition to direct training, organizations are encouraging their suppliers to put effort into sustainability by themselves. Such mechanisms include incentives such as awards and bonuses. One of the locally well-known companies awards their best performing suppliers based on safety performance. This public non-monetary recognition has been received as a motivating way to pursue safety in their suppliers daily operations[1]. Some of the organizations have also implemented monetary bonuses for suppliers that achieve certain performance, these bonuses have included to some extend sustainability-related goals as well. More common approach is to compensate suppliers on major sustainability investments such as updating their logistics fleet, if the suppliers' operations are closely related to buying organizations operations.[2] Awards and bonuses had been employed by some organizations but penalties regarding sustainability performance had not been considered necessary.

In addition to the specific encouragement methods, organizations are bringing up sustainability in their daily interaction with the suppliers. [3] By bringing up their own agendas in sustainability topics, pointing out sustainability's importance regarding the future, and continuously recommending sustainability tools like Ecovadis organizations are trying to bring sustainability values and actions into their suppliers. [4]

- [1]*We have a safety award for best performing suppliers for public recognition. We are quite well-known name in Finland so it is in a way quite rewarding for them. (C5)*

- [2]*Doing so (updating to more sustainable fleet) reduces their emissions by 90 % but increases total cost of ownership by 2 %, so we take that into account, so they do not need to cut it from their profits. (C7)*

- [3]*We continuously bring up that our company wants to deal with responsible suppliers. (C1)*

- [4]*We have argued them that the Ecovadis is a useful educative tool for them as well, so they can map out where they are and find the gaps in documentation for example. (C2)*

6 Discussion and Conclusions

In this chapter the results of the study are further explored and discussed with prior literature on SRU and sustainability mechanisms. The best practices employed by participating organizations and theories from previous literature are combined into guidelines answering the research question: *How can sustainability be improved in indirect procurement by managing sustainability-related uncertainty (SRU)?* To do so, challenges faced by indirect procurement teams presented in chapter 5.1.3. are first connected with the concept of SRU presented in chapter 2.2. Later, guidelines are presented on how to mitigate the different sources of SRU by implementing the mechanisms found.

6.1 Perceived sources of sustainability-related uncertainty

Figure 6 presents the connections between the interviewed organizations sustainability challenges and the Busse's et al. (2017) sources of SRU. As task uncertainty stems from the characteristics of products or services bought, the complexity of numerous purchasing categories and the problematics in certain categories can be classified as task uncertainty. Also the cost related issues when the cost factor conflicts with sustainability can be perceived as task uncertainty, if the sustainability conditions of more cost-efficient options are unknown.

The source uncertainty stems from characteristics of the suppliers and the buyers' relations to them. Therefore, the spatial distance to given supplier can be a source of considerable SRU. Other than distance, a major challenge regarding suppliers' small size and/or small spend per supplier can be considered causing source related uncertainty, when it leads to inefficiency in monitoring such aspects of the supplier.

Supply chain uncertainty stems from structure of the overall supply network. A major share of the supply chain uncertainty in indirect procurement originates from a wide number of overall suppliers. This can be considered as an amplifying factor for source uncertainty, as big number of suppliers makes assessment of specific suppliers less efficient. The spatial locations cause uncertainty not only in level of tier 1 suppliers, but also on the level of the whole supply chain of given supplier and therefore is a cause for supply chain uncertainty as well. This is especially true when the visibility beyond tier 1 supplier is weak, which often was the case with the interviewed organizations. Lastly, the

structure of supplier market may cause uncertainty when there are no good options available in terms of transparency and sustainability.

