



STRATEGIC APPROACH TO PROCUREMENT DEVELOPMENT

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Saara Rajala

Examiners: 1st Katrina Lintukangas

2nd Sirpa Multaharju

ABSTRACT

Lappeenranta–Lahti University of Technology LUT
LUT School of Business and Management
Business Administration

Saara Rajala

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University lecturer Sirpa Multaharju

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The aim of the thesis was to study the development of strategic procurement, by identifying the elements of the supply strategy and by implementing the supply strategy. The theoretical part of the work consists of related themes identified from the literature, these are strategic procurement, supply strategy, supply strategy elements, and implementation, including category management, ABC-analysis, portfolio analysis and spend analysis. The objective of the research was to create means of developing strategic procurement in the case company, considering the company's industry and the nature of project business.

This study has been carried out as a qualitative study, which also has indications of quantitative study. The data collected for the study consists of five interviews, which were conducted with people working in the case company, as well as information obtained from the company's ERP system.

The results of the study show that the supply strategy can be formulated and implemented in different ways, and company's industry and the nature of purchases must be considered. In the construction industry, the share of procurement costs is large, and it has a significant impact on achieving productivity. This study emphasized the importance of cost analysis in the background of implementing supply strategy, as it can be used to identify the most strategic procurements based on consumption. Based on the results of the research, the creation of supply strategy, the classification of procurements and the organization of procurement can be recommended to the case company in order to help the development of strategic procurement.

TIIVISTELMÄ

Lappeenrannan–Lahden teknillinen yliopisto LUT
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Saara Rajala

Strateginen lähestymistapa hankintatoimen kehittämiseen

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Pro Gradun tarkoituksena on tutkia strategisen hankintatoimen kehittämistä hankintastrategian elementtien tunnistamisen sekä hankintastrategian toteuttamisen avulla. Työn teoreettisen osan muodostavat kirjallisuudesta tunnistetut aiheeseen liittyvät teemat, joita ovat strateginen hankintatoimi, hankintastrategia, hankintastrategian elementit sekä toteuttaminen, sisältäen kategoriajohtamisen, ABC-analyysin, portfolioanalyysin sekä kuluanalyysin. Tutkimuksen tavoitteena oli luoda strategisen hankinnan kehittämiskeinoja, sekä luoda kohdeyrityksille kehitysideoita huomioiden yrityksen toimiala ja projektitoiminnan luonne.

Tämä tutkimus on toteutettu kvalitatiivisena tapaustutkimuksena, jossa on lisäksi viitteitä kvantitatiivisesta tutkimuksesta. Tutkimukseen kerätty data koostuu viidestä haastattelusta, jotka toteutettiin kohdeyrityksessä työskenteleville henkilöille sekä yrityksen toiminnanohjausjärjestelmästä saaduista tiedoista.

Tutkimuksen tulokset osoittavat, että hankintastrategia voidaan muotoilla ja toteuttaa eri tavoin, ja sen muotoilussa tulee huomioida yrityksen toimiala sekä ostojen luonne. Rakennusalaalla hankintojen osuus kustannuksista on suuri ja niillä on merkittävä vaikutus tuottavuuden saavuttamisessa. Tässä työssä korostettiin kuluanalyysin tärkeyttä hankintastrategian luomisen taustalla, sillä sen avulla voidaan tunnistaa strategisimmat hankinnat kulutuksen perusteella. Tutkimuksen tulosten pohjalta, kohdeyritykselle voidaan suositella strategisen hankintatoimen kehittämisen avuksi hankintastrategian luomista, hankintojen luokittelua sekä hankinnan organisointia.

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In Lahti, August 2nd 2022
Saara Rajala

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1. Introduction

Procurement and related operations have changed a lot in recent decades and procurement has become an important part of corporate business. Nowadays, almost every company engages in purchasing activities as part of its own business, to be able to operate in the market. The growing importance of procurement is reflected in the fact that purchasing activities, which previously played a supporting role, have become a strategic activity, and are recognized as providing significant added value and a significant competitive advantage to organizations. (Chan & Chin 2007) According to Carr & Smeltzer (1997), strategic sourcing is a systematic and comprehensive process designed to add value to a company and help achieve long-term goals. The right purchasing decisions can improve quality, material inventory and productivity, which is why the materials to be procured need to be tendered, when companies are looking for new materials or modify their supplier base. (Bianchini, Benci, Pellegrini & Rossi, 2019)

The economic importance of procurement is increasingly understood in companies, which is why companies make use of strategic procurement methods. The goal is to increase the efficiency of the procurement and the company's financial profitability. (Paulraj, Chen & Flynn 2006) To achieve these goals, companies need to develop sourcing and create new modes of operation. The supply strategy often starts with the company's strategy and continues from there to other strategies (Knudsen 2003) and the supply strategy should include the measures that will enable the company to procure the necessary materials and services as efficiently as possible. The supply strategy should be integrated into the company's business and activities should be consistent with the company's business strategy (Watts, Kim & Hahn 1995). The goal of the supply strategy is to give the right direction to the company's procurement activities in the long run.

The supply strategy consists of various elements, which are strategic decisions related to, for example, the company's core competencies, including make or buy decisions, supplier relations and cooperation, issues related to the supplier base and the choice between centralization and decentralization (Ahtonen & Virolainen 2009) Companies have very

different purchases and every purchases also have different meanings in organizations, which is why not all procurements can be treated in the same way. Procurement strategies also vary depending on the purchasing situation, as each situation is unique, and each strategy must be tailored to the type, nature, and company of the product to be procured. (Lintukangas, Kähkönen & Virolainen 2013) Companies must define different strategies for procurement categories, and in addition, the structure of procurement must be defined separately for procurement category levels (Karjalainen 2011). This means that a wide range of products to be procured must be managed at the category level, designing, and implementing different category strategies (Olsen & Ellram 1997).

Procurement and the means related to the development of procurement have been studied a lot in recent decades, based on which the strategic importance of procurement as part of companies' business has also increased. In this thesis, the focus is on how the company's procurement can be developed, and how to define supply strategy that considers the categorization. The issue is topical, as the main contractors in the construction sector are increasingly dependent on their suppliers, and the results of several studies show that up to 90% of the main contractors' project turnover is spent on purchasing goods or services (Bemelmans, Voordjik & Vos 2012). In this thesis, the case company is operating in the field of sports and ground construction, and in the case company, procurement is a major part of the company's operations, which is why research on the subject is important.

1.1 Research questions and objectives

The aim of this thesis is to study the development of procurement from a strategic perspective. The thesis examines the definition of the supply strategy and supply strategy elements, considering the different categories of procurement in a company that is operating in the field of sports and ground construction. The purpose of the study is to enable the case company to develop its strategic procurement and related activities and to gain a clear understanding of the different purchases that are important to the company, and to which should be given more attention and should be approached in different ways. The research is based on the literature and previous research presented in the theoretical part. To achieve

these research objectives one main research question and two sub-research questions have been assigned to the research. The main research question set for the study is:

RQ1: How strategic approach to procurement can be developed?

The main research question is to answer how the strategic aspects of procurement can be developed. There are several different aspects to procurement development, of which strategy and its development is one of the most important elements. However, because procurement is often very different, a single supply strategy does not work in the same way for all procurement, and the elements of the supply strategy may vary in different industries. which is why the classification of procurement is important. Therefore, the following questions have been created as sub-research questions for this study:

SQ1: What are the elements of supply strategy?

SQ2: How to implement supply strategy?

The purpose of the sub-research questions is to gain a broader and deeper understanding of the topic and to apply and create a deeper answer to the main research question. A supply strategy is a plan for how to purchase, ensure availability, and how to effectively work with suppliers. This is essentially related to procurement development, which is why the first sub-research question looks at the elements of a delivery strategy. Effective implementation of the supply strategy is important, and various procurement tools and their analyzes can be utilized in it, so another sub-research question will be used to find out how a supply strategy can be implemented.

1.2 Theoretical framework

The theory of this thesis is based on the literature related to procurement, including the review of procurement, supply strategy and the most important elements related to it, as well as supply strategy implementation tools and analysis. The theoretical framework is based on a construction company (case company) perspective, from which procurement is examined in more detail. The conceptual framework and theoretical perspective of the study is

presented in figure 1. The main concepts are based on strategic procurement, supply strategy and the elements and implementation of supply strategy, including category management, purchasing portfolio model, ABC analysis and spend analysis.

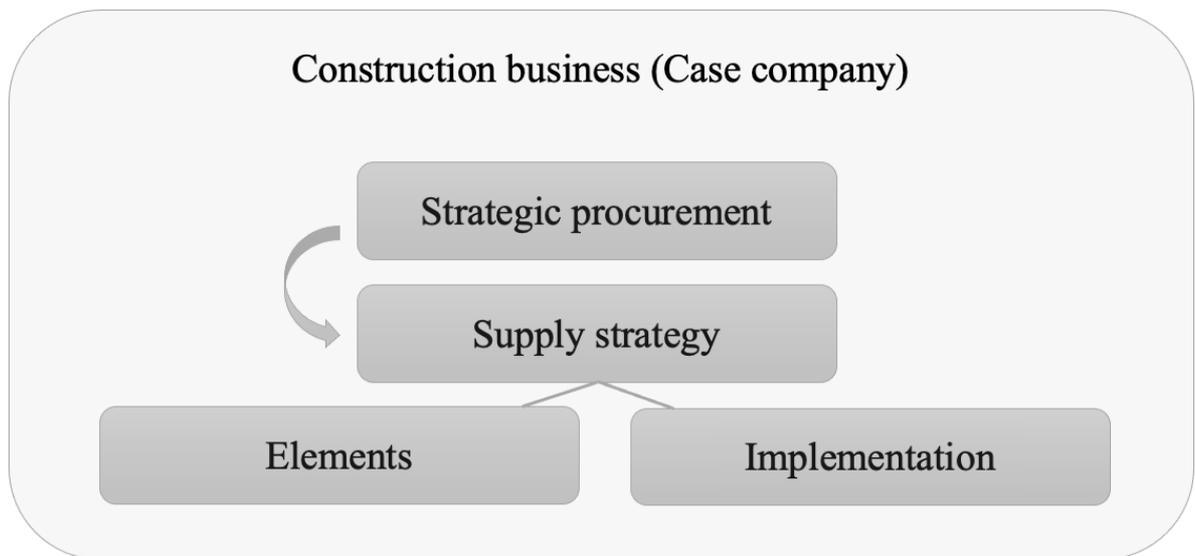


Figure 1. Conceptual framework

1.3 Literature review

The literature review is based on the academic literature of procurement, its strategic perspective, supply strategy and supply strategy elements and implementation. The research of procurement and aspects related to it have been studied a lot in last decades. Important researchers in the study of procurement and its strategic side includes Peter Kraljic and Michael Porter, who have recognized in the 1980s that procurement is not only a secondary function for companies, but it is a strategic function. (Keith, Vitasek, Manrodt & Kling 2015)

The company's overall business strategy creates guidelines for procurement strategies that also consider the category level. Strategies, both business and supply strategy, are widely studied topics in the literature, but aspects related to the development and implementation of the strategy have changed over time (Knudsen 2003). In previous studies related to strategy, only little attention has been paid to the construction industry, and traditional thinking in the industry has downplayed the importance of strategy. Recently, researchers have changed

their perception of strategy in the construction industry, and lately more publications have been made. (Cheah & Garvin 2004)

There are a lot of literature related to supply strategy, which is why it might be challenging to clearly define and formulate the concept. However, the main points of the research are that the supply strategy is a model related to the procurement of necessary materials and services to support the operation, and it is in line with the company's competitive strategy. Purchasing strategies need to be tailored to the product to be purchased, as strategies vary depending on the purchasing situation. (Lintukangas et al. 2013; Olsen & Ellram 1997) According to Ahtonen & Virolainen (2009) the main elements of supply strategy are strategic decisions, such as make or buy- decision, size of supply base, collaboration with suppliers and the level of centralization and decentralization.

Purchasing portfolio analysis has been widely used in several industries in the classification of procurement and in the design of strategies for different categories. (Knight, Tu & Preston 2014). The portfolio approach was initially proposed by Kraljic (1983), whose perspective on the portfolio model can be seen as the basis for the classification of purchases and the creation of purchasing strategies. In this model, products and services are divided into four groups based on the importance of sourcing and the complexity of the supply market. (Olsen & Ellram 1997)

ABC analysis can be applied to the development of procurement and the development and planning of economic activities. In the analysis, products can be classified into different categories according to annual euro-denominated consumption, sales, or margins. The ABC classification is used to search for economically important products and to gain insight of how the resources should be used. (Scholz-Reiter, Heger, Meinecke & Bergamann 2012)

Spend analysis can be used both in the formulation of procurement strategies and in certain purchasing categories and serves a good basis for other procurement analyzes. It can lead to significant cost savings in company's purchasing and plays an important role as part of strategic sourcing. (Nieminen 2016)

1.4 Key concepts

This chapter defines the most important terms for the work, which are closely related to the research topic and the research questions for which these terms are clarified. With this clarification, the reader will have a better understanding of the topics and issues studied. These topics are discussed in more detail later in this study, in the theoretical part.

Procurement and purchasing are definitions of the buying process, but there are differences between these two concepts. Procurement can be used when considering from a broader perspective and purchasing means more operational buying activity. According to Van Weele (2009) purchasing means managing the company's external resources so that access to all the things required to run and manage the company's operations is secured. The purchase includes the delivery of materials with the right quality, quantity, and price. The procurement, in turn, involves all the steps required to get the product from the supplier to its final destination. Procurement includes analyzing purchasing costs, identifying suppliers, and developing and maintaining relationships with suppliers. The main task is to ensure efficient material handling with the right quality and quantity from suppliers. (Van Weele 2009; Lee, Lin & Pasari 2014)

Strategic procurement is the process that guides all procurement activities toward opportunities that enable a company to achieve long-term operational as well as organizational performance goals (Eltantawy, Giunipero & Hanfield 2014). It can be defined as a planning process in organization, that is aimed to ensure the timely supply of goods and services in line with organization's business goals (Carr & Smeltzer 1997). Strategic procurement has become one of companies' critical sources of competitive advantage and expertise (Adobor & McMullen 2014).

Supply strategy can be synonymously used with Purchasing strategy or Sourcing strategy. According to Ellram & Carr (1994) it is defined to relate to the specific actions that the purchasing function may take to support the objectives. The supply strategy includes those decisions related to the procurement of the necessary materials or services to support the company's operations and that are consistent with the company's strategy. The strategy is

related to the integration of functions within the company and strategies may vary depending on the purchasing situation, as each situation is different. (Ahtonen & Virolainen 2009)

Procurement category can be defined as a group of materials, services work, or subcontracting. Procurement can be categorized as a group of similar goods or services that share common characteristics, such as suppliers or demand. Categories can be defined above a single procurement at any level, and the sizes of these categories can vary. There are different tools for categorization, but Kraljic's purchasing portfolio model is the dominant approach (Gelderman & Van Weele 2003).

