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DEVELOPING GLOBAL SYSTEM-BASED INDIRECT PURCHASING IN THE CASE COMPANY

ABSTRACT

Lappeenranta–Lahti University of Technology LUT

LUT Business School

Master's Degree Programme in Supply Management

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Developing global system-based indirect purchasing in the case company

Master's thesis

2023

96 pages, 9 figures, 4 tables and 1 appendix

Examiners: Professor Jukka Hallikas and Associate professor Mika Immonen

Keywords: Indirect purchasing, e-procurement, change management, performance measurement, purchasing process development

The field of purchasing has gained significant attention as a strategic business function that plays a crucial role in managing stakeholders and achieving business success. Companies have recognized the importance of their purchasing department in improving financial and corporate performance. However, while direct purchasing has received more attention, indirect purchasing has been relatively overlooked. This study focuses on the operational indirect purchasing process. The objective is to identify areas for development in increasing system-based indirect purchasing. The research questions address the benefits and challenges of using the system, the risks in purchasing outside defined methods, the improvement of system features and performance measurement, and the management of change during implementation.

The research methodology employed is a qualitative case study approach, allowing for in-depth exploration and interpretation of the research topic. Interviews and analysis will provide insights into the current state and identify development areas for increasing system-based indirect purchasing in the case company globally.

The research findings highlight the challenges faced by system-based indirect purchasing, including limited comprehension of added benefits, company culture, limited spend visibility and delays in the receiving process. To address these challenges, recommendations include training efforts, analysis of service purchasing best practices, considering new policy implementation, showcasing benefits to stakeholders, and leveraging new system functionalities for streamlined processes.

TIIVISTELMÄ

Epäsuoran systeemipohjaisen oston kehittäminen globaalisti case-yrityksessä

Hankinta on saanut merkittävää huomiota strategisena liiketoimintafunktiona, jolla on keskeinen rooli sidosryhmien hallinnassa ja liiketoiminnan menestyksessä. Yritykset ovat tunnistaneet hankintaosastonsa tärkeyden taloudellisen ja yritystoiminnallisen suorituskyvyn parantamisessa. Suorahankinta on kuitenkin saanut isomman osan tästä huomiosta, jättäen epäsuoran hankinnan suhteellisen vähälle huomiolle. Tämä tutkimus keskittyy operatiivisen epäsuoran ostoprosessin tutkimiseen. Tavoitteena on tunnistaa kehityskohteita järjestelmäpohjaisen epäsuoran ostamisen lisäämiseksi. Tutkimuskysymykset käsittelevät järjestelmän käytön hyötyjä ja haasteita, riskiä järjestelmän ulkopuolella tapahtuvissa ostoissa, järjestelmän ominaisuuksien ja suorituskyvyn parantamista sekä muutoksen hallintaa käytön lisäämiseksi.

Tutkimuksessa käytettiin laadullista tapaustutkimusta, joka mahdollistaa syvällisen analyysin aiheen tutkimiseksi ja tulkinnaksi. Haastattelut ja niiden analyysi tarjoavat tarkempaa tietoa nykytilanteesta ja auttavat tunnistamaan kehityskohtia järjestelmäpohjaisen ostamisen lisäämiseksi tapausyrityksessä.

Tutkimustulokset korostavat järjestelmäpohjaisen epäsuoran ostamisen kohtaamia haasteita, mukaan lukien rajoitettua ymmärrystä sen tuomista hyödyistä, yrityskulttuuria, rajallista näkyvyyttä kulutukseen ja viivästyksiä vastaanottoprosessissa. Näiden haasteiden käsittelemiseksi suositellaan koulutustoimia, analyysiä palveluhankinnan parhaista käytännöistä, harkittavaksi uusia ohjeistuksia, hyötyjen esilletuomista sidosryhmille ja uusien järjestelmäominaisuuksien hyödyntämistä sujuvampien prosessien saavuttamiseksi.

ABBREVIATIONS

PR	Purchase Requisition
PO	Purchase Order
GR	Goods Receiving
P2P	Purchase-to-Pay
UX	User Experience
ERP	Enterprise resource planning
OTD	On-time-delivery

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1. Introduction

The field of purchasing has gained significant attention as a crucial business function that plays a strategic role in managing a variety of stakeholders within complex multi-level supply chains. Scholars such as van Weele and van Raaij (2014), Cousins et al. (2008), and Wynstra et al. (2019) have all emphasized the importance of purchasing and supply management in achieving business success. This success is often reached by having a significant impact on the company's financial and corporate performance. In this regard, companies have started to recognize the importance of their purchasing department.

As González-Benito (2007) has concluded, the strategic purchasing function has a critical part in enhancing the financial and commercial efficiency of the organization. According to Easton et al. (2002), the performance of the purchasing department is in fact crucial for the success of the entire company. One of procurements objectives is to achieve cost savings which can often be attained through various methods depending on the procurement category (Chick and Handfield, 2015, 14-34; Schnellbächer and Weise, 2020. 3-7). A company's costs can be categorized into direct and indirect business costs. Indirect costs consist of purchased services and goods that are not directly related to products sold to customers. Indirect procurement can be further categorized into indirect goods and services (Bals and Hartmann, 2008, 24). At the company level, indirect procurement has received less attention than direct procurement. However, companies have become more interested in indirect procurement in the 21st century, and ways to reduce their costs have been identified (Gebauer and Segev, 2000). To achieve these cost savings, new procurement models and processes are required for indirect procurement (Jennings, 2002).

The purchasing process should be efficient, functional, and economical. Additionally, it should work well with different stakeholders' practices. A comprehensive procurement process includes various stages of procurement at different levels, which are strategic procurement, tactical procurement, and operational purchasing. (Nicoletti 2018,114-115) This thesis focuses on the operational purchasing process. The purchasing process is a way of buying the goods and services needed inside the company, and it consists of progressing steps, including ordering products or services, paying for the order, and receiving it. (Weigel and Ruecker 2017, 35)

The operational purchasing process can be improved by implementing an electronic purchasing process using an electronic system. (Nicoletti 2018, 31) This is also referred to as system-based purchasing in this study. Electronic procurement systems are trade systems for goods and services that specifically support purchasing and product management. Electronic or e-procurement can efficiently automate various procurement areas, such as the purchasing process. (Nicoletti 2018, 31) E-procurement can for example improve information flow, supplier relationships, and supply chain integration according to Chang et al. (2013). According to Kim and Shunk (2004), there is a tendency to undervalue products and services that are not directly related to the manufacturing process. This can result in a lack of attention and development for the processes and systems related to indirect products and services by managers. As a result, putting the focus on the implementation of e-procurement into indirect purchasing can lead to substantial benefits, such as time and cost savings, process efficiency, and improved overall supply chain management (Ramkumar, 2016; Kim & Shunk, 2004; Yu et al., 2008). Therefore, the relationship between e-procurement and indirect procurement should be further considered (Chang et al., 2004).

In addition to improving the purchasing process, an electronic purchasing process can also reduce maverick buying in companies. Maverick buying refers to the purchasing of products and services from unofficial suppliers or bypassing the official purchasing process and methods. This is related to organizations where contract making is centralized to the sourcing organization, but ordering takes place also within the functions. Companies seek to reduce maverick buying because it causes additional costs to the purchasing process and can impose different kinds of risks. (Karjalainen et al. 2009) According to Harris and OGbonna (2002, 163), the area of supply management and purchasing has not adequately examined organizational misbehavior and noncompliance. This creates an opportunity to investigate the impact of maverick buying, to determine whether it is detrimental, resulting in lost synergy gains and increased risks in supplier quality, or beneficial, such as gains in order requestor experience and knowledge, and more flexible and adaptable purchasing.

Efficient procurement is essential for companies' profitability and survival as cost savings are often targeted towards procurement. Procurement management and planning are multidimensional activities that affect a company's performance in the short and long term. However, procurement planning is not straightforward, and there is no single clear solution

for effective procurement. (Dimitri et al. 2006, 3-4; Schnellbächer and Weise 2020, 3-7) However, using electronic systems in the process to enable real-time capture and sharing of information among the members of the supply chain can significantly improve the supply chain performance of the company (Devaraj et al., 2007).

To better take use of the current purchasing system and creating a productive purchasing culture through the adoption of e-procurement systems requires more than just technological competence. It requires extensive change management efforts, as emphasized by Gardenal (2013). Without change management, there is a great risk of failure due to resistance to change from the old ways of working (Panda & Sahu, 2012). One key element in tackling the resistance in e-procurement implementation is focusing on the user experience ((Nor Laily, Norhanisha, Azham & Marhaiza 2022, 478-484) Therefore, effective change management plans are crucial in e-procurement implementation, but to follow the implementation process, there also needs to be ways to measure its performance. This is why it is important to consider the connection between strategic purchasing and purchasing performance. Since purchasing activities must align with the organization's strategies, measuring purchasing activities is crucial to ensure that they are consistent with the strategies. This approach helps in monitoring the performance of the purchasing function. (Carr & Pearson, 2002) According to Muchiri et al. (2010) in order to determine the discrepancies between current and desired performance, and to track the progress made in closing these, it is essential to have clearly defined performance metrics. These indicators serve as a guide for managers to allocate resources effectively towards areas that require improvement and are critical in identifying the factors that affect performance.

1.1 Research questions and objectives

This thesis focuses on how and why to increase system-based indirect purchasing in the case company. The thesis background is in the case company's need to develop system-based purchasing and purchasing according to the global purchasing processes further. The thesis will revolve around these subjects in the case company's Indirect Sourcing Unit globally. Coverage of the manageable spend via Oracle EBS PO, Basware Spend plan and CWT travel tool is currently about 22%.

Purchasing process and especially e-procurement will be discussed, to find benefits and challenges in moving to a more system-based process. Goal is to understand the challenges and identify solutions, while understanding the risks that come with purchasing outside the system and processes, and if there are areas where the system or processes isn't applicable. In addition, the study aims to find what KPI's are required to follow performance and compliance with the purchasing processes.

The objective of the study is to identify areas of development for increasing the share of system-based purchasing in the case company globally. To implement the system-based purchasing further, process implementation and measuring performance need also considering. To get to these goals, the following research questions were formed.

The main research question:

How to develop system-based indirect purchasing further globally?

Sub-questions:

What are the benefits and challenges in purchasing through the system?
What are the risks in purchasing outside the defined methods?
How to improve the system features and measure performance within the indirect purchasing processes?
How to manage change in the indirect purchasing system implementation?

The sub-questions help to answer to the main question by deepening the understanding of the current state and identifying development opportunities. Using the system more is thought to have benefits, but at what cost and in what purchasing areas. When planning implementing a process further, it is good to consider the area of change management and the criteria how the compliance is then measured. These sub-research questions, therefore, have the possibility to elaborate the understanding of the issue and help plan how the system-based purchasing could be increased.

There is quite a bit of research done in e-procurement implementation such as barriers to adoption in the construction industry (Yevu, Yu & Darko 2023), impact of e-procurement adoption on company performance (Masudin, Aprilia, Nugraha & Restputri 2021), and factors affecting e-procurement usage (Daoud & Ibrahim 2018). In these the focus is especially implementing a new system and discussing the whole procurement process. But there is a gap in looking specifically at the purchasing methods in the big picture. While purchasing through the system has a lot of benefits, also other methods might be needed to ensure flexibility and agility in the indirect purchasing. This study helps in filling the gap in focusing on not just implementing a new way of purchasing, but to increase the use of current system-based purchasing and also other defined methods globally and focusing both on the user experience and company benefits. There is also a lack in literature focusing specifically on indirect purchasing, as it is lacking behind direct sourcing, especially in the field of e-procurement. The change management perspective is also combined with performance measurement perspective, which gives the study more tangibility.

1.2 Theoretical framework

This study's theoretical framework is presented in Figure 1. The case company has a purchasing system and defined purchasing methods in place that would in theory enable the efficient and adequate use of the purchase system, but after analyzing the current state additional actions are needed to implement the use further. These actions are managing the purchasing process, further measuring the performance, and managing the change. In the study, the focus is mostly on the case company's internal actions, while also external actions could be done to involve suppliers to the system development.
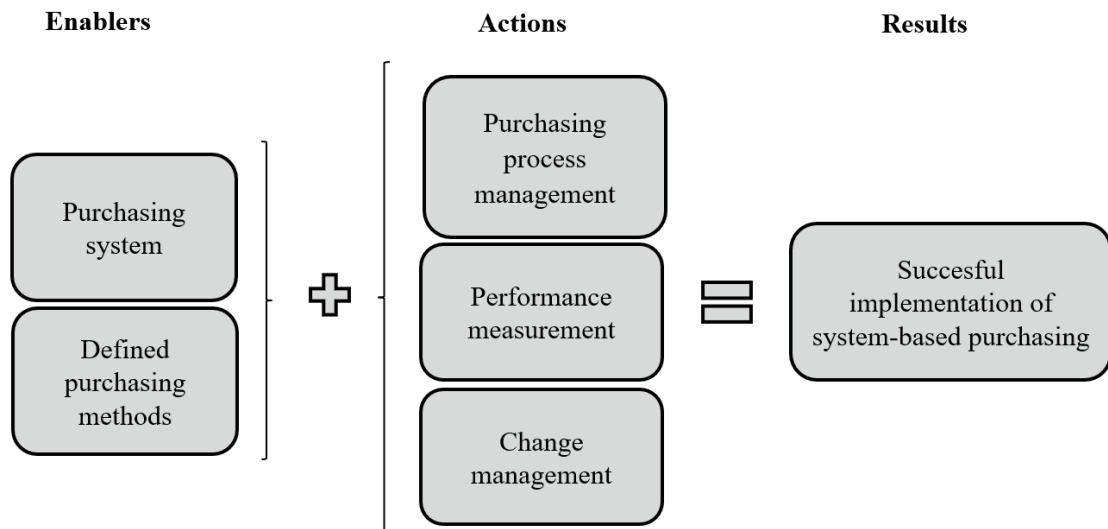
Figure 1. Theoretical framework

This theoretical framework is used throughout the study to guide the theoretical and empirical analysis. It has acted as the background in framing the research and interview questions, so that the study remains within the theme. Final goal is to successfully implement the system-based purchasing more broadly inside the company globally, while taking use of the other approved methods where applicable.

1.3 Definitions

Purchasing refers to the process of acquiring goods and services to fulfil a company's needs. This process is carried out within the purchasing function and involves several activities. These activities include selecting the most appropriate supplier, negotiating with the supplier, determining the right time, quantity, quality, and price of the purchase (Baily, Farmer, Jessop & Jones, 2005). However, purchasing is not limited to buying and paying. It also includes other activities, such as clarifying the need for the purchase, approving the purchase requisition, placing the purchase order, monitoring, and controlling the purchase order, and evaluating the supplier (van Weele, 2002).

Purchase-to-pay (P2P) process involves a series of steps, including specifying the need for goods or services, making sourcing decisions, generating contracts or purchase orders, receiving materials or documents, and finally settling and making payments (Trkman &

McCormack, 2010). In other words, the P2P process encompasses the entire journey of procurement, from fisrt sourcing activities, to finally receiving and paying for the goods or services.

Indirect purchasing refers to the acquisition of external resources that are necessary for daily business operations, but do not directly contribute to the manufacturing of goods or services (Kim & Shunk, 2004). In literature, indirect materials are often considered as maintenance, repair, and operation (MRO) and non-product related (NPR) materials. They cover all the necessary items and services required to sustain a company's daily operational functions, including the MRO products and services, as well as support systems that do not directly generate revenue. Included items and are for example office supplies, office furniture, computers, consulting services, telecommunications, and capital equipment (Cox et al., 2005, p.42; Kim & Shunk, 2004, p.153; Segev & Gebauer, 2001)

E-procurement, and system-based purchasing are used interchangeably in this research to refer to the use of internet-based technologies and apps in the purchasing process. E-procurement includes all tools involved in procurement that are enabled by the internet (Presutti, 2003). There is a variety of e-procurement solutions available for businesses to select. These web-based client server systems typically automate the procurement process and collect necessary data for expenditure analysis. (Arbin, 2008) E-procurement enables companies to leverage the power of the internet in their purchasing process and helps to consolidate an organization's spending power, automate workflows, and identify new sourcing opportunities through the power of the internet (Davila, Gupta & Palmer, 2003). E-procurement forms can be divided into various types, such as web-based ERP, e-sourcing, e-tendering, e-reverse auction, and e-informing (de Boer et al., 2002).

Change management involves planning, organizing, directing, and controlling change, with effective leadership necessary for successful implementation (Gill, 2002). It is the process of continually renewing a company's or processes direction, structure, and capabilities to fulfil the needs of internal and external customers, with a focus on managing people who face the change (Moran & Brightman, 2000, 66; Moran & Avergun, 1997). In organizational context, people are at the core of the concept, making change management more about managing them rather than the process itself (Moran & Brightman, 2000, 66).

Key performance indicators (KPI's) are used to measure performance in key aspects of the company (Stricker et al., 2017). They are essential for improving control of resources, ensuring effectiveness and efficiency for internal processes and monitoring risks (Straub, Koopman & Mossel 2010).

1.4 Research methodology

The empirical part of this study was done as a qualitative case study. It is suitable, as the goal is to make more in-depth interpretations of the particular research topic (Metsämuuronen 2008, 14). The method allows interviewees to express themselves in their own words, making it easier to interpret their experiences on the subject (Graebner, Martin & Roundy 2012, 278). As described by Creswell (2009), this method involves understanding and exploring the meaning that individuals or groups assign to a social problem.

The choice of research method must be guided by the research questions, and in this case, a case study research approach was chosen to produce detailed and comprehensive knowledge about the subject in the single case company. As the objective is to get an in-depth understanding of the subject and of the cause-and-effect relationships, Flyvberg (2011, 314) describe these as the greatest benefit of case studies, while generalizing the results may be difficult. According to Eriksson and Kovalainen (2008), case study research is particularly useful for investigating groups, individuals, organizations, social, political, and other related phenomena. Case study research is especially suitable for answering "how", "why" and "what" questions, particularly when they are exploratory in nature (Yin, 2003; Easton, 2010). Therefore, the use of case study as a research strategy is justifiable in this study.

The research data was collected by conducting nine semi-structured interviews in the case company. Focus on the interviews were on key themes. This form of semi-structured interview emphasizes individuals' interpretations of things (Hirsjärvi and Hurme 2001, 48). The interview method is well suited for this research, as it seeks to understand stakeholder's interpretations of the system-based purchasing process and how it should be developed, and to ensure that interviews remain within the same theme. The body of the interview was designed with the research questions in mind and adapted to suit the interviewees expertise.

System data and reports will also be utilized to understand current state of the purchasing processes in the case company. The material was then analyzed in a theory-driven way, linking the results to previous theory and best practice. In the end, mapping a development plan for further increasing the use of the system and defined methods was able to be formed.

1.5   Limitations

The study is done from the perspective of one case company, so generalizing the results could be difficult as the current states and policies inside companies differ. In the case company there was already a purchasing system and indirect purchasing methods defined, but the system is soon changing completely. This brings a quite specific perspective on the study.

The study described the situation in the case company at the moment of the study and case analysis, so results could be different if the study had been conducted at a different time or have the interviewees been different. However, to better the generalization of the results, interviews were selected from multiple business functions and levels of the company. In addition to these, supporting system data and theory was used. Interview numbers were kept at nine, so that the amount of empirical data can be managed in the thesis time range and resources.