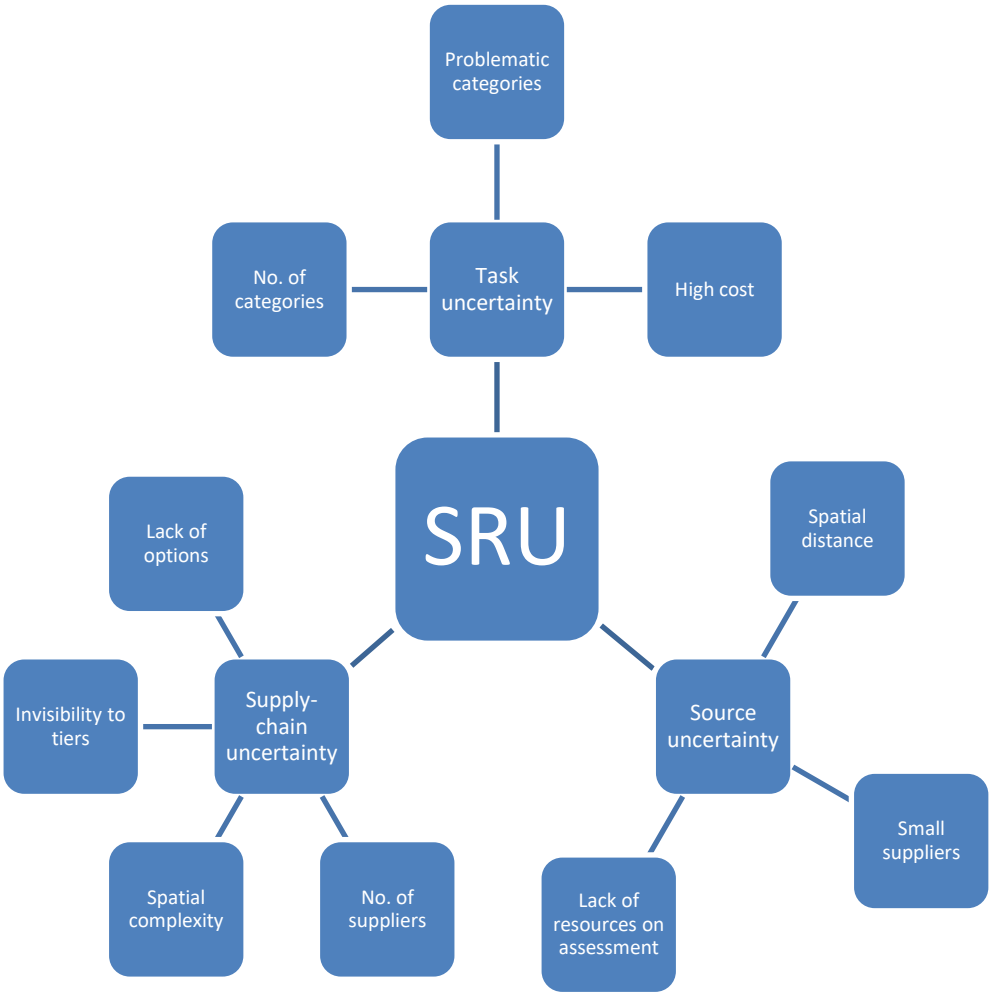


Figure 6 Sources of sustainability-related uncertainty

Organizations also recognized challenges not related to the concept of SRU. The challenge categories found on data structure but not in Figure 6 are complexity for suppliers, metrics for performance, and attitudes.

6.2 Mechanisms to manage sustainability-related uncertainty

Foerstl et al. 2018 identified connections between the specific sources of SRU and sustainability mechanisms. Also this research found such connections. This chapter discusses how recognized mechanisms can be used to manage different sources of SRU by providing proposals based on discussion between the results and prior literature. The Figure 7 supplements the theoretical framework explained in chapter 3.3 with the sustainability mechanisms found in this research.

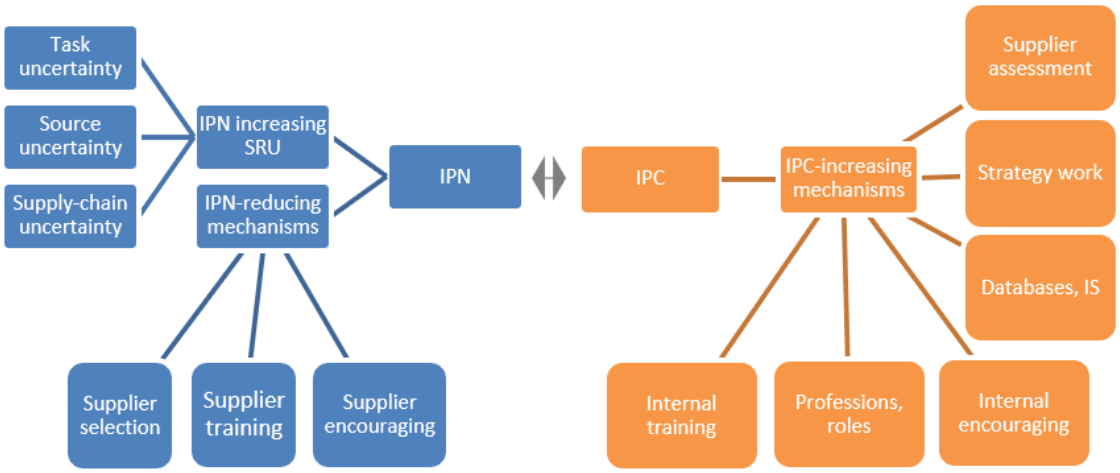


Figure 7 Theoretical framework supplemented with results.

6.2.1 Reducing task uncertainty

There are several ways the participating organizations manage to reduce the purchased product- or service-related task uncertainty. Perhaps the simplest way is to limit the sustainability-related risks in the products and their suppliers. Some of the organizations mentioned not including non-sustainable suppliers as their suppliers and forbidding buying of unsustainable products and services. All the organizations utilized a Code of Conduct -document to make suppliers aware of minimum thresholds on such characteristics. However, the Code of Conduct was described as a declaratory document that does not really ensure the sustainability on sourced products and services, and needs

to be backed up with more concrete measures. To do so, organizations can include product sustainability-related metrics into their supplier evaluation. According to Zimmer et al. (2016) together with quality, the environmental product performance and materials included are something organizations should include in their assessment criteria. Therefore, the following recommendation is made:

1. Include product-related sustainability metrics in the supplier assessment and in the supplier selection criteria.

The commonly recognized problem in indirect procurement, however, is to define evaluation metrics suitable for numerous differing categories (Haake and Seuring, 2009). Suitable universal metrics has not been found by previous research nor in this one. The challenge has been tackled with information systems instead. Two of the organizations has built internal database to refer to with information of sustainability risks on given procurement categories and spatial locations. These databases are built and kept updated with the help of internal experts and external consultancies. The suppliers of risky product categories in terms of sustainability are audited based on these information systems. Also, many of the organizations are outsourcing such evaluation to external audits like Ecovadis. Ecovadis was recognized as a trustworthy audit system, often leaving the organizations participating it outside of buying organizations sustainability audits. However, if audit is to be done, some of the most common evaluation criteria were presented in Table 1. This leads to two alternative proposals:

2. Audit suppliers and products of risky procurement categories, and build the evaluation based on category specific risks.

3. Encourage supplier to join audit programs, for example Ecovadis.

Another handy tool to counter task uncertainty employed by several organizations is strategizing. Creating category specific strategies that consider the special characteristics of given procurement category is an efficient way to differ the sustainability approaches when needed and to ensure that development is continuous. The prerequisite for this to work successfully is to gain the relevant knowledge of the processes and the sustainability characteristics of the procurement categories beforehand. The information can be collected, for example, to information systems mentioned previously. The knowledge may also be hidden in-house possessed by category managers for example or acquired

through external consultancies. Even the best participating organizations in terms of their sustainability performance mentioned to be ahead in sustainability especially in procurement categories where category manager was keen to actively pursue sustainability in strategy work. To ensure the continuous improvements in sustainability it is therefore proposed to:

4. Build category specific strategies and include sustainability in those.
5. Have people with knowledge and strong values on sustainability lead the procurement categories.