1.5 Limitations

This thesis deals with strategic procurement in an individual company, which is operating in the field of sports and ground construction. The aim is to gain a holistic view of procurement and to find development proposals that serve the entire company. This work does not deal with procurement processes or procurement risk management and thesis does not provide an in-depth introduction to the operational level of procurement.

An in-depth analysis of the procurement market is excluded from the study, as the study aims to research procurement and supply strategy framework of the case company. Although there is a close link between the supply strategy and the overall strategy, as the supply strategy continues from the overall strategy of the company, a general strategy study has been excluded from this study, although the relationship and implications between them are identified. This thesis is not a guide for companies operating in the same field as the case company, but the focus is on the case company and is intended to be useful to them.

1.6 Research methodology

This research is conducted as a qualitative study. The ultimate purpose of qualitative research is to understand and interpret phenomena, experiences, and practices (Puusa & Juuti

2020). Qualitative research proves to be a good choice when the detailed structures of the events are of more interests than their general distribution. It is also well suited as a method to study individual actors as well as specific events. (Metsämuuronen 2001, 14) More specifically, this study is a case study that is a popular form of business research that makes it possible to describe complex phenomena in a holistic way. (Moore, Lapan & Quartaroli 2011, 243) This work has been carried out as a qualitative case study of a company working in sports construction and ground construction and its procurement activities.

The collected data can be divided into two categories; qualitative information from thematic interviews conducted with company employees and the quantitative data collected from the company's ERP system. Interviews provides information about the current situation of procurement in the company and brings out the biggest development points related to the company's operations. The information from case company's enterprise resource planning (ERP) software is used in the procurement analysis and tools.

The work has been carried out mainly using qualitative methods, but the analysis of quantitative data has also been utilized in the research. Research methods should not be seen as mutually exclusive when conducting research, but both qualitative and quantitative methods can and even should be used in the same research (Alasuutari 2011). In this thesis, the use of both methods provided better perspectives on the outcome of the study.

1.7 Structure of the thesis

The first chapter of this thesis is introduction, which introduces the background to the needs of why such research is being conducted. Theoretical framework is formed from the theoretical part of this study, and theoretical framework works like a guideline and informs what theoretical part includes and what are the effects of these issues in this study. After theoretical framework the most important terms related to the study are defined and the lastly in the introduction the limitations and research methodology of this study is presented.

This thesis includes three main parts. The second and third chapter examines the theory of the research topic and in this chapter, the previous literature and theoretical perspectives are

presented. The fourth chapter is research methodology and data, and this chapter presents first the research methodology and data collection method, then the data analysis and the background of the case is introduced. The empirical part of the thesis is based on analyzing the collected interview data and from the ERP software collected data. The last chapter is discussion and conclusion. This chapter includes findings from the research, validity and reliability of the study, conclusions, and future research.

2. Elements of supply strategy

Procurement is a complex process that can be difficult to define due to its many different context-specific definitions. According to Novack & Simco (1991), it can be defined narrowly as the purchase of goods and services for an enterprise or broadly as an activity that includes the procurement of all goods and services for an organization. According to Van Weele (2005), procurement is a strategic activity designed so that the firm has the necessary resources available when needed. In other words, procurement can be defined as the management of external resources so that the purchasing of goods, services, capabilities, and information, that are necessary for the company operation and management is secure. (Van Weele 2005) The importance of procurement as part of corporate operations has grown and its role has shifted from a secondary support function to a central role in sourcing the resources required for internal operations from outside the company (Roberta Pereira, Christopher & Lago Da Silva 2014). In an effort to maximize the company's overall benefits and meet the end customer's needs as desired (Iloranta & Pajunen-Muhonen 2015).

Purchasing has previously been perceived to be mainly an operational function, the main function of which was to perform functions related to various purchasing processes. According to van Weele (2014), because of its operational role, purchasing activities and their performance were evaluated primarily through functional factors that were delivery on time, quality, quantity, and price. In the early 1990s, interest in buying increased as technology began to evolve and competition increased (Easton, Murphy & Pearson 2002). In recent years, companies' interest in purchasing and its development has increased, as the importance of purchasing as part of companies' turnover and performance has grown significantly. For this reason, companies have also internalized the importance of the strategic role of purchasing as a factor in increasing competitiveness. (Schiele 2007)

The strategic definition of procurement, in turn, forms the process of planning, evaluating, monitoring, and implementing a strategy. In addition to these, it also includes managing procurement decisions as well as directing operations so that the company is able to achieve its long-term goals. (Carr & Smeltzer 1997) According to Ellram & Carr (1994), procurement can affect a company's profitability only when it operates at a strategic level in

the company. This happens when top management understands the importance of procurement and it plays a similar role as in other areas of production.

The recognition of the strategic importance of procurement has grown both in the literature and among professionals. The importance of strategic procurement is also understood in the construction industry, as procurement related to construction can be seen as a complex process with several options and guidelines. Procurement is also a key process in construction projects, as procurement activities range from setting requirements to completing a project. (Ruparathna & Hewage 2013) Construction industry is inherently a project-based activity and involves two interrelated features, a focus on individual projects in terms of decentralized decision-making and financial control, and the need for local adaptation on the construction site. These features reinforce the importance of purchasing and logistics to meet on-site requirements that can be leveraged to improve overall performance. (Ferreira, Arantes & Kharlamov 2015)

In order for procurement to be effective and serve the company's overall business strategy, an appropriate strategy must be created and implemented for procurement. Guidelines for planning a supply strategy define the company's overall business strategy, and procurement activities and decisions must support the company's overall business strategy and objectives. (Harland 2002) The supply strategy can therefore be defined as a long-term plan aimed at setting guidelines and a framework for procurement practices.

The strategic level of procurement has been studied since the 1990s and is still perceived as a popular area for research. There is a consensus in the procurement literature that strategic procurement can improve a company's performance and has both financial and operational measures. (Paulraj et al. 2006) In addition, strategic procurement can help to create relationships with suppliers, better supply chain communication, and develop long-term strategic relationships. These in turn create benefits for companies as well as a sustainable competitive advantage. (Chen, Paulraj & Lado 2004) Also the impact of purchase decisions on the company's results has been studied for years, and its importance as part of the company's performance has been understood. Simply means, that good purchasing decisions can lead to better performance of a company and bad purchasing decisions can lead to poorer performance of a company. (Carter & Narasimhan 1996)

Purchasing is increasingly perceived as a strategic function and strategic purchasing includes a variety of roles ranging from supporting roles to strategic roles. According to Paulraj et al. (2006) in strategic purchasing, there are three characteristics: strategic focus, strategic involvement, and the position and visibility of purchasing professionals. A strategic focus means taking risks to expand long-term opportunities to support a company's strategic goals. Procurement must be aware of a company's strategic plans to be able to be proactive rather than reactive. The purchasing department is increasingly involved in the strategic planning process, which is because procurement is considered a strategic task. Procurement should be considered as important as other strategic functions such as marketing, finance, and production. (Paulraj et al. 2006)

Strategic thinking is also being recognized in the construction industry, as the construction environment has undergone major changes over time and procurement has increased its role as part of the business. In the construction industry, up to 90% of a project's cost may consist of various procurement of materials and services. (Nieminen 2016) For this reason, contractors must consider the procurement of materials and services both to achieve cost-effectiveness as well as to achieve a significant impact on the productivity of construction operations. Therefore, defining purchasing strategies and selecting potential suppliers can reduce the risks associated with the availability of materials. In the construction industry, the procurement work schedule must be considered so that the delivery of materials is in line with the project needs, which also creates savings in the storage of materials on site. Defining purchasing strategies in the construction industry facilitates the implementation of entire projects. (Maisarah, Irfanto & Abduh 2020)

In their study, Ellram & Carr (1994) state that strategic procurement and supply strategy are often confused. However, there are differences between the two, as strategic procurement is defined as the procurement planning process and the supply strategy as the different actions that the procurement will take to achieve its objectives. (Carr & Smeltzer 1997) The procurement must be consistent with the company's business, and the same applies to the supply strategy and the company's overall business strategy. In the literature related to strategic procurement management, the strategic integration and alignment with the company's business strategy emerges as a key factor. (Conzales-Benito 2007)

The task of procurement is to strive to achieve the objectives through appropriate activities (Pohl & Förstl 2011), thus, strategic procurement can be seen as the strategic integration of procurement into the overall business strategy. And in order for procurement to serve a company's overall business strategy, as mentioned above, it is necessary to create and implement an appropriate strategy for the procurement, for which the company's business strategy sets the guidelines. Procurement involves tasks that involve certain functions and decisions that should also support the overall business strategy and its objectives. (Harland 2002)

In general, a corporate strategy can be thought of as an action plan that is designed and implemented to achieve set goals. The key aspects of the strategy are the direction, purpose, strategic leadership, organization, and competitiveness of the organizations. Strategies define how to act in specific situations. (Ahtonen & Virolainen 2008) Porter (1996) has found that the core of a strategy is in action, which includes choices about how to perform different functions or perform different functions (Hofmann, Hertz, Hultman, Wikner & Hofmann 2010)

Supply strategy is an important part of the procurement, and it is used to define the operation and guidance of the procurement activities. According to Ellram & Carr (1994), there are three different perspectives of purchasing strategies, these are the specific strategies used by the purchasing function, the strategies that the purchase supports throughout the company, and the use of purchasing as a strategic tool for the company. The relationship between the overall strategy and supply strategy of a company has been extensively studied in the literature and their connection is seen as a general starting point for forming a supply strategy. To achieve competitive capabilities, it is no longer enough for companies to purchase what is needed, but the supply function must be responsive and predictable and innovative to function. (Nollet, Ponce & Campbell, 137)

Not only the strategic level can be used to define a supply strategy, but also the characteristics of materials and services. In the field of construction, materials are part of building design, so the characteristics of a construction project must be considered when defining the supply strategy. Therefore, the amount of material and the location of material

warehouses must be considered in various construction projects. The definition of purchasing strategies must therefore consider the characteristics of the materials to be purchased and the procurement must be assessed based on them. (Maisarah et al. 2020)

Ahtonen & Virolainen (2009, 265) point out in their research that the theoretical basis for supply decisions and supply strategy can be created through transaction cost economics and a resource-based view, which is a traditional perspective for strategic management research. These emphasize the close relationship between the supply strategy and the overall strategy of the company. The formation of the supply strategy is shown in figure 2. The figure illustrates how a supply strategy can be formed and what components it should contain. However, the supply strategy should be based on the company's business strategy, so these may vary depending on the industry or the basis of purchases.



Figure 2. Formation of supply strategy (Ahtonen & Virolainen 2009)

In their study, Ahtonen & Virolainen (2009) present that the supply strategy formation contains the components shown in Figure 2. These elements are strategic decisions related to the core competencies and capabilities of the company, the make or buy decision, supplier relationships and collaboration, the size of the supply base and the location of the supplier base, and centralization and decentralization. They suggest that the formation of a supply strategy is set in motion in an ideal situation from a make or buy decision, but this is not always the case, as business situations are rarely optimal in reality. Referring to Lintukangas et al. (2013) the main factors that may have an impact on the creation and development of a supply strategy are the share of turnover in total purchases, the degree of internationalization in total purchases, the centralization of the purchasing function and the ability to manage supply.

2.1 Make or buy

Make or buy- decisions are related to whether the companies themselves carry out production activities within the company or purchase them from an external supplier. Make or buy decisions have become an important part of the business strategy from the level of reactive operations in recent decades. This is because the impact of procurement decisions is understood as part of the performance of companies as well as the future. (Nikolarakos & Georgopoulos) This strategic decision is therefore one of the most important decisions affecting profitability and its definition.

The decision to make or buy is seen as a problem for many companies as companies have limited resources. According to Serrano, Ramirez & Gascon (2018), several make or buy decisions can be instinctive decisions that are based on a reaction when acting without a plan and are designed to reduce costs or improve the quality of a product or service. The decision to whether to make or buy, a company is influenced by several factors, but companies can be seen to have three options for how to decide and how to act. Companies can make it by themselves, they can buy it from outside, or they can take advantage of a combination of these. (Veugelers & Cassiman 1999)

Many companies make purchasing decisions primarily based on cost, and the choice of components to be outsourced is made by considering how to achieve the greatest cost savings without considering long-term profitability. (Humphreys, Lo & McIvor 2000) According to McIvor, Humphreys & McAleer (1997) purchases made based on price did not consider, for example, reliability of supply or the financial stability of the supplier. Using a short-term perspective, the aim was to find short-term cost savings by measuring all the costs of a make or buy decision, as a result, companies may face problems such as unexpected cost increases, fragmentation of the manufacturing process, and dependence on multiple suppliers. (McIvor, Humphreys & McAleer 1997) Although financial viability must be considered in the make or buy decision, it is not the only factor to be considered. Non-economic factors such as quality, activity and reliability of supply should also be considered. (Veugelers & Cassiman 1999)

The question of make or buy can be approached from different perspectives, and due to increasing awareness, this decision has also been approached from a strategic perspective, which emphasizes the importance of strategic factors as a part of this decision. (Cáñez, Platts & Probert 2000). Cáñez et al. (2000) have presented in their article a framework of why make or buy decisions are made and the framework outlines the relevant dimensions that need to be considered when making decisions. This is shown in figure 3.