1.6   Structure of the thesis

The structure of this thesis follows a typical pattern, starting with an introduction that includes background of the study, research objectives, and questions, along with a theoretical framework and methodology. The second part presents the main theory on purchasing process including indirect purchasing and e-procurement. Next chapters will further the knowledge about change management and measuring performance in purchasing. Chapter four introduces the methodology and data collection methods in depth, along with reliability and validity assessment. The fifth chapter presents the current state in the case company. Chapter six includes empirical analysis of the qualitative study, while the seventh and final discussion chapter reflects on the theory considering the empirical findings, answering the research questions, and providing suggestions for future research and next steps.

2. Purchasing processes

Purchasing is the acquiring of goods, services, competences, and knowledge from external suppliers to operate, maintain and manage company's operations (van Weele, 2002). Purchasing can be viewed as part of the wider procurement process. According to Nicoletti (2018), a thorough procurement process involves multiple procurement stages carried out at different levels, including strategic procurement, tactical procurement, and operational purchasing. In other ways, procurement is often seen as involving both the sourcing activities and operational purchasing. Van Raaji (2016) has presented a purchasing and supply management wheel that illustrates the phases belonging to strategic, tactical, and operational in more detail. This is presented in figure 2.

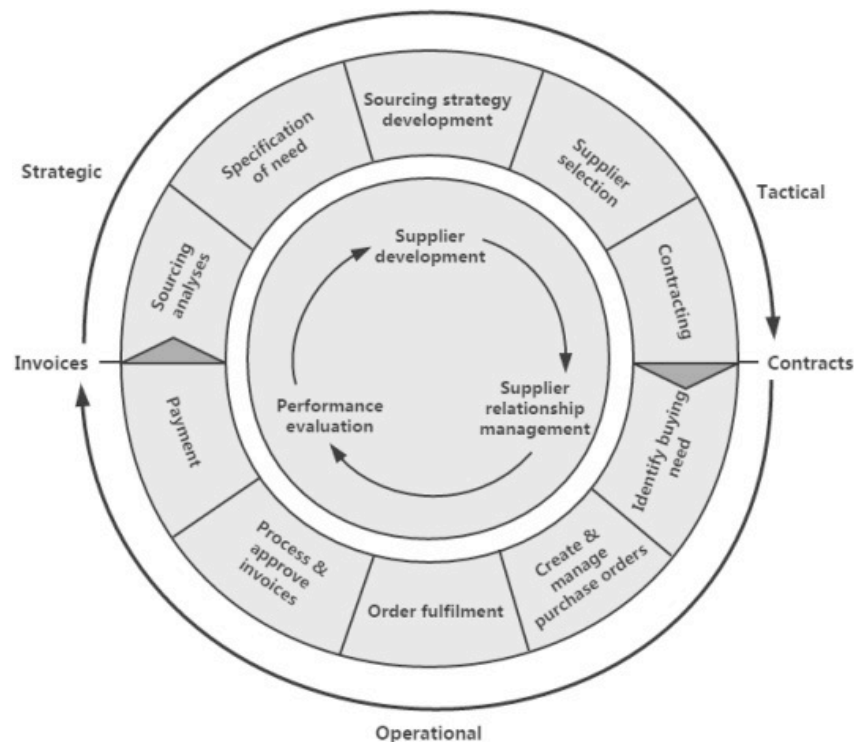Figure 2. Purchasing and supply management process wheel (van Raaji 2016)

Van Raaji (2016) highlights purchasing as a lot more than purely operational activity. These activities are made to ensure that goods and services are coming at the right time, in the right quantity, in the right place and at the right time. The scope of purchasing and supply management includes supplier development, supplier relationship management and

performance evaluation. The wheel also considers the strategic analyses and tactical contracting phases, in addition to the purchasing part of the wheel that is often seen as more operational in nature. However, to effectively obtain the external goods, services, capabilities, and knowledge for the purpose of supporting a company's operation, it is crucial to view purchasing also as a strategic function. This approach enables companies to systematically and efficiently acquire the resources necessary to run, maintain, and manage their activities. (Kakouris et al. 2006; van Weele 2014) According to Johnson et al. (2015, 75), the purchasing function manages costs, risks, and value through the purchasing process. The purchasing process involves a range of activities necessary for the obtaining goods and services. It is important to note that these activities may vary significantly across organizations and different kinds of purchases. However, it is generally agreed that a comprehensive purchasing process typically comprises several stages such as identifying and specifying needs, selecting suppliers, negotiating, and contracting, placing orders, ensuring timely delivery, receiving goods and services, processing invoices, and monitoring supplier performance. (Ritvanen & Koivisto 2007, 115; Johnson et al. 2015, 75; Monczka et al. 2005, 34). A general model by van Weele (2014) is described in Figure 3.
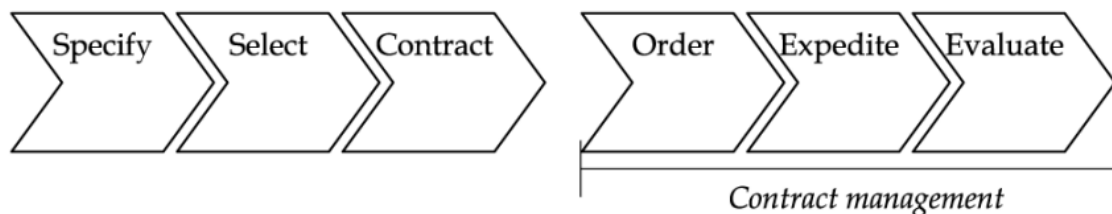
Figure 3. Purchasing process according to Van Weele (2014, 28)

In this illustrated process by Van Weele (2014) the purchasing process is consisting of six stages: specifying the need, selecting the right supplier, contracting, making the order, expediting and in the end evaluating. When specifying the need, it is best to be as precise as possible and this phase needs thorough information change internally. The anticipated benefits, risks and costs should be analyzed in relation to the needed goods or service (Krakouris et al. 2006). After specifying the need, there are often more specifications towards the supplier, such as price, lead time and quality (Webster 1965; Krakouris et al. 2006). When the most suitable supplier has been chosen, contract can be done if desired or

needed before ordering. Lastly the process ends with evaluating the supplier. (Van Weele 2014, 29).

Purchasing can be done in multiple ways. In a decentralized purchasing setup, each department organizes its own procurement independently. The department includes one or more personnel responsible for purchasing, who purchase supplies or other necessary items according to the department's needs. Compared to centralized purchasing, this system can be significantly more efficient, especially when the department's operations are technically demanding, allowing for better understanding of needs at the operational level. (Joyce, 2006) Decentralized procurement offers local expertise, flexibility, and freedom in choosing suppliers. Local purchasers have better knowledge of needs and can adapt purchasing accordingly. It allows for rapid responses for ad hoc needs and multiple operational options to meet customer needs. Local control preserves expertise and ensures proper execution. (Baily, et al. 2005; Joyce, 2006)

The benefits of centralized procurement are mainly based on volume advantages. By procuring large quantities, the unit cost of products can be reduced, resulting in improved profitability or competitive advantage through lower prices for the company. Furthermore, extensive collaboration with suppliers helps both parties better understand each other's needs and respond to them more effectively (Joyce, 2006). On an organizational level, a centralized system maintains systematicity and reduces hasty purchase situations, such as unnecessary multiple orders of the same product or delayed response due to insufficient procurement expertise within a department. (McCue & Pitzer, 2000)

Additionally, McCue & Pitzer (2000) describe that some companies may utilize a hybrid version of the above two options. In such cases, the organization has a clear responsible party for purchasing, but individual branches requiring specific goods or services have the autonomy for independent procurement when necessary. This system allows flexibility in responding to urgent procurement needs, avoiding potential delays effectively.

The benefits of hybrid systems are a combination of the advantages mentioned above, depending on how the system is implemented in the organization. The goal is to combine the strengths of both systems while effectively avoiding their respective drawbacks. One

example of implementing a hybrid system is to maintain centralized supplier contracts and centralized purchasing responsibility for widely used goods. This allows for the utilization of economies of scale and keeps the purchasing system clear. At the same time, other individual decentralized departments have the authority to carry out procurement based on pre-established rules and supplier chains, ensuring flexibility and unit-specific expertise (Baily, et al., 2005).

2.1   Indirect purchasing

Indirect purchasing is the acquisition of external resources that are essential for daily business operations, but do not directly contribute to the production of goods or services (Kim & Shunk, 2004). Companies often prioritize direct purchasing over indirect purchasing, assuming that indirect purchasing is less important to manufacturing. As a result, indirect purchasing has received less attention and fewer resources. However, neglecting indirect purchasing can be costly for companies, as it typically constitutes at least over 30 percent of total purchasing expenditure in large companies. Thus, failing to pay adequate attention to it can result in missed opportunities for cost savings and value creation. (de Boer et al., 2003) However, companies have now become more interested in indirect procurement, and ways to reduce their costs have been identified (Gebauer and Segev, 2000). To achieve these cost savings, new procurement models and processes are required for indirect procurement (Jennings, 2002).

Organizations can categorize indirect goods and services in various ways based on their business needs, considering that indirect items can range from low-value standardized goods to high-cost and complex products and services (Segev & Gebauer, 2001). In literature, indirect materials are often considered as maintenance, repair, and operation (MRO) and non-product related (NPR) materials. They cover all the necessary goods and services required to sustain companies daily operational functions, as well as support systems that do not directly generate revenue. The divide into goods and services is not as clear, as for example many IT purchasing transactions involve increasingly a combination of both (Wynstra et al. 2019).

Included goods are for example (Bals & Hartmann 2008, 4):

- office supplies
- office furniture
- IT hardware
- marketing goods
- manufacturing machines and repairs
- safety wear
- capital equipment

Indirect purchasing is also responsible for many types of services (Cox et al., 2005, 42; Kim & Shunk, 2004, 53; Segev & Gebauer, 2001):

- consulting services
- telecommunications
- travel
- freight and shipping
- HR services
- marketing services
- IT software

Purchasing indirect goods and services can be tricky as there are often ad-hoc needs and poor forecasts. This makes managing indirect purchasing is challenging due to its inherent characteristics. Indirect purchases are characterized by inefficient purchasing, quick demand, and multitude of suppliers and items. On the other hand, there can also be a poor purchasing process with no system and contract compliance in indirect purchasing. Another characteristic is the poor predictability of products due to their irregular and low demand. Another challenge is that top management does not always pay attention to indirect procurement. (Gebauer and Segev 2000; Puschmann et al. 2005; Roth 2008, 5-6; Subramaniam and Shaw 2004)

Indirect purchases can be managed by dividing the goods and services into different categories. For indirect purposes the categories often include IT, corporate services, human resources management, facilities, logistics, marketing, and operative maintenance. (Van Weele 2014)

Purchasing of goods is generally more straightforward than services. Service purchasing is a current topic as the share of services that are outsourced are growing and this trend is happening because of the today's highly competitive business environment. Purchasing services differs from traditional purchasing process to some extent and comes with its challenges. Purchasing services differs from purchasing goods in not just the inherent elements, but it is often seen as more complex process. A typical conclusion then is that service purchasing should also be executed differently than more traditional and simpler goods purchasing (Wynstra et al. 2018).

2.2 Purchasing indirect services

According to the findings of a study conducted by Carter et al. (2003), service purchasing is considered more challenging than goods purchasing by 69% of procurement professionals. This difficulty may be attributed to the historical lack of attention given to service purchasing within supply management, as services are typically more challenging to conceptualize, and service-level agreements are harder to define. In contrast to goods procurement, it is difficult to measure service quality and performance. Services can also be difficult to customize precisely to the company's needs, resulting in more compromises between the buyer and supplier. All of these issues are often linked to the four fundamental elements of services, namely intangibility, heterogeneity, inseparability, and perishability, (Grönroos, 2015; Ellram et al., 2015). Intangibility refers to the fact that service cannot be touched or sometimes even viewed. Services are perishable in the fact that they can't be stored and used later. Heterogeneity means that services are always unique, as they need to offer variability to respond to customer's needs. Due to the production and consumption happening at the same time there is simultaneity involved. The value is not created until the consumption, so there needs to be trust between the service supplier and the client. (Van Weele 2014; Iloranta & Pajunen-Muhonen 2008)

Managing the purchasing process for services is thought to be more challenging than of traditional goods and also organized in a different way (Wynstra, Rooks & Snijders 2018). Selviaridis, Agnal and Axelsson (2011) describe the service sourcing process to include five stages that are shown in Figure 4.
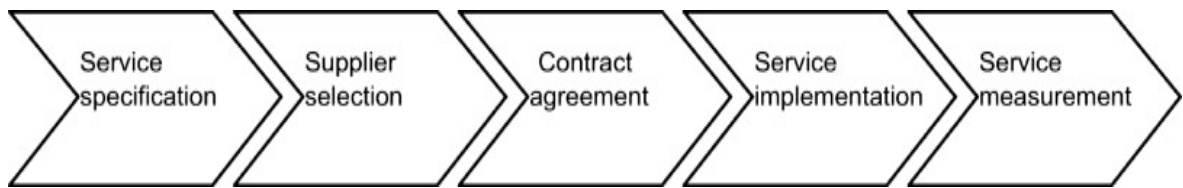
Figure 4. Selviaridis et al. (2011) the service procurement process.

The process starts with service specification. In procuring services, the service specification starts as a cooperation with the purchaser and the internal customer. The goal is to specify what service the company is buying and what is needed from it. (Nieminen 2016, 193) Van der Valk and Rozemeijer (2009) suggest that the main issue area in the purchase process for services is exactly this stage. The challenges come from detailing the service, defining the exact content of a service level agreement, and evaluating performance. The problems with specification come down to specifying the content of the service before making the purchase. Defining the specifications is a difficult step and takes time, but not putting enough effort in it has consequences. It will become challenging to set the desired service levels and the detailed content of the agreement. This will lead to unclear goals and measurements on both ends.

This outtake is the traditional procurement process, but many scholars have added additional steps to the process to highlight the challenges in service procurement which often are related to the before mentioned specification phase. It is key that the service provider has a correct view of what the buyer company wants from the service. This means that the success of the service purchase is determined in the beginning of the process. Thus, Van der Valk and Rozemeijer (2009, 7) have two additional steps to the process: request for information and detailed specification. These both occur between the service specification and supplier selection steps and involve cooperation with the potential providers. In the request for information phase the possible service providers are asked about their capabilities on producing the service. This reveals the most potential providers with whom the specifications are detailed further. (Nieminen 2016, 193-194)

According to Day and Barksdale (1994) the final supplier selection should be based on how well each potential service provider rates on each of the specified attributes that were

configured in the first stages. Choosing the wrong supplier or using the wrong specifications can lead to difficulties. This leads to additional search costs and contracting costs, which are higher in the procurement of services compared to goods. Service transactions also lead to problems more often than in traditional goods procurement. (Wyntsra et al. 2018) This partly illustrates why indirect purchasing is more challenging to do according to the same systems and processes.

When the process goes forward, the next step is contract agreement. It is crucial that the agreement clearly describes the requirements and agreed service levels, so that both parties are on the same page. A good contract motivates both parties in cooperation, but also specifies what are the consequences when the contract is not followed. (Nieminen 2016, 197) Contracting is part of the sourcing side of procurement as said by van Raaji (2016). After the contracting, the service implementation starts (Selviaridis et al. 2011). According to Sureshchandar, Rajendran and Anantharaman (2002) the quality of the service and customer satisfaction go hand in hand. The final value gained from the service is not realized until the customer is satisfied. Thus, service measurement is a crucial part at the end of the process to evaluate the value gained.

The process can also be viewed from the perspective of service supply chains. Baltacioglu, Ada, Kaplan, Yurt & Kaplan (2007, 113) describe that the purchasing of services differs from traditional procurement in the way that the different stages of the process are more interconnected. The service provider directly affects the customer, and the customer is often involved in the making of the service. In this process, the service provider takes the manufacturers role in traditional supply chain for goods. It could be concluded that as the purchase itself is less tangible, putting it through the purchasing process is more challenging and needs additional support.

2.3   Purchase-to-pay process

Widening the purchasing process view, more functions and steps can be included to cover the whole purchase-to-pay process. In this view the process begins the same with the decision to buy a product or service but ends with payment for the product or service. (Schnellbächer and Weise 2020, 56-79) The P2P processes may differ between companies

and industries, but what is important to recognize that the scope of P2P always encompasses more than just the purchasing department (Trkman & McCormack 2010). These other departments, including operations, maintenance, administration, warehousing, logistics, and accounts payable, play a crucial role in the entire purchasing process (Ash & Burn, 2006). Johnson et al. (2015, 75) also highlights the cross functional nature of the P2P process, as it requires collaboration with various other functions and stakeholders, including engineering for specifications, operations for scheduling, and finance for payments.
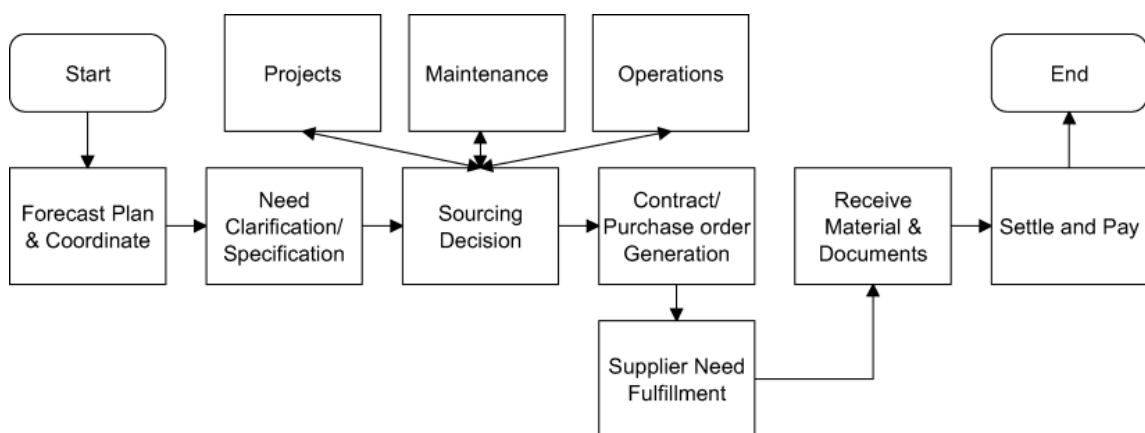
Figure 5. Overview of the P2P process according to Trkman and McCormack (2010).

In the above figure 5 Trkman and McCormack (2010) have described the overview of the whole P2P process and its steps. It illustrates that Trkman and McCormack (2010) identify the P2P process as encompassing several stages, including forecasting, planning, and coordination, specifying needs, making sourcing decisions, creating contracts and or purchase orders, receiving materials and documents, and ultimately settling payments. Furthermore, Murphy (2012) has outlined a standard P2P procedure, similarly as initiating a purchase order, granting approval for the PO, procuring, and electing the desired products or services, issuing the PO to the selected supplier, receiving the goods or services, validating, and approving the supplier's invoice, and ultimately settling the supplier's payment. In addition to the purchasing process, this includes the key functions of receiving the invoice, approval, payment, and reconciliation.

These steps can carry substantial costs and risks; thus, it is crucial for companies to make efforts to target these processes and lessen the transaction costs by automation for example.