6.2.2 Reducing source uncertainty

Organizations with a high level of maturity in sustainability had a high percentage of purchase order compliance, meaning majority of suppliers have been approved and possibly even audited by the sourcing department, and they had a low number of transactional “single use” suppliers. This allows more efficient assessment of the used suppliers and reduces the complexity in the supplier portfolio (Brammer and Walker ,2010; Foerstl et al., 2018). One of the companies mentioned their company to be on a level where it is simply forbidden to buy from organizations that have not been proved to fulfil the sustainability standards of theirs. When the sustainability standards are measured and exceeded early in the supplier selection process, there is no need for troublesome weighting between the sustainability measures and the monetary measures – like savings – later in the daily transactions and reporting. Therefore, it is proposed to:

6. Pursue 100 % purchase order compliance and include sustainability criteria into supplier selection.

Both the literature and the results of this research points out the importance of the feedback and the awards on supplier’s sustainability performance. Without such activities the gained information stays within the buying organization and does not provide the supplier additional information for improvements in their processes (Krause, 1998). Feedback mechanisms recognized in this research include sharing of assessments results, public sustainability awards and monetary bonuses. Therefore, to promote development among suppliers it is important to:

7. Implement feedback system into supplier assessment process.

However, as it might be inefficient to assess all the new suppliers or to have all the currently existing suppliers assessed, both the literature and the results of this study suggest closing the relationship with suppliers (Michelsen, 2007). A closer relationship allows a better look into suppliers' sustainability performance, the development of suppliers' sustainability performance and the sharing of sustainability-related targets and knowledge to suppliers, for example. The participating organizations had made this more efficient by, for example, gathering supplier of given category together to participate in supplier days with sustainability agendas. The relationships can also be made closer by reducing spatial distances. According to Brummer and Walker (2010) a shorter spatial distance to supplier reduces the risk factors of the social dimension of source uncertainty a great deal. Therefore, it is proposed that organizations:

8. Have a closer relationship with their suppliers, by for example reducing spatial distance.

It is to be noted, that even with proper assessment tools and interaction, not the sustainability of all suppliers can be closely monitored, particularly in the context of indirect procurement and the associated complexity. Monitoring the smaller and in terms of task uncertainty less relevant suppliers' source uncertainty can be inefficient for both the buying organization and the supplier. So far, neither the literature nor this study has suggestions for monitoring vast portfolio of small suppliers. This kind of source uncertainty should therefore be managed with risk controlling. The risk factors can however be mitigated by managing supply chain uncertainty across the industries as presented in the next chapter.

6.2.3 Reducing supply chain uncertainty

One of the main challenges in indirect procurement is the big number of suppliers. The big number of suppliers leads to very complex supplier network with inevitably low visibility to sustainability of higher tier suppliers or even the first one (Busse et al. 2017). A simple way to prevent this kind of supply chain uncertainty is to simplify the supplier base (Foerstl et al. 2018). While high purchase order compliance and higher level of supplier assessment directly reduces the source uncertainty, it is the best recognized way to control the supply chain uncertainty, too. None of the organizations had mechanisms to directly assess the sustainability information of their lower tier indirect suppliers. However, it has been noted that interlinked processes of assessment, training and

incentives help to cascade sustainability to sub-suppliers (Villena, 2019) Therefore, to spread the sustainability further in supply chains it is proposed that:

9. Sub-supplier perspective should be included into the supplier selection and the supplier assessment criteria, and the suppliers should be incited and trained about sustainable sourcing to spread sustainability further in supply chain.

As today's supply chains form complex supply networks and inevitably cross with other organizations' supply chains at some points, horizontal collaboration and coordination across the industries could in a best case lower the supply chain uncertainty efficiently for multiple parties. According to Carter and Rogers (2008) a collaborative supplier auditing would reduce the resources needed for assessment for both, buyer and supplier organizations. This kind of collaboration however was not employed in participating organizations to great extent. Some of the organizations arranged supplier days and participated in industry specific sustainability forums for example, but the agenda was focused on raising the awareness about sustainability rather than coordinating assessments or other mechanisms between the participants. Therefore, it would be advisable to:

10. Engage in horizontal cross-organizational cooperation in supplier assessment, in sustainability criteria selection, and in sustainability -related information sharing.

6.2.4 The difference in direct and indirect procurement

The previous chapters explored the SRU management mechanisms in indirect procurement. Several of the mechanisms are already familiar from the prior procurement literature, and thus got confirmed to be suitable on the context of indirect procurement too. However, there is a notable difference in how these mechanisms are implemented and what is their goal in these two functions. Where in direct procurement categories organizations often pursue product and process related (sustainability) development by collaborating closely with the suppliers (Israel and Curkovic, 2020), in indirect procurement such collaboration is more focused on efficiency of the (sustainability) processes. Instead of close collaboration with the supplier, the efficiency might be searched by outsourcing assessments to third parties, or even by collaborating horizontally within the industry. In indirect procurement there are some key suppliers

with whom the collaboration shares similar characteristics to those of indirect categories (for example major logistics or packaging partners), but on the overall perspective the main challenges are related to making the overall set of SRU management mechanisms more efficient to use across multiple different procurement categories and suppliers.