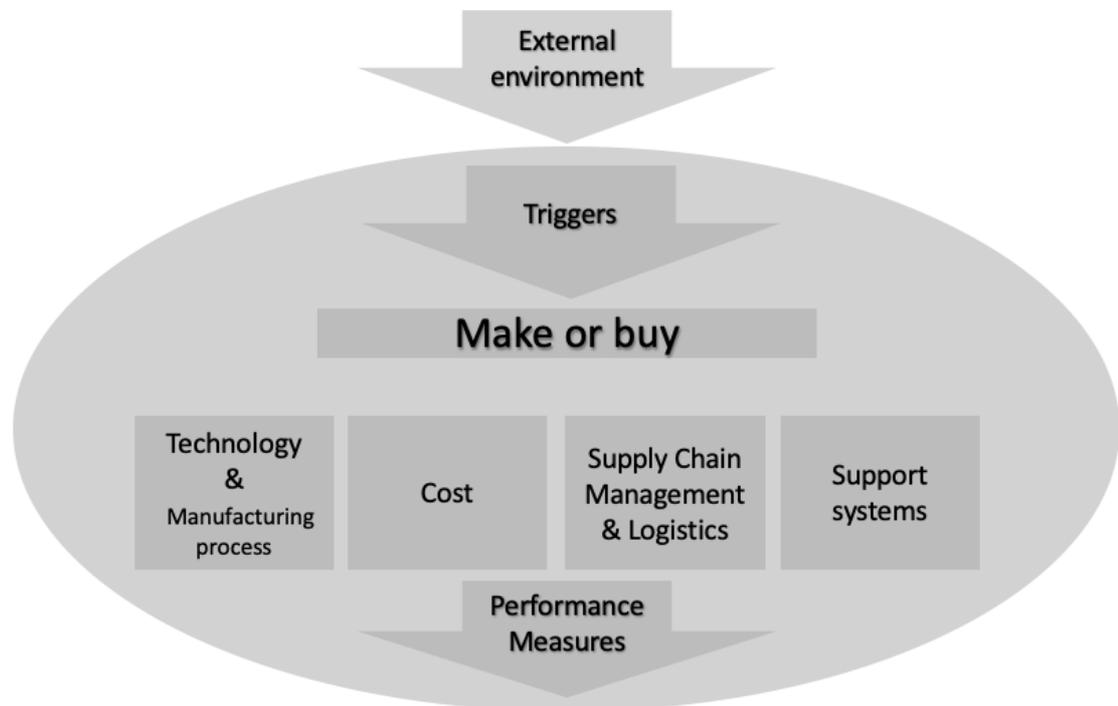


Figure 3. Make or buy framework. (Cáñez, Platts & Probert 2000)

Figure 3 shows a holistic view of the make or buy decision that is affected by technology and manufacturing processes, costs, supply chain management and logistics, and support systems. An external environment over which the firm has little control is usually the start of a make or buy analysis, such as increased competition, supplier availability, and political and social factors. These externalities have implications for cost reduction, the need to improve quality, and a lack of capacity. (Cáñez et al. 2000)

2.2 Centralization and decentralization

Procurement can be centralized or decentralized, and centralization has been extensively studied in the literature because it plays an important role as part of the supply strategy. Centralized procurement means that procurement is controlled and centralized to a specific department, and decentralized procurement means that more people make purchasing decisions and supplier choices. Many companies take advantage of centralized sourcing,

which allows them to obtain lower prices than decentralized sourcing, as well as higher volume purchases. In addition, centralized procurement can be used to streamline procurement by categorizing procurement, allowing each expert to create maximum input for these categories. Decentralized procurement, on the other hand, can sometimes provide a faster response than centralized procurement, and has the potential to save on transportation costs. (Joyce 2006)

Purchasing by organizations has often been addressed when looking at the advantages and disadvantages of centralized and decentralized purchasing models, but the hybrid approach should also be considered in the organizational structure of procurement. Hybrid purchasing means combining both centralized and decentralized procurement. (Trautmann, Bals & Hartmann 2009) And According to Ahtonen & Virolainen (2009) only rarely do companies use only one of the centralization or decentralization options, as the combination of these brings the greatest benefits.

Iloranta & Pajunen-Muhonen (2012) have highlighted in their book the pros and cons of centralization and decentralization. Centralization allows benefits to come through economies of scale and bargaining power, as it facilitates and expands the standardization of procurement activities and makes the procurement organization more cost-effective and efficient. But the downside is that decision-making can be limited by a strategically important issue within units, over-standardization of business units' strategic needs, it can raise resistance to change with units, and there can be long distances between procurement experts and the commodity to be purchased and customers. (Iloranta & Pajunen-Muhonen 2012)

In decentralization, it enables unrestricted decision-making with a business framework that creates direct responsibility for results, suppliers and customers are more likely to be close to each other, and suppliers can be better utilized in product development. In addition, reporting is simpler. As a disadvantage of decentralization, purchasing volumes are significantly reduced, negotiation power towards suppliers is lost and contracts and prices vary between units and standardization is difficult. Total costs are also difficult to interpret at group or company level. (Iloranta & Pajunen-Muhonen 2012).

The advantages and disadvantages of both centralization and decentralization have been mentioned above, but it is important for companies to know when it is worthwhile to carry out procurement tasks centrally and when to decentralize. Table 1 presents the features of the organization and its operating environment highlighted by Iloranta & Pajunen-Muhonen (2008) that should be considered when making a decision.

Table 1. Features in favor of centralization and decentralization of procurement. (Iloranta & Pajunen-Muhonen 2008)

Centralize	Decentralize
Units have a lot of common needs	The customer has a major influence on the company's procurement decisions
Strong bargaining power for suppliers	Mutual needs are very different
The importance of volume and scale advantages	Procurement tasks are simple
The procurement requires special skills	The units are relatively large and have a lot of bargaining power
Price sensitivity and price fluctuations are high	The units are located on different continents

2.3 Supplier relationship

The company's supply strategy consists of separate strategic decisions that are made regularly in the company, and decisions are modified whenever it is found to be not working. Changes are often the result of interactions with suppliers, which can also lead to changes in the supply strategy, as the successful exploitation of suppliers is important because of its financial consequences and difficulties to control. (Gadde & Snehota 2000) This is why supplier relationships are an important element as part of a supply strategy, and companies should consider what kind of relationship with the suppliers should be established. Relationships can be different, and it can depend on companies' strategic goals, and therefore

the question arises as to whether the relationship should be competitive or cooperative, or whether to take advantage of both.

The utilization of companies' supplier relationships depends to a large extent on the nature of the business, the operating environment and the technology used, and changes are characteristic of these. Buying companies reshape their supplier base, and some companies can have up to thousands of suppliers depending on the variety of products. As a result, companies develop different supplier relationships, in which case matters with the supplier are handled differently. Some supplier relationships may be closely collaborative, and some suppliers are held at arm's length distance. (Gadde & Snehota 2000) According to Ahtonen & Virolainen (2009), this decision is very important for the purchasing company, and companies need to consider when to form a cooperative relationship and when only arm's length relationship. The decision is based on whether the market is a suitable and efficient alternative or whether it makes more sense to take advantage of partners.

Managing different types of supplier relationships within a company is well justified, which, however, makes the application of general decisions difficult and requires a wide range of criteria. Some supplier relationships are considered to be important because of the volume of business they represent, and others because they affect a company's development, product quality, or performance. However, the importance of the product alone cannot be assessed, as the supplier relationship is also affected by how it fits into the buying company's strategy and other supplier-customer relationships. (Gadde & Snehota 2000)

To create and develop an effective supply strategy, companies therefore need to understand the economic consequences of changes in relationships and consider their costs and benefits. Supplier relationship costs include direct procurement and transaction costs, relationship, and supply handling costs and the benefits of the relationship, in turn, are cost benefits and revenue benefits. (Gadde & Snehota 2000) A prerequisite for a partnership between the purchasing company and the supplier are common goals in terms of economies of scale and scope. Consideration must be given to whether the supplier is a suitable partner for the purchasing company and whether it makes sense to cooperate. (Ahtonen & Virolainen 2009)

2.4 Number of suppliers and location of the supply base

A well-known argument is that companies should reduce the number of suppliers, as large supplier bases are often inefficient (Cousins 1999). By reducing suppliers' companies are striving for increased efficiency, cost savings, and improved supplier management. And with these changes, companies can achieve benefits such as improved quality and leverage, as well as better communication and information sharing. (Ahtonen & Virolainen 2009; Cousins 1999) The basis of a good supply strategy is to choose the right number of suppliers, the right type of supplier relationship and to conclude the right kind of contracts with suppliers. (Van Weele 2014).

When deciding on the number of suppliers, a company should consider what is a good number of suppliers so that suppliers feel they are important customers, as well as what is too few suppliers so that competition between suppliers is not reduced. Reducing suppliers can be done through a single sourcing, where only one supplier is responsible for supplying a particular raw material, or a company can use multiple sourcing, when the company make purchases from several suppliers. (Van Weele 2014)

Behind of single sourcing is that the purchasing company has the option to source from an alternative supplier, but there can only be one supplier for the company. This should be used when the objective is to establish close supplier-customer relationships, as individual quality control, cost reduction and price advantage can be achieved with a single purchase. Instead of single sourcing, a company can take advantage of multiple sourcing, utilizing multiple suppliers. This allows companies to avoid various risks and maintain competition between suppliers. Combined parallel sourcing of single sourcing and multiple sourcing can also be utilized, allowing the buying company to utilize two or more suppliers to supply a single raw material, giving more control over where to source. (Ahtonen & Virolainen 2009)

According to Ahtonen & Virolainen (2009) in addition to the number of suppliers, the location of the company's supplier base must also be considered. Whether global or local suppliers are used in the procurement, i.e., to define the geographical area of procurement activities. Many companies utilize both local and international companies in their operations, which may be based on price and quality issues, or the characteristics of the product being

procured. Utilizing local suppliers can ensure secure and timely delivery as well as lower delivery costs and better communication, but greater resources and capabilities can be obtained when sourced globally. (Ahtonen & Virolainen 2009)

According to Trent & Monczka (2005) there are five levels of sourcing that describe moving from domestic sourcing to global sourcing. The first level includes only domestic purchasing, the level two includes domestic purchasing and in addition international purchasing only when needed. The third level is described as including an international purchasing as part of a supply strategy. Fourth level means moving to global sourcing, and it includes global sourcing strategies integrated across worldwide locations and last level means global sourcing strategies that have been integrated across the worldwide locations and functional groups. (Trent & Monczka 2005)

2.5 Collaboration or competitive strategy

The purchasing company must decide whether to co-operate with suppliers or to apply a competitive strategy, in which case it is decided whether to establish a co-operation relationship or a market-based relationship (Ahtonen & Virolainen 2008). The choice of a competitive or collaborative strategy is made between two types of procurement relationship, and based on the choice, the company strives for maximum benefit. The selection is based on the company's strategic goals for its market and investment objects. (Cox 1996) The importance of relationship management has increased as outsourcing is receiving increasing attention and because relationships are very important to the performance of purchasing companies (Gadde, Håkansson & Persson 2010).

According to Cox (1996), low-asset items are often outsourced through market-based contracts utilizing competitive market signals. Blomqvist, Kyläheiko & Virolainen (2002) have provided a listing based on transaction costs of when the market option is most favorable. This is due to the low level of uncertainty and complexity, the low risk of opportunistic behavior, the big number of potential partners and the low level of specific investment in the transaction. The market option is a classic example of an arm-length relationship, as partnerships rarely work well with competition. However, a competitive

supply strategy has several cons that need to be considered when making a decision, such as market conditions, risk and expensive bidding, and price confidence (Lamming & Cox 1995).

The precondition for the creation of a partnership is the pursuit of simultaneous economies of scale and scope, and the decision must consider whether the supplier is suitable as a partner and whether the cooperation is profitable (Ahtonen & Virolainen 2008). However, co-operation is not being used as widely as might expect, as buyers are very careful not to become too dependent on their suppliers. The benefits of cooperation are visible in the long term and only work when the parties share common values and the partnership is long-lasting, so the short-term benefits are small. Trust and customer orientation are the reasons that keep the partnership together and allow the relationship to continue, considering the different challenges. (Spekman & Carraway 2006, 10, 17-18).

Companies create value through core competencies, and in order to create potential added value, companies need to find suitable partners and make the relationship work for the benefit of each party. For this reason, companies need to take their own networks into account when creating a supply strategy, as core competencies and core competencies have a major impact on shaping the strategy. Cooperation and expertise between value network actors is critical to the success of the network, and it is therefore important to find out what kind of relationship arises, what kind of supplier is suitable as a partner, how relationships can be developed and evaluated, when networks are exploited and what roles are played in networks. (Ahtonen & Virolainen 2008)

2.6 Sustainability

In addition to the elements of the supply strategy mentioned above, it is important to consider how sustainable development can be integrated into the development of these elements and how it can be considered when creating a supply strategy. Sustainability is an ever-increasing trend in companies' business operations, and it is receiving increasing attention in companies' operations. Implementing sustainability is largely related to taking sustainability into account in the procurement process, which is because the procurement

activity is located at the beginning of the company's value chain, it is suitable for promoting the sustainability of the organization. (Tate, Ellram, & Kirchoff 2010) According to Kähkönen & Lintukangas (2022), sustainability should be considered in the supply strategy, considering the three levels they affect, these are the business level, the category level, and the level of the supplier market. Figure 4 presents a condensed presentation of bringing responsibility into the elements of the supply strategy.

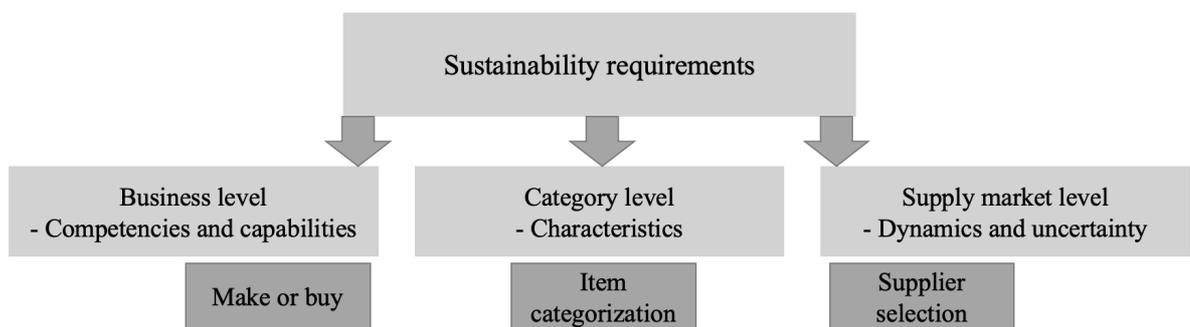


Figure 4. Considering sustainability in the elements of the supply strategy (Kähkönen & Lintukangas 2022)

Companies are responsible for their own operations but in addition for operations throughout the supply chain. This is also reflected in the construction sector, as the company is responsible for its subcontractors and compliance with their responsibilities, which in turn is reflected in consumers and contractors and can have a direct impact on the company performing the contracts. By focusing on long-term and reliable supplier relationships, risk management and the innovative use of raw materials are part of sustainable procurement practices. The company needs to incorporate sustainability into its strategy so that it can be implemented more effectively and monitored more actively. (Hoejmose, Roehrich, & Grosvold 2014)

The supply strategy involves procuring the necessary materials and services to support the company's operations and aims to integrate procurement issues. The elements of the supply strategy presented earlier in the study form the traditional starting point for strategy formulation, but as mentioned, sustainability is playing an increasingly important role as part of companies' operations, which is why it must also be considered in strategy creation.