The significance of the P2P process in both a company and its supply chain cannot be overlooked. According to Palmer and Gupta (2011), an effective P2P process can bring about numerous benefits such as cost reduction, inventory minimization, enhanced quality, and a stabilized supply chain. The purpose of the P2P process is to create efficiency and transparency in purchasing through electronic procurement. The advantage of the P2P process is, for example, a shorter processing time for purchase proposals and an increase in the number of purchase proposals. Enterprise resource planning (ERP) systems have a major impact on the P2P process, as they support the process through portals that operate with electronic catalogues and cloud services. The risk in the P2P process is the potential waste of time due to unsuccessful purchase requests and process inefficiency in large user groups. (Schnellbächer and Weise 2020)

Recent advancements in P2P systems have prominently centered on diminishing transaction expenses, a goal that can be accomplished through various means, including the automation of the P2P process and the adoption of e-procurement methods (Trkman & McCormack, 2010). Nevertheless, it is noteworthy that these endeavors often have a greater impact on the purchasing department rather than on the financial management aspects of the supply chain, such as invoice processing or payment reconciliations (Dunlap, 2005). To fully leverage the potential benefits, companies should aim to develop and automate the entire P2P process, thereby enhancing P2P operations and leading to enhanced competitiveness and cost savings (Chang et al., 2004).

2.3 Electronic purchasing

By implementing an e-procurement systems it is possible to improve the purchasing process of indirect goods and services (Yu et al., 2015). These systems can help facilitate the management of indirect procurement and purchasing indirect products (Bals & Hartmann 2008, 29-33). E-procurement describes the use of internet-based technologies and apps in the process, and it includes all tools involved in purchasing that are enabled by the internet (Presutti, 2003). By leveraging the power of internet, companies can manage organization's spending power, automate workflows, and reduce process costs (Davila et al., 2003; Weigel & Ruecker, 2017). The e-procurement process is aimed at both operational and administrative tasks, with electronic order systems as an essential component. As seen in

figure 6 below, the e-procurement process includes the purchase request, approval, ordering, receipt of goods or services, and payment. (Weigel & Ruecker, 2017, 181)

| Purchase requisition | ⇒ | Approval | ⇒ | Purchase order | ⇒ | Goods receiving | ⇒ | Payment |
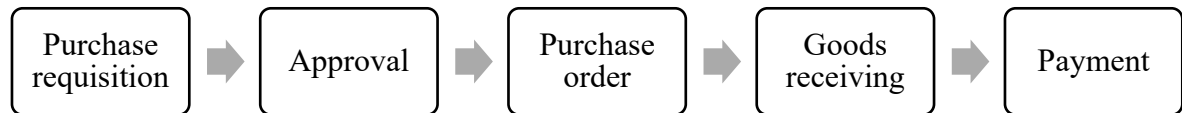
Figure 6. E-procurement process according to Weigel & Ruecker 2017, 181).

There are multiple e-procurement solutions available. These web-based client server systems typically help companies by automating the purchasing process and collecting the needed data for analysis purposes. Different e-procurement solutions are designed to cater to various procurement-related tasks like indirect purchasing, auctioning, sourcing, and tendering. These systems can handle all phases of the purchasing process, right from generating purchase orders to receiving the products. Adopting an e-procurement system allows companies to execute and regulate their entire purchasing process through a single software, offering significant benefits to enhance their procurement and business operations. (Arbin, 2008)

The adoption of e-procurement in indirect purchasing has the potential to yield substantial advantages, including cost savings (Ramkumar, 2016), increased competitive advantage (Piotrowicz & Irani 2010), increased process efficiency (Kim & Shunk, 2004), supported decision-making, increased contract compliance (Hawkings et al. 2004), time savings (Croom & Johnston 2003), better transparency (Gardenal 2013), less maverick buying or non-compliance (Ronchi et al. 2010), and enhanced overall supply chain management (Yu et al., 2008). These benefits can be divided further into strategic, tactical, and operational level benefits.

Strategic benefits of e-procurement encompass gaining a competitive advantage, enhancing supplier relationships, and fostering proactive measures (Piotrowicz & Irani, 2010). Implementing e-procurement can lead to a competitive advantage by fostering competitiveness for example in the supply market (Gardenal, 2013). By leveraging web-based e-procurement solutions, organizations can establish integrated relationships with

suppliers, reducing inefficiencies and costs (Hung et al., 2014). Additionally, e-procurement facilitates information exchange, supported decision-making, management, and fraud prevention, while consolidating purchased items (Piotrowicz & Irani, 2010; Croom, 2000; Hawking et al., 2004).

Tactical benefits of e-procurement involve optimizing purchasing activities, ensuring spend transparency, reducing costs, and ensuring compliance (Chan & Kingsword Owusu 2022; Piotrowicz & Irani, 2010; Croom & Johnston, 2003). It enables efficient and reliable purchasing through information availability (de Boer et al., 2002) and supports strategic sourcing decisions by improving supplier management and coordination (Hung et al., 2014). E-procurement also reduces non-compliance risks, decreases maverick-buying, and enhances contract compliance Moreover, it enables supply base rationalization and enhances transparency in contractual conditions and order tracking (Ronchi et al., 2010 Hawking et al., 2004). Real-time budget control and planning, decreased bureaucracy, and streamlined approval processes are additional benefits (Chan & Kingsword Owusu 2022; Croom & Johnston, 2003; Toktaş-Palut et al., 2014).

Operational benefits of e-procurement include cost reduction opportunities, timely payments, and dematerialization (Piotrowicz & Irani, 2010; Mukhopadhyay & Kekre, 2002; Gardenal, 2013). E-procurement systems improve process efficiency, reducing order processing time and minimizing manual work (Chan & Kingsword Owusu 2022). Timely payments can be facilitated through automation and streamlined processes, thus avoiding any penalties for late payments (Mukhopadhyay & Kekre, 2002). Dematerialization eliminates the need for paper, reducing archiving costs and benefiting the environment (Gardenal, 2013). E-procurement also enhances inventory management, inventory turns, and tracking of purchased items in the supply chain (Ash & Burn, 2006; Croom & Johnston, 2003). In the age where artificial intelligence tools are developing at a fast pace, there might be new benefits coming soon for the use of e-procurement. The purchasing processes could be streamlined even further, with less need for manual work. (Chan & Kingsword Owusu 2022)

2.4   Other purchasing methods

On top of e-procurement systems that facilitates the system-based purchasing from a supplier, there are also other methods that allow companies to get their purchases and spend into the systems. There are different tools for different purchases, here presented relevant ones for the case study.

Basware Spend Plan is a software solution that facilitates the management of a company's spend during the Purchase-to-Pay (P2P) process. It enables efficient handling of both recurring and non-PO spend across various departments and business units. The primary objective of this tool is to automate spend management and streamline the process to achieve better control over company spend. Other benefits of implementing a system like Basware are increased visibility and control over spending, improved supplier management, streamlined procurement processes automation, better decision-making and cost savings by identifying areas of overspending and negotiating better terms with suppliers, companies can realize significant cost savings with Basware spend plans. (Basware 2021)

For travel expenses, there is a CWT travel tool, that is a technology platform or software developed by CWT (Carlson Wagonlit Travel), a global travel management company. CWT travel tools are designed to help businesses and individuals plan, book, and manage their travel arrangements, including flights, hotels, rental vehicles, and other travel-related services. These tools may include online booking portals, mobile applications, itinerary management, expense reporting, and other features aimed at simplifying the travel process and improving the overall travel experience. There are several benefits for companies that use CWT travel tool, such as cost savings, enhanced policy compliance, improved traveler experience, greater control and visibility on travel spend, cost management, tracking employee activity, and risk management. Overall, using CWT travel tool can help companies streamline their travel booking process, save money, and improve the overall travel experience for their employees. (CWT 2023)

2.5   Purchasing policies

Many companies attempt to formalize their purchasing practices to achieve greater levels of purchasing maturity. The goal is often to centralize the purchasing activities to gain benefits like enabling cross-functional integration, standard rules, contracts, and processes. These are thought to lead to bigger cost savings and better control. (Dyer, 1996; Gummesson & Grönroos, 2012; Tate & Ellram, 2012)

Research has demonstrated that while formalized purchasing practices are widely accepted for goods and basic services like cleaning and catering, they are more challenging to implement when it comes to procuring more complicated and knowledge-intensive services (Pemer, Werr & Bianchi, 2014). However, why some organizations do not adopt these practices for these types of purchases is not well known. It has been suggested that the procurement of knowledge-intensive services is especially challenging to formalize. To encourage the use of standard purchasing practices for service purchasing as well, purchasing professionals need support from managers. For successful implementation of purchasing practices, it is crucial that managers and purchasing professionals value each other's expertise and perceive them as compatible and complementary (Smets & Jarzabkowski, 2013). Managers can also use discipline and persuasion to ensure the use of practices and policies. In some companies, managers team up with purchasing professionals to enforce the rules and make stakeholders follow them. They lead by example and use control measures to catch any non-compliance. Purchasing professionals are sometimes assigned a policing role in these companies. (Pemer & Skolsvik 2016)

System and contract compliance are influenced by many dimensions. In driving up system compliance the professionalism of the sourcing and purchasing function, and content of the system itself are key. (Brandon-Jones & Carey 2011) This also relates to maverick buying as it is defined as the non-compliant purchase of goods and services outside of officially approved methods and systems. The harmful or beneficial effects of maverick buying on an organization are still not fully understood (Harris & OGbonna, 2002), but it prevents the full utilization of volume discounts and increases process costs (Karjalainen & van Raaij, 2011). Thus, it can be an expensive problem for organizations, especially in indirect sourcing where established relationships and automated supplier catalogues are often used (Karjalainen,

Kemppainen & Raaj, 2008). While maverick buying is often encouraged by procurement organizations for low-risk acquisitions, it can lead to missed opportunities to control costs and expose the company to risks if it occurs extensively. There can still be own policies and practices in place for these low-value purchases. (Giunipero et al., 2020)

Other purchasing compliance related policy that can be found from different consulting papers and company pages is the "no PO, no pay" policy. This essentially forces all purchases to be made with POs, as invoices without the PO number won't be accepted as such. This is intended to help control costs and gain visibility, but often leads to manual work after the invoice, if PO is placed retrospectively. This adds no extra value for the process. Even with the policy there are reasons for invoices coming without a PO match. For example, there may be an urgent need for the item, or the employee or location making the purchase may not have the means to create a PO at that moment. While an e-procurement tool can help prevent this, it may not eliminate the issue. (Basware 2018; Gartner 2020)

Thus, when implementing this kind of policy there should be a list of exceptions or approved vendors that are allowed to invoice without a PO. Some companies also use fixed thresholds, and after it is exceeded, a PO is needed. (Tater, et al. 2022) As a case example, Tietoevry has implemented a No PO, No Pay policy that is for all incoming invoices. Benefits listed are that the policy brings substantial advantages for both suppliers and buyer, ensuring that purchases are authorized before the delivery of goods/services, providing a clear record of the ordered items, including pricing and other relevant terms, including the PO number on invoices facilitates an efficient invoicing process and ensures timely payments and being able to streamline and digitize the P2P process. (Tietoevry 2023) On top of these, Amazon adds understanding the committed spend against available budget and that the PO brings security as it is a legally binding document (Amazon 2021).

As another case reference, Philips has a "No PO, No Pay" policy and their PO compliance rate were on average 83%, target being 95% (Brem, 2015). For average performing companies the weighted average percentage of indirect spend flowing through compliant P2P process with PO numbers is 45% (Zycus, 2014). Biggest difference between best-in-class and lagging companies came from administrative and business services invoices coming without a PO. (The Hackett Group, 2009).

3. System features and measuring performance.

In change management and its measurement, the driving forces need to be identified and encouraged. One driver in e-procurement implementation is good user experience in the system. E-procurement literature commonly assesses satisfaction, security, transparency, efficiency, and reliability as the main UX dimensions. In addition, it has been gathered that usability, compatibility, effectiveness, performance efficiency, functional suitability, attractiveness, explainability, fairness, and visibility are contributing factors the UX. (Nor Laily et al. 2022, 478-484

With the speed that artificial intelligence is developing, it is probable that there is coming new system features for e-procurement activities that might help companies to change into even more automated indirect purchasing processes. The purchasing processes could be streamlined further, with less need for manual work. (Chan & Kingsword Owusu 2022) Already now there are features available like automated goods receipt and punch-out catalogs. Punch-out catalogs are e-catalogs that the supplier maintains and manages, freeing up manual updates for company's own internal catalogs (Puchmann & Alt 2005).

Since purchasing activities must align with the organization's strategies, measuring purchasing activities is crucial to ensure that they are consistent with the strategies. This approach helps in monitoring the performance of the purchasing function. (Carr & Pearson, 2002) According to Muchiri et al. (2010) in order to determine the discrepancies between current and desired performance, it is essential to have fitting key performance metrics in place. These indicators serve as a guide for managers to allocate resources effectively towards areas that require improvement and are critical in identifying the factors that affect performance. To ensure that the change management has been effective, the performance and compliance need to be measured. Having clear and well-defined performance indicators is crucial for identifying performance gaps and tracking progress towards closing them (Muchiri et al., 2010). Performance measures facilitates communication with stakeholders who may not be familiar with all company's operations and processes and this way get a better sense of them (Melnyk et al., 2004). These performance indicators are also helpful for managers to allocate resources to areas that impact performance and to support decision-

making processes. They also aid in communication within the purchasing organization, motivate people, and allow for benchmarking against other companies (Caniato et al., 2014).

Strategic measurements serve as the highest-level metrics within organizations, playing a crucial role in evaluating strategic performance. These metrics are closely tied to strategic objectives, such as enhancing stakeholder satisfaction or gaining a competitive edge by leveraging the buying power of the company (Rotchanakitumnuai, 2013; Tai et al., 2010). Strategic measures often involve non-financial and intangible aspects, making their quantification challenging (Piotrowicz & Irani, 2010). For instance, the extent of information sharing between the company and its suppliers can be considered a strategic measurement, reflecting the nature of the supplier relationship, but its precise determination is complex (Tai et al., 2010). Supplier performance evaluation encompasses various dimensions, including delivery, quality, cost, and flexibility. Delivery performance is commonly assessed by measuring the rate of OTD. Quality evaluation involves tracking quality improvement, customer satisfaction, order fill rate, and product and service availability. Cost-related measurements are prevalent, such as quantifying cost savings or avoidance achieved. Flexibility refers to the ability to accommodate changes in items and volume, although its significance in indirect purchasing is relatively less recognized. (Pohl & Förstl, 2011; Piotrowicz & Cuthbertson, 2015)

Efficiency at the tactical measurements level revolves around cost-related measures, such as total annual cost reductions and potential cost savings (Dumond, 1994). Other common measurements include the total cost of purchase, purchasing price, and cost per invoice, which assess the savings derived from supplier interactions (Caniato et al., 2014; Chomchaiya & Esichaikul, 2016). Also, tracking labor cost savings can improve efficiency. Comparing real-time spending against the budget enables ongoing cost control. Transparency contributes to time savings throughout the procurement process, including source identification, qualification, and selection. (Toktaş-Palut et al., 2014; Chomchaiya & Esichaikul, 2016). Maverick-buying or the level of non-compliance, which pertains to purchases made outside of company contracts, assumes particular importance in the context of indirect purchasing (de Boer et al., 2002). Contract coverage percentage measures the utilization of frame agreements. Additionally, reducing the number of suppliers aligns with

the prevailing trend and could be measured from the consolidation perspective. (Pohl & Förstl, 2011).

Operational indicators provide insights into the operational level of a company, reflecting the improvements resulting from technology implementation (Mukhopadhyay & Kekre, 2002). These indicators encompass operating costs and time taken to process an order (Dumond, 1994). Efficiency-related measurements also apply at the operational level, such as quantifying the number of resources required to produce a unit of output, thereby indicating resource utilization (Gardenal, 2013). Over time, improvements in operational indicators can translate into enhanced strategic measurements (Mukhopadhyay & Kekre, 2002). Timely execution of internal processes is crucial for measuring efficiency. Key performance measurements also include order cycle time and the total lead time from request for a purchase order to PO fulfillment. PO cycle time holds particular significance for internal stakeholders (Chao et al., 1993). Invoice processing time significantly impacts payment term compliance and delays in budget approval and payments. (Caniato et al., 2014; Chomchaiya & Esichaikul, 2016).

4. Managing change in the purchasing process

To better take use of the current purchasing system and creating a productive purchasing culture through the adoption of e-procurement systems, it requires more than just technological competence. It requires extensive change management efforts, as emphasized by Gardenal (2013). Without proper change management, there is a high risk of failure due to resistance to change from the old ways of working (Panda & Sahu, 2012). Implementing systems and policies in a company necessitates these change management activities. Companies should recognize that change projects are driven by the goal of business development and improved competitiveness, rather than change for its own sake. The reason for change always stems from business needs, often due to evolving conditions. The objective for change is to generate benefits for the company, such as growth, efficiency, cost savings, or enhanced competitiveness. Change projects require employees' time, effort, and resources, so maximizing the benefits obtained from them is essential. However, achieving these benefits requires skillful planning and management of change projects. It is crucial not to approach such changes without adequate preparation, as ill-prepared endeavors may fail to achieve desired goals and potentially harm the company. Therefore, entrusting change projects to dedicated professionals with deep expertise in change management is vital (Pirinen, 2014).

To implement an e-procurement system, Chang et al. (2004) recommends a process, which includes analyzing business processes, identifying the business requirements, synchronizing data and processes with suppliers, mapping software functions with current practices, and specifying deliverables and evaluation measures. Kotter (1996) on the other hand recommends eight steps to a general change management:

1. Establishing a sense of urgency
2. Creating the guiding coalition
3. Developing a vision and strategy
4. Communicating the change vision
5. Empowering broad-based action
6. Generating short-term wins

7. Consolidating gains and producing more change

8. Anchoring new approaches in the culture

Following the change management and combining the approach with change leadership, good governance intention, management support, service capability and organizational readiness will lay the foundation for successful implementation. (Rotchanakitumnuai 2013; Griffith-Cooper & King 2007) One other driving force that is crucial for change management is that the top management and key stakeholder support must be active and visible. If they are committed to the change, others will notice and follow the lead. (Kotter 1996)

Johnson (2010) highlights challenges related to the implementation of e-procurement technologies, such as concerns about risk, knowledge deficits, lack of trust, the size of the company, and the readiness of the organization to adopt new technology. Angeles and Nath (2007) on the other hand point out that the implementation of e-procurement may encounter several challenges, including problems with integrating different systems and standardization issues, the underdeveloped state of e-procurement-based market services, and resistance from end-users, in addition to difficulty in incorporating e-commerce with other systems, which may lead to unapproved purchases. These challenges need to be considered and tackled in the change management process.

Despite the numerous advantages of implementing e-procurement systems, there are often obstacles that hinder their successful adoption. According to Markus (2004), treating e-procurement implementation solely as an IT project may lead to overlooking implementation-related issues and unintended consequences. Angeles and Nath (2007) identify three main challenges in e-procurement implementation: system integration and standardization issues, immaturity of e-procurement-based market services, and end-user resistance, including maverick-buying and difficulty integrating e-commerce with other systems. Additionally, Johnson (2010) highlights adoption-related challenges in e-market, such as risk perception, knowledge deficits, trust, firm size, and organizational readiness.