However, despite the differences in two procurement functions, the underlying principles in sustainability should follow the same organizational strategy in both functions, as sustainability is often evaluated by the whole supply networks. While one of the mechanisms to manage the SRU included implementation of category specific strategies, it is important to have organization-wide sustainability strategy that all procurement follows to ensure the long-term continuity. The role of organization-wide strategy and organizational culture is discussed more in detail in the next chapter.

6.3 The role of organizations' strategy and organizational culture

Both the literature (Carter and Rogers. 2008) and this research suggest that not only activities of procurement itself, but also the organizations strategy and the organizational culture play a big role in efficient execution of sustainability in procurement. These are needed to have the employees work in unison towards the common goals. This is especially vital in indirect procurement, as the internal drivers were recognized as the major contributor for directly driving sustainability. The main internal driver being organizations strategy. What is more, the organizations that had sustainable values deep in organizational culture faced less internal friction on operating in sustainable manner. The organizations with clear sustainability agendas faced next to none mindset-related obstacles on implementing sustainability into their operations, for example, where organizations on earlier stage of change recognized recent internal struggles. This highlights the importance of the upper-level strategic guidance and the effective change management to embed sustainability values into all levels of the organization. Therefore, to increase their sustainability maturity:

11. Organization should include sustainability into their strategy and organizational culture, and procurement should follow those organization-wide principles.

To do so, in addition to the strategic decisions and training, organizations can engage in extra activities. In addition to the previously discussed SRU management mechanisms

one of the organizations mentioned to have an apiary on the roof of their facilities and to allow one working day of voluntary work towards sustainability initiatives. These activities are not procurement related and therefore were not highlighted in the results, but they provide an example on how to pursue the sustainability culture in organization.

Once the culture and strategy are aligned with the sustainability agenda, to have employees work toward sustainability it is important to embed the mechanisms smoothly into daily actions in a way that it does not appear as unwanted extra work. This was noticed as an important quality of good sustainability process by couple of the organizations. What might seem obvious but what one organization mentioned to be vital is that the persons chosen responsible for developing sustainability mechanisms should be naturally interested in the sustainability topics.

6.4 Limitations and further research

This study was conducted on a limited number of case companies. Even though this study covers companies from different industries, a wider perspective and more companies per industry could provide more holistic picture of sustainability mechanisms used.

The research was made based on an assumption that sustainability mechanisms does not vary a lot between different industries in indirect procurement. Therefore, also the sampling and data analysis were arranged in a way that cross-case comparison was difficult to make. There were no equal sample sizes on indirect procurement teams in terms of sizes or industries for example, and the coding style did not support analysis of the number of refences.

As this study is focused on mechanisms to deal with sustainability-related uncertainty, it is limited to sustainability-risk-related tools. To provide more a holistic view on possible mechanisms, the results of this study could be supplemented with a look into other ways of pursuing sustainability in (indirect) procurement. However, as sustainability in procurement is mostly related to the sourced products and to their supplier networks, the risk approach can be considered rather conclusive, as sustainability issues arise from unknowns related to these attributes.

References

Accenture (2016) *UN global compact-accenture strategy CEO study 2016,* <https://unglobalcompact.org/library/4331>, haettu 31.3.2023.

Anderson, D. R. – Anderson, K. E. (2009) Sustainability risk management. *Risk Management and Insurance Review,* Vol. 12 (1), 25 – 38.

Baumann, H. – Rickard A. – Hui, T. – Ying W. (2013) Does the Production of an Airbag Injure More People than it Saves in Traffic? Discussing an Alternative Approach to s-LCA Methodology." *Journal of Industrial Ecology,* Vol. 17 (4), 517–527.

Bowen, F. - Cousins, P. – Lamming, R. – Faruk, A. (2001) The role of supply management capabilities in green supply?. *Production and Operations Management*, Vol. 10 (2), 174 – 189.

Brammer, S. – Walker, H. (2010) Sustainable procurement in the public sector: an international comparative study. *International Journal of Operations & Production Management,* Vol. 31 (4), 452-476.

Brink, H. I. L. (1993) Validity and reliability in qualitative research. *Curationis*, Vol. 16 (2), 35 – 38.

Busse, C. – Meinlschmidt, J. – Foerstl, K. (2017) Managing information processing needs in global supply chains: a prerequisite to sustainable supply chain management. *Journal of Supply Chain Management,* Vol. 53 (1), 87–113.

Carter C. R. – Rogers, D. S. (2008) A framework of sustainable supply chain management: moving toward new theory. *International Journal of Physical Distribution & Logistics Management,* Vol. 38 (5), 360 – 387.

Charmaz, K – Bryant, A. (2010) Grounded Theory. Elsevier.

Chen, L. – Zhao, X. – Tang, O. – Price, L. – Zhang, S. – Zhu, W. (2017) Supply chain collaboration for sustainability: A literature review and future research agenda. *International Journal of Production Economics,* Vol. 194, 73–87.

Clarkson, P. M. – Li, Y. – Richardson, G. D. – Vasvari, F. P. (2008) Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society,* Vol. 33 (4–5), 303–327.

Crespin-Mazet, F.– Dontenwill, E. (2012) Sustainable procurement: Building legitimacy in the supply network. *Journal of Purchasing and Supply Management*, Vol. 18 (4), 207-217

Das, A. – Narasimhan, R. – Talluri, S. (2006) Supplier integration—Finding an optimal configuration. *Journal of Operations Management*, Vol. 24, 563–582.

Egels-Zandén N. – Hansson, N. (2015) Supply Chain Transparency as a Consumer or Corporate Tool: The Case of Nudie Jeans Co. *J Consum Policy,* Vol. 39, 377–395.