Procurement related criteria and supplier selection criteria needs to be considered the company's values and sustainability. This allows that the supply strategy is going to be based on the company's values, goals and create common practices for decision-making. (Kähkönen & Lintukangas 2022)

3. Supply strategy implementation tools

Strategic thinking is complex, and the formulation and implementation of strategy can be difficult to understand. The strategy is an ongoing process in which objectives are defined, resources are allocated, and various measures are taken to promote competitive advantage. (Nollet et al. 2005) The complexity of strategies can be seen also in supply strategies, because they are different, so tools must also be used to implement the supply strategy. In literature is highlighted that companies should define different strategies in different procurement categories and that the structure of procurement should also be defined at the level of the procurement category. (Karjalainen 2011)

The ever-increasing diversity and volume of procurement also requires flexibility in supply strategy, as different purchases cannot be expected to be handled with the same procurement criteria. The wide range of products and services to be procured should therefore be managed at the category level, by designing and implementing different category strategies. (Caniëls & Gelderman 2007). When implementing a strategy, clear organization is important, strategic plans must be shared among the people who are affected by the strategy. With the help of effective communication, the implementation of the strategy can be made more efficient. Designing operating methods and practices and setting goals and objectives are part of the supply strategy, and they must be based on the company's strategy. Sharing responsibilities and training employees as needed is an important part of successful supply strategy implementation, as well as adapting the strategy as needed. (Lysons & Farrington 2012)

In the construction sector, where project-based business is carried out, the number of purchases has increased significantly, and the importance of suppliers has increased. Construction companies are trying to outsource their operations with a focus on the core business. To add value and increase the value experienced by the buyer, companies need to modify their purchasing strategies to support operations. Purchasing strategies focused on different procurements can have short- and long-term positive effects. (Ahola, Laitinen, Kujala & Wikström 2008) In order to implement projects on time and at an agreed price, it is important to have an appropriate supply strategy. There are several factors involved in the

success of a project, the most important of which are timely delivery and quality. To remain competitive, companies need to develop relationships with suppliers and subcontractors, as purchasing strategies need to be adapted to different procurement situations, as projects are very rarely similar. (Bildsten 2021)

This chapter introduces helpful tools and analyses that can be utilized when implementing supply strategy, and they are category management, which is responsible for ensuring that the company is in line with business objectives for procurement categories, as well as the product classification tools Kraljic's purchasing portfolio model, and ABC-analysis that are often used in procurement. These are intended to make it easier for buyers to classify materials and select appropriate strategies for product groups. Also spend analysis which means scanning purchased materials is introduced in this chapter, as it is the base for procurement development. (Iloranta & Pajunen-Muhonen 2015).

3.1 Category management

There are various definitions of category management, of which, for example, Nielsen (1992) has defined that it as a process that involves managing product categories as business units and adapting them to meet customer needs. Joseph (1996) says it is a method in which the seller and the dealer work together to manage each other's product categories on a store-by-store basis. The two main strategic objectives of category management are to define a business unit as a product category in which related products form a category. As well as tailoring marketing as close as possible to local buying habits. However, these objectives might be difficult to achieve, and they can slow down the development of the process they are supposed to support. (Dussart 1998)

According to Van Weele (2014, 167), category management can be seen as an interactive business process, in which suppliers and retailers are working together to manage categories in the similar ways that how business units are managed. The category here is referred to be a group of goods, and for different companies, the procurement concept has become a way to find means to manage their procurement strategically. (Gelderman 2010) A category can be classified as a group of products that the consumer perceives to be closely related or

substitutable. The ultimate goal is to look for similarities between procurement targets and to group them and centralize procurement that can be managed. (Agrawal & Smith 2015)

The purpose of category management is to support the achievement of the company's business objectives. Therefore, the aim is to form categories that considers primarily the needs of the users of the company's products and the wishes of the end customers. (Sakki 2009, 185) The management of the categories is based on the business strategy and the objectives set for it, which is based on helping the persons in charge of procurement to specialize in a certain area. Instead of focusing on negotiating and managing individual products, in category management, the purpose is to manage an entire product group as a single strategic entity that seeks to maximize overall productivity. (Agrawal & Smith 2015) In other words, the category strategy must be in line with the company's overall strategy, because with this process is supposed to help with developing and analyzing the external environment, internal demand, supply capacity and operational risks. (Gelderman 2010)

With procurement categorization, an organization can manage its procurement, as well as allocate resources and time more efficiently. The categorization of procurement can be seen to be the basis of strategic development, because the main objective in many companies is to maximize the results with the least number of resources available. One of the tools for strategic procurement is the category strategy process, which offers a model for how different sourcing needs can be reconciled with the characteristics of different supplier markets. Iloranta & Pajunen-Muhonen (2015) have presented the course of the categorical process and this process can be divided into eight different stages, which are:

1. Define categories
2. Analyze purchase history
3. Identify supplier markets
4. Consider the need
5. Identify opportunities, create, and innovate
6. Outline the category strategy
7. Find suppliers, get to know, and rate
8. Implement, follow, rate, and rethink

Sakki (2009, 185) has presented in his book how the design process of product categories proceeds. In the planning of product categories, the current purchase items, suppliers, purchase agreements, purchase prices and operating volumes are determined. This is followed by a definition of potential suppliers, how to proceed with them and a practical implementation plan.

3.2 Purchasing portfolio model

Purchasing portfolio models have received a lot of attention in the procurement related literature and are based on sorting the purchases into functional categories. Numerous of portfolio models have been presented, but one of the best-known models has been presented by Kraljic (1983), in his article 'Purchasing must become supply management' in 1983. Since then, various other portfolio models have emerged for purchasing, but the model created by Kraljic has had a major impact on purchasing and its development over time. A portfolio approach is often the basis of a supply strategy and aims to minimize supply-side vulnerabilities and maximize the use of potential purchasing power. (Caniëls & Gelderman 2005)

The Kraljic matrix can be applied in the field of construction, and it has been studied to some extent in the literature. Due to the special characteristics of the construction industry, a matrix needs to be developed in project-based business. In terms of successfully organizing a purchasing strategy, the industrial context is good to know, as construction projects are unique and supply chains are complex. There are different subcontractors and suppliers in the construction industry, as well as many products and materials that need to be coordinated. However, successful purchases and purchasing strategies can create a more effective foundation for project implementation. (Bildsten 2021)

According to Kraljic (1983), the strategy applied to certain products or groups of products depends on its economic significance and procurement risk. The purchased quantity related to the economic impact, the percentage of total purchases and the impact on the quality or growth of the business Procurement risk is related to availability, number of suppliers, competition, and storage risks. Therefore, the purchase portfolio should consider several

criteria, including availability, number of potential suppliers, costs associated with switching suppliers, number of alternative products, or the structure of the supplier market (Van Weele 2014, 163). With these in mind, a company can classify the products it purchases into four categories, creating a 2x2 matrix. This is shown in Figure 5.

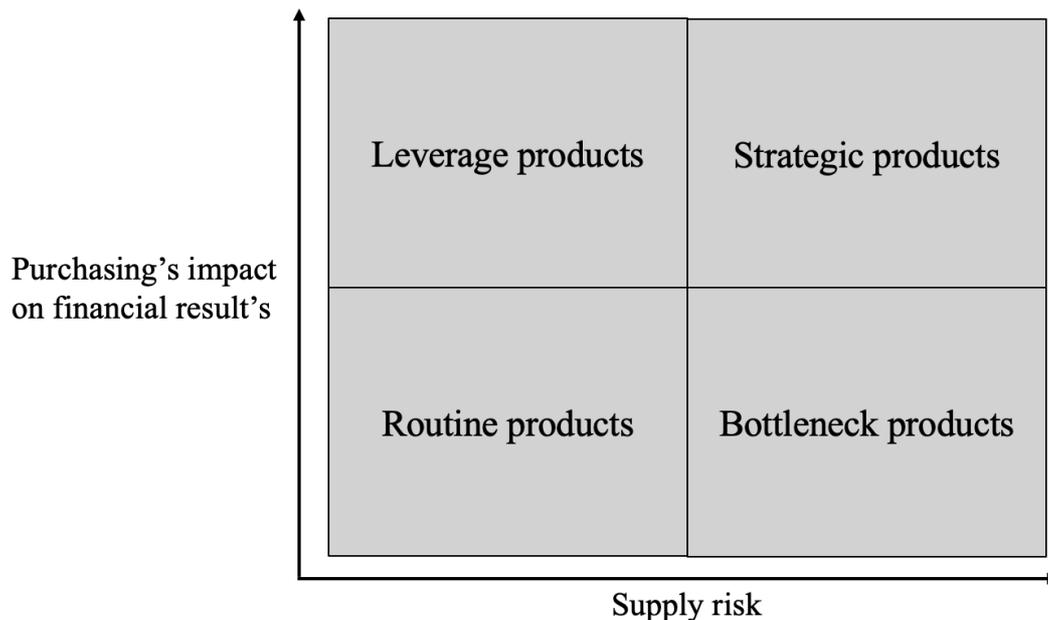


Figure 5. Kraljic matrix

The matrix presented in Figure 5 includes four categories, strategic products, bottleneck products, volume products, and routine products. According to Kraljic (1983), each category should be managed by different methods.

Routine products

There are only few technical or financial problems with routine products, i.e., non-critical products, due to their low monetary value and the large number of suppliers. Much of a company's sourcing is routine products, like most inventory products, which is why it's important for companies to strive to streamline the process of sourcing routine products. (Van Weele 2014)

However, it is essential for these purchases that the purchasing process incurs high costs in relation to the value of the procurement (Iloranta & Pajunen-Muhonen 2008, 119).

Therefore, reducing the number of suppliers and duplicate products can aim to reduce administrative costs in this category and streamline operations, allowing a company to focus on more important and influential sourcing (Olsen & Ellram 1997, 105). By combining and concentrating small routine procurements as much as possible for a single supplier, the ancillary costs of procurement can be reduced (Sakki 2009, 191).

Leverage products

Leverage purchases is a product with high consumption and procurement volume, they are easy to manage, but they are strategically important procurement for which it is important to identify the added value of procurement and utilize volume (Olsen & Ellram 1997). These are products that can be purchased from several suppliers in standard quality and their procurement risk is generally low, but even a small change in price can have a large effect on the cost price of the final product.

Van Weele (2014) has emphasized that competitive bidding is important in this category because of the large number of suppliers and the high degree of buyer influence. The aim of tendering is to obtain the best possible prices from suppliers and to effectively identify different options. This category includes various raw materials and semi-finished products and, due to the large number of suppliers of these products, switching costs are relatively low. (Van Weele 2014) Reducing the purchase price and logistics costs can also be classified as the main goal, as there is no need to think about the dependence on the supplier due to the large supply, so aggressive bidding gives the best bid (Sakki 2009, 18).

Bottleneck products

Bottleneck products, which can also be called critical products, are products that have little strategic importance but are difficult to manage. Therefore, the company must strive to standardize purchases or look for replacement products to manage this category more effectively. (Olsen & Ellram 1997) The monetary value of these products is limited, but they are vulnerable to supply because they are only available from a single supplier. In this

category, the supplier often has a dominant position, which can lead to high prices, long delivery times and even poor service. (Van Weele 2014)

Although the monetary value of these products is small, the absence of these products may cause a bottleneck in production as the name implies and cause great damage to production. The company must make a sensible decision regarding these products, and the company must accept any dependence on the supplier or seek new solutions. (Iloranta & Pajunen-Muhonen 2008, 121) According to Sakki (2009, 199), companies can also handle these acquisitions with the help of a defense strategy, i.e., by utilizing additional emergency stocks, for example. Through foresight and planning, efforts can be made to transfer these products to routine products and reduce supply risks.

Strategic products

The fourth and final category is strategic products, which according to Olsen & Ellram (1997) are procurements that are difficult for the company to manage and strategically important, so these procurements must be managed by establishing a close relationship with the supplier and focusing on supplier involvement. product development. Products in this category are high-tech products made in large quantities and can only be obtained from a single source. These products make up a large portion of the cost price of a company's end products and supplier switching costs can be significant. (Van Weele 2014) Due to the small number of supplier candidates, products are often of a special quality, which makes switching suppliers in this category of products challenging and expensive, even impossible in some cases (Iloranta & Pajunen-Muhonen 2018, 122?). Due to the importance of the supplier in this product category, there is a risk of becoming too dependent on the supplier, and at worst, the supplier may have too much decision-making power and therefore the price of the product or service may be high (Van Weele 2014).

Decisions based on purchasing portfolio models are sensitive to the selection of criteria, and general selection criteria related to strategic impact, such as quantity purchased, percentage of total purchasing cost, or impact on product quality, may not be fully appropriate for the construction industry. In addition to these, availability, the number of suppliers, storage risks and delivery risks must be considered. (Ferreira, Arantes & Kharlamov 2015) Figure 6

presents the development process of the purchasing portfolio model, that Ferreira et al. (2015) have presented in their study. It consists of a circle of planning, operation, and information retrieval of the outcome of operations. In a project-based environment related to construction activities, one of the ways to set criteria is to consider the strategic impact of the importance of products related to a particular category of construction goods in the project phase.

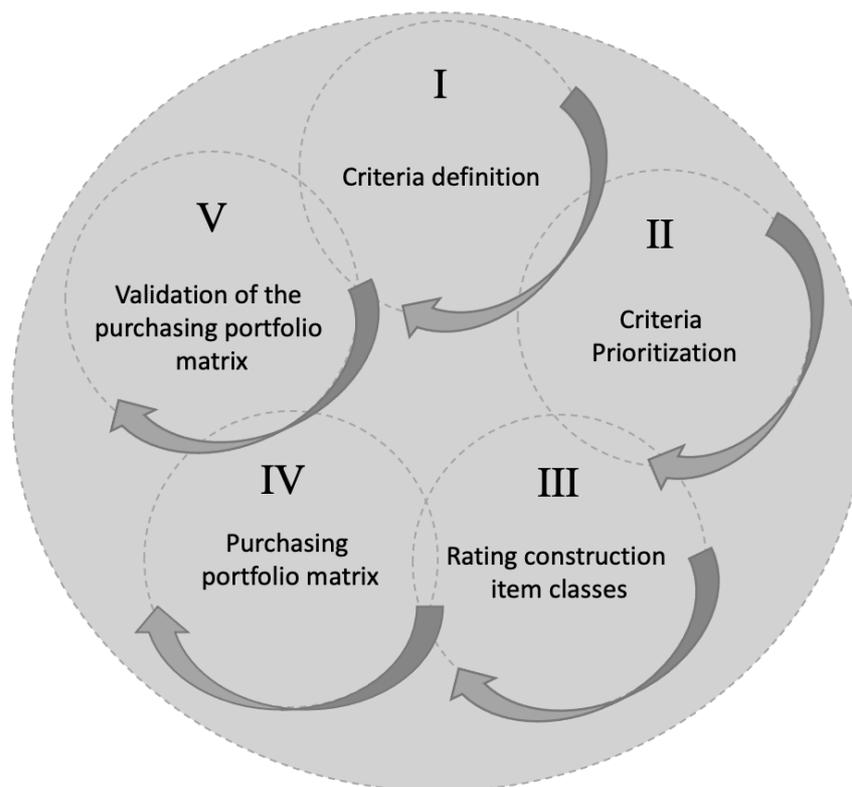


Figure 6. Development process of the purchasing portfolio model in construction industry. (Ferreira, Arantes & Kharlamov 2015)

Although portfolio models have gained great popularity and are considered one of the most significant tools for purchasing and supply chain management, they have also received harsh criticism. The weakness of the purchasing portfolio approach has been condemned to be that it does not provide predictable information on what can be done to change reality. In addition, the sensitivity of the purchasing portfolio in relation to metrics raises the question of how to know whether appropriate variables are applied. (Gelderman & Van Weele 2005).