Resistance to change is a common issue in IT implementation projects, as employees tend to resist altering their current practices (Ronchi et al., 2010). Some employees may refuse to adopt a new system due to concerns about the additional workload and learning curve (Costa

et al., 2013). To address this problem, it is crucial to understand the reasons behind the resistance and take preventive measures, as it is easier to prevent resistance than to eliminate it once it has emerged (Markus, 2004). Providing intensive training and educational sessions for end-users can promote learning and facilitate the adoption of the new system. The user experience should be intuitive, allowing end-users to focus on value-adding tasks in their jobs. (Angeles & Navi, 2007) Insufficient learning capabilities or motivation within a company can become a barrier to successful e-procurement implementation (Wu et al., 2007). Lack of training and education can also contribute to internal resistance to change (Toktaş-Palut et al., 2014), as it may result in a shortage of skilled personnel with adequate computer and software usage skills (Rotchanakitumnuai, 2013).

Maverick-buying, which is associated with a lack of internal control, is also linked to resistance to change since eliminating maverick-buying requires changing employees' purchasing behavior. Even after e-procurement implementation, maverick-buying can be challenging to eliminate. It is crucial to demonstrate the advantages of the new system to end-users, involve them in cost-saving targets, and provide training and education to show them practically how these targets can be achieved (Angeles & Navi, 2007).

Internal challenges related to organizational culture, leadership, and information quality can hinder e-procurement implementation, in addition to lack of clear corporate policy, control, and resistance to change (Toktaş-Palut et al., 2014). Effective change management and strong leadership support are necessary to align business processes with new systems (Vaidya et al., 2006). Insufficient information quality and inadequate communication of the system's benefits can impede adoption (Caniato et al., 2010).

5. Research methodology

In this study, a qualitative research method was utilized, as it enables more comprehensive interpretations of a particular research subject (Metsämuuronen 2008, 14). The method permits the information sources to articulate themselves in their own words, which facilitates the researcher in interpreting their experiences on the topic (Graebner, Martin & Roundy 2012, 278). When attempting to comprehend the significance of a particular action, such as in this case, the use of the purchasing system, a case study is suitable as a research data collection strategy (Miles & Huberman 1994, 7). According to Flyvberg (2011, 314), the major advantages of a case study are its suitability for profound understanding and apprehension of cause-and-effect relationships, while generalizing the results may pose a challenge. Therefore, the method is appropriate for the research, as the objective is to gain deeper insight into the ways system-based purchasing could be increased, particularly from the user and business perspective, without intending to generalize the outcomes to other types of companies. System data and reports were also utilized to understand current state of the purchasing and get support from quantitative data.

5.1   Research methods

Qualitative research involves data collection and handling, and the chosen method of data collection depends on the research objective. Methods such as interviews, observation, and written materials are possible alternatives (Metsämuuronen 2008, 37), and for this study, semi-structured interviews were conducted within the case company. Semi-structured interviews are ideal for exploring issues that are not well recognized (Metsämuuronen 2008, 41), such as the individual perceptions of the current processes examined in this study. The interview format emphasizes individuals' interpretations of issues and the meanings assigned to them through interactions with others (Hirsjärvi and Hurme 2001, 48), and the interview outline was designed to reflect the research questions (Appendix 1).

To gather sufficient data and reflect the general situation in the organization, nine individual interviews were conducted remotely using Teams, and similar interview outline was used for all interviews organized by themes. The interview language was Finnish in most

interviews, with just two interviews held in English. In the Finnish interviews the questions were translated into Finnish and data then translated for analysis purposes. The interviews lasted on average 45 minutes, and the interviewees were not informed of the specific questions beforehand, allowing for authentic responses.

At the start of the interview, the research purpose was explained, and the interviewees were informed that the data would be collected anonymously without storing any personal information to address any privacy concerns. The company is not named in the study, and only one question related to the work responsibilities could be considered identifiable, which is still unlikely in the large organization. The interviews were recorded with the interviewees' consent to allow better data analysis presented in Figure 7.

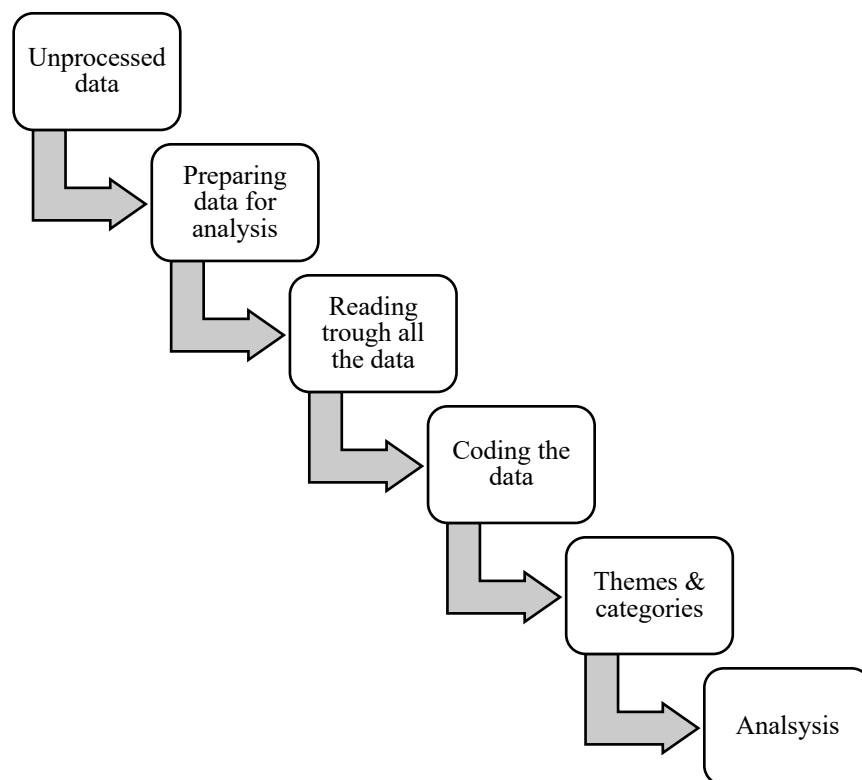Figure 7. Data analyzing process (Creswell 2009.

The unprocessed data, recorded interviews in this case, were prepared for analysis by transcribing them. This involved converting recorded speech into written material. Since the study's focus did not revolve around the language usage or interaction of the interviewees, only their spoken sentences were transcribed without using any special characters.

Anonymity was maintained throughout the transcription process, and after the study's conclusion, the original interview material was deleted. The transcribed text was read to gain a general sense of the information, that later underwent content analysis, a technique used to identify meaning in text. This helped to code the data into six groups. According to Creswell (2019) and Eriksson and Kovalainen (2008) this coding can be done by themes and features, and typically into five or seven groups. Groups in this study reflected the main and sub-questions of the research. The study used a theory-guided content analysis approach on the groups, where empirical research is linked to existing theory, but the data still directs the research. (Tuomi & Sarajärvi 2006, 106-116). This analysis method was appropriate for the study because its objective was not to develop new theoretical concepts but to analyze the data based on existing theory. By going through this data analyzing process, the results could then be able to combine with theory to get conclusions.

5.2 Description of data

The case company is a listed company in Finland, that manufactures high-tech devices and software solutions for specific purposes. It operates globally and has operations in many countries with 2000 employees overall. Not all countries are currently using the purchasing systems assessed in this study, but the goal is to develop indirect purchasing further globally where applicable. The case study's data was collected interviewing nine people inside the company. Seven were working in the office in Finland, one in the US and one in Canada. Interviewees and positions are listed in table 1.

Table 1. List of interviewees

Interviewees	Position	Office	Indirect purchasing
1	Facilities team lead	FI	Does centralized facilities purchase requisitions through the system.
2	Test engineer	FI	Does purchase requisitions regularly through the system.

3	Vice President	FI	Big part of indirect spend happens in the responsibility area, part of indirect sourcing steering group and background in sourcing.
4	Global IT manager	FI	Works together with indirect sourcing for IT catalog offering, team does purchase requisitions in the system, and other services are bought outside the system.
5	Sourcing director	FI	Leads the whole sourcing organization.
6	Finance manager	FI	Cost cycle processes, team responsible for P2P process end. Spend plan solution owner.
7	Marketing manager	FI	Leads a team that purchases content creation and other services that fall into indirect spend, approves non-PO invoices, does service ordering outside system.
8	Category manager	US	Indirect sourcing in the US & CA, purchasing through the system.
9	Office administrator	CA	Local purchasing trough purchase requisition and low-value policy.

The above table also gives background on how the persons relate to indirect purchasing, and thus why they were chosen for interviews. As seen from the table, all interviewees relate to indirect purchasing in different ways, as some were heavy users of the system, and some don't utilize the system for their ordering. The objective was to gain a wide perspective on the matters from interviewing people from different functions and levels of the company, while also maintaining the global perspective.

5.3   Reliability and validity

According to Eriksson and Kovalainen (2008), reliability is a fundamental evaluation criterion used to assess the consistency and stability of a measure or procedure, and the degree to which it produces the same result on multiple trials. Validity in the other hand, refers to the use of specific procedures by the researcher to ensure the accuracy and credibility of the findings (Creswell 2009). Examining the reliability and validity are traditional evaluation criteria for research done in the field of social sciences or business (Eriksson & Kovalainen, 2008). They are crucial, particularly in qualitative research where criteria like credibility, transferability, and confirmability are assessed (Tuomi & Sarajärvi, 2006, 136-137). Good qualitative reporting requires researchers to consider multiple perspectives, as highlighted by Metsämuuronen (2008,.58). To achieve this, triangulation is often used. It involves combining various research methods, information sources, researchers, and theories to avoid focusing on a single perspective and conflicting research results (Tuomi & Sarajärvi, 2006, 140-142).

The study is done from the perspective of an individual company, so transferring the results might be challenging. However, the reliability and validity were improved by implementing triangulation by gathering data from multiple different interviewees, who worked in diverse roles within the company and offices. The theory was also approached from multiple angles by combining different sources. However, the study was conducted by one researcher and on one organization, using only one type of interview method. Therefore, it is worth considering whether the results could have been different under different circumstances. To increase the reliability and validity of the empirical analysis, direct quotes from interviews were used. Nonetheless, as the study is based on subjective experiences, the confirmability of the results is weakened as the interpretations may not be fully supported by a similar study on different subjects. Despite this limitation, the study has tried to ensure the highest possible reliability and can be considered reflecting the phenomenon referred to inside the case company. To say that findings are true and certain, is difficult in studies where results may vary, but findings in this study are supported by evidence, both theoretical and empirical. (Eriksson & Kovalainen, 2008)

6. Current state in the case company

The case company has currently a few different defined methods to buy indirect goods and services. These are the system-based purchasing through ERP PO process, the low value purchasing policy, Basware spend plan and a CWT travel tool. There are some country specific differences in the ability use the methods globally.

The case company has a purchasing system in place in the company's current ERP systems Oracle EBS, where a requestor can make a purchase requisition for something they need. Regularly and widely purchased goods and services are found from catalogs and other items and services can be ordered through non-catalog purchase requisition. The catalog includes items that are needed often and by multiple people, for example in Finland it includes mobile phones, accessories, selected licenses, and some work equipment. Catalogs aren't implemented into all the company's legal entities and selection differs between them. Indirect buyers located in Finland update the catalogs for all items locally, and for laptops in France and United Kingdom. The indirect category manager in the US updates catalogs for US and CA. The phones, accessories and laptops are selected by Global IT, supported by sourcing.

Most purchase requisition ordering happens need based in the functions, but some are centralized into specific teams. For example, the Facilities and Office management team purchases all office furniture and supplies, as well as cleaning and facilities services centrally for the Finnish office. These items can be requested trough a ticket system, so that the facilities team does a purchase requisition for them. Laptops are requested globally by IT. Other items are generally available for all to make a purchase requisition.

After the catalog or non-catalog PR is done and approved in the system by the approver, the PR will show in the buyer's pool. From there the buyer can place a purchase order to the supplier. After the goods or service have been delivered, the receiving needs to be done in the system. This can be done by the requestor or the Goods Receiving team. Physical goods arriving to the office should go through the Goods receiving team, while the requestor is responsible for checking service deliverables. After the receiving in the system, invoice can

then be matched to the PO and paid. If the receiving isn't done and an invoice comes with the PO number, finance team will contact the buyer to check receiving. This process is simplified into the figure 8. If the supplier is not already open in the system, sourcing needs to be contacted to preferably agree on commercial terms at least and open the supplier before PO can be placed. Approval flows are built into the systems. This ERP PO process is implemented into most countries, but not all.
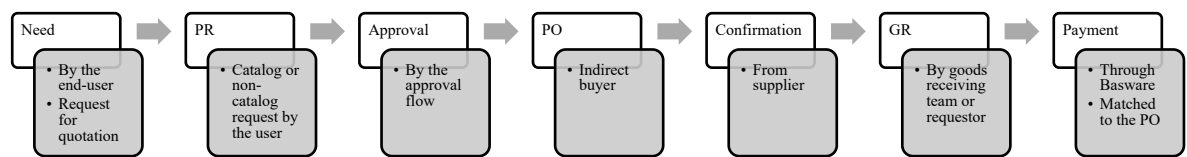
Figure 8. System-based purchasing process where supplier is already open.

Basware spend plan is used to handle recurring non-PO spend, while still ensuring spend visibility, financial forecasting, and efficient processes. It can capture repetitive service fees, payments and other spend recurring spend that does not flow through the system-based PO process. To get it running you need a few steps: identify the spend account and set up the spend plan with payment amount, tolerances, recurrence, and the beneficiary. (Basware, 2021) This is used in most of the case company's legal entities, especially for rents and other reoccurring spend. The CWT travel tool is where employees can book their travel tickets, hotels, and rental cars. This tool adds about 3% to the spend visibility.

The system-based purchasing can be viewed from category perspective. Below in table 2 is the spend that goes through the ERP PO process or Basware spend plan is categorized into the indirect sourcing categories. The category "supplier" is for the suppliers that are not classified. From the table there is substantial variation between the categories.

Table 2. Case companies indirect sourcing categories and their system-based purchasing against manageable spend in 2022.

Category	PO and spend plan coverage
Facilities	34%

Operative Support	89%
ICT Support	16%
Corporate support	11%
Human Resources	7%
Marketing	3%
Travel	3%
Logistics Service Providers	6%
Service & Project Support	26%
R&D Services	8%
Supplier	9%
UK Construction	94%

Low value purchasing policy covers smaller one-time purchases, that can't be purchased through the system. Reasons for this might be that the supplier isn't open in our system, or the supplier's payment method is for example credit card. Examples of the fitting purchases would be team events, some accessories and entry fees to conferences. The process is illustrated in figure 9.
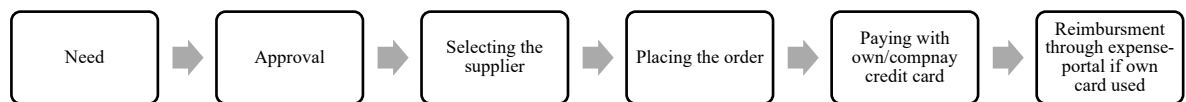
Figure 9. Low value purchasing process for one-time purchases, done by end-user.

The low value purchasing policy creates flexibility and faster processing for the purchasing processes as the requestor can choose the fitting supplier and product or service independently, as the supplier doesn't need to be opened to the system to pay the invoice. This also enables cost savings and avoidance trough avoiding opening one-time suppliers to system. However, there always still needs to be approval from the line manager before the purchase. How this works is that the requestor orders the goods or service themselves and pays by own credit card and applies for reimbursement from the company's expense tool.

Sometimes also company cards may be used. This method limits vary between countries, but in Finland the policy is for purchases that are less than 2000 EUR. If the purchase will be a recurring one, the system-based purchasing and opening the supplier is considered.

The CWT travel tool is used to book hotels, travel tickets and rental cars. Sometimes there aren't availability in the tool and travelers need to book elsewhere, but tool is always preferred. It is available in all the case company's countries globally, with some local functionalities.

Current indirect sourcing KPI's include a system-based purchasing indicator. It currently measures PO purchasing, Basware spend plans and CWT tool spend against the indirect manageable spend, that excludes taxes and other regulatory charges. Low-value purchasing is currently missing visibility in the system-based purchasing KPI, but suppliers opened after invoice is followed as a compliance measure. These two KPI's are used to measure compliance with defined purchasing methods and processes. Currently this system-based purchasing all together is 22% globally from the manageable spend, this includes PO coverage 16%, spend plan 3% and CWT tool 3%. Global figures differ among the countries, as some countries are more advanced in system-based purchasing than others, but everywhere seems to be some room for further development activities inside the categories. There is already ongoing development planning inside the categories to identify cases that could be implemented to system-based purchasing, either by implementing a PO process or a spend plan. This development is run from the global indirect category managers, but local implementation plans are to be made withing countries.

7. Empirical analysis

This chapter presents the empirical findings from the case study. The empirical analysis covers the nine interviews made within the case company. The structure follows similar order to the academic literature and interview questions.

7.1   Current state with system-based purchasing

The interviewees demonstrated a varying degree of familiarity with the purchasing system and methods. Despite this, all interviewees had heard of the methods, even if they did not actively use them. For instance, Interviewee 1 mentioned being familiar with all the tools due to extensive use of PRs through EBS and involvement with spend plans. Indirect sourcing and purchasing were prominent in their role, although the term "low-value policy" was new to them. The CWT travel tool was known but not yet utilized for many of the interviewees. Similarly, to interviewee 1, interviewee 2 heavily relied on EBS for daily purchase requisitions related to calibrations and spare equipment in the operative support category. They had also been recommended to consider low value purchasing for urgent cases with suppliers not open in the system, but such instances had not arisen yet where this would have been used.

Interviewee 9 has responsibility for purchase requisitions in the entire Canada office, including groceries, supplies, and equipment. Consequently, they were well-acquainted with all purchasing methods and acted as a local support for office purchasing needs. Interviewee 8 worked as a category manager in the indirect sourcing team, overseeing sourcing and purchasing activities for the US, Canada, and South America. This role involved issuing purchase orders, managing suppliers, and updating catalogs. They provided support to Interviewee 9 whenever assistance was required for sourcing or purchasing. Interviewee 5 also operated in the sourcing organization but held a director position. Although not directly involved in hands-on activities, they possessed comprehensive knowledge of all tools and processes.

Interviewee 6 was associated with finance and controls, representing the other end of the P2P process. Thus, they were familiar with the purchasing methods and have ownership of the spend plan process. Initially, low-value policy fell within their team's responsibilities before being updated by sourcing.

Interviewee 3, a vice president, had a connection to indirect sourcing through their involvement in the indirect sourcing steering group. While a significant portion of indirect spend occurred in their function, not all purchases were processed through the system. Some followed the purchase order process, while others were handled through contracts and paid invoices. Hence, Interviewee 3 was familiar with Basware approval and spend plans. In the IT function, indirect purchasing was managed in a similar manner. Smaller items like PCs, headsets, and mice were included in catalogs for indirect purchasing, while larger investments were processed through purchase orders. However, a substantial amount of their spend is coming from outside the systems. Lastly, Interviewee 7 acknowledged awareness of the methods but noted that their marketing team did not utilize them. Difficulties and additional tasks associated with the function's specific needs were cited as reasons for not adopting these methods.