Egels-Zanden, N. – Hulthen, K. – Wulff, G. (2015) Trade-offs in supply chain transparency: The case of Nudie Jeans Co. *Journal of Cleaner Production,* Vol. 107, 95–104.

Elkington, J. (1998) *Partnerships from cannibals with forks: the triple bottom line of 21st Century.* New Society Publishers, Stoney Creek, CT.

Eriksson, & Kovalainen, A. (2008) *Qualitative methods in business research*. SAGE.

Eskola, Jari (1998) *Johdatus laadulliseen tutkimukseen*. Vastapaino

Fliess, S. – Becker, U. (2006) Supplier integration—Controlling of co-development processes. *Industrial Marketing Management,* Vol. 35, 28–44.

Foerstl, K. – Meinlschmidt, J. – Busse, C. (2018) It's a match! Choosing information processing mechanism to address sustainability-related uncertainty in sustainable supply management. *Journal of Purchasing and Supply Management,* Vol. 24 (3), 204–217

Foerstl, K. – Reuter, C. – Hartmann, E. – Blome, C. (2010) Managing supplier sustainability risks in a dynamically changing environment—Sustainable supplier management in the chemical industry. *Journal of Purchasing and Supply Management,* Vol. 16 (2), 118–130.

Gardner, T.A. – Benzie, M. – Börner, J. – Dawkins, E. – Fick, S. – Garrett, R. – Godar, J. – Grimard, S. – Lake, S. – Larsen, R. K. – Mardas, N. – McDermott, C. L. – Meyfroidt, P. – Osbeck, M. – Persson, M. – Sembres, T. – Suavet, C. – Strassburg, B. – Trevisan, A. – West, C. – Wolvekamp, P. (2019) Transparency and sustainability in global commodity supply chains. *World Development,* Vol. 121, 163–177.

Ghosh, M. (2018) Determinants of green procurement implementation and its impact on firm performance. *Journal of manufacturing technology management*, Vol. 30 (2), 462–482.

Gibson R. B. (2013) Avoiding sustainability trade-offs in environmental assessment. *Impact Assessment and Project Appraisal,* Vol. 31 (1), 2–12.

Gimenez, C. – Sierra, V. (2013) Sustainable Supply Chains: Governance Mechanisms to Greening Suppliers. *J Bus Ethics,* Vol. 116, 189–203.

Gimenez, C. – Tachizawa, E. (2012) Extending sustainability to suppliers: A systematic literature review. Supply Chain Management: *An International Journal*, Vol. 17 (5), 531 – 543.

Gioia, A. D. – Corley, K. G. – Hamilton, A. L. (2012) Seeking Qualitative Rigor in Inductive Research. *Organizational Research Methods,* Vol. 16 (1), 15–31.

Glaser, B. G – Strasuss, A. L. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine Transaction. London.

Glazer, R. – Steckel, J. H. – Winer, R. S. (1992) Locally rational decision-making – The distracting effect of information on managerial performance. *Management Science,* Vol. 38, 212–226.

Govindan, K. – Rajendran, S. – Sarkis, J. – Murugesan, P. (2015) Multi criteria decision making approaches for green supplier evaluation and selection: a literature review. *Journal of Cleaner Production,* Vol. 98, 66–83.

Grimm, J. H. – Hofstetter, J. S. – Sarkis, J. (2014) Critical factors for sub-supplier management: A sustainable food supply chains perspective. *International Journal of Production Economics,* Vol. 152, 159–173.

Haake, H. – Seuring, S. (2009) Sustainable Procurement of Minor Items Exploring Limits to Sustainability. *Sustainable Development,* Vol. 17, 284–294.

Ho, W. – Xiaowei, X. – Prasanta, K. D. (2010) Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of Operational Research,* Vol. 202, 16–24.

Hoejmose, S. U. – Adrien-Kirby, A. J. (2012) Socially and environmentally responsible procurement: A literature review and future research agenda of a managerial issue in the 21st century. *Journal of Purchasing & Supply Management*, Vol. 18 (4), 232–242.

Hofmann, H. – Busse, C. – Bode, C. – Henke, M. (2014) Sustainability-related supply chain risks: Conceptualization and management. *Business Strategy and the Environment,* Vol. 23, 160–172.

Huang, S. H. – Harshal K. (2007) Comprehensive and Configurable Metrics for Supplier Selection*. International Journal of Production Economics* Vol. 105 (2), 510–523.

Israel, D. – Curkovic, S. (2020) Indirect Procurement: A Literature Review and Study of Trends. *American Journal of Industrial and Business Management,* Vol. 10 (4), 776–792.

Jenkins, R. (2001) Codes of Conduct: Self Regulation in a Global Economy. Technology, *Business and Society Programme Paper,* Vol. 2.

Kasanen, E. – Lukka, K. – Siitonen, A. (1993) The constructive approach in management accounting research. *Journal of Management Accounting Research*, Vol. 5, 243–264.

Keating, B. – Quazi, A. – Kriz, A. – Coltman, T. (2008) In pursuit of a sustainable supply chain: Insights from Westpac Banking Corporation. Supply Chain Management: *An International Journal,* Vol. 13 (3), 175–179.

Kostova, T. – Zaheer, S. (1999) Organizational Legitimacy Under Conditions of Complexity: The Case of the Multinational Enterprise. *Academy of Management Review,* Vol. 24 (1), 64–81.

Kraljic, P. (1983) Purchasing Must Become Supply Management. *Harvard Business Review*, Vol. 61 (5), 109 -117.

Krause, D. R. (1998) The antecedents of buying firms' efforts to improve suppliers. *Journal of Operations Management,* Vol. 17, 205–224.

Laosirihongthong, T. – Samaranayake, P. – Nagalingam, S. (2019) A holistic approach to supplier evaluation and order allocation towards sustainable procurement. Benchmarking: *An International Journal,* Vol 26 (8), 2543–2573.