Thus, the use of purchase portfolios in strategic planning has been criticized, it is essential that the planning process of portfolio analysis may be even more important to firms than the use of the portfolio model itself (Olsen & Ellram 1997 103). And despite the criticism faced by purchasing portfolios, their implementation has been found in the literature to have, for example, a positive relationship to the professionalism and status of procurement (Gelderman & Van Weele 2005)

3.3 ABC- Analysis

Organizations purchases large quantities of different products and that is why companies also have many different suppliers that require different treatment. There are several different methods for classifying the products to be procured, of which ABC analysis was for a long time the only product classification tool before the development of the Kraljic matrix. ABC analysis refers to the classification of items based on their importance and annual purchase value. The ultimate purpose of this definition is to focus the company's activities on the items and products that are most relevant to it. (Gelderman & van Weele, 2005) According to Scholz-Reiter, Heger, Meinecke & Bergmann (2012), the basic idea of ABC analysis is to divide objects into three or more categories, where:

- Group A: very important, expensive and require high control, 0-80% of accumulated consumption value
- Group B: average, less control, and good metrics, 80-95% of accumulated consumption value
- Group C: least important, requiring minimum control, 95-100% of accumulated consumption value.

The basic idea of ABC analysis is that group A contains the most labor-intensive materials and group C contains the materials that require the least labor. The remaining materials belong to group B. (Chen, Li & Liu, 2008) The ABC analysis first lists the purchased materials and their prices, after which the annual value of the materials can be estimated as a percentage of the total value of all materials. Based on the percentage values, the materials

can be divided into A, B and C materials. A-materials account for 12 percent of all purchased materials and account for about 80 percent of their value. B materials, on the other hand, account for 13 percent and value for about 15 percent. Lastly, C accounts for 75% of the total material but only about 5%. (Weigel & Ruecker, 2015) The ABC analysis is presented in the figure 7.

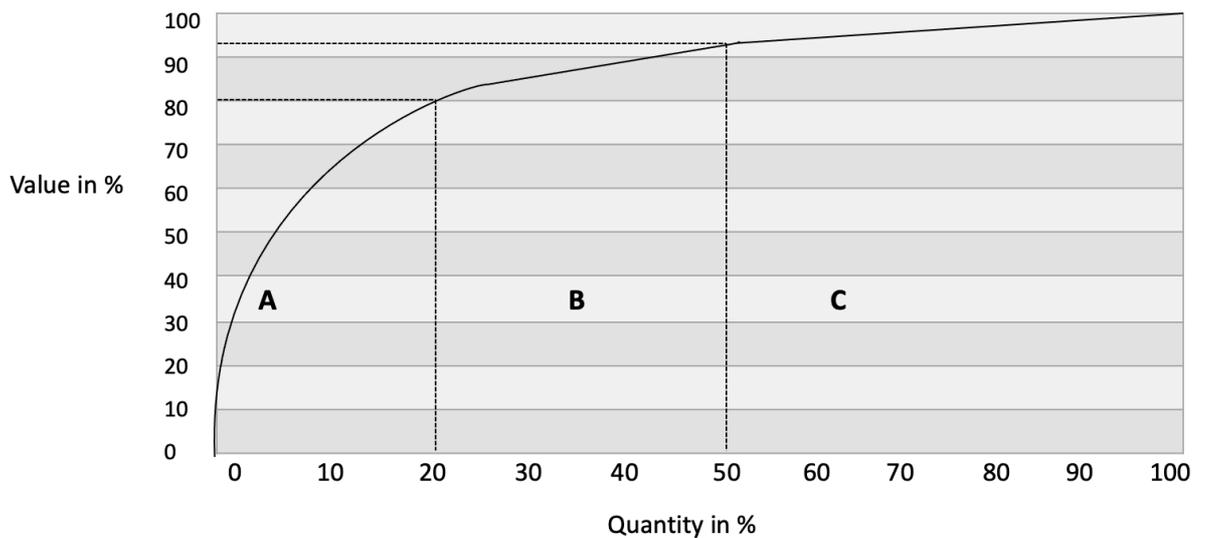


Figure 7. Illustration of ABC-analysis

After analysis, appropriate strategies can be defined for material groups that can be defined by monitoring the concentration of purchasing costs (Gelderman & van Weele, 2005). According to Weigel & Ruecker (2015), research, evaluation, and analysis of the purchase market for A-materials is recommended, as the stock value of A-materials is the highest, the cost savings should start with A-materials. For B and C materials, management efforts should be minimized, and automation and standardization of ordering processes and collective invoicing is recommended. There have also been criticisms of the ABC analysis, which focuses largely on purchasing costs and does not consider poor quality, performance, or social risks. More strategic sourcing practices may be needed for materials management and product groups. (Gelderman & van Weele, 2005).

3.4 Spend analysis

According to Sollish & Semanik (2011), spend analysis is a classification and evaluation process that can be used to look at the funds an organization spends on the purchase of goods and services. This typically occurs at the product level, and classification is used to achieve cost savings and pooling of suppliers. Spend analysis provides a link to strategic sourcing planning, as it seeks to consider sourcing where there is potential for cost savings. Spend analysis starts with an enterprise-level strategy and determines what spend analysis is used for, what is being achieved, and what means are being used to help. (Sollish & Semanik 2011)

The analysis provides important information about different categories and can be used to analyze cost structures and purchasing history. With the help of consumption analysis, the most important and strategic suppliers can be identified. With the help of the analysis, it is possible to create an overall picture of cash flows, their relationships, and the relative importance of acquisitions in the company (Iloranta & Pajunen-Muhonen 2012). In the analysis, procurement is organized in terms of suppliers, products and the money spent on them, which makes it possible to identify real costs by category, identify opportunities for pooling demand, and improve internal control, compliance with contracts and adherence to budget. (Sollish & Semanik 2011)

To ensure the effective use of Spend analysis, it needs to start with the systematic collection of data, for example through different systems (Sollish & Semanik 2011) Referring to Pandit & Marmanis (2008), optimal spend analysis consists of four steps, which are 1) data definition and transfer, 2) data tidying, sorting, and enrichment, 3) spend data analysis, and 4) spend database management. The quality of supplier data must be considered in the spend analysis, which may include the standardization of the name used for a single supplier and the quality of business data, i.e., correctly defined product codes and product categories. The spend analysis associated with categorization seeks to find information specifically about the cost of procurement, and during categorization it should be noted that it is impossible to try to influence all costs (O'Brien 2009).

4. Research methodology and data

This part of the thesis presents the research methodology for the research. This chapter discusses the chosen methodology, data collection, data analysis, and briefly describes the case. This study is carried out as a qualitative study, as it is the most appropriate for this study and its problem. Basic information is collected through semi-structured interviews, as well as information from other data sources and the company's systems. First the methodology is discussed and after that, the data collection method and the implementation of the interviews are described.

4.1 Methodology

The study has been carried out as a qualitative case study. In scientific research, qualitative and quantitative research are often perceived to be opposing approaches, from which the researcher must choose another at an early stage. However, Alasuutari (2011, 32) has pointed out that this does not correspond to reality, but that in all scientific research, qualitative and quantitative research share many common principles. Thus, both research methods can be applied to perform the same research and process the same material, and they should be seen as complementary methods. When combining different methods, the same phenomenon is examined from several different directions, which makes the information obtained more reliable (Metsämuuronen 2006, 134).

A case study is a research approach that aims to describe complex phenomena in a holistic way (Moore, Lapan & Quartaroli 2012, 243) In a case study, the researcher can focus on an individual case and achieve a holistic view of the event. Case studies are particularly suitable for studies where the main research questions answer the “how” or “why” questions, the researcher has little or no effect on the behavioral elements, and the focus of the study is on the current phenomenon. (Yin 2014, 4)

Both qualitative and quantitative methods have been used in this study, and this study has been carried out using a case study strategy. Interviews and quantitative information collected from the company's ERP system have been used as research material. The purpose of the quantitative information was to provide the necessary information on the distribution and scope of the company's procurement activity and the current situation. In addition, the material was utilized in the categorization research and spend analysis. When conducting research, it makes sense for the researcher to choose one of the methods as the main research method (Metsämuuronen 2006, 134), and the research has utilized interviews for a more in-depth view of the current state and objectives of procurement.

4.2 Data collection

The collection of research material was carried out through semi-structured theme interviews. Five people working in the company were selected for the interviews, which are presented in more detail in Table 2.

Table 2. Interviewees

Person	Title
Interviewee 1	Managing director
Interviewee 2	Business unit manager
Interviewee 3	Construction manager
Interviewee 4	Construction site manager
Interviewee 5	Foreman (Warehouse)

The interviews were conducted through Teams, and the questions were sent to the interviewees in advance. The questions are designed to give as many different perspectives on the topic as possible and to cover the topic extensively. In addition, efforts were made to ensure the collection of adequate data. With the help of this method, more extensive information was obtained about the current situation of company and opportunities for the

development of the company's procurement. Prior to the interviews, the topics to be addressed were discussed with the interviewees. Each interview lasted approximately one hour.

A total of four interviews were conducted, of which one interview were held at the same time for two people. The company hoped to have a discussion during the interview related to the topic, so we ended up with group interview. The interviews wanted to get different perspectives, and they were conducted starting with the construction manager and construction site manager, then interviewing managing director and the business unit manager, and ending with the interview with the warehouse manager. The themes of the interviews were as follows:

1. General company information
2. Background information on the procurement
3. General and supply strategy
4. Procurement categorization

Through these themes, the interviews collected qualitative data related to the company's basic data, procurement, strategy and its elements, and the categorization of procurement. This information was supplemented by the collection of quantitative data from the company's ERP system. Assistance in collecting the data was obtained from the company's financial side, and the collection of the data was easily successful when the system IDs could be utilized in the study. In addition to qualitative and quantitative data collection, the study has utilized public information found about the company, such as the company's website and other Internet sources.

4.3 Data analysis

All interviews were recorded and recorded on the Teams for later review. After the interviews, the recordings were reviewed, and the answers were transcribed. The responses of the interviewees were compiled according to the themes of the previous chapter. This

allowed for a comparison of responses between different interviewees as well as analysis and mirroring of theories.

In addition to the information obtained from the interviews, additional material collected from the company's ERP system was used in the analysis. The data collected by ERP was printed from the system in Excel format, which facilitated analysis. The material consisted of the company's 2021 supplier information, from which the supplier distribution in different groups can be chosen. In this way, the invoices of suppliers belonging to a certain category can be printed in the list model of Excel format from the system or get item-specific information separately. Information related to the purchased products and services was examined from the material, which enabled an analysis of the year 2021 related to procurements and their distribution in the supplier base. In addition, the data was used in spend analysis and in the definition of different approaches and development ideas.

Due to the relatively small number of decision-making employees in the company, all interviewees had a good picture of the current situation of the procurement of the company and its objectives. The responses to the interviews gave a superficial idea of how procurement is carried out, what kind of suppliers the company has and how the supply strategy is formed and implemented. ERP data, in turn, provided a concrete picture of how costs are distributed by supplier and category level, and what level of procurement the company has when conducting research.

4.4 Description of the case

Procurement is a big cost for construction companies, and by developing procurement, companies can achieve savings and increase their competitiveness. Research on the development and strategy of procurement in the construction sector has been studied, but more research is needed, as procurement accounts for a large share of a construction company's turnover and its importance has been increasingly recognized. This thesis and research have been done for a single case company operating in the field of sports and construction, whose main activity is the construction of various sports fields. About 90% of the company's customers are covered by public procurement, i.e., cities and municipalities,

and in addition about 10% are carried out for private customers or subcontracting. The company operates mainly in Finland, but also partly internationally. Case company is a subsidiary of the group, but the company operates independently. This study focuses and examines only the procurement activity of the case company.

In the company, procurement have been identified as important for achieving profitability and maintaining the company's operations. The company's operations are mainly based on project activities and the operations are seasonal, which takes place during the spring, summer, and autumn. For this reason, purchases are largely made on a project-by-project basis, in addition to which certain products are purchased from stock on a regular basis. Because anticipation, the smoothest possible flow of information, and organization are considered important in the project business, the goal of this work is to create suggestions for the company on how the company's strategic perspective on sourcing can be developed.

5. Supply strategy implementation in case company

This chapter presents the empirical results of the study and provides background to the suggestions made to the case company. This chapter reports the key findings of the interviews and utilizes information obtained from the company's ERP system. The chapter first describes and analyzes the current situation, after which it will delve into the development of strategic procurement. Supply strategy, spend analysis and procurement classification are reviewed based on interviews and other data collection. Following an in-depth review and analysis of these, suggestions will be made to the case company on how the procurement can be developed and what kind of policies will be proposed when considering case company's situation.

5.1 Description and analysis of the current situation

This chapter focuses on the current state of the company's procurement based on the results of the interviews. The purpose of the interviews was to obtain information about the importance, operation, and organization of procurement in the company and in the company's industry. In addition, it was clarified which issues are important for the company's procurement activity and how these issues could be developed as part of the procurement. The case company's operations focus mainly on projects, which is why the company's project managers and managing director are mainly responsible for procurement in the company. Procurements consist of materials and subcontracting, as well as combinations of these, which are procured on a project-by-project basis and directly to the warehouse. Procurement is perceived important in the company, but it is thought to have mainly supportive role as part of the operation. However, based on the interviews, it can be stated that without a functioning procurement, the company would not operate and if the procurement is successful, competitive advantages and results will be achieved.

“It’s really important, the business wouldn’t run without procurement, and if the procurement is successful, the company will get a competitive advantage and a profit.”