7.1.1 System-based purchasing utilization

The level and manner of system utilization vary among the interviewees. Interviewee 1 primarily uses the system for most purchases, although some low-value invoices require manual entry. Interviewee 2 consistently uses the system when placing orders, considering it the most straightforward approach. Particularly, when calibration prices are readily negotiated with suppliers and incorporated into the catalog, system-based purchasing is found the easiest. In cases where the calibration is not in the catalog, the price is first confirmed with the supplier, and a non-catalog requisition is made. The emphasis on system-based purchasing was established by the previous indirect sourcing manager, who oversaw these facilities and operative support categories.

Outside of Finland, catalogs are not as comprehensive. However, for the Canada office, items such as phones, headsets, and accessories are ordered from the catalogs. When larger items or projects need to be ordered, interviewee 9 contacts sourcing support in the US to

determine if the purchase can be processed within the system. For example, there is currently a purchase order done for office renovations. Local needs are bought using credit cards. The US office has similar approach as both PO's and credit cards are used, but both often together with PR's. Interviewee 9 encourages requestors to create PRs even if the final purchase is made with a credit card. Once the PR is created and approved, it is closed, ensuring an audit trail is preserved.

In the Global IT team, purchasing practices vary. Major purchases are funneled through the purchasing tool to maintain visible records and automated higher-level approvals. Most team purchases fall outside the catalog, requiring quotes or supplier prices to be input into the system via PRs for approval and subsequent purchase. For the GIT team, the system is primarily viewed as an approval tool to obtain authorization and complete the purchase. Catalogs are utilized for general needs. SaaS and consulting services are ordered based on contracts without driving them all to the systems (Interviewee 4).

Interviewee 5 provides insights into PO utilization at a higher level. Indirect system-based purchases are often individual cases, reviewed based on requisitions, and then converted into POs for suppliers. These indirect purchases are often infrequent and unique, resulting in a significant manual work to create individual PO's. The buyer's work predominantly involves manual tasks, often with background requests for quotation serving as the foundation for purchases. Consequently, substantial preparatory work precedes the actual purchasing process. Copy-paste type purchasing, where the same item is repeatedly ordered, is not that common in indirect purchasing. While catalog products are an exception to this, the overall utilization of catalogs within the company remains limited. This may be attributed to the company's size and the ongoing need for manual catalog updates. Moreover, an invoice-based approach exists alongside the system in many functions and sites.

Spend plans are well utilized for recurring invoices where there are fixed amounts. These are in use for all the system countries. Interviewee 5 still notes, that using them is still in the early stages. Interviewee 4 also discussed just implementing it for ISP invoices in France, Germany and most recently UK office. Low value policy is also used where it is applicable, and it's said to bring flexibility and efficiency in the purchasing process.

7.1.2 Different purchase types and categories in the system

Recurring catalog purchases are generally considered most suitable for system-based purchasing through purchase orders. Interviewee 2 expresses a preference for further implementing catalog-based purchasing; however, the constantly changing prices pose a challenge under the current setup where updates are manual. Basic IT products, such as standardized phone models, are viewed as well-suited for system-based purchasing due to their universal need. However, interviewee 3 observes a trend towards decentralization in purchasing among other companies. Without standardized catalogs and suppliers across most countries, maintaining up-to-date information becomes challenging.

The low value policy is regarded as advantageous as it provides flexibility and can be utilized for team events and other minor expenses. It is applied for one-time purchases within the local limits in each country. Interviewee 9 describes this approach, stating that local one-time purchases are not conducted in the system. Depending on the situation, ordering some supplies for the office through EBS does not make sense, as it is more convenient to purchase them directly from a store. The current method is deemed effective. However, interviewee 6 highlights that the limit of 2000 euros (in Finland) for low-value purchases is quite high and places a considerable burden on individuals who bear personal responsibility for credit card transactions if company card can't be used. The timing mismatch between the receipt of funds and the credit card invoice can lead to financial challenges, as funds may be expended before the final invoice arrives. Such considerations should always be considered.

Both interviewees 3 and 4 find it challenging to incorporate SaaS and consulting purchases into the system. Spend plans are considered a better alternative, as the original contract is seen as sufficient. The added value of issuing a PO is questioned, as it introduces manual work for PRs and receiving, and POs may remain open for extended periods. Interviewee 6 from the finance team also mentions consulting invoices when discussing non-PO invoices. The need to include them under POs is questioned, and a spend plan is suggested instead.

> "We receive a wide variety of non-PO invoices, such as travel, consulting, and service invoices, as well as invoices based on existing contracts. In those cases, where agreements are already in place, I would question the necessity of a PO. If everything has already been approved in the contract, then the right way to

register it would be to consider using a spend plan or some other process at that stage." (Interviewee 6)

Interviewee 5 from sourcing, challenges this perspective. For goods and services purchases, recurring items can be easily negotiated and entered into the system, either by typing or selecting from a catalog. However, individual purchases require more effort. Despite this, it is important not to overlook the need for a purchase order, even for service orders. Although creating a PO may take time, it is essential for tracking purchases and avoiding reliance solely on negotiation-based agreements that result in invoices to be paid. Implementing an organized purchasing system, such as Basware spend plan or an ERP, provides visibility into open orders, allowing organizations to estimate upcoming invoices, due dates, and other relevant details. Currently, accurately determining monthly indirect sourcing purchases can be challenging, leading to uncertainty. However, by adopting a system-based approach for all purchases, immediate visibility can be achieved.

When purchasing services and goods, there is often a misconception that services should be procured based on consumption. However, it is preferable to establish specific terms and agreements. For instance, when purchasing a cleaning service, defining specific cleaning tasks, and agreeing on a fixed duration results in consistent invoices. Any additional tasks can be handled separately by determining their cost and creating a new PO. It is crucial to have a clear understanding of what is being purchased, its cost, and the desired outcome. Setting costs in advance facilitates the creation of a purchase order. If additional tasks arise, they can be managed separately through a new PO to agree on the additional amount required. Effective negotiation practices involve clearly defining expectations and the agreed-upon price. Open-ended agreements, such as paying for a range of hours, are considered poor purchasing practice. It is important to precisely define what will be delivered for the agreed-upon cost, with any additional work falling under the responsibility of the service provider. (Interviewee 5)

7.2 Indirect sourcing support

Sourcing and purchasing involvement emerged as an important topic in the interviews, with varying levels of desired support among the interviewees. Interviewee 7 emphasized the

need to involve the indirect sourcing team in cases involving new suppliers or significant purchases, as additional actions are often required. However, for one-off suppliers, contracts may not be established, or if the marketing team wants to test a relatively inexpensive supplier, they handle the process independently. If contracts are done, they are stored to Teams application. For GIT, the larger purchases, especially with current suppliers, are often managed by experts within the company. In the case of new suppliers and tendering processes, sourcing plays a more involved and driving role in RFP.

> "With a new supplier, you need to consider also the non-technical things, like payment terms and that the supplier signs our code of conduct, these could easily be forgotten without sourcing involvement. I think we have a lot of contracts that doesn't include a CoC, we have just started off with small orders with them and suddenly the spend has grown. That's just why sourcing should be involved already before any orders are made, so that we have all the needed papers included." (Interviewee 4)

According to Interviewee 5, employees often lack understanding of various contract terms, such as liability and payment terms. This lack of understanding can result in agreeing to immediate or upfront payment without ensuring that quality criteria are met or that the service output aligns with expectations. Interviewee 5 emphasized the importance of including sourcing in larger purchases and decisions to ensure that desired outcomes are achieved, and that responsibility can be pushed to the supplier. Sourcing should engage in procurement consolidation, and sometimes even challenge the necessity of the entire purchase. The purchase order process serves as a control point to question the negotiation process, ensuring that necessary considerations and contracts are reviewed by category managers.

Interviewee 3 argued that the involvement of indirect sourcing in purchases is more crucial than the PO process or the percentage of purchases going through the system. The absence of sourcing involvement can be seen as a risk, and it would be informative to measure the number of significant cases where sourcing is not involved. Interviewee 4 shared this perspective, noting that sourcing brings clarity to the process and ensures compliance with appropriate approval flows. Interviewee 8, who works in sourcing, highlighted the added value of supplier evaluation and background checks, which were not previously conducted.

> "I think the big support is supplier evaluation, from the beginning to do the background checking. Before my role nobody did that, they just chose any supplier available, no price comparison or background selecting. Not all suppliers are 100% good."

Additionally, interviewee 4 emphasized the value of purchasing in finding the best sources for one-off items. Interviewee 9, who was involved in ordering through the system, viewed sourcing support as crucial in guiding local purchasing decisions. Effective communication and consultation in the purchasing process were seen as essential in determining the best approach for meeting local needs while considering the company's overall requirements.

In cases where sourcing is not involved, particularly for local needs or less expensive purchases, interviewee 9 mentioned that they compare prices and make decisions based on what makes sense. Availability and reliability of suppliers are also considered factors. Interviewee 7 described the process of obtaining quotations from multiple suppliers, with the marketing department providing a brief and the suppliers responding with a counter brief. The supplier selection is based on these interactions. Price is an important factor, and excessively high or suspiciously low prices are taken into consideration.

7.3 Benefits in system-based purchasing

During the process of coding the interview data to identify recurring themes, several benefits associated with system-based purchasing were consistently mentioned by different interviewees. These benefits encompassed aspects such as transparency, visibility, time savings, governance, traceability, and invoice handling. An examination of table 3 indicates that transparency emerged as the most frequently cited benefit, followed by visibility and time savings.

Table 3. Recurring benefits in the interviews

Recurring benefit	Number of interviewees who mentioned
Transparency	5
Visibility	3
Worktime savings	3

Invoice handling	2
Governance	2
Traceability	2

Transparency emerged as a prominent theme in the interviews, with five out of nine interviewees highlighting it as a significant benefit of system-based purchasing. The transparency aspect was attributed to the possibility to track PR lines, PO data, approval information, receiving details, and invoice data, in the system and that the data can be accessed by different people. Interviewee 4 specifically emphasized transparency in system transactions.

> "Transparency, the fact that the purchases are really approved correctly, and approval flows are built-in to the system. The limits are there for a good reason, and otherwise, limits would probably be exceeded."

Visibility is quite closely associated with transparency, so it is possible that the meaning could be the same some interviewees. This further highlights the importance of these aspects. Interviewee 2 expressed appreciation for the clear records and status tracking of transactions when ordering through the system. Interviewee 1 similarly described the straightforwardness of the purchasing process as a key benefit. Furthermore, interviewees 3 and 8 highlighted the enhanced visibility of overall company spend facilitated by indirect system-based purchasing. However, interviewee 6 pointed out the need to utilize this data more effectively for other purposes, like cash flow forecasting.

> "Well, then utilizing that data is another matter. We should consider how to make the most out of that data, and that's probably something that has maybe been left solely in the hands of purchasing, so to speak. Utilizing that data for other purposes could be valuable."

The visibility of spend also contributes to cost savings and cost avoidance. Interviewee 5 emphasized that having visibility into what has been purchased, along with price and payment terms, prevents overpayment and aids in cost management. As the indirect spend is a substantial amount of money for companies, even small savings to each purchasing case adds up. Interviewee 3 also brings up the savings perspective.

> "To some extent, operations can be streamlined if we have a good catalog that includes the frequently purchased products and where we have also negotiated better prices, rather than just buying from anywhere. This leads to cost savings. If the system is user-friendly, it certainly saves time for the organization. It results in both time savings for the operational team and cost savings for the company through negotiated prices."

These worktime savings emerged as another significant benefit. Interviewee 5 noted that correctly following the system-based purchasing process can save working time for multiple levels within the company. Invoicing processes, specifically the matching process, were identified as areas where time savings can be achieved by reducing the number of manual approvals required and ensuring alignment between purchase orders, goods receipts, and invoices. Interviewee 6, who leads a cost cycle team, brought up similar benefits, emphasizing that well-planned and executed system-based purchasing processes leads to faster and more effective invoice handling and streamlined operations.

Governance factors were raised by interviewees 4 and 5. Interviewee 4 appreciated the safety provided to the order requestors when purchasing follows the defined method. This is then eliminating the need for post-purchase questioning and explanations, as the correct approvals were given before the purchase. Similarly, interviewee 5 highlighted the benefit of certainty in doing things right.

> "You need to be able to know that you are doing things right for the governance perspective, that removes uncertainty from thinking if you did something right. That's a real benefit for the people." (Interviewee 5)

Traceability was mentioned by interviewees 2 and 9, who appreciated the ability to track the status of orders and ensure timely payment through the system. This feature enhances the ordering process and provides peace of mind for requestors, as they don't need to worry about the order not progressing and can trust that indirect buyers will be doing follow ups. This is seen as a big thing for the requestors.

> "It would be impossible to try to do the order following up by myself in some Excel, so it must be done this way. There are more benefits than challenges." (Interviewee 2)

Furthermore, interviewee 5 emphasized the importance of tracking orders to assess supplier obedience to promised lead times, which may not be possible when using invoice-based ordering methods.

In a broader context, interviewee 5 acknowledged the challenge of utility bills, such as electricity and water, which typically fall outside the purchasing system. To address these, the establishment of a spend plan or an alternative process can be considered always. Centralizing the open orders in a system like Basware spend plan or an ERP allows for monitoring invoice amounts, payment deadlines, and other relevant information, thus facilitating cash flow optimization based on real data. Optimizing cash flow based on estimated purchases coming from historical data is a now common practice. Challenges may arise at the end of the year when invoices for non-PO-based orders suddenly arrive or when spending spikes in January that should have been accounted for in the previous year, highlighting the importance of effective management in these scenarios.

7.4   Challenges in system-based purchasing

The analysis of the interviews revealed that challenges in system-based purchasing can be classified into two categories: high-level challenges and practical challenges. The practical challenges can be further subcategorized into system-related challenges and process-related challenges. These challenges collectively contribute to the biggest issue of low system-based purchasing compliance. The challenges are presented in table 4.

Table 4. Challenges in system-based purchasing.

High-level challenges	System level challenges	Process level challenges
• Change resistance • Culture • Bureaucracy • Resources	• Overview • Availability • Flexibility and fit (service purchasing)	• Receiving process • Accounts • Supplier opening • Contract templates

The high-level challenges highlighted by the interviewees encompass various aspects, including change resistance, organizational culture, bureaucracy, and resource allocation. Change resistance was a recurring theme, mentioned by multiple interviewees. Interviewee 8 emphasized the difficulty of driving up the system-based purchasing among long-time employees who are resistant to changing their routines and behaviors. Conversely, new hires were viewed as more receptive to change. Interviewee 2, who has been using the system for a long time, expressed the challenge of letting go of current routines associated with the old system, making the transition to the new system harder.

The culture of the case company also emerged as a topic of discussion during several interviews. The culture was described as emphasizing individual consideration over strict policies and control. Interviewee 5 speculated that this freedom-oriented culture might stem from the company's historical and current growth, resulting in the fact that strict cost control measures have not been necessary. This cultural aspect is affecting also purchasing, with a perception that almost anyone in the company could engage in negotiations with suppliers.

> "Well, typically it has always been done this way. Probably it's also the culture that us, being a financially stable company, has never had to enforce strict cost control measures. When cost control becomes necessary, you need to build control systems, which we have been lacking. In small companies, it's common to have invoice-based purchasing, where you agree on something, send invoices, and so on. On the other hand, in large companies where there are tens or hundreds of thousands of invoices coming without purchase order numbers, it becomes a complete mess. It's unclear whether the invoice has been paid, if it has been processed, and who should approve it. It becomes a situation of who ordered this, someone is missing, can this be paid, and the invoices end up circulating for weeks. It doesn't work. In our organization, the size is still manageable, but as we grow there is also the point that the system can no longer handle those non-PO invoices, and this is a huge challenge." (Interviewee 5)

Interviewee 7, however, appreciates an even more freedom-based culture and instead identified bureaucracy as the most significant challenge in implementing system-based purchasing within their function. They argued that while tracking activities and following policies were important, excessive bureaucracy made efficient operations more difficult to achieve. The fast-paced nature of their work necessitated swift actions and the ability to explore different suppliers. The interviewee advocated for policies that serve as a framework

rather than something that prevents the doing. Adding more bureaucracy should also be done very carefully according to interviewee 3. It is highlighted that the company already has quite strict built-in controls and policies.

Another prominent challenge is resourcing. Not all countries had dedicated buyers, making it necessary to centralize purchasing activities and set up country responsibilities. Interviewee 3 raised the question of determining the volume level that would justify having a dedicated professional responsible for purchasing in a local office. Interviewee 6 emphasized the additional management requirements associated with system-based purchasing, particularly related to open purchase orders and their follow-up. With a significant increase in open orders, the limited resources in countries other than Finland can be seen as a constraint. Enough resources at the beginning of the process are crucial to ensure the appropriate closure of open purchase orders, especially when dealing with various types of orders and managing deviations.

> "System-based purchasing is not something that can be done for free, so to speak. It requires actions, people, and stakeholders involved to make the process efficient." (Interviewee 6)

As the volume of purchasing activities grows, additional cases and challenges arise, more resources are required from receiving, sourcing, or purchasing teams. Implementing system-based purchasing will also accumulate costs in terms of more actions, personnel, and stakeholder involvement to make the process efficient. The company is currently setting up country specific responsibilities for purchasing and sourcing.

System-related challenges were also identified, with lack of flexibility being a prominent concern. Interviewees 3 and 4 highlighted that the current system did not adequately facilitate all types of purchases, particularly in the context of service purchasing. Notably, certain software suppliers accounted for a significant portion of indirect spend but were purchased on contract-based arrangements rather than issuing PO's for them, as the benefits of this weren't seen. Spend plan might bring opportunities to get these to the system. The PO process was thought to be more suitable for purchasing physical goods, where quantities and costs could be easily specified. These challenges extended to Software-as-a-Service invoices and for example marketing, where precise estimates of invoiced amounts were

historically lacking. Even when the sum was known in advance, the benefits of initiating a purchase requisition were not evident. One suggestion was to exclude certain categories, such as SaaS and consulting, from the scope of system-based purchasing entirely, and to assess where the system-based purchasing would then be.

> "Let's say if we receive a SaaS invoice, and it comes as one invoice per year. I could handle it through the purchasing system, but since it's just one invoice per year, it feels easier to forward the invoicing for proper handling manually. For example, for our website, we have a three-year contract, and we know that there will be an invoice in November-December for certain amount. Setting up a three-year PO and keeping it open for that period may not be the most efficient system-wise, and it could pose challenges with the financial entries and allocation. In such cases, it has been more practical to simply process the larger invoice once a year. From a practicality standpoint, it would be advisable to consider accepting this approach for specific cases." (Interviewee 4)

Interviewee 6 adds that unfortunately, there are significant differences between the quality of POs and the details in supplier invoices. Such differences often result in manual work and handling due to the mismatch between the content of the PO and the invoice. This misalignment creates a challenging situation and raises concerns regarding the accuracy of order placement, which should be addressed within the purchasing guidelines. This is seen especially in the service purchasing and highlights the system fit and flexibility with indirect purchasing.

Tracking purchase requisitions and getting an overview of them emerged as a time-consuming and challenging task in the interviews. Locating and organizing one's own requisitions in the system became challenging when dealing with a substantial number of requisitions. Moreover, availability through the system varied among suppliers, creating differences between countries. Interviewee 9 highlighted availability as a challenge in increasing system-based purchasing in their office. During periods of product shortages, alternative sources had to be sought to fulfill purchasing needs. Similarly, situations arose where specific items or suppliers were unavailable for purchase.