Lee, S. – Klassen, R. D. (2008) Drivers and enablers that foster environmental management capabilities in small- and mediumsized suppliers in supply chains. *Production and Operations Management,* Vol. 17 (6), 573–586.

Lloret, A. (2016) Modelling corporate sustainability strategy. *Journal of Business Research,* Vol. 69, 418–425.

McMurray, A. J. – Islam, Md. M – Siwar, C. – Fine, J. (2014) Sustainable procurement in Malaysian organizations: Practices, barriers and opportunities. *Journal of Purchasing & Supply Managementt,* Vol. 20, 195–207.

Meehan, J. – Bryde, D. (2011) Sustainable procurement practice. *Business strategy and the environment*, Vol. 20 (2), 94–106.

Michelsen, O. (2007) Investigation of relationships in a supply chain in order to improve environmental performance. *Clean Techn Environ Policy,* Vol. 9, 115–123.

Mitra, S. – Datta, P. P. (2014) Adoption of green supply chain management practices and their impact on performance: an exploratory study of Indian manufacturing firms. *International Journal of Production Research,* Vol. 52 (7), 2085–2107.

Neilimo, K. – Näsi, J. (1980) *Nomoteettinen tutkimusote ja Suomalainen yrityksentaloustiede, tutkimus positivismin soveltamisesta*. Tampereen yliopisto. Tampere.

Omkarprasad S. V. – Sushil K. (2006) Analytic hierarchy process: An overview of applications. *European Journal of Operational Research,* Vol. 169, 1–29.

Orlitzky, M. – Schimdt, F. L. – Rynes, S. L. (2003) Corporate social and financial performance: A meta-analysis. *Organization Studies,* Vol. 24 (3), 403–441.

Pagell, M. - Wu, Z. - Wasserman, M. E. (2010) Thinking differently about purchasing portfolios: An assessment of sustainable sourcing. *Journal of Supply Chain Management*, Vol. 46 (1), 57-73.

Patton, M. (1990) *Qualitative evaluation and research methods*. Beverly Hills, CA: Sage

Paul, C. J. M. – Siegel, D. S. (2006) Corporate social responsibility and economic performance. *J Prod Anal,* Vol. 26, 207 – 211.

Petersen, K. J. – Handfield, R. B. – Ragatz, G. L (2003) A Model of Supplier Integration into New Product Development. *Journal of Product Innovation Management,* Vol. 20 (4), 284-299.

Riikkinen, R. – Kauppi, K. – Salmi, A. (2017) Learning Sustainability? Absorptive capacities as drivers of sustainability in MNCs' purchasing. *International Business Review*, Vol. 26, 1075 – 1087

Ruggie, J., (2011) *Report of the Special Representative of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises. Guiding Principles on Business and Human Rights: Implementing the United Nations 'Protect, Respect and Remedy' Framework* (UN Human Rights Council, A/HCR//17/31).

Schuh, C. – Raudabaugh, J.L. – Kromoser, R. – Strohmer, M.F. – Triplat, A. (2012) *The Purchasing Chessboard – 64 Methods to Reduce costs and Increase Value with Suppliers*. Springer.

Sievo (2023) *Tail Spend Management in 5 steps*. <https://sievo.com/blog/what-is-tail-spend>, haettu 24.3.2023.

Strauss, A. L. (1987) *Qualitative analysis for social scientists*. Cambridge University Press.

Tachizawa, E. M. – Wong ,C. Y. (2015) The performance of green supply chain management governance mechanisms: A supply network and Supply Chains complexity perspective. *Journal of Supply Chain Management,* Vol. 51, 18–32.

Tushman, M. L. – Nadler, D. A. (1978) Information Processing as an Integrating Concept in Organizational Design. *The Academy of Management Review,* Vol. 3 (3), 613–624.

Villena, V. H. – Gioia, D. A. (2018) On the riskiness of lower-tier suppliers: Managing sustainability in supply networks. *Journal of Operations Management*, Vol. 64, 65–87.

Villena, V. H. (2019) The Missing Link? The Strategic Role of Procurement in Building Sustainable Supply Networks. *Production And Operations Management*, Vol 28 (5), 1149 – 1172.

Walle, A. H. (2015) *Qualitative research in business: a practical overview*, Cambridge Scholars Publishing, Newcastle upon Tyne, England.

World Commission on Environment and Development (1987), *Our Common Future*, Oxford University Press, New York, NY.

Zimmer, K. – Fröhling, M. – Schultmann, F. (2016) Sustainable supplier management – a review of models supporting sustainable supplier selection, monitoring and development. *International Journal of Production Research,* Vol. 54 (2), 1412–1442.

Zorzini, M. – Hendry, L. – Huq, F. – Stevenson, M. (2015) Socially Responsible Sourcing: Reviewing the Literature and Its Use of Theory. *Journal of Operation Production Management,* Vol. 35, 60–109.

Appendices

Appendix 1 Interview structure (English/Finnish)

Turun yliopisto
University of Turku

Interview structure

1. Organization
    a. Does indirect procurement have its own function/team?
    At what level are procurement activities centralized?
    b. How is the category responsibility in indirect procurement distributed?
    c. Role of procurement? Is there an procurement representative in executive group?
    To whom does indirect procurement report?
    d. What is the significance of indirect procurement in organization?
    (e.g., spend/revenue ratio)

2. Sustainability as a concept and its role in the organization
    a. How is the term "sustainability" understood in your company?
    Is there a common definition for it?
    b. Is sustainability a guiding factor in your indirect procurement?
    How? Are there category-specific differences?
    c. What drives sustainability in your procurement activities? What goals are associated with it? (internal/external drivers)
    d. What would you identify as the major challenges in implementing sustainability in your indirect procurement? What factors cause the most uncertainty regarding sustainability?
    -Are there category-specific differences? How have these been addressed?