(Interviewee 3)

“Isn’t that a pretty essential condition, one of the most important means of competition. Of course, you must know how to do your work, but yes, it is one of the most important things.” (Interviewees 1 & 2)

The company has annual sales of about 15.5 million and about 30 employees, depending on whether the season is running or not, the season is roughly from April to October. Currently, the company is facing new challenges due to the global situation, as COVID-19, for example, is still affecting the company's procurement and operations. The prices of several materials have risen, and the availability of goods has deteriorated, which has necessitated various measures. In addition, there has been a sharp increase in competition in this sector, which has led to changes in the operating environment. However, the company's objective is remained to be the market leader and manage operations cost-effectively, and to retain staff, which is why it is important to create and strive to implement development measures in the company.

The aim is to anticipate general purchases for the company's own use as much as possible. For this reason, the company tries to get critical products in stock before the start of the season by forecasting sales. Project based procurements, on the other hand, proceed according to what the customer has defined as being included in the project, but projects also include unexpected procurements, as additional work or other repairs that might be ordered as part of the projects. In a company, the implementation of a procurement differs greatly from whether it is a project procurement or a general procurement, and the general procurement is carried out more slowly in time than the project-related procurements revolving around a precise schedule.

There have been some changes in the organizational structure of the company, and figure 8 shows a chart that is created for the company in the spring of 2022 on how decisions are made. The decisions are made from the top down, where each manager is responsible for their own construction sites. In the past, most of the decisions have passed through the

managing director, but the company aims to decentralize the division of responsibilities and decision-making more widely. However, this is still under planning and implementation is only just beginning.

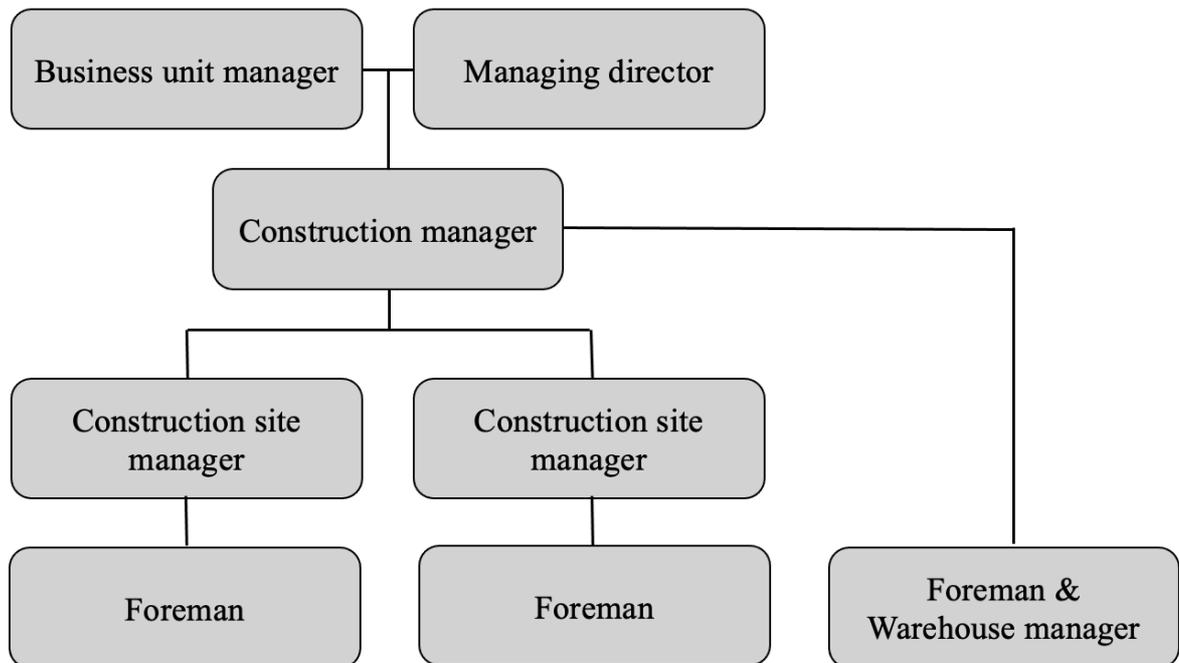


Figure 8. Organization chart

As already pointed out, construction manager and construction site managers make purchasing decisions which are related to projects. This is because these decisions may be done on a fast schedule, and the managers has the most knowledge and expertise to decide what is needed. The warehouse manager is responsible of products to be purchased to warehouse before the beginning of the season and during the season. General procurement, in turn, goes through the business unit manager and managing director, and large purchases, which have an impact on the whole company, are decided jointly by the management.

5.2 Supply strategy

The company's strategy is based on the company's quality manual created in the spring of 2022, which purpose is to define the company's objectives and operating methods. The

company has set targets and indicators to help achieve them, which are reviewed during management reviews and at the end of the period. The objectives are set as follows:

Quality indicators:

1. No significant quality deviations
2. Operating result
3. Contract and minutes of meetings saved and signed
4. Customer satisfaction is surveyed for contracts over 500,000 €.

Sustainability indicators:

1. No environmental deviations
2. Equipment emission classes documented
3. At the end of the season, there are no obsolete chemicals in stock

These same objectives and actions have also been identified in the company's supply strategy, which has also been updated at the same time as the company's strategy. The company aims to develop its supply strategy over the next year and strategy is still in progress. The supply strategy focuses on customer relationships for material procurement and seeks to favor established suppliers as much as possible. If the materials to be purchased are important to the quality of the company's end product or service, a new supplier will be required to have a quality system and certifications. The customer's requirements are considered in the procurement of materials and equipment's that are used in projects, and the procurement of services and materials is planned to consider the scheduling, quality, environmental and occupational safety of the construction sites. Next, the different elements of the supply strategy, which have been considered in the company, are presented.

Make or buy

Make or buy decisions are made based on the core competencies of the case company. The company seeks to utilize its core competencies by implementing projects that utilize its own

competencies in project management and implementation, but by purchasing from outside everything that the company does not consider sensible to implement itself. The aim is to allocate resources wisely, achieving the best possible outcome. The company's own know-how, experience and relationships are utilized while making these decisions.

The company itself manufactures the products that can be manufactured in the company with the resources. An example of this that came up in the interview, was that plastic preforms are manufactured themselves, as these can be manufactured on a factory basis, but then all metal and wood products are purchased from outside. In construction services, decisions are made based on the company's own expertise and resources. The decision is always based on what the company is able to do itself and which services it makes sense or mandatory to purchase from outside the company.

Centralization and decentralization

In the company, procurement could be called the combination of centralized and decentralized, as it is distributed project-specifically to different people and to the managing director, in addition to which procurement decisions are made separately for warehouse. The bidding phase is very much handled by the company's managing director, but the rest of the project-based procurement is done through the project manager, as they have the best expertise in project-based procurement. A management team has been set up in the company to help to process with things together and to maximize the flow of information among the people who makes decisions.

The company would want to centralize procurement more, as this would allow them to benefit from volume advantages, but this is not possible in the company's operations. Centralization would require certain individuals to focus on certain product groups, which, however, is not operationally possible in a large-scale construction company. Therefore, all projects aim to focus on only one person to maximize on-site expertise. The case company also has few procurements, which are occasionally carried out joint with other companies in the group. But the number of these is small and they are not considered to be very important, because these group companies have only a few common factors in their operations.

Supplier relationship

The interviews emphasized the building of long-term partnerships and their active use as part of the activity. Over the years, the company has formed important partners, which are utilized in project procurements from the tender stage onwards, as well as in procurements related to the company's general operations. By utilizing the company's own standard suppliers, with whom long-term partnerships have been established and a solid relationship of trust has been built, the best price on the market is obtained, as well as the assurance that things will proceed as agreed. With such suppliers, a review is held at the beginning of the season to make sure, that each parties shares common objectives and obtain a market-based price level based on which the decision will be made if the collaboration will continue.

"Good supplier relationships are the basis of efficient operations" (Interviewee 1)

Because project procurements often take place on a very fast schedule, decisions must be made on schedule and anticipated, and therefore the company does not have time to re-tender. As a result, it is relatively rare for a company to create new market-based relationships, as the best benefits are obtained through partnerships. In the company, it is perceived to be a more cost-effective way than tendering.

“There may be two or three suppliers from whom an offer is requested, and the most suitable supplier is selected. The competitive situation is considered, partners are utilized and offered in cooperation, however, regionality is a challenge in projects.”

(Interviewee 1&2)

Because the company's operations are spread across the country, it requires the use of some occasional suppliers. In these situations, a regional effort is made to find a supplier from whom the products or services in question can be obtained quickly and locally from the project location.

Number of suppliers and location of the supply base

The number of suppliers is perceived to be large, because when the area of operation is extensive throughout Finland, it is necessary to consider sensible alternatives regionally and to vary the suppliers used, as not all standard suppliers operate nationwide. But, as mentioned, the interviews have emphasized the use of collaboration created on the basis of successful experiences. As a result, the company also feels that the number of suppliers available is also limited and that the number of suppliers could not be significantly reduced. Continuous tendering of suppliers could lead to more quantified options, but then it is felt that the results could suffer and that it would affect the establishment of good supplier relationships.

‘Establishing relationships with reliable suppliers has automatically reduced the size of the supplier base’ (Interviewee 2)

The case company mainly uses local suppliers to ensure the availability, price, and quality of its products and services. However, some products must be sourced abroad due to their characters. So, depending on the work and the need for materials, foreign suppliers are utilized, as there are no alternatives to suppliers of all materials. The criteria for selecting the location of suppliers are clear, price, quality, and reliability of delivery, which are the main criteria to be considered in the selection. In addition to this, taking sustainability into account has become important, which is why the company wants to avoid materials procured from abroad through long supply chains, in which case the aim is to utilize local suppliers.

5.3 Spend analysis

In this chapter, the company annual spend is going to be researched more closely by utilizing spend analysis. The data that has been used in this section have been collected from the company's ERP system, and it consists of the 2021 company's procurement information. The company's procurement is examined in relation to the company's turnover, supplier level and different categories.

Procurement costs in relation to turnover

The company is operating in the field of construction, and procurement is major part of the company's activity. From the results of collected data it can be seen that the purchases that have been done during the year 2021 are accounting for approximately 75 percent of the company's revenue. This includes all purchases that has been made during the year related to goods, services, subcontractors, and other expenses. The composition of procurement costs by supplier level is examined in more detail in the next sections, where the distribution of suppliers is examined by ABC analysis and procurements are examined by category levels.

Procurement costs at the supplier level

According to the collected data, the company have had total of 519 active suppliers in the year 2021. All the company's purchase invoices go through the system, which means that all suppliers are included in the listing. When the data was analyzed in more details, for example, the median invoicing amount of an individual supplier was reviewed, which was a little over 2200 €, and the average of the billing amounts was around 25 700,00 €. Since this includes all purchase invoices related to the company's year, these distort reality, as some of the suppliers and their purchase invoices are one-time small invoices, but based on this, it can be concluded that some of the company's suppliers are very small suppliers.

This issue has been approached through ABC analysis, which can be used to assess how the company's consumption is distributed. All the company's suppliers are included in the ABC analysis. The Group A suppliers accounted for 80 % of the purchases in euros and this group has 48 suppliers, which is approximately 10 % from the entire supplier base. The Group B suppliers accounted for 15 % in euros and this group has 77 suppliers, which is 17 % of the entire supplier base. The Group C suppliers accounted for 5 % in euros, and about 73 % of the entire supplier base. The results of the ABC analysis are shown in more detail in the figure 9.

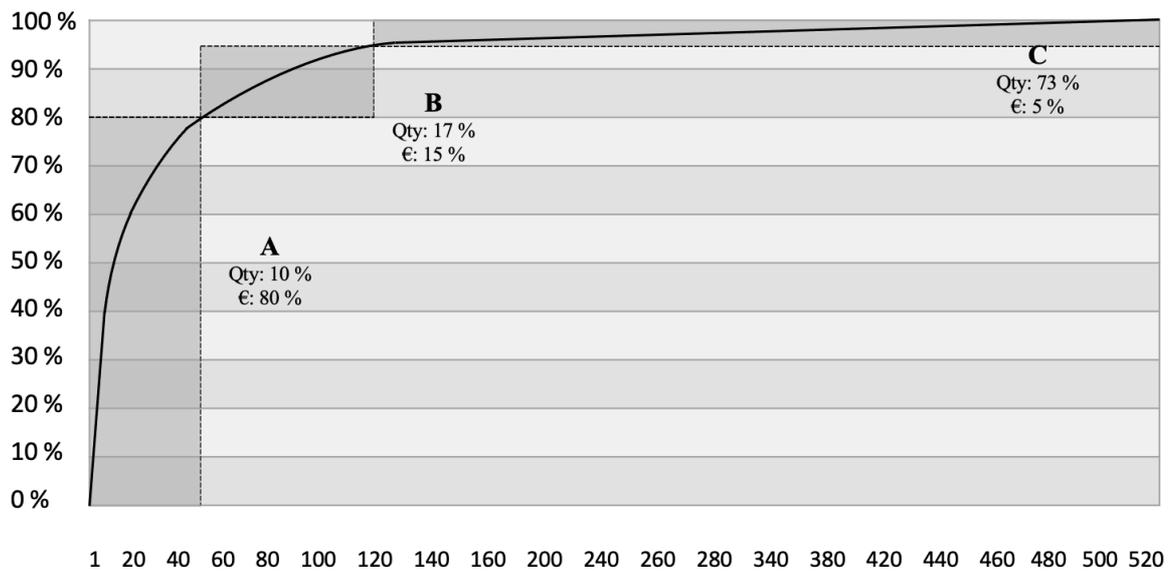


Figure 9. ABC analysis

As it can be seen from the figure, the Groups A and B are consisting 95 % of the company's procurement costs and Group C includes the major of company's suppliers. This analysis can be used to assess how and by what means the supplier relationships of different groups should be approached and developed. For example, the Group A supplier relationships must be strengthened, and co-operation and partnership relationships must be built, the purchase prices must be monitored. Also, because case company is in the construction field, the contracts with suppliers should be monitored more and subject to closer observation. And in turn, the Group C suppliers should be reducing, and this group should be given minimum attention and few resources. If the results from the company's ABC analysis are compared with the Pareto 80/20 principle, it can be stated that the company deviates slightly from it, as the corresponding ratio is 80/10.

Procurement costs at category level

The company's suppliers are divided into four categories in the system, these categories are Goods, Subcontractors, Group and Opex. Of these, the group of Goods includes all suppliers of materials and products, the group of Subcontractors' all company's subcontractors and services related to the activity, the group named Group includes all inter-company suppliers

and the Opex group includes other expenses such as insurance, government expenses, sponsorships, and other mandatory fees. The largest and most important of these groups are goods and subcontractors, as their suppliers are the most widely used in procurement. Figure 10 shows the distribution of groups among all procurement costs of the company.