Process-related challenges were described in relation to receiving, supplier opening, contract templates, and accounts information. Receiving process was a focal point of identified

process gaps. Interviewee 1 expressed challenges with the complexity of the receiving process and the need to simplify and streamline it.

> "Receiving feels challenging and I didn't want to learn it. It felt like a one-step too much for the entire purchasing process. [Goods receiving team] is now helping me, but some ideas would be welcomed to simplify and streamline."

The volume of orders without the involvement of the goods receiving team led to difficulties in managing delivery notes effectively. It was suggested that regularly collecting delivery notes and taking them to the receiving team, even if the goods were taken directly to the requester, could streamline the process. Ensuring an efficient and simplified receiving process was also emphasized by Interviewee 2, who faced similar issues, one of which were uncertainty if the receiving has been done.

> "However, towards the end of the purchasing process, when a device comes back from calibration, I used to not have to handle the receiving. It was done at our goods receiving. But now, there are many cases where items bypass that step, and I must handle the receiving. Was there an error made by someone, and can we improve on this? It's likely that there are multiple ways the device comes back, sometimes our driver brings them back and there might not be PO number on the note. Many times, you [buyers] ask about the receiving even months later, and it's easy to forget since we don't actively think about it. It's either done or not done, and we don't have that information which one is it this time or check it always just to make sure. This should be a focus of improvement so that either the receiving step would be my responsibility consistently, or that the receiving teams does it always for the devices. Otherwise, it gets overlooked. It's possible that some devices are returned with a delivery note that even mentions the order number and still the receiving is missing, but I don't know the percentage of such cases."

Interviewee 6 emphasized the importance of the receiving process during the further implementation of system-based purchasing. Accurate and timely recording of receiving entries in the financial statements is crucial from an accounting perspective, particularly with potential increases in volume. With the increases in volume and the current set up with receiving delays, it will pose significant challenges. Interviewee 6 states that the end goal shouldn't be just increasing system-based purchasing in itself. The entire process and its impact on invoice processing should always be considered. It is a priority to approve purchases in advance and plan what and where to buy, but from the finance perspective, an important aspect of this process is the receiving process, which unfortunately has faced

significant challenges, particularly in indirect purchasing. Furthermore, when developing system-based purchasing, it should not solely focus on candidate selection but also ensure that invoices from suppliers align with the order. Pricing in our system must be accurate and synchronized with the supplier's pricing. Similarly, invoice data, such as the units or quantities purchased, should be synchronized with the supplier. Otherwise, part of the benefits of the purchasing process is lost if there is a prolonged need to assess the invoice with the order contents when they are not synchronized. This situation not only reduces the benefits but also requires more manual processing from the administration and end users. Therefore, it is essential to consider the entire process and not just isolated aspects. Unfortunately, tackling this challenge can be a slow process at times, and if there is a desire to quickly impact KPI metrics, there is a risk of rushing without considering the downstream effects. The same principle applies to spend plans; they need to be analyzed to identify sensible cases and determine the sources of meaningful invoice data from suppliers. (Interviewee 4)

Interviewee 8 sees it as crucial challenge if the finance is not an active driver of the system-based purchasing as well. In the US office, there are strong suggestions to just use credit cards as they have good payment terms with the bank. If the finance and controls are not involved us supporting the implementation, it can't be successful.

The allocation of costs to the correct cost centers and accounts was identified as another challenge. Interviewee 1 highlighted difficulties in assigning the correct accounts when purchasing diverse goods from a supplier, resulting in many items being grouped under the office supplies account. In cases where suppliers did not allow separate invoicing, manual entry of invoices becomes time-consuming. Interviewee 1 mentioned instances where expenses from various functions, such as business cards and marketing invoices, fell under their responsibility for manual processing.

Finding open suppliers and opening new ones to the system was seen as challenging due to time constraints and the desire for immediate actions. Delays were encountered, particularly when suppliers were not readily available in the system but urgently needed. For example, Interviewee 2 cited weeks of contract finalization with a French calibration firm despite the device being ready for calibration. However, indirect sourcing team were typically able to

find solutions in the background. Better visibility on the current suppliers and their offering is seen as needed. Guidance and support were identified as necessary for selecting and comparing suppliers, as it was a time-consuming task to identify alternative suppliers and determine the most competitive prices. Conflicting opinions between sourcing teams and requestors often arose when deciding where to make purchases. Interviewee 7 emphasized the need for marketing to have the flexibility to test and try out suppliers for fresh content and new ideas, despite the recommended use of preferred suppliers. Contracting with service providers was considered particularly complex, with interviewee 7 expressing dissatisfaction with the current contract templates, which were deemed too software-focused and not tailored to marketing or other needs.

7.5 Purchasing outside the system and methods

The reasons and risks were moreover discussed in the interviews, to get better understanding of the deeper reasons behind non-compliance with the methods and risks that may arise. These are interrelated to the perceived challenges in the system-based purchasing but analyzed form a different point of view.

7.5.1 Reasons for low system-based purchasing

The interviews shed light on the multiple factors contributing to the low adoption of system-based purchasing in the company. Cultural change, resistance to change, lack of top management support, historical practices, and fragmented organizational structure all emerge as significant factors for the current level.

The lack of a firm policy is seen as a crucial factor for the non-compliance with defined purchasing methods. The No PO, No Pay policy came up with multiple interviewees. Interviewee 5 emphasizes the need for a cultural shift in mindset to recognize the importance of purchase orders and the system as means of controlling the purchasing process. Although system-based purchasing may introduce some additional manual work, the benefits in terms of control and avoiding duplicate invoicing outweigh the increased workload. Furthermore, the current attitudes and practices, such as invoice-based purchasing, have an effect on the level that can be achieved. Encouraging suppliers to adapt to the PO-based approach and

implementing a No PO, No Pay policy requires a cultural exercise and acceptance from suppliers.

Interviewee 8 highlights the resistance to change and insufficient support from top management as obstacles to implementing system-based purchasing. The No PO, No Pay policy, might face resistance without proper support and enforcement, but is seen as beneficial.

Interviewee 6 identifies three main factors that contribute to level of system-based purchasing. Firstly, historical practices play a role, indicating current routines that may hinder change. Secondly, cultural aspects come into play, highlighting the need to address the attitudes and behaviors. Lastly, the absence of clear guidelines adds complexity. Continuous monitoring and control mechanisms would be needed. For example, if there is not No PO, No Pay policy, system-based purchasing is seen as optional and not mandatory. It can be argued that No PO, No Pay may not be the most efficient and agile approach, suggesting the necessity of creating a list of exceptions, while the remaining items should follow the policy. This approach is not only easier to implement but can also be clearly outlined in guidelines. Furthermore, successfully implementing significant changes requires more than a few training sessions or relying solely on materials in company internal pages. A comprehensive and systematic approach is necessary to drive the desired transformation effectively.

Interviewee 4 identifies buying consulting services as a specific challenge in implementing system-based purchasing. The No PO, No Pay policy is seen as difficult to follow with all purchases that are not fixed price. An example is given from a previous company, that the policy led to revealing the maximum budget for a supplier, and consequently they invoiced the maximum. Target pricing and monthly or quarterly invoicing are more common in consultation or project services. Implementing some system features in SAP could potentially address this issue and there is potential seen in putting for example the American ISP invoices to spend plan. Consultations and IT costs emerge as the most significant expense category, and ad hoc items are necessary for operational needs in a product development-oriented company. Interviewee 4 highlights the fact that the manual entering

the non-PO invoice is not a big task and thus is sometimes smart, even if lowers the system-based purchasing level.

> "I do not see the No PO, No Pay policy as beneficial if everything has to be in the system. It doesn't align well with a product development-oriented company where operations may require ad hoc items to keep production running."

In contrast to the that perspective, Interviewee 5 highlights the prevalence of consultative-type purchases, such as consulting, contracts, and invoicing-based purchasing, where invoices are generated automatically. Regardless of the nature of the purchase, whether it involves IT licenses, R&D projects, or other types, the accumulation of hours or expenses could be effectively managed through the utilization of purchase orders. Interviewee 5 draws upon their prior experience, where service deliverables were discussed with suppliers based on monthly worked hours, followed by a review of outputs. This process involved the creation of a dummy-priced purchase order, which was later adjusted with the actual price upon final order placement. Various utilization practices exist, including the adoption of estimate-based POs that are periodically adjusted or reconciled. Regardless of the specific method employed, the use of POs provides valuable insights into purchasing volume and is integrated into the system, ensuring that the acceptance of deliverables is done and checked. Interviewee 5 suggests the promotion of PO usage, even for certain license purchases such as Microsoft, given that license quantities are already communicated through supplier interactions. This approach facilitates the maintenance of a systematic record within the system, eliminating the need to search through invoices when reviewing purchases. Specifically, for recurring license acquisitions that occur annually or quarterly, the utilization of POs enables streamlined tracking and analysis within the system.

However, interviewee 3 highlights the complex nature of the biggest spend cases as the primary reason for low to system-based purchasing, as these are purchased contract-based. The complexity of these cases diminishes the value added by introducing system-based purchasing. Additionally, the organization's fragmented structure poses its own challenges, and is seen that even to double the PO spend from the current level to 50% could be challenging. Overall, the analysis highlights the need for a cultural shift, management support, clear guidelines, and flexibility in implementing system-based purchasing. Historical practices, cultural factors, and individualized cases pose challenges that require

comprehensive approaches and potentially stricter policies. The organization's fragmented structure and specific challenges related to service purchasing further contribute to the differing opinions and complexity of system-based purchasing adoption.

7.5.2   Risks in purchasing outside the system and methods

The interviews revealed a clear distinction among the participants regarding the risks associated with purchasing outside the systems. Interviewees 1, 2, and 9, who followed the defined methods and utilized the purchasing system, did not mention any risks or bigger setbacks they had encountered. Interviewee 9 specifically stated that they hadn't experienced any risks as they followed the PO process or used low value purchasing with credit cards and kept the receipt. Moreover, they highlighted that consulting sourcing when needed had been effective, and the current system was functioning well for them. In contrast, interviewee 7, whose team often handled most marketing purchases outside the system, mentioned that they dealt any realized risks usually by themselves.

The risks discussed by the remaining interviewees primarily revolved around the company's financial aspects. Interviewees 5 and 8, both working in sourcing, identified overpayment as a critical risk. Interviewee 5 emphasized that non-PO invoices carried the risk of double payment, so that the company could pay certain invoices twice if suppliers submitted duplicate invoices and the approvers failed to recognize the duplication. The interviewee explained how the PO process addressed this issue by requiring verification of received goods and tracking transactions within the system. Similarly, interviewee 8 highlighted overpayment as a significant risk, stating that using non-system purchases could result in double billing if suppliers sent invoices twice or if there were errors in invoice processing.

> "[Purchasing outside the system] could cause over payment, believe it or not, because sometimes, the Basware captures the invoice number, but if by any chance supplier sends twice and there is an extra scape or anything, Basware will read it twice. I have received refund check cause of overpay. With PO it is a four-way matching, at least a three way from EBS, everything needs to be matched in order to pay."

The interviewee 8 further illustrated this point by recounting a recent incident where the company had been paying monthly invoices addressed to a company, they had acquired 20

years ago, demonstrating that such risks do occur that wrongful invoices are paid. This was revealed when setting up a spend plan for the recurring invoices to get them to the system. A project manager had just been coding and approving the invoices and because of the general volume of invoices, accounts payable hadn't been able to notice the wrong "billed to" company either. This need for auditing and control measures was emphasized, as managers can lose track of their coded invoices if they were not cautious or in a hurry. Interviewee 4 echoed these concerns, highlighting the ease with which individuals could exceed their approval limits by placing orders via email or other means. Such exceeding of limits would only be noticed upon invoice arrival. Adopting the system-based approach ensures following the correct approval limits. The interviewee emphasized the importance of integrating this kind of cost considerations into team discussions and promoting a better understanding of costs before initiating any purchases.

Another point raised in the interviews was the potential for costs to spiral out of control when purchases were made without a purchase order. Additional costs could appear on invoices and be approved without visibility of the bigger picture. The lack of visibility into spend makes it difficult to effectively limit indirect expenses. Interviewee 5 provided an example, suggesting that if the company needed to restrict indirect spend, it would be challenging without a control mechanism in place to evaluate the necessity and timing of such expenditures. The interviewee also considered the fact that the case company was publicly listed, emphasizing the importance of meeting financial goals and the potential impact on meeting those goals when spend is not properly controlled and visible.

> "Let's say that a publicly listed company has made a promise to make x amount of money at the end of the year, and people realize in the last quarter that it is going to be tight. Maybe by cutting and putting back some indirect investment, the goal could be met, but without any control and visibility on the spend you can't do anything about it, you just must hope that you make it."

Interviewee 6, representing the finance team, highlighted the risks related to financial forecasting and cash flow perspectives. The arrival of large invoices in Basware without prior visibility of the spend, made forecasting and managing cash flow challenging. However, it was noted that even now the PO data is not well utilized in cash flow forecasting. The interviewee suggested the integration of PO reports into cash flow forecasts to better leverage the data and enhance forecasting accuracy.

> "Even if we would utilize the PO's more, the cash flow forecast wouldn't necessary be any better. We should get the PO reports somehow integrated to the cash flow forecast to better utilize it and better our forecasting, I don't know if those are taken into account yet."

The unexpected arrival of invoices without prior knowledge also increased the workload. Interviewee 5 explained that if sourcing was not involved in contracting or purchasing, invoices might come from new suppliers, requiring extensive manual work from various departments to open the supplier in the system before payment could be made. Nevertheless, implementing the PO process in more cases was seen as adding additional work for employees as well. Interviewee 3 acknowledged the additional risks associated with purchasing outside the system but emphasized the importance of assessing these risks against the additional workload, as both realized risks and or more workhours could drive up costs. This divide of workload was described by interviewee 5:

> "System-based purchasing requires more upfront work, but afterwards, it's just the goods receiving. Invoice-based purchasing involves more post-purchase thought and work from multiple people."

7.6 System features and measurements

When talking about what kind of features, information and metrics would be beneficial to get into the system, all interviewees had some development ideas. It should be noted that the case company is undergoing a change in the ERP system in six months' time, so this upcoming change and future needs were discussed in most interviews.

7.6.1 Current user experience

Currently, the user experience with the systems related to indirect purchasing is generally considered good. The consensus among the interviewees is that the current system is easy to use when individuals have regular exposure to it. Interviewee 1 emphasizes this point by stating that everything is easy in the current system once users are familiar with its functionality. Interviewee 8 shares a similar perspective, highlighting that the user

experience largely depends on regular usage and familiarity with the system. Interviewee 9 is well-acquainted with the EBS system and expresses liking that it is easy to use. There is hope that the new system will offer comparable ease of use and reliability as the current EBS system.

According to interviewee 4, the basic end-user experience within the current system is smooth. Comparing it to a basic online store, the interviewee describes the process to selecting items and proceeding with a few simple clicks. The system's user interface is described as bland, colorless, and similar to shopping on any other online store. At present, it does not require any complex procedures or the need to input specific codes.

One positive aspect highlighted in the current tool is the email-based purchase requisition approval, where managers receive an email and can simply click "OK" to synchronize it with the system. Interviewee 4 describes this as a small but significant feature that eliminates the need to log into the system and streamlines the approval process. While it is acknowledged that the new SAP may not offer the same functionality, the possibility of implementing a similar process through mobile devices should be considered.

> "It's those things that easily stall the process if the tool complicates people's actions. It's a universal issue that if approvals become too difficult, they get delayed, and the process doesn't function properly. It's not the tool's or purchasing's fault, but everyone hopes for a speedy process. A lot of effort has been put into ensuring fast delivery of goods, but then if it takes the manager several days to approve, the system could help by sending reminders and making it easier." (Interviewee 4)

On the other hand, interviewees 1 and 2, who regularly use the current system, mention occasional hiccups in the user experience. Although they do not report significantly better or worse experiences than with other computer programs, they acknowledge the presence of occasional bugs. Users have developed their own tips and tricks to navigate these issues. Overall, it works great, and people were quite satisfied with it, as usability and effectiveness were seen as benefits.

While there are good features within the system, it is acknowledged that not all users may be aware of them. Exploring the system allows users to discover functionalities even if they

are unfamiliar with all search functions. The usability and speed of the system are generally regarded as good. The potential resistance to change when transitioning to the new purchasing system is mentioned, particularly for individuals accustomed to the current system. However, given the high volume of orders for heavy users like interviewees 1, 8, and 9, it is anticipated that the new system will become routine quickly to ensure work efficiency. An intuitive user interface is highlighted as crucial during the implementation of the new ERP system. Interviewee 3 emphasizes the importance of employing a user interface designer to ensure a smooth implementation process, acknowledging that this requires investment as it is a specialized trade.

> "The user interface needs to be intuitive and easy to find the things that you need. That's the most important aspect in the user experience. When the new ERP system is introduced, it's important to get it implemented smoothly by utilizing a user interface designer. We should understand that this requires investment, as it is a completely own kind of trade."

Another aspect that emerged regarding the user experience is the effect of support. Several interviewees highlight the prompt support from indirect sourcing and buyers as a key element in ensuring a positive user experience. Easy communication is seen as an asset in the current system and process, making indirect sourcing and purchasing easily approachable.

To simplify the purchasing experience for users, interviewee 5 mentions the level of involvement in the process as an important aspect of the user experience. While individuals in the case company often want to be involved in making the purchase decisions, the ideal scenario would involve users focusing on their needs while leaving it to the sourcing department to identify the supplier and fulfill the requirements within the specified timeframe. In such cases, users would only need to process the goods receipt.

The user experience with Basware, the invoice handling system, was also discussed in some interviews. From the perspective of the finance team, Basware is considered better and simpler to use than the previous invoice handling system. However, interviewee 7 expresses a contrasting opinion specifically regarding the processing of non-PO invoices for the approver. According to interviewee 7, invoices often end up with the wrong person for review, even if the invoice contains the correct recipient's name.

In summary, the user experience with the current systems for indirect purchasing is generally regarded as good by the interviewees. Familiarity and regular usage contribute to a smoother experience, and the system is compared to a basic online store in terms of usability. Positive features include email-based PR approval and the overall ease of use and speed of the system. However, some interviewees note occasional hiccups and the need for users to discover features through exploration. The impending transition to a new ERP system raises concerns about change resistance, emphasizing the importance of an intuitive user interface during the implementation process. Prompt support from indirect sourcing and buyers is considered valuable, facilitating easy communication. Additionally, interviewee 5 highlights the potential for simplifying the purchasing experience by allowing users to focus on their needs while relying on the sourcing department for supplier selection and need fulfillment. Basware is generally seen as an improvement compared to the previous system, although interviewee 7 points out issues related to non-PO invoice processing, as they go by many people before finding the one that was mentioned on the invoice.

7.6.2   System features

One key system feature mentioned by multiple interviewees is the improvement of the search function and the addition of enhanced filtering capabilities. This enhancement aims to addresses the current challenge of locating the correct requisition if the list is extensive. These could be done by timeline, categories, cost centers or suppliers for example. Furthermore, interviewee 1 also emphasized the necessity of allowing multiple separate purchase requisition drafts to be open simultaneously. This feature would enable more efficient order consolidation for the centralized order needs and the inclusion of new needs on the draft as they arise, providing a comprehensive overview of orders and eliminating the need for tracking in other platforms first before issuing the PR. Currently there is only one shopping cart for all PR lines at once. The consolidation would also ease the suppliers order processing. Order transparency for the requestor could also be improved. Interviewee 5 proposes a traffic light system, that would easily tell the status from header view in the requisitions. Interviewee 5 would also find benefit in implementing a ticket system for the sourcing steps that come before making the PR. This would make it easily trackable that what the status is and how much workload and cases does everybody have. After PR and PO

are done, the tracking can be done in the system. but especially something for the before. For example, seeing form the ticket that now a RFQ has been sent.