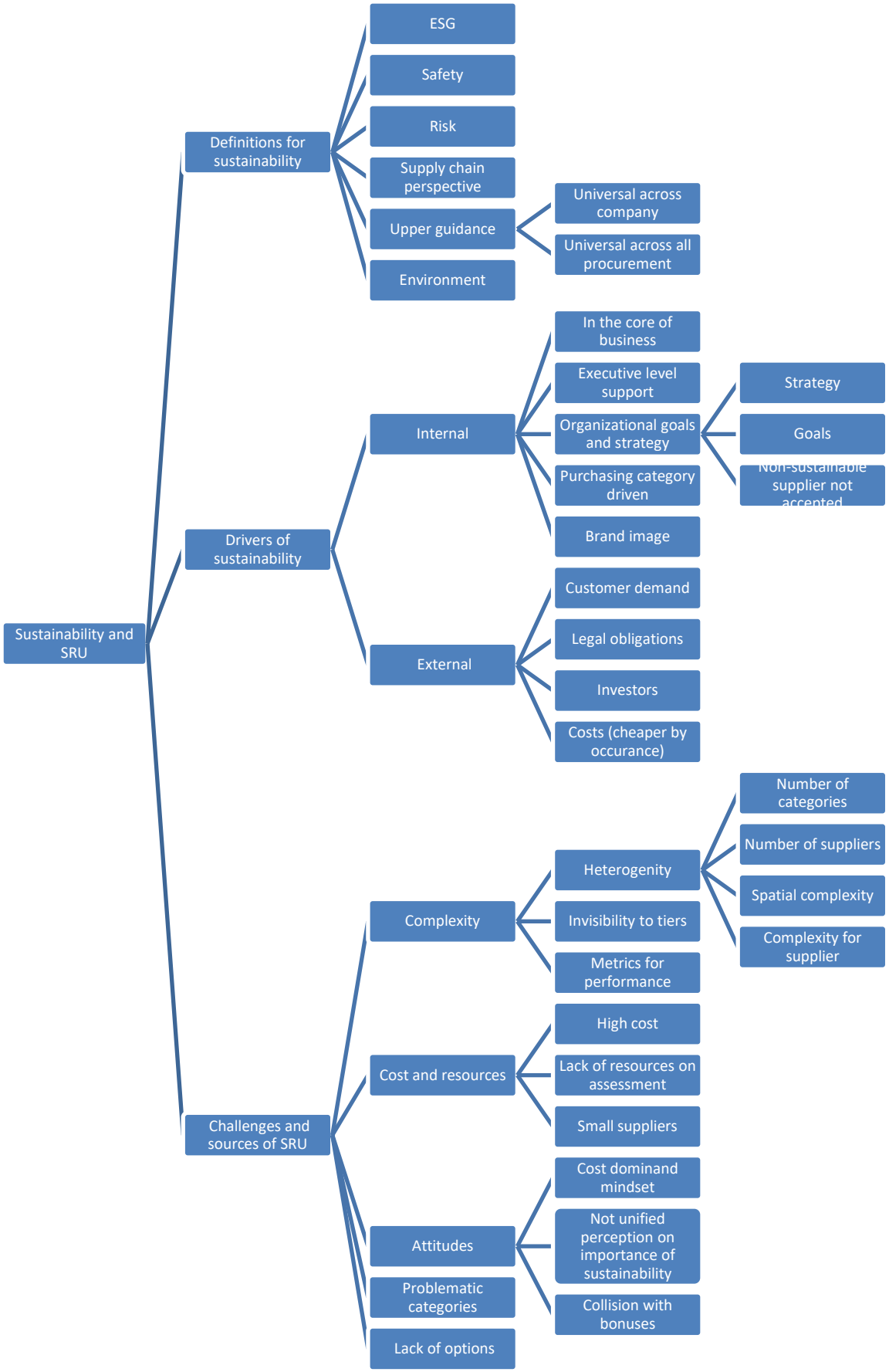
3. Sustainability mechanisms
    a. How does sustainability expertise and its development manifest in the organization?
    (e.g., job titles, recruitment, training, information systems)
    b. In which way do you encourage your suppliers to adopt sustainability practices?
    How about your own staff (in procurement and internal customer groups)?
    c. How is the sustainability performance of your suppliers monitored?
    Which suppliers? What metrics are used? Does it affect supplier selection?
    d. Has sustainability influenced supplier selection or the structure of your supply chains?
    e. Do you collaborate with suppliers regarding sustainability?

