



**DEVELOPING BALANCED PERFORMANCE METRICS FOR PROCUREMENT
BY USING A BALANCED SCORECARD**

Lappeenranta–Lahti University of Technology LUT

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Emmi Penttinen

Examiners: Professor Katrina Lintukangas

Professor Jukka Hallikas

ABSTRACT

Lappeenranta–Lahti University of Technology LUT

LUT School of Business and Management

Business Administration

Emmi Penttinen

Developing balanced performance metrics for procurement by using a balanced scorecard

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This Master's thesis explored the measurement of procurement performance by examining which performance metrics are best suited for monitoring and developing procurement performance. The aim of this study was to create a balanced scorecard for procurement that is in line with the long-term strategy of the function. The study was conducted as a qualitative case study for the case company, which is a globally operating technology company.

The results of the study showed that while cost savings are at the heart of procurement, the performance of the function needs to be viewed from a broader perspective in order to track progress toward strategic goals. Current metrics focus on measuring suppliers and operational performance. Deficiencies were found especially in the metrics related to employees and processes, which are at the heart of internal development. Sustainability was highlighted as an important area that should be added to the scorecard as a separate perspective. Based on the results of the study, the perspectives of a balanced scorecard are financial, customer, sustainability, procurement processes and people and collaboration.

A functioning scorecard requires high quality and accuracy of data, harmonized policies and clarification of the definitions and calculation methods of the key performance indicators. Once a strong foundation for the scorecard is built, a balanced scorecard can be used to measure procurement performance as such or modified according to the function's strategy.

TIIVISTELMÄ

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Tasapainoisen suorituskykymittariston kehittäminen hankintaosastolle tasapainoisen tulokortin avulla

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Tämä Pro-gradu tutkielma käsitteli hankinnan suorituskyvyn mittaamista tutkimalla mitkä suorituskykymittarit soveltuvat parhaiten hankintaosaston suorituskyvyn seuraamiseen ja kehittämiseen. Tutkimuksen tavoitteena oli luoda tasapainotettu tulokortti hankintaosastolle, joka on linjassa sen strategian kanssa. Tutkimus toteutettiin laadullisena tapaustutkimuksena kohdeyritykselle, joka on globaalisti toimiva teknologia-alan yritys.

Tutkimuksen tulokset osoittivat, että vaikka kustannussäästöt ovat hankinnan ytimessä, on funktion suorituskykyä tarkasteltava laajemmasta näkökulmasta, jotta kehitystä kohti strategisia tavoitteita voidaan seurata. Nykyiset mittarit keskittyvät toimittajien sekä operatiivisen suorituskyvyn mittaamiseen. Puutteita havaittiin erityisesti työntekijöihin sekä prosesseihin liittyvissä mittareissa, jotka ovat sisäisen kehityksen keskiössä. Kestävyys korostui tärkeänä osa-alueena, joka tulisi lisätä tulokorttiin erillisenä perspektiivinä. Tutkimuksen tulosten perusteella tasapainotetun tulokortin perspektiivit ovat taloudellinen, asiakas, kestävyys, hankinnan prosessit sekä ihmiset ja yhteistyö.

Toimiva tulokortti edellyttää datan korkeaa laatua ja tarkkuutta, harmonisoituja toimintaperiaatteita sekä mittareiden määritelmien ja laskentamenetelmien selkeyttämistä. Kun vahva pohja tulokortille on rakennettu, voidaan tulokorttia käyttää hankinnan suorituskyvyn mittaukseen sellaisenaan tai muokattuna hankintaosaston strategian mukaan.

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Emmi Penttinen

LIST OF ABBREVIATIONS

BSC	Balanced Scorecard
KPI	Key Performance Indicator
PO	Purchase Order
SCM	Supply Chain Management
SRM	Supplier Relationship Management
SCOR	Supply Chain Operations Reference
OTD	On-Time Delivery
CO2	Carbon Dioxide
CPO	Chief Procurement Officer
CSR	Corporate Social Responsibility
APQC	American Productivity & Quality Center
OTA	On-Time Arrival
BCC	Best Cost Country
NCR	Non-Conformity Report
SBT	Science-Based Target
HSE	Health, Safety and Environmental
ROI	Return on Investment

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1 INTRODUCTION

Strategy is an essential building block in a company's business. The importance of strategy and strategic management has been extensively studied in the literature for decades. However, the procurement function was not previously seen as a strategic but rather an operational function of the company. In recent years, many researchers have understood the strategic importance of the procurement function to a company's success (Nicoletti, 2017, 2; Cox, 1996, 70; Thompson, 1996, 6; Gonzalez-Benito, 2010, 792). These important findings have led companies to invest in creating a purchasing and supply strategy and thus pursuing competitive advantages through the procurement function. Procurement is an integral part of a company's operations, influencing from production to delivery, while seeking to improve flexibility, costs and quality. (Chenini, Iqbal, Qurrahtulain, Husain Mahmood & Aldehayyat, 2020, 1). This makes procurement a strategic value adding function (Chick & Handfield, 2015, 11). However, Chick and Handfield (2015, 2) argue that procurement still remain as a low priority for many companies and there is room for improvement.