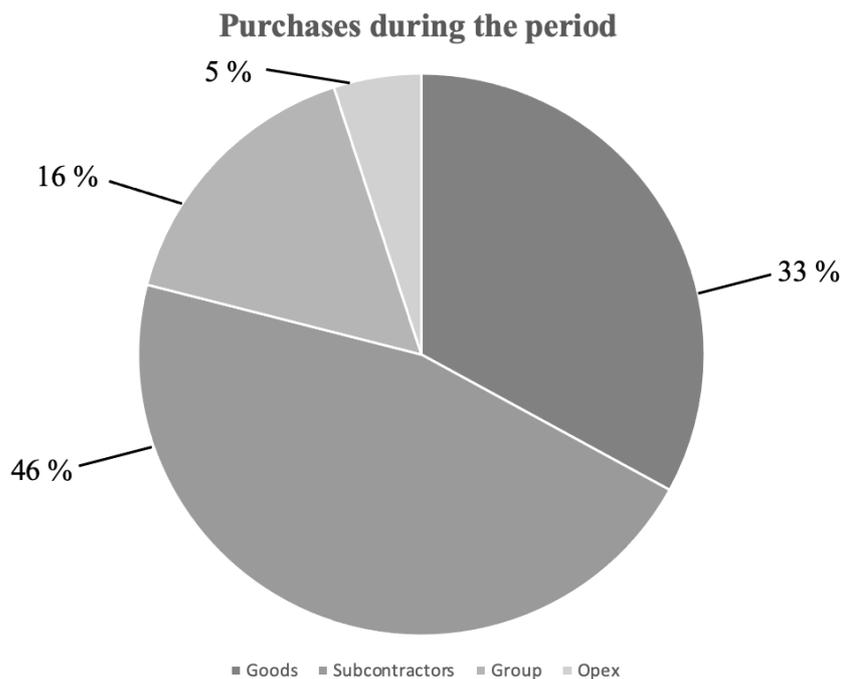


Figure 10. Purchases during the period in category level

Goods

The name of this category is very clear, because this includes all materials and products company is purchasing, these purchases are utilized in all operations of the company. Out of all suppliers in the company, 164 suppliers belong to this group, and these makes up to 33 percent of company's yearly procurements in euro terms. These procurements are materials and products purchased for projects, for warehouse and also small procurements. These are implemented based on the needs of the projects, with the help of seasonal contracts and in addition when necessary. In this category, with the biggest purchases, suppliers with whom

long time cooperation are utilized, but small purchases are made from suppliers from whom it is easiest and cheapest to purchase. However, the division between project purchases and other purchases is large, as only about ten suppliers deliver products and materials to the warehouse. The division between different purchases is also large, as can be seen in figure 11. The most important materials and products in terms of operation and costs are classified in the figure, and products and materials which significance according to the system is low or very low have been left out of the figure.

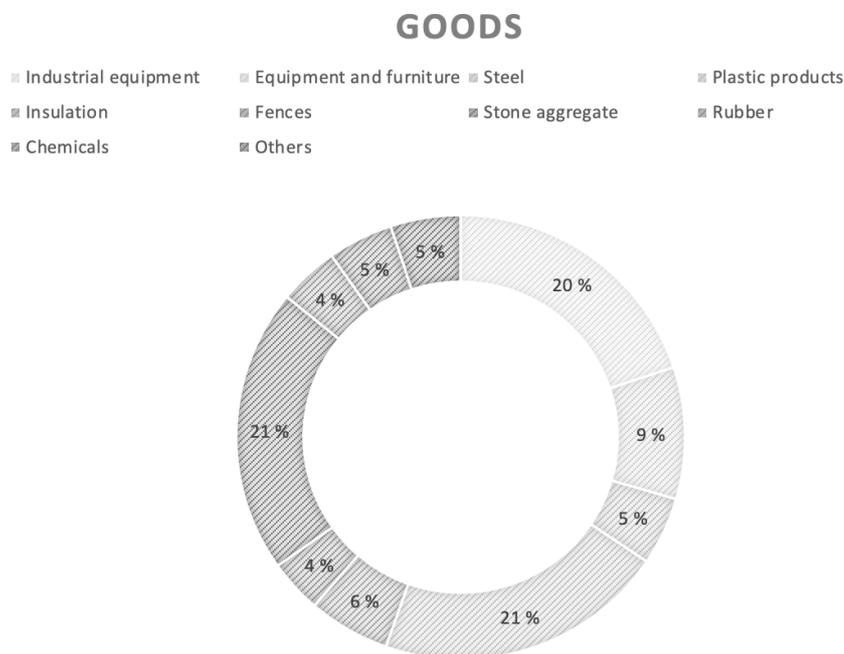


Figure 11. Distribution of costs in the category

The most important purchases are heating containers, refrigeration systems, pipes, aggregates, steel, insulation, rubber, and fences. Of the listed products, for example, heating containers, refrigeration systems, and fences are only project-specific, but contracts are used with chemicals and rubbers, and these are delivered to the warehouse, from where they are moved to the projects as needed. The mentioned materials and products are only purchased from one or a few suppliers, and these products are critical for operations, which is why the goal is to ensure supply and make agreements with suppliers as actively as possible. Due to the operation of the case company, for some materials it is not possible to change the material in the middle of the season, which is why supplier relations with material suppliers must be maintained.

'' During the season, it's not good to change suppliers a lot, because the materials are always slightly different from each other, and you can't mix them up. '' (Interviewee 5)

Innovations are also a big part of the company's operations, which is why the case company constantly strive to develop new solutions. For this reason, the aim is to create effective supplier partners so that company can work together with supplier to implement new solutions together. When the company implements exercise and sports facilities, it is possible to create benefits with the help of special expertise that bring with it a competitive advantage and cost savings in the market.

''There are of course the most significant products and then there are common ones, with some products you can gain a competitive advantage while others do not have the same solutions. '' (Interviewee 1)

Due to recent events in the world, there have been delivery difficulties in some of the material purchases, which is why company have had to look for alternative suppliers. These procurements are mainly materials and products from abroad that are mandatory for the company's operations. In addition, due to material shortages and other problems, suppliers have had to raise prices during the season as well, so negotiations with contract suppliers have had to take place more often than usual. In the interviews, it came out that material and product procurement could be developed, and changes should be created especially for materials and products purchased from abroad or for materials and products with only one or a few suppliers. This is related to the uncertainty that exists in the market today.

''Different approaches should be developed for different products, for example when purchasing from abroad, you should always be really on time. And when schedule gets messed up, then a more expensive supplier from nearby is used in order to get it faster, which affects projects and costs. '' (Interviewee 4)

In the field of construction, it is basically impossible to completely predict the need of materials for the season and it depends a lot on the number of projects. However, efficient inventories in the warehouse would help to identify the need of materials and their project-specific distribution. Monitoring inventory balances that are located in the ERP system

would be helpful for project managers, because then the project managers would also have better knowledge of material that are available in the warehouse.

Subcontractors

The procurements that are included into the category of subcontractors are related mainly on projects and their implementation. The subcontractors are utilized actively when implementing projects, which is why this is the biggest category in the case company. This category includes 48 percent of the suppliers in the company, which is 250 suppliers. Also, the majority of procurement costs are spent in this category, as this includes 46 percent of the company's procurement costs, as presented in the figure 10.

There are major differences between purchases in this category, because out of 250 suppliers, only 20 suppliers consist of 75 percent of the total costs of this category's yearly procurements. This can be seen from the figure 12 which presents the procurements in cost level in this category. Subcontractors and services which significance according to the system is low or very low have been left out of the figure.

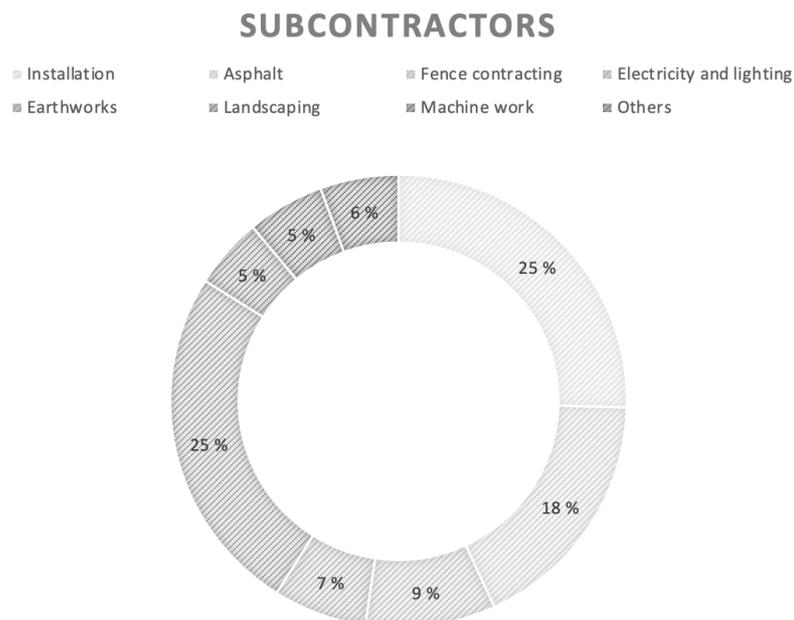


Figure 12. Distribution of costs in the category

In the figure 12, the most important and valuable procurements of subcontracting category is represented. The mentioned subcontractor services and other construction-related services are grouped in the picture. The most important subcontracting and services that the company is purchasing are installation work, asphaltting and aggregate work, earthwork, electricity, lighting, machine work and landscaping. These also has the biggest importance for the implementation of the operations. When the distribution of costs was examined more closely, it could be noticed that the majority of costs in this category are distributed among different projects. This highlights the fact, that the company is using mainly long-term supplier relationships and collaboration with close suppliers, because the costs and the quality of subcontracting and services that are related to this category are directly reflected in the projects.

Efforts must be made to actively develop supplier relationships and create close supplier relationships with these strategically important subcontractors and services for the company. With regard to strategic services, however, it must be considered not to create too deep dependence on the supplier, in which case the supplier would have the opportunity to raise prices. The company often uses subcontractors already in the bidding phase of projects, when it is good to share common values and goals with the suppliers in order to reach the best possible result. In the case company, long supplier relationships are felt to be the key, but expertise is perceived as a challenge, and it can be difficult to find expert service providers on the market.

"The problem with subcontracting is the lack of experts, professionals and resources"

(Interviewee 1)

Because of this, the case company has had to think about the future and think about it from a different perspective, whether new solutions or alternative ways of working could be found.

Group

The Group category is small in terms of supplier quantity, but in terms of value it makes up a relatively large share of the company's procurement costs. There is no need to categorize

these purchases, as they are easy to implement, since the category only includes purchases made within the group. This in itself guarantees that there is no need for continuous contract or price negotiations, but that procurement is easy and is carried out with internal purchase orders and agreed prices.

It is not necessary to use resources to develop supplier relationships, but they can be directed to other categories. However, these procurements include a large share of the company's annual procurement costs, the procurements are mainly guided by projects, and they include services and subcontracting as well as materials and products. The most important purchases are artificial grass, fillers, and their installation services, as well as products related to track and field, such as fences, long jump boards and shot-put cages.

Opex

The category of Opex, is the smallest category in the company. This category includes about 100 suppliers, but it only accounts for about 5% of the procurement costs so it requires the least procurement costs. The procurements that are related to this category have the least impact on the functionality and cost-effectiveness of the company's operations.

The purchases that are included to this category are administrative costs, official costs, sponsorships, insurances, and other ongoing and mandatory costs. These costs are those that are not directly related to the company's operation and production, but they are continuous or mandatory fixed costs related to daily operations.

5.4 Proposed modes of action

When a procurement activity reaches a strategic level, it creates an impact on the company's profitability, which is why procurement must be actively monitored and ways to improve the role of procurement must be constantly considered. The task of the procurement activity is to ensure that the appropriate raw materials and services are used for the projects in a timely manner, which is why the case company must improve the flow of information

between the projects and the company's other procurements. However, the company finds procurement coordination challenging, as most procurement are project-based. There are a lot of similar procurements in the projects that cause duplication of work, but because all project managers perform a comprehensive variety of procurements, it is not possible to specialize in a particular area of procurement. The efficient execution of procurement is largely related to the project planning documents. Therefore, timely and efficient decisions are the basis for good procurement, as to ensure competitiveness, it is necessary to consider whether to use familiar external suppliers or to find the best available resources.

The degree of external procurement of the case company is high, which means that it has the potential to affect the company's profitability in the short and long term. Individuals who make purchases needs to purchase as possible in a cost-effective manner and by anticipating changes in the supplier market, it is possible to maintain a competitive advantage. The right purchasing decisions are based on a supply strategy, and a strategic approach to procurement can begin by identifying those purchases that are strategically significant to the entire company. This will give more attention to these procurements and allocate resources in a timely manner. The supply strategy is an important part of the procurement process and helps to define procurement control and long-term requirements. The supply strategy can be used to create strategic guidelines for different product groups, as there are significant differences between the purchased product groups.

With the help of procurement categorization, the case company could identify the position of various purchases in the supplier market and the related negotiation opportunities. In addition, this can be used to identify added value from procurement other than cost minimization. After a broader analysis of purchases, procurement can be classified into different categories to identify the most significant and critical procurements related to the operations of the case company. Once these have been identified, different approaches can be created for different categories and activities can be implemented to the benefit of the whole company, as classification can be used to combine the procurement of different projects to gain economies of scale. Developing supplier relationships even further is important because finding responsible and reliable suppliers is important in the construction industry, as the main contractor for construction contracts is responsible for his subcontractors.

Development ideas for the case company focuses mainly for supply strategy and organization development and concentration on strategic products. For procurement to add more value to the company and its customers, a more strategic approach is needed. Development requires an examination of the procurement personnel, the procurement operating model and the position of the procurement in the company. The company's strategy and objectives, structure and suppliers, and the objectives derived from the company's strategy for the supply strategy are major factors in setting the tasks and objectives of procurement. The table 3 introduces the case company's strategic procurement development targets and actions based on interviews.