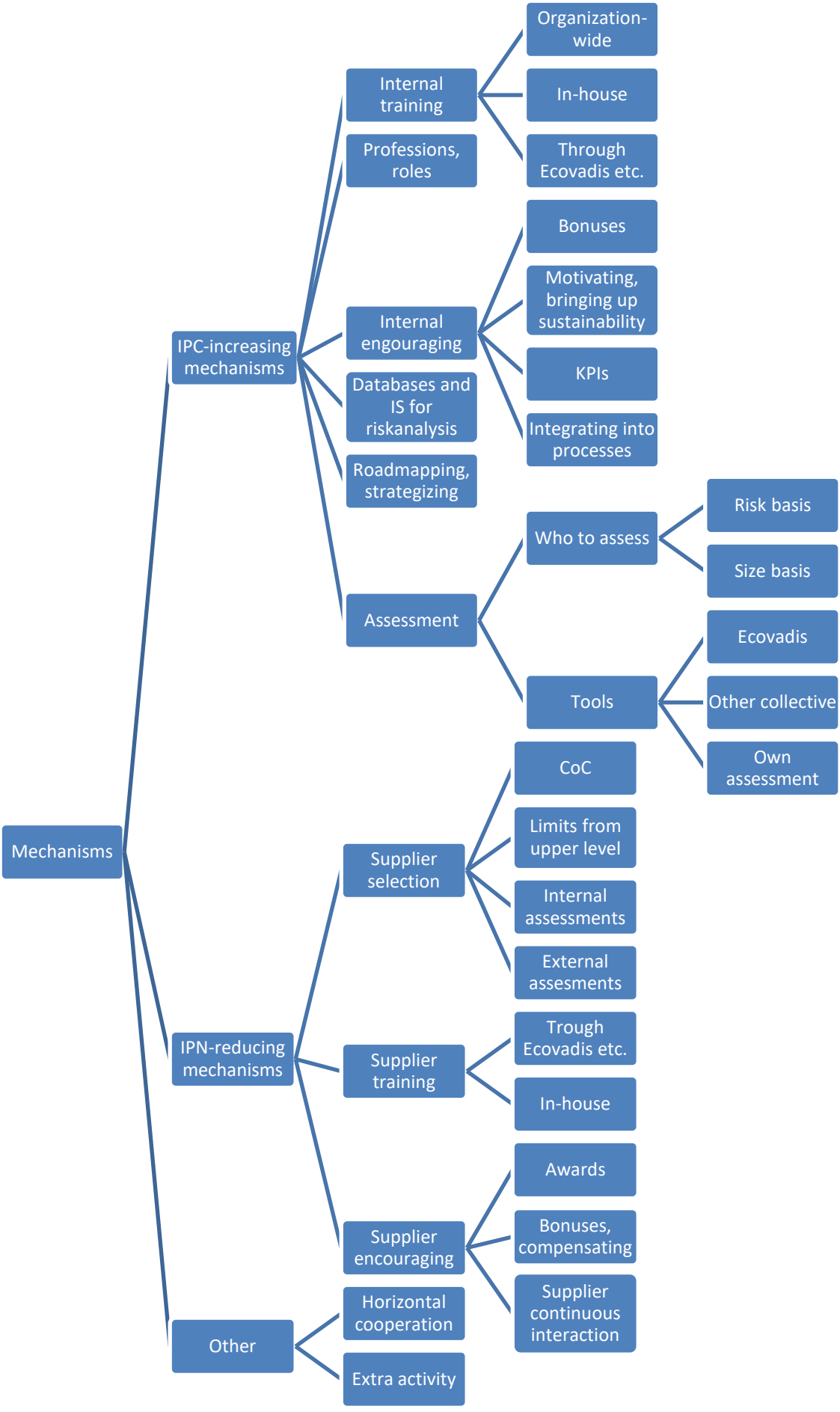
Turun yliopisto
University of Turku

Haastattelurunko

1. Organisaatio
    a. Onko epäsuorille hankinnoille oma funktio/tiimi?
    Millä tasolla hankintoja on keskitetty?
    b. Miten epäsuorien hankintojen kategoriavastuu jakautuu?
    c. Hankintojen rooli, onko johtoryhmässänne hankintojen edustajaa?
    Kenelle epäsuorat hankinnat raportoivat?
    d. Epäsuorien hankintojen paino?
    (esim. spendi/liikevaihto)
2. Sustainability käsitteenä ja sen rooli organisaatiossa
    a. Miten yrityksessänne käsitetään termi sustainability?
    Onko sille yhteistä määritelmää?
    b. Onko sustainability yksi ohjaava tekijä epäsuorissa hankinnoissanne?
    Miten? Onko kategoriakohtaisia eroja?
    c. Mikä ajaa sustainabilityä hankinnoissa? Millaisia tavoitteita siihen liittyy?
    (sisäiset/ulkoiset ajurit)
    d. Mitkä nimeäisit suurimmiksi haasteiksi sustainabilityn toteuttamiselle epäsuorissa hankinnoissanne? Millaiset tekijät aiheuttavat eniten epävarmuutta sustainabilityyn liittyen?
        -Onko kategoriakohtaisia eroja? Miten näihin on tartuttu?
3. Sustainability-mekanismit
    a. Miten sustainability-osaaminen ja sen kehittäminen näkyvät organisaatiossa?
    (Esim. ammattinimikkeet, rekryt, koulutukset, tietojärjestelmät)
    b. Millä keinoin kannustatte toimittajianne sustainabilityyn?
    Entä omaa henkilöstöänne (hankinnassa ja esim. asiakasfunktioissa)?
    c. Miten toimittajienne sustainability-tehokkuutta seurataan?
    Mitä toimittajia? Millaisia mittareita? Vaikuttaako toimittajavalintaan?
    d. Onko sustainability vaikuttanut toimittajien valintaan tai toimitusketjujen rakenteeseen?
    e. Teettekö yhteistyötä toimittajien kanssa liittyen sustainabilityyn?

Appendix 2 Data structure




Mechanisms
IPC-increasing mechanisms
Internal training
Organization-wide
In-house
Through Ecovadis etc.
Professions, roles
Internal engouraging
Bonuses
Motivating, bringing up sustainability
KPIs
Integrating into processes
Databases and IS for riskanalysis
Roadmapping, strategizing
Assessment
Who to assess
Risk basis
Size basis
Tools
Ecovadis
Other collective
Own assessment
IPN-reducing mechanisms
Supplier selection
CoC
Limits from upper level
Internal assessments
External assesments
Supplier training
Trough Ecovadis etc.
In-house
Supplier encouraging
Awards
Bonuses, compensating
Supplier continuous interaction
Other
Horizontal cooperation
Extra activity