As Venkatraman and Ramanujam (1986, 801) state, performance improvement is an integral part of strategic management. To detect improvement opportunities, performance must be measured. Interest in measuring and managing performance has grown rapidly in recent decades (Gopal & Thakkar, 2012, 521). At the same time, monitoring and improving supply chain performance has become more complex (Cai, Liu, Xiao, & Liu, 2009, 512). Companies struggle to decide which metrics they should use and how performance should be analysed using selected metrics (Gopal & Thakkar, 2012, 521). Improving supply chain performance can provide significant competitive advantages, making it one of the critical issues for a company (Cai et al., 2009, 512; Shepherd & Günter, 2006, 242). Therefore, it is important for the procurement function to find the right metrics for its purpose that support the procurement strategy of the function as well as the corporate strategy by measuring the factors relevant to these strategies.

Over the years, several strategic management systems have been developed. The balanced scorecard (BSC) is a widely discussed management tool in research and practise that supports the implementation of strategies (Figge, Hahn, Schaltegger & Wagner, 2002, 269). The clear advantages of the balanced scorecard are its broad perspective, which also includes non-financial measures, flexibility, and the ability to link long-term strategic objectives to short-term actions (Kaplan & Norton, 1992; Kaplan & Norton, 1996). The balanced scorecard is an appropriate tool for measuring and evaluating supply performance. However, the current literature on supply chain performance metrics continue to focus heavily on financial benefits and customer satisfaction criteria. As a result, other supply chain stakeholders and value creation improvement have received less attention (Golrizgashti, 2014, 1-2). According to Brewer and Speh (2000, 85), only a small proportion of companies appear to have incorporated the balanced scorecard model into their supply chain management. This highlights the need to integrate the balanced scorecard into the strategic management of procurement, which plays an important role in the management of a company's supply chain. Balanced metrics help to improve companies' internal and external functions and create more value for stakeholders (Golrizgashti, 2014, 2).

1.1 Research objectives and limitations

The research objective of this study was formed from a global company's need to develop a comprehensive set of key performance indicators (KPIs) for the new procurement function that is linked to its strategy. The procurement function was renewed due to a merger. The main research problem of this study is to determine which performance metrics are suitable for monitoring and developing the performance of the procurement function. At the request of the company, a balanced scorecard was selected as a research perspective for this study. This perspective supports the objective of the research well, as a balanced scorecard prevents the formation of a gap between the company's strategy and its implementation by linking long-term strategic objectives to short-term actions (Kaplan & Norton, 1996, 75). Today's dynamic business environment forces companies to develop supply performance metrics to ensure sustainable growth, and even mere survival (Prakash & Pant, 2013, 196). In order to solve the above research problem, the following research question and its three sub-questions were defined:

How to build a balanced scorecard for the procurement function to measure its performance?

- a) What are the KPIs for the procurement function?*
- b) What should be considered when developing a balanced scorecard?*
- c) What are the benefits and obstacles of a balanced scorecard?*

The definition of the research question takes place at the beginning of the research process (Stuart, McCutcheon, Handfield, McLachlin & Samson, 2002, 420). The research question defines the aims and objectives of the research, making it a very important step in the research process (Kähkönen, 2011, 32). The aim of this study is to create a balanced scorecard for procurement that is in line with the long-term strategy of the function. Thus, the objective of this study is to find suitable KPIs for the procurement function that support the aim of the study. Based on this, the main topics of this study are strategic management and strategy, procurement performance measurement as well as a balanced scorecard as part of strategic management in procurement. These topics provide a comprehensive understanding of the research topic and a good foundation for the empirical part of this research.