Table 3. Development targets and actions for the case company

Target	Action
Organization	Division of responsibility, communication, centralization vs. decentralization
Supplier market	Alternative suppliers, looking for negotiation opportunities
Classification of procurement	Identifying the status of different purchases, identifying the most significant and critical purchases, developing different approaches
The added value of the procurement for the company and its customers	Clarifying the position of personnel, operating model and procurement in the company
Supply strategy	Identifying the elements of the supply strategy, setting objectives and creating measures to achieve them
Enterprise resource planning system	Greater utilization, purchase and cost analyzes of the system

The internal coordination of the company and the sharing of uniform operating methods and goals in the company make procurement more efficient and creates order in the company. Cost efficiency and changes in the supplier market are matters that require attention, in which case the development of the supply strategy and strategic approach gives the opportunity to

focus more attention on important procurements and the effective allocation of resources. This is done by creating strategic guidelines for product groups. With the help of classification of procurements, the position of different purchases and their negotiation possibilities can be identified, and different approaches can be created, considering costs, importance, and responsibility. With the help of strategy, goals and structure, procurement can be made more efficient. By clarifying the position of personnel, operating model, and procurement in the company, added value can be created for both the company and its customers. Figure 13 presents an idea for making procurement more efficient as the development of the company's supply strategy progresses.



Figure 13. Purchasing portfolio approach

As the development of the company's supply strategy progresses, it could be effective for the company to use the classification of procurement as part of its operations with the help of a purchasing portfolio, as it allows different product categories and suppliers to be treated with the right approach. In the figure 13 we can see how the different product and service groups placed in the purchasing portfolio should be treated in the case company. Since the goods and subcontracting categories are important for the company's operation, they can be divided in such a way that for materials and products, procurement costs, availability, sustainability and finding the right suppliers should be considered. In the subcontracting

category, it is essential to make use of contracts with suppliers and strive to ensure quality. Therefore, quality, scheduling, the level of supplier cooperation and the content of contracts should be considered in this category.

6. Discussion and conclusions

The aim of this study was to explore ways to develop strategic procurement through supply strategy and procurement classification. This chapter provides answers to the research questions which were set for the study. The conclusions that provide an insight and summary of the study are then presented. The final sections in this chapter are validity and reliability and future research ideas.

6.1 Findings

Each research question and related answers are addressed separately. Initially, the sub-research questions of the study will be answered, as they are intended to create a basis and clarify the answer to the main research question. Finally, this section provides an answer to the main research question.

SQ1: What are the elements of supply strategy?

Every company has different supply strategy and companies supply strategies can vary greatly. Not only the strategic level can be used to define supply strategy, but the characteristics of materials and services needs to be considered (Maisarah et al. 2020). The supply strategy often starts from the company's business strategy, and it is based on company's objectives, visions, and principles. The supply market and business environment, suppliers, and the company's resources allocated to procurement affect the creation of the supply strategy. According to Ahtonen & Virolainen (2009), although the supply strategy is often based on company's strategy, the elements of supply strategy may vary depending on company's field and purchases. Supply strategy includes many components, which are based on strategic decisions related to company's core competencies and capabilities and in addition the turnover and degree of internationalization.

The main elements of supply strategy that was presented in the theory part were make or buy- decision, centralization and decentralization, supplier relationship, the number of suppliers and location of supplier base and collaboration or competitive strategy. In the case company, all these elements were identified, but the elements had not been specified individually in the company's supply strategy. The make or buy- decision is often the first decision that companies make, because this is when company decides what to make by themselves and what will be purchased from outside. This decision is often based on costs, and to the willingness to get as much cost savings as possible (Humphreys et al. 2000). The case company's operation is based on utilizing company's core competence and expertise, and the make or buy decision is made with resources and the most efficient operation in mind. This can be seen in the company's operations, so that the products that can be manufactured in a factory manner are manufactured in-house, and the expertise of the project management is utilized as far as possible, however, by outsourcing those things on which it does not make sense to waste resources.

Both centralizing or decentralizing procurement has advantages and disadvantages, because by centralizing companies often get lower costs and bigger volumes, and by decentralizing the expertise can be targeted more efficiently (Joyce 2006). In the case company, which operations are mainly project-based, it is difficult to centralize procurement, because several people are making procurement decisions. Due to the nature of the business, it would not even be possible to centralize certain purchases to certain people. In the case company, procurement is decentralized in the way that each project manager and managing director have their own areas of responsibility in procurement, and part of the procurement is aimed at being centralized for the newly created management team to decide. This could be called the combination of centralized and decentralized, as according to Trautman et al. (2009) can be called hybrid, which allows the company to get the most benefits.

Supplier relationship, the number of suppliers and the location of suppliers are important elements in the supply strategy. By creating and implementing effective supply strategy the companies need to understand the importance of supplier relationships and the basis of this are shared goals. Companies must consider which suppliers are suitable and whether the collaboration is reasonable (Ahtonen & Virolainen 2009) The case company utilizes long term relationships and partnerships as effectively as possible, and this is also felt to have

reduced the number of suppliers and to shape the supplier base appropriately. According to Van Weele (2014) the choice of right number of suppliers, right kind of supplier relationships and contracts is the basis of good supply strategy. The case company only rarely creates new supplier relationships, as it is perceived that the greatest benefits can be obtained with reliable and long-term suppliers. In project business, the aim is to utilize supplier partners already in the bidding phase. The company also prefers local suppliers, but due to the nature of the procurement, some have to be procured from abroad. In these procurements, one of the most important elements of the supply strategy for the case company, sustainability, comes up. Sustainability should be included in different elements of the supply strategy, which allows it to be considered in various decisions and procurements. (Kähkönen & Lintukangas 2022) And the case company has included sustainability as a part of the supply strategy, and when making purchases, the company requires certificates and quality systems from suppliers to guarantee it.

SQ2: How to implement supply strategy?

Strategy is an ongoing process, which defines objectives, allocates resources and various measures are implemented to promote competitive advantage (Nollet et al. 2005). Organizing operations, enhancing decision-making, and knowledge of the supplier market make purchasing more efficient. When implementing the supply strategy, it should be considered that the people involved are aware of the elements of the supply strategy and the means of implementation. According to Lysons & Farrington (2012) effective communication and sharing responsibility among several people are important, and in addition, training staff when necessary. Policies, procedures, objectives, and principles must be clear and support the company's strategy. The efficient allocation of resources and the utilization of the company's core competence are the main elements in the implementation of the supply strategy. Based on them, operations can be made more efficient and the company collects the benefits for itself. Although it is important to develop the supply strategy when it is necessary, and in the case company, the development of supply strategy is still in progress.

In the construction industry, implementing projects on schedule and at the agreed contract price requires a suitable supply strategy, which includes, for example, good scheduling and quality control. However, in order to maintain competitiveness, the company must consider the diversity of procurement, as the contents of the projects may vary (Bildsten 2021), which is why procurement approaches and strategies may also be different. Category management, purchasing portfolio, ABC- analysis and spend analysis are ways that companies can use to understand the differences between different procurements and suppliers, as well as to understand different approaches to managing them (Iloranta & Pajunen-Muhonen 2015).

In the case company, the exact categorization or category management is not suitable, because due to the changing environment and certain operations, people cannot be centralized to be responsible of single procurements. However, identifying the differences between procurement groups and their strategies are important. With these, the company can create cost savings, operate more efficiently, and create the right approach to procurement. It is important for the company to know what criteria are used to make purchases, what are their importance ratings, and how these can be incorporated into the company's daily operations (Ferreira et al. 2015). According to the research, the company has a relatively large number of suppliers, and the company should focus differently on suppliers with different ratings. More resources and time should be directed to important procurements, and efforts should be made to utilize, for example, seasonal contracts when it is possible. For less important, routine purchases, resources and time spent on them should be minimized. The company should use automation as efficiently as possible for these and purchase these products routinely.

RQ1: How strategic approach to procurement can be developed?

In the construction industry, the environment has undergone major changes and procurement's role has increased as part of the business, also the strategic thinking has increased (Nieminen 2016). Primarily the efficient organize and well working structure in the company is important, and these can be seen one of key factors in the development of strategic procurement. By creating a strategy that is suitable for the company and following

it provides a good basis for creating suitable supply strategy. This can be used to facilitate the procurement to develop means for operational and cost efficiency, as well as for the allocation of resources. When creating supply strategy, the elements that are important for the company and the industry needs to be considered and make decisions based on this. The supply strategy needs to be modulated and developed when changes are needed or something affecting it happens.

Implementing a strategy requires clear organization and strategic plans must be brought to the attention of the people it affects. Sharing responsibility and training personnel as needed is a big part of the success of a strategic procurement operation. This can be enhanced by means of active communication, in which case the implementation of the strategy is more effective. (Lysons & Farrington 2012) In the case company, the lack of communication, too centralized or decentralized procurements and duplication of procurement was identified as a problem. The set purposeful goals and the measures to achieve them, the sharing of responsibility and effective communication are important means for the development of strategic procurement.

Good knowledge of supplier market ja the development of supplier relationships makes it easier to find the right supplier partners and achieve smooth operations. In order to find suitable suppliers for the company, the differences between suppliers should be considered. Suppliers with different degrees of importance should be treated with a different approach, and important supplier relationships should be nurtured. In the construction industry there is only rarely time for re-tendering, which is why having close partners and contracts saves time and money. The importance and diversity of procurement is constantly growing, and criteria needs to be created for different procurements (Caniëls & Gelderman 2007), and by identifying suppliers and strategic products and services, attention and recourses can be focused on the most important purchases. It is important to consider the procurement process of products and services, their market offering and the degree of importance as part of the company's operations and costs. With the help of categorization of suppliers and purchases, different criteria and cost analyses, these differences can be identified, and different approaches can be created for different products and services, whereby the right amount of resources is directed to the right place.

6.2 Conclusions

In this section, a summary of the starting points and the final conclusions are made. The purpose of this study was to search for ways to enhance the strategic procurement activity by identifying the elements of the supply strategy and ways to implement the strategy. The purpose of the research was to bring out means of development and to create proposals for the case company about what kind of opportunities the company has, considering the company's industry and the nature of the project business. By conducting interviews, it was possible to find out the current situation of the company and the measures in use, and it was possible to get clarity on what kind of things should be made more efficient in the company in the future. The interviewees do not fully recognize the importance of procurement as part of the operation, but nevertheless during the interviews it was stated that without functional procurement there would be no operation at all. This is common, as the importance of procurement has been emphasized in several industries only in the last decades.

The research's starting point was that the company has only this year begun to develop a supply strategy for the company, which is still at a narrow level compared to the level of the company's procurement. Because of this, several different development ideas for enhancing strategic procurement and implementing the supply strategy were found. When developing and implementing a supply strategy in the future, the company should consider that the purpose and objectives of the supply strategy are clear. It is necessary to create guidelines for procurements, as well as identify what the company's procurements are like, organize procurement and create clear metrics and objectives.

The research showed that not all models are suitable for all situations or industries, but decisions must be created considering different requirements. Looking at the theory, it can be stated that in the construction industry special features must be considered when carrying out procurement, because in project procurement the decision is made on the basis of documents, and there is not necessarily time for long planning of the procurement or supplier re-tendering. However, with the help of company-wide instructions and a joint action plan, duplication of work can be avoided, and costs can be minimized.

The case company should focus more attention on creating a supply strategy, consider the classification of procurements and the organization of procurement. Setting goals and common operating methods to achieve them are an important point in the development of strategic procurement. Although in the company, the utilization of long supplier relationships has been found to be a good way behind efficiency, changes in the supplier market and alternative methods must be considered. In addition, the benefits of centralization and decentralization should be considered, because the organization of procurement is still unclear in the company. The case company also has acquired an ERP system little over year ago, which should be used more in purchasing planning, as well as with the help of cost analysis of purchases. After the end of the season, the company should focus on developing the company's strategy and supply strategy. Set goals and objectives for the next year, which can be monitored during the season, and if necessary, in the middle of the year to modify the strategy if it is deemed necessary. The company should try to get feedback from customers and suppliers as a help, and for this they should develop some kind of survey that can be used easily and metrics to monitor their performance.

6.3 Validity and reliability of the study

According to (Kähkönen 2011), when conducting research, one of the most important things is the validity and reliability of the study, and they are evaluation criteria for the assessment of the quality of the study. Using reliability and validity is common in quantitative research, but also in qualitative research. This is because although qualitative research collects different information than quantitative research, researchers must test and demonstrate that the research is reliable. (Golafshani 2003)

Validity and reliability as concepts describe how the reliability of the research method can be assessed. The term reliability can be used in qualitative research to describe how understandable the research is, and with reliability the quality of the research can be assessed. (Golafshani 2003) Reliability aims to minimize research errors and aims to reflect how well research results are repeated if a similar study is done. The reliability of qualitative research, where interviews are used to collect data, can be improved by carefully documenting the interviews and their implementation methods. (Kähkönen 2011)

Validity offers another criterion to assess the quality of the research, and according to Stuart, McCutcheon, Handfield, McLachlin & Samson (2002), the validity of research can be divided into three different tests, construct validity, internal validity, and external validity. The construct validity includes how to direct the right operational measures to the concepts under study. Internal validity is how causation can be shown, and certain causes can be shown to lead to different outcomes. External validity refers to where causal relationships or research findings can be generalized. (Stuart et al. 2002)

Various means have been used to increase the reliability and validity of this study. The data collection and data analysis process has been described in the study to give the readers a good understanding of the implementation of the study. The research was carried out in a single case company, so the findings reflect the company's current situation, considering the company's special characteristics and resources. For this reason, possible observations made cannot be generalized to other companies or industries. The research was carried out by collecting data with interviews and other data available from the company.

In order to increase reliability, several interviews were conducted with people working in different activities, so answers were obtained more broadly from different perspectives. All the interviewees play an important role as part of the company's operations and have long experience in the field. The interviews were conducted in Finnish in order to get more detailed answers and the conversation was more natural and interviews were recorded for later review. When translating the text from Finnish to English, attention was paid to preserving the content unchanged. In the empirical part of the study, direct quotes were also used, to bring out direct thoughts from the interviewees and to increase the reliability of the study.

6.4 Future research

Procurement is constantly receiving more and more attention, as its importance in the operations of companies has grown. The topic has already been studied a lot in the literature, but further research on the topic is necessary due to constant changes. This study focused on the development of a strategic procurement, which includes the development of a supply

strategy and the means to implement it. As a result, an interesting topic for further research would be to study the creation and implementation of a supply strategy in the construction industry, as there is not much literature on the subject related to the field. In addition, the benefits, challenges, and methods of implementation resulting from the implementation of an effective supply strategy and, for example, the categorization of procurements, would be important research points. What kind of metrics could be used to monitor these developments, and how they could be implemented as part of project activities?

With the effective creation and implementation of a supply strategy, a company can achieve cost savings, make operations more efficient, and create a clearer picture and rules throughout the company on how operations should be carried out. In project business, this could facilitate increased transparency between different projects, and purchases could be better centralized. In order to implement this, different metrics should be developed, and the organizational structure should be changed so that procurement is more at the organizational level. Research related to the topic could be useful both on a scientific level and for companies operating in the construction industry or for companies whose activities are project-based.

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