Another recurring theme in the interviews was the demand for various analytics and reporting features. Interviewees highlighted the significance of generating reports on purchasing volume per supplier, category-specific purchases, and price development. These functionalities would facilitate better visibility into purchasing activities, supplier assessment, and informed decision-making by requesters. Currently it is not well known by all what can be extracted out the system, and to get a more specific view on supplier spend you need to go to a different system. Interviewee 4 also brings up the fact, that sometimes there would be a need to have a look at the invoices behind the purchases, and that it would be beneficial to be able to view them from the system without needing to request them.

The need for improved visibility of invoices was also raised by interviewee 4. The ability to access invoices directly from the system report, without the need for additional requests, was deemed beneficial for detailed analysis and process streamlining. Additionally, interviewee 4 stressed that having visibility into non-PO invoices within the same system, would contribute to a comprehensive understanding of the spend and big picture.

To enhance operational efficiency, interviewee 9 suggested incorporating shipment tracking information directly into the system. This feature would allow users to easily monitor shipment progress from their requisitions, complementing the existing visibility of promised delivery dates. Currently the shipment information is usually forwarded by email by they byer but getting it visible in the system would streamline tracking purposes.

User experience and system intuitiveness emerged as another critical aspect. Interviewee 7 expressed the desire for a user-friendly and intuitive system that accommodates users with infrequent system usage. The system should be designed to guide users effortlessly, ensuring simplicity and usability. This is especially important with the new system implementation as well.

There were also solutions needed for inter-company purchasing, as interviewee 8 handled purchasing tasks for all the US offices, Canada, and South America's. As of now, there isn't

a solution for making the processes smoother and the work is quite manual. For example, if the interviewee is supporting the Finnish office, the purchase is approved in EBS; but the purchase is done by credit card in US and shipped to Finland.

As the receiving has been identified as a key issue in driving up system-based purchasing, the need for systems solutions came up consequently. Interviewee 5 presents auto GR as one system supported solution in SAP, this would allow automated goods receiving based on specific conditions. This way the need manual entry would eliminate, and efficiency improved. Another automation feature for the system would be implementing punch-out catalogs. These are integrated supplier-maintained catalogs and would answer to the challenge of manual updating the catalogs globally for the case company. Also automated reminders for open PR's were suggested. Addressing the need for timely follow-up, interviewee 2 emphasized the significance of implementing a feature that automatically notifies users if a requisition remains unresolved for an extended period. This proactive reminder system would mitigate the risk of overlooking pending items and encourage timely action not only from buyers, but requestors as well.

7.6.3 Measuring performance

In terms of system metrics and measurements, leveraging business intelligence tools to measure order backlog development and its influence on cash flow was suggested by interviewee 5. This was also earlier discussed with interviewee 6, that the metrics from purchasing system are currently not well utilized in this sense. Some interviewees also emphasized the value of analyzing transaction types and identifying low-value invoices. This analysis would give insights into the proportion of transactions that should ideally be processed through credit cards but are not. Additionally, identifying low-value invoices would shed light on areas where process improvement is possible. These metrics provide a more detailed understanding of transaction patterns and opportunities for optimization of spend.

Interviewee 5 also brings up user satisfaction as a key metric for evaluating system performance. Assessing user satisfaction with the purchasing tool and considering factors such as delivery time and lead time would provide critical insights for identifying areas for

improvement. Similarly, according to interviewees 3 and 6 it is worth exploring whether there are other alternative metrics that can complement the existing system-based purchasing against indirect manageable spend KPI and provide a more comprehensive understanding of the purchasing performance.

To monitor supplier performance, couple interviewees stressed the need for tracking on-time delivery of purchases as this is currently done for direct purchasing mostly. For indirect purchasing, at least one supplier reports the metric according to interviewee 4, but there is no internal KPI's for supplier OTD measurement. Additionally, retrospective adjustments to purchase orders, particularly for service-related ones, should be measured. These metrics provide valuable indicators for supplier performance evaluation and enable the identification of areas where process development is required. If there is always need for adjusting the original order, the reason should be identified, if it comes from the supplier end or from how the purchase was agreed. This updating creates manual workload for many different functions. (Interviewee 5).

Other notable metric mentioned by interviewee 6 is the advantage got from incorporating measurement of the complete end-to-end process cycle time, including the handling of PO invoices. This assessment enables the evaluation of the overall efficiency of the purchasing process, considering the time required for each step involved in the processing of PO invoices. Additionally, an important efficiency metric to consider is the extent of manual work required during the stages of the process. This metric provides insights into the level of automation achieved, particularly in relation to the processing of PO invoices using the Basware system. Interviewee 6 adds that unfortunately, there are significant differences between the quality of POs and the details in supplier invoices. Such differences often result in manual work and handling due to the mismatch between the content of the PO and the invoice. This misalignment creates a challenging situation and raises concerns regarding the accuracy of order placement, which should be addressed within the purchasing guidelines. The root cause of these differences and manual handling issues can be attributed to process-related challenges or the diverse range of suppliers from which purchases are made. The misalignment between the invoice data and the purchasing process is more prevalent in indirect purchasing compared to direct purchasing cases. Addressing these process issues and improving the alignment between the PO and invoice contents are crucial steps towards

enhancing efficiency and accuracy in the purchasing process. Thus, the match rate with PO send invoices should be measured. (Interviewee 6)

7.7 Implementing a more system-based purchasing model globally

From the interview data many action points could be identified for the system-based purchasing implementation. A big part of these were related to training and support needs. Also, improvement ideas for future processes were identified.

7.7.1 Actions to develop system-based purchasing

A specific numeric target for the system-based purchasing percentage of manageable indirect spend is hard to set. Currently the EBS PO, spend plan and CWT travel tool encompassed 22 percent of indirect manageable spend. Thus, actions to still implement this further were identified in the interviews. Most brough up action points were utilizing the catalogs better globally, getting the top management support and carefully considering the No PO, No Pay policy if it would be somehow applicable in a certain setup.

Interviewee 3 states that defining a specific target or numerical value for system-based purchasing practices can be challenging due to the unique nature of each company. Benchmark information may provide some insights, but it may not directly apply to every organization. It is still agreed that the with the principle that system-based purchasing is good when it can be done sensibly. However, on the indirect side, in many areas, it is indeed very challenging. And if it becomes too difficult, it may not even be worth attempting. In a global organization like the case company, achieving sufficient coverage worldwide is practically impossible, or at least having over 50% coverage is extremely challenging. However, with spend plans, improvements could be made as they are included in the system-based purchasing. From the perspective of low-value policy process improvement, it could be beneficial to know how many of low-value invoices go through expense claims and what percentage comes in as invoices. (Interviewee 3)

The current trend in purchasing is shifting towards regionalized approaches, moving away from centralized purchasing with a single supplier. This decentralization can make catalog

management more even complex, while utilizing the catalogs would be crucial to have efficient indirect purchasing. Analyzing the purchasing needs and understanding what is typically purchased, both within and outside the system, can help determine a realistic target for purchasing optimization. (Interviewee 3) However, interviewee 6 states that while some centralized purchasing practices are already in place in the case company, further opportunities for consolidation may exist. For instance, in the handling of invoices, more efficient utilization of consolidated billing could be explored. By ensuring upfront approvals for these matters, the efficiency of invoice processing would improve, minimizing the need for multiple rounds of review and approval. A starting point for improvement could be a comprehensive evaluation of the purchasing process, considering the most effective means of pre-approval for purchases to streamline invoice handling and reduce the volume of individual invoices.

Interviewee 4 thinks that there is still potential in utilizing the catalogs more. Transforming the catalog into a global one would significantly facilitate the purchasing of small items from various locations worldwide. Especially IT products and some licenses were considered, but interviewee 3 also brings up the protective equipment for work. Currently there are no global standards regarding these, which is also a risk. If there would be global standards for the safety gear, they could be found from catalogs where applicable, similarly to mobiles phones now. This is a shared desire among the interviewees, and it is wished that the new SAP can assist in implementing the catalogs further (Interviewee 9). It is preferred to order items locally from catalog, as no one wants to ship them around unnecessarily. This approach would enable relatively easy expansion of the global scope and enhance transparency in other countries where, at present, there may be a single individual responsible for all purchases, the current system is functioning adequately but has room for improvement. Interviewee 5 agrees on this, that the system needs to evolve and requires investment; it is not a finished product. It demands effort to incorporate the desired catalog-based purchasing features. Everything cannot be updated in the case company; it should be the responsibility of the supplier to update the catalogs. Timeliness of deliveries and services, goods receipt, and closure will be significant aspects, potentially involving automated processes such as auto-closing GR and automated receipt processing. Also following up open orders should be more efficient. Currently, our system does not possess such capabilities. Despite our

intention to utilize the system, it must be efficient, as the workload increase is quite significant otherwise.

Evaluating the business case and considering the financial implications are essential factors in decision-making. While minimizing risks that come from purchasing outside systems is important, it may not be feasible to eliminate all risks entirely. Therefore, finding a balance between risk reduction and economic feasibility is crucial. Investing excessively to eliminate a risk may not always be the most cost-effective solution, and companies should consider alternative strategies based on their specific circumstances. (Interviewee 3) Interviewee 6 states that the overall process must be considered when contemplating whether the objective is to promote system-based purchasing specifically or if there could be an alternative approach to purchasing. It may be possible to explore a different perspective that does not solely focus on a specific aspect of the entire process.

When talking about implementing better compliance, interviewee 4 states that they perceive the No PO, No Pay policy as unsuitable for a R&D heavy company that may require ad-hoc purchases to ensure continuous production. In situations where immediate needs arise, relying on the purchasing process in the system and waiting for three days for delivery may not be feasible. A balance needs to be maintained, which seems satisfactory in our current context. Creating awareness and fostering understanding among individuals about the ease of the purchasing process is essential for encouraging their participation. It is imperative to ensure that the system itself is user-friendly and intuitive, facilitating a seamless purchasing experience. Additionally, providing clear instructions and guidelines on what should not be included in the system is equally important. By effectively conveying this information, users can make informed decisions and avoid unnecessary entries or errors.

Similarly, according to interviewee 6 it can be argued that the No PO, No Pay policy may not be the most efficient and agile approach. In such cases, it would be advisable to have an exception handling process in place, where we maintain a list of items that do not require purchase orders and ensure that the rest follow the prescribed process. This approach is easier to manage and provides clear guidance. Additionally, implementing such a cultural change requires more than just conducting a few training sessions or having materials available on company platforms. For a systematic implementation of this change, it requires top-down

support, with leadership providing the necessary backing and driving the change forward. It should be cascaded and communicated on a country-specific basis to the employees.

Interviewee 8 has a similar view on needing top management support but is more easily in favor of implementing a stricter policy. Interviewee 5 also highlights a No PO, No Pay policy as a possible action point with culture change.

> "I'm hoping when the system starts, and everybody hopefully needs to use it. No PO, No Pay, we could use that process, that will help. I think it must be from the top to the bottom if the top management support it encourages their team to use. Of course, in sourcing we can influence but we don't have enough power by ourselves." (Interviewee 8)

On the contrary to others, interviewee 7 sees the whole implementation challenging in the context of marketing purchases. There isn't seen many opportunities for improved regarding system-based purchasing for the function.

> "I can't see that it could be implemented to marketing, we should focus on marketing and others do the admin type of work in purchasing. The world we live in where everyone should know how to do everything, but it is difficult when you do something very rarely. Everyone shouldn't know how to do everything, there needs to be special know how."

7.7.2   Resources and competences needed in change management

When discussing what resources and competences are needed for system-based indirect purchasing there were multiple. For the interviewees 3 and 9 the biggest was time, as the order volume is quite high and sometimes looking for what you need from the system is not as efficient.

On personnel resource side, interviewee 7 wishes there would be a new resource or contact person for doing PRs in the system in a centralized way, similarly to facilities ordering. Someone who does them daily and thus is hands on with the system. This would be seen as ideal solution for the functions where the systems haven't been in use in the past.

> If we expect everyone to do it only sometimes, the system should be very intuitive and rarely that's the case. In reality, there should be someone you can ask them to do the PR and other admin work, so you don't need to do it yourself.

Interviewee 6 also highlight adequate resources, there should be allocated to handle the indirect purchasing related tasks in local offices, as it is not feasible to do purchase orders without sufficient personnel to execute them. There are typically two aspects to consider: the operational aspect and the staff's expertise. It is essential to pay attention to the fact that when purchasing items, why do we not adhere to the best possible way of doing it. The second aspect is the analytical expertise in purchasing, which could be enhanced to identify genuinely beneficial areas where investment is worthwhile. Generally, there is not a significant emphasis on purchasing expertise, and the absence of a direct indication of personnel with such expertise is evident. Moreover, it is important to have a clear understanding of what happens after the purchasing process and ensure that the relevant individuals are appropriately trained. Major changes take time and cannot be achieved overnight.

There are typically two aspects to consider according to interviewee 3, the operational aspect and the staff's expertise. It is essential to pay attention to the fact that when purchasing items, the best possible ways of doing it would be utilized. The second aspect is the analytical expertise in purchasing, which could be enhanced to identify genuinely beneficial areas where investment into processes is worthwhile. Generally, there are purchasing professionals in the bigger case company offices, and other local offices are being trained now for local sourcing and purchasing responsibilities. The local competence for selecting the best suppliers is also brough tup by interviewee 4. The global sourcing team must work as a driver in setting up the competences, but then the ordering for catalog items could happen the same as in Finland.

Interviewee 5 states that it is important to consider the overall transformation of our purchasing practices. Instead of solely focusing on the manual inputting of purchase orders, we should strive to establish a more efficient and system-based approach. While understanding the functioning of our purchasing system is necessary, it should not overshadow the broader objective of shifting our purchasing culture towards utilizing system-based purchasing methods. This transformation requires careful consideration and

planning. It involves reviewing specific purchasing cases, determining the items to be purchased, and establishing appropriate payment terms and conditions. The challenging aspect lies in effectively translating and implementing this new approach throughout the company. It necessitates a combination of purchasing expertise and efforts to ensure a successful transition. Additionally, having a solid understanding of the purchasing system's capabilities and utilizing best practices, such as leveraging tools like Basware for spend planning, is crucial. This system knowledge enables us to make informed decisions and optimize our purchasing processes effectively.

While the increased volume of PO's may require additional resources to handle the workload efficiently, the benefits gained from implementing a system-based purchasing approach are expected to outweigh the costs. This shift can potentially reduce overall workload within the company, including tasks related to invoice verification and compliance, resulting in improved efficiency and productivity. Ultimately, by embracing a system-based purchasing model and carefully managing the transition, we can streamline our practices, enhance efficiency, and drive positive outcomes for the company. (Interviewee 5)

7.7.3   Support and training needs in the change management

From the interview analysis, the need for both face-to-face and video training became apparent. The indirect sourcing team has rolled out a How to Buy- training this year for the company's learning platform. This was seen as a great start in sharing the information on the defined methods to buy. The setup was more of a study guide for purchasing methods and process in a text form.

Interviewee 8 shared the training by email with the whole US management. That info sharing had good results, as some managers require all team members to do the training and gave feedback on it. Similar results can be achieved when the training. is part of the HR employee handbook. For the local offices, it's seen as beneficial to train a system super-user, who can support the office with using the system and methods. Based on the experience gained from working with large teams, particularly the projects team, it has been observed that there are a couple of system superusers who are then receiving regular training sessions from sourcing. The team has been informed that they can approach these superusers or contact the

sourcing contact for any questions or issues they may have. In cases where the team encounters problems that they are unable to resolve independently, these issues are typically escalated to the sourcing contact for resolution. By leveraging the expertise and support of these superusers within the teams and establishing effective communication channels, the US sourcing has successfully ensured smooth purchasing operations and provided timely assistance to various offices and teams. (Interviewee 8) The trainings and support has been seen as very valuable in the Canada office (interviewee 9).

The upcoming purchasing system change from EBS to SAP came up many times as a key theme in the interviews. Interviewee 6 nightlight that extensive training is needed, some learning course won't be sufficient in implementing a new system and especially if there would be stricter policies implemented to purchasing. The consensus among the interviewees is that live or even face-to-face training would be preferred by all users interviewed. This way it is usually done in a more practical approach and the trainees can ask questions. This is seen as especially important for the heavy users of the current system. These could be done is small groups, interviewee 2 suggests. On top of the face-to-face live trainings, also video format is preferred for this kind of training. Especially if exercises are incorporated to the training and videos are kept relatively short, with additional checklists encompassing all the steps (interviewees 1 & 8). Other than SAP training needs were also identified. Interviewee 1 would have wished to get a comprehensive training form sourcing team when she started in the company last year. This would've saved time later on needing to always ask guidance from the buyers. Trainings for the M-files usage also came up, as it is used for storing contracts. Interviewee 7 whose team did purchasing also independently, hadn't' received any training for the application. Now the contracts were stored to Teams. Interviewee 3 also highlighted the need for have continuous training.

> "It does not solve the problem if a person hastily undergoes training once and then, after six months, makes a purchase without considering how it was instructed back then. We need to have a similar solution as in matters of cybersecurity, where reminders are provided to prompt reflection such as, "Hey, you did it this way, thus this happened. Check the information on how it should have been done." This approach would be connected to the individual's actions, and gradually, it will shape the culture."

Interviewee 5 regarded the How to Buy training as a great start, but that the approach was more guidance based than strict policy. The No PO, No Pay policy was brough up again as something that should be considered. Driving up system-based purchasing needs a cultural shift training, which is by no means an easy task.

> "The current approach we have adopted is centered around the "How to Buy" training. Its purpose is to provide guidance on the purchasing process. However, it is worth noting that in many organizations, the " No PO, No Pay " principle has been implemented, where a push mode is employed to enforce compliance. Individuals are compelled to complete orders, as failure to do so would result in non-payment of invoices."

Culturally speaking, this the system-based purchasing implementation demands considerable effort and support. In this context, it becomes crucial to consider the ways through which we can effectively implement this approach and identify the areas where it would be most beneficial.

> "If we were to enforce rapid adoption of the No PO, No Pay model across the entire company at once, it would lead to significant disruptions. We would then face a flood of questions and issues that we would be unable to manage. Instead, we need to adopt a phased approach, focusing on specific areas that require attention. Once these areas are addressed and key users are trained to follow our purchasing model, we can move on to the next phase. (Interviewee 5)

It is suggested by interviewee 5 that for instance, the implementation could start from IT purchasing and ensure that employees understand how to make purchases in this specific area. This approach provides a solid foundation, by training and creating awareness among employees regarding the company's defined purchasing methods, processes, and practices. However, the actual transition to system-based purchasing is a lengthy journey, and individuals often struggle with this shift, so extensive support is needed.

8. Discussion and conclusions

The study's objectives were met with being able to answer to all the research questions. The findings show light in system-based purchasing in the case company and discuss how it should be developed further. The results were also in line with previous studies regarding indirect purchasing development, especially in the fact that the area is hard to grasp, and clear targets are difficult to set. The answers to the research questions are concluded below, following with suggestions for future research and limitations with practical contributions.

8.1   Answering the research questions

First the answers to the sub-questions are analyzed, to support insights to the main objective of the study. The answers will be concluded one by one, based on the empirical study results. Connections to previous studies will also be made, to highlight similarities and differences.

What are the benefits and challenges in purchasing through the system?

According to the study, purchasing through the system offers benefits such as transparency, visibility, time savings, governance, traceability, and improved invoice handling. Transparency allows for tracking various purchase details, while visibility aids cost management and forecasts. Gardenal (2013) and Chan & Kingsword Owusu (2022) also highlighted transparency as one of key benefits, as it enchases the following of right processes, and the tracking of orders and contractual conditions. Time savings are proven to be achieved through streamlined processes. What wasn't mentioned in previous studies presented on the same subject is governance. It is improved by following the defined methods when purchasing something, as it removes uncertainty regarding whether things were done correctly, if the order is in the system and it is approved. This benefit is particularly valuable for individuals involved in the process. Traceability ensures order safety and timely payments. Traceability also makes the process smoother for stakeholders, as it allows tracking the status of orders and assessing supplier adherence to promised lead times. One generally presented key benefit wasn't validated in this study. This was improvement of supplier relationships (Chang et a. 2014). However, the supplier perspective

was excluded from the scope, and it could be concluded that for example implementing features like the punch-out catalogs with preferred suppliers would also lead to closer relationships and integration.

However, there are also challenges that can be classified into high-level and practical categories. Change resistance, organizational culture, bureaucracy, and resource allocation are high-level challenges. Resistance to change and a culture prioritizing individual consideration are hindering the system-based purchasing compliance in the case company. Challenges with current culture and resistance are often seen in studies about change management and can be tackled by preventative measures in involving the stakeholders, communicating effectively, and focusing on the UX (Nor et al. 2022; Markus 2004) Also, if the bureaucracy is seen as excessive or there are limited resources, these affect efficiency in using the systems globally. However, it has been concluded that implementing e-procurement can even lead to less bureaucracy in the end (Chan & Kingsword Owusu 2022; Croom & Johnston, 2003; Toktaş-Palut et al., 2014). System-related challenges include lack of flexibility, especially in service purchasing. This is as an area where there are conflicting opinions, as some interviewees said that is not applicable to system-based purchasing, while others said that there shouldn't be issues when good purchasing practices are followed. However, previous studies have agreed that service purchasing is generally considered more challenging (Carter et al. 2003). Process-related challenges involve complexities in receiving, supplier opening, contract templates, and accounts.

To overcome these challenges and maximize the benefits, addressing the change resistance with trainings and communication, aligning culture, optimizing level of bureaucracy, allocating resources appropriately globally, and addressing system and process-related issues with development and best practice actions are crucial. Taking these steps into account will ensure successful implementation and adoption of system-based purchasing, making the benefits visible to stakeholders.

What are the risks in purchasing outside the methods?

The interviews conducted shed light on the various risks associated with purchasing outside the established methods and systems. Interviewees who followed the defined methods and

utilized the purchasing system did not mention any significant risks or setbacks. However, others identified several potential risks. One significant risk highlighted by interviewees was the possibility of overpayment and double invoicing, as there isn't the same matching for non-PO invoices, as it is based on approval and not a system match. The control measures built in-to the system-based purchasing prevents such risks, as individuals can't exceed their approval limits and the invoice data much match the PO data. Sometimes there are issues even with PO invoices, and this challenged should be tackled with suppliers.

Another relating risk discussed was the potential for costs to spiral out of control when purchases were made without a purchase order. Without proper visibility into spend, additional costs on invoices could be approved without considering the bigger picture. This lack of visibility makes it challenging to effectively limit indirect spend if it would be needed and could thus hinder the company's ability to meet financial goals, especially for publicly listed companies that must adhere to specific financial targets. From a financial forecasting and cash flow perspective, the arrival of large invoices without prior visibility of the spend complicates forecasting and cash flow management. Integrating purchase order reports into cash flow forecasts could enhance forecasting accuracy and provide better utilization of available PO data. The unexpected arrival of invoices from new suppliers without prior knowledge also increases the workload, requiring manual work from multiple departments to set up new suppliers in the system before payment can be made.

It was still seen essential to carefully assess the risks associated with purchasing outside the system against the potential increase in workload and costs that implementing the purchase order process to more cases could add. However, the workload divides both between system-based purchasing, which requires more upfront work, and invoice-based purchasing, which involves more post-purchase thought and work. According to Harris and OGbonna (2002) the area of supply management and purchasing has not adequately examined organizational misbehavior and non-compliance. This creates an opportunity to investigate the impact of non-compliant buying, to determine whether it is detrimental, resulting in lost synergy gains and realized risks for the company and in supplier quality, or in some areas more beneficial and flexible, than risky. This could also be looked at from the centralization versus decentralization perspective. As there are benefits in centralized purchasing such as consolidation, cost savings, and right purchasing processes, but the benefits of hybrid

systems are a combination of the advantages of centralized purchasing and added flexibility and local expertise. One example of implementing a hybrid system is to maintain centralized supplier contracts and centralized purchasing responsibility for globally used goods. This allows for the utilization of economies of scale and at the same time, other individual decentralized departments have the authority to carry out procurement based on pre-established rules, avoiding possible risks, and ensuring flexibility and unit-specific expertise for the global offices. (Baily, et al., 2005).

Adopting a system-based approach, leveraging purchase orders, and integrating them into forecasting processes can mitigate these risks and promote better financial management. To address these risks and challenges, future steps could involve considering either the stricter purchasing policies or otherwise used guidance for allowed exception cases, like the global offices or what the low-value purchasing is currently. Enhancing visibility and cost control through system-based purchasing, integrating PO data into forecasting processes, and providing training and support to employees would be helpful. This would ensure compliance with clearly set guidelines, improve financial management, and streamline purchasing processes for more effective operations.

How to improve the system features and measure performance within the indirect purchasing processes?

To improve the system and measure performance within indirect purchasing processes, several key features and metrics were identified. On top of this it was revealed what were the contributing factors to the user experience. One important feature is enhancing the search function and filtering capabilities to facilitate easier locating of requisitions. This improvement could include filtering options by timeline, categories, cost centers, or suppliers. Additionally, allowing multiple separate purchase requisition drafts to be open simultaneously would enable more efficient order consolidation from the requestor side and provide a comprehensive overview of orders.

Improving visibility and status tracking is another critical aspect. Implementing a traffic light system or status indicators in the requisitions' header view would enable requestors to quickly determine the status of their requisitions. Furthermore, introducing a ticket system

for the sourcing steps preceding purchase requisitions would enhance traceability and workload management. Transparency and visibility were the the key features identified in UX, so keeping them at the same level or even improving those should help with system compliance (Nor et al. 2022)

Analytics and reporting play a vital role in measuring system performance. Generating reports on purchasing volume per supplier, category-specific purchases, and price development would provide valuable insights for purchasing activities, supplier assessment, and informed decision-making. Additionally, enabling access to invoices directly from the system for the users, without the need for additional requests, would facilitate detailed analysis and streamline processes. This support in the decision making would be an advantage (Hawkings et al. 2004).

User experience and system intuitiveness are crucial factors to consider. Designing a user-friendly and intuitive system that guides users effortlessly, even those with infrequent system usage, is essential for a smooth experience. This becomes particularly important during the new system implementation, where an intuitive user interface can help with change resistance. System intuitiveness also allows end-users to focus more on value adding tasks (Angeles & Navi, 2007). The interviews indicate that the user experience with the current indirect purchasing systems is generally good. Regular users find the system easy to use and catalogs could be compared to a basic online store. Positive aspects include email-based purchase requisition approval and prompt support from indirect sourcing and buyers. There are occasional hiccups and a need for users to explore system functionalities, but overall, the usability, satisfaction and effectiveness were good. All of these are considered to be the main UX dimensions effecting e-procurement and could be followed up as a metric. (Noir et al. 2022).

Automation features could greatly enhance efficiency. Incorporating automated goods receiving based on specific conditions would eliminate manual entry and improve efficiency. Implementing punch-out catalogs, would address the challenge of manually updating catalogs globally. Also issuing automated reminders for open purchase requisitions would ensure timely follow-up and action from the requestors as well. This way the automated

features of e-procurement systems improve process efficiency, reducing order processing time and minimizing manual work (Chan & Kingsword Owusu 2022).

In terms of performance metrics, leveraging business intelligence tools to measure order backlog development and its influence on cash flow would provide valuable insights. Analyzing transaction types and identifying low-value invoices would shed light on process improvement opportunities. User satisfaction with the purchasing tool, delivery time, and lead time should also be assessed to evaluate system performance. Tracking supplier performance is also essential (Pohl & Förstl, 2011). Measuring on-time delivery of purchases and monitoring retrospective adjustments to purchase orders, especially for service-related ones, would provide valuable indicators for supplier performance evaluation and process development. It was also stated that the involvement of indirect sourcing in purchases could be seen more crucial than the PO process itself, or the percentage of purchases going through the system. Implementing a measure for the indirect spend where sourcing has been involved in could be beneficial from the risk point of view. This could be measured despite the fact that was a PO issued, or was the case handled contract-based. The absence of sourcing involvement can be seen as a risk, and it would be beneficial to have visibility on the share of significant cases where sourcing is not involved.

Efficiency metrics are important as well. Measuring the complete end-to-end process cycle time, including the handling of PO invoices, would assess the overall efficiency of the purchasing process. This is also concluded to hold particular significance to internal stakeholders (Caniato et al., 2014; Chao et al., 1993). Evaluating the level of manual work required during the stages of the process provides insights into the automation achieved. Ensuring alignment between PO and invoice contents is crucial for accuracy and process efficiency. By incorporating these key features and metrics, the system can be improved and performance within indirect purchasing processes can be effectively measured.

How to manage change in the indirect purchasing system implementation?

To effectively manage change in the further implementation of the indirect purchasing system, several actions were identified from the interviews. One crucial aspect is to set realistic targets, as establishing a specific numeric target for system-based purchasing

percentage can be challenging due to the unique nature of each case. While benchmark information can provide insights, it may not directly apply, so the focus should be on where the system-based purchasing makes sense, if there would be the possible exceptions that might excluded from the scope after analysis. For the cases that would be beneficial to get into the system scope, best practices for purchasing should be identified and communicated clearly to stakeholders, to convey the personal and company benefits that can be achieved through system-based purchasing.

An effective utilization of catalogs is another key area to enhance global indirect purchasing. Implementing catalogs globally to the system countries would streamline the purchasing of small accessories and for example, safety gear, from various locations worldwide. A kind of guideline should be assessed that what is the order quantity that would be a good candidate for catalogs. To facilitate this, it is important to establish global standards for commonly used items and make the processes more automated which would contribute to a more efficient catalog-based purchasing process. Automation features can greatly enhance efficiency, as otherwise it will need plenty of manual updating and might not be feasible (Chan & Kingsword Owusu 2022). Implementing punch-out catalogs, which are integrated supplier-maintained catalogs, would address this challenge. Also, incorporating automated goods receiving based on specific conditions would eliminate manual entry and improve efficiency. Implementing automated reminders for open purchase requisitions would also ensure timely follow-up and action from the requestors as well. The global purchasing stakeholders should be involved in planning these changes, to make them feel involved and prevent resistance to change (Markus, 2004).

Getting support from top management is also crucial to encourage the adoption of system-based purchasing (Kotter 1996). It is essential to communicate the importance of the purchasing methods to employees on a country-specific basis, emphasizing the benefits and aligning it with company goals for digital scalability. Training system super-users to support local offices and aid others, is also another key action when the scope is global. This is already under work at the case company. The training needs to also consider continuous improvement and reminders, as they are necessary to reinforce the desired cultural shift towards system-based purchasing. Preparing for the upcoming system change to SAP, requires extensive training. Various formats, including live or face-to-face sessions, small

group sessions, and video formats with practical exercises, could be utilized. Additionally, training users on other relevant applications, such as M-files for contract storage, should be arranged.

Creating awareness among stakeholders about the benefits of the purchasing process and ensuring that process would be as intuitive as possible are crucial. Providing clear instructions and guidelines can help avoid unnecessary entries or errors and lessen the resistance from stakeholders.

In conclusion, implementing change and driving a cultural shift toward system-based purchasing requires time, top management support, effective training, supporting system features, possible new policies and ongoing evaluation, communication, and improvement of processes. By considering these actions, the company can successfully manage the implementation of the indirect purchasing system and optimize their purchasing processes.

How to develop system-based indirect purchasing further globally?

The research findings based on sub-questions and empirical analysis have provided insights to address the main research question. System-based indirect purchasing faces numerous challenges, including the limited understanding of benefits across various functions. The reasons for low level of system-based purchasing found were for example, culture, resistance to change, lack of top management support, historical practices, and fragmented organizational structure. On top of these the company's R&D heavy ad hoc needs and contract-based handling of big spend cases were identified as challenges. When considering these, development actions could be identified.

While the How-to-Buy training has initiated a positive start in enhancing the knowledge about indirect purchasing methods and processes, further extensive efforts are necessary for improved implementation. Live or face-to-face trainings, especially regarding the new system usage, along with video trainings and additional checklists, should be organized. A fundamental transformation of the company's purchasing culture is also required trough trainings and communication. With involving people form different levels and global offices to the trainings and development, the culture and change resistance attitudes might change.

Furthermore, in-depth analysis of specific characteristics in service purchasing should be conducted to identify best practices and facilitate their streamlining within the company and globally. Especially SaaS and consulting type of purchases were seen as challenging to implement into the purchasing system, or even futile. Still some individual SaaS and consulting purchases are already done through the system. The level to which these need to be later readjusted would be interesting to follow as it would shed light into the efficiency and the frequency of additional work needed. Then sharing the knowledge and best practices globally would be beneficial and would bring the teams more together from the previous fragmented working practices.

One thing to also consider is centralized ordering. It is now implemented to the facilities purchases and for PCs in Finland, and in the smaller offices elsewhere most orders might be done by specific person, such as in Canada. It was also suggested by the interviewee in marketing, that there could be a resource that focuses on making PR's as their expertise, allowing others to focus on their core knowledge. There could be benefits in implementing this to some areas, as the people doing the requisitions in the system would become kind of superusers as they would be trained, but preferably the new system would be so intuitive that even the users that log in couple times per year could use it. For these purposes the usability, stakeholder satisfaction and user experience should be considered.

Efforts should be made to emphasize the benefits of system-based purchasing to stakeholders, showcasing the additional advantages got from its utilization, even in the presence of already done contractual agreements. These benefits may manifest at both personal and company levels, encompassing aspects such as reduced tracking in multiple places, improved governance and approvals, and enhanced cash flow forecasts. Incorporating new metrics, such as traffic lights for sourcing steps, can offer additional benefits for follow-up purposes for the sourcing case even before the PR is done. These traffic lights could also be implemented within purchasing activities. Despite positive feedback regarding reachability and support received from buyers, adopting a ticketing system instead of using just emails would enhance transparency and follow-up procedures for both stakeholders and buyers. Moreover, the volume of open tickets would provide visibility into purchasing workload management, enabling identification of recurring support

needs and training requirements. Also, the standardization of buyer's work should be considered in the sense that there would be common practices now that more people globally are getting purchasing responsibilities.

The introduction of a new system facilitates the definition of the scope for expanding system-based purchasing. Leveraging new system functionalities can streamline purchasing processes that are currently challenging under the existing setup. Examples include the implementation of punch-out catalogs globally and the exploration of further opportunities with spend plans. Notably, the current system's user experience includes system approval by email, prompting investigation into the potential utilization of this feature in the SAP system as well.

Current challenges, particularly those associated with the receiving process involving the goods receiving team and suppliers, require attention. Clear communication should specify that goods should only be delivered to designated locations or as agreed upon. This approach ensures that requestors can rely on that the receiving of physical goods is generally the responsibility of the receiving team, while service orders remain the responsibility of the requestors.

The applicability of a No PO, No Pay policy should be also thought over, considering its potential value and possible stiffness to the operations, and establishing a possible list of exceptions. Prior to implementation the indirect purchasing process should be developed and streamlined, so that alignment of purchase order quality, receiving procedures, and invoice data is in place. In conclusion, the study found many areas where development steps should be considered, and also showcased different directions for future state.

8.2   Suggestions for future research

There are still many areas on the development steps that should be further considered and analyzed, especially in practical level. However, new suggestion for future research would be investigating the subject in the context of supplier collaboration. Exploring the role of supplier collaboration in system-based indirect purchasing by identifying strategies, system features and collaborating with suppliers to optimize purchasing processes, enhance supplier

performance, and leverage the benefits of the system. This could include analyzing the impact of supplier collaboration on cost savings, efficiency, and overall purchasing process effectiveness. In this research the supplier perspective was not included except to mention punch-out catalogs as a system feature where supplier takes over the catalog updating.

This research considered the global perspective, but the efficient knowledge sharing and collaboration with different legal entities would be interesting subject to investigate further. This could be done by investigating knowledge sharing practices and collaboration types within the case company and across different locations. Assessing the effectiveness of the platforms in sharing best practices, lessons learned, and innovation ideas related to system-based indirect purchasing.

8.3   Limitations and practical applicability

The study was conducted from the perspective of one case company, so the generalization of results might be challenging. However, there aren't many studies done in indirect system-based purchasing, so the study acts as an example of what kind of benefits and challenges there can be, and what kind of development activities could be conducted based on them. It combines purchasing process management with performance measurement and change management, which together bring practical applicability to the case company, and for general comparison purposes. It fills some voids in previous studies and opens discussion for future research in the field and next steps.

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Appendices

Appendix 1: Interview questions

How does this study relate to you?

- What is your position in the company and how would you describe your responsibilities?
- How does indirect purchasing relate to your work?

How familiar are you with the current methods to buy indirect goods and services?

- Are you familiar with the defined methods to purchase indirect goods and services?
- How familiar are you with the system-based purchasing process? (Requisition, order, tracking, receiving)

Why increase system-based purchasing further and in what areas?

- Could you talk about how you utilize the purchasing system? If you don't, why and what methods are in use?
- How are the other defined methods in use?
- What kind of risks come with purchasing outside the system? Price, supplier, quality, heavy post-order processing, feedback etc.
- How important it is to involve sourcing support into the purchasing?
- Are there some categories/types of purchases that fit into system-based purchasing better than others in your opinion? Why?

What are the drivers and barriers in purchasing according to the defined methods?

- What are the biggest benefits in system-based purchasing? Personal, Team, Company level. UX experience. Support from buyers, efficiency etc.
- What are the biggest challenges in system-based purchasing? Personal, Team, Company level.

How to manage change in the indirect purchasing process and system implementation?

- Any concerns in moving to an even more system-based purchasing model globally as part of the company's strategic goal for scalability trough digital capabilities?
- Where would you start with this project?
- What are the competences/resources needed in using the system-based purchasing?

- What kind of support and/or training would be needed to utilize the system more for indirect purchases? In addition to How to buy-training.
- Are there somethings you expect from the purchasing system, but is now missing?
- Any additional improvement ideas for the indirect purchasing processes or better implementation?

How to measure compliance and set targets within the indirect purchasing process?

- What kind of features or information would be beneficial to get in the system related to purchasing?
- What kind of indicators could be used to measure the performance of the purchasing system?