This study also includes limitations so that the content of the study does not become too superficial. This study has been conducted for an individual company, so the KPIs selected in this study may not be appropriate for other procurement functions. Therefore, the findings cannot be fully generalized. Nevertheless, the findings of this study can be partially applied to the use of other procurement functions in view of their own strategy. A balanced scorecard is used to develop the KPIs at the request of the company and thus other alternative strategic management performance systems are excluded from this study. The theoretical framework of the study is thus constructed to deal only with a balanced scorecard and not to consider other alternatives. The implementation of the scorecard in the company as well as monitoring and further development of the scorecard are also excluded from this study. The implementation of the scorecard requires the development of selected metrics in the

company's IT systems, and due to the resources and expertise required to implement the KPIs and limited time of this study, these are excluded from the study.

This research can be considered beneficial for the company, as the changes caused by the merger reformed the entire procurement function, as a result of which the strategic objectives of the function have to be combined with new short-term activities. This requires performance metrics that support the strategy. In line with Gopal and Thakkar (2012, 521), Gunasekaran, Patel and Tirtiroglu (2001, 72) argue that companies lack an understanding of effective performance metrics in supply. They emphasize the lack of a balanced perspective due to the inability of companies to balance financial and non-financial indicators (Gunasekaran et al., 2001, 72). This provides a good starting point for this study and advocates the use of a balanced scorecard in the study. The topic has been examined in several studies in recent years. However, despite the popularity of the balance scorecard in academic literature, there are not many publications on the subject that focus specifically on the use of the scorecard within the procurement function. Most publications deal with the use of a balanced scorecard in logistics or supply chain management in general. (Wagner & Kaufmann, 2004, 270) To this day, there are clearly fewer publications on the use of a balanced scorecard specifically in the procurement function than on measuring supply chain performance as a whole. Also, as noted earlier, companies have difficulties to find suitable metrics and balance them. Therefore, this study can be considered to provide valuable information on performance measurement specifically in the procurement function by examining which performance measures are suitable for performance monitoring and development.

1.2 Research methodology

This study is conducted as a case study about developing balanced KPIs for procurement at the case company. The case study provides specific understanding or insight into the phenomenon studied, which is most often a contemporary phenomenon. The method allows to look at the phenomenon in context. (Farquhar, 2012, 6) The data are collected empirically. The research approach of this study is qualitative. The qualitative approach is not considered

to make generalizations and statistical statements, but is intended to provide an in-depth understanding of a particular group or topic (Drury, Homewood & Randall, 2011, 19). Qualitative research often uses text analysis and interviews. This style of research describes the entire process, such as data collection, analysis and reflection through writing. The strengths of qualitative research include, for example, its holistic approach, which provides more than a snapshot of the topic. In addition, qualitative research takes into account the participants' perspectives, for example through in-depth interviews. (Tracy, 2020, 4-7)

The research is divided into two parts: a literature review and an empirical research part. The aim of the literature review is to provide a comprehensive understanding of the topics of this study by examining previous academic literature. The literature review also seeks answers to research questions based on previous studies and presents possible answers. The main sources for this study are scientific articles, interviews with senior managers and a questionnaire for employees in the procurement function. In addition to scientific articles, other scientific sources, such as books and third-party reports are used in the literature review. As the company's procurement function manages all external spend except logistics, operational activities and relationships with external suppliers, the literature review covers not only procurement-related literature but also supply- and supply management-related literature. This is also supported by Chick and Handfield (2015, 14), who point out that in some geographical areas procurement is also referred to as supply management and supply. Empirical data of this study is collected through semi-structured interviews and a survey. All interviewees as well as respondents to the questionnaire worked for the case company. All interviewees worked in procurement senior management positions across different business areas of the case company. In total, nine interviews were conducted. The respondents to the survey worked in different business areas in several procurement roles.

1.3 Conceptual framework and key concepts of the study

The main concepts of this study are strategic management, strategy, procurement, performance measurement as well as a balanced scorecard. The main concepts and their connections are illustrated in Figure 1. As Figure 1 illustrates, all concepts are interrelated,

as illustrated by the green arrows, and all contribute to the development of balanced performance metrics for procurement and thus to the aim of the study. The conceptual framework starts from strategic management and strategy that are closely interlinked. They provide the basis for this framework. Procurement is affected by the company's corporate strategy and strategic management principles, from which the strategy of the function derives. The strategy determines the direction of procurement activities so that the activities support the company's long-term objectives. Once the procurement strategy is created, performance measurement must be applied to review the progress of the strategy and the actions supporting it. To ensure a balance between financial and non-financial metrics, a balance scorecard is applied. Together, these concepts create a set of balanced performance metrics for procurement that advance the function's as well as the company's strategic objectives by linking them with short-term activities. The conceptual framework is the background to the empirical part of the study and provides a comprehensive understanding of the topics covered in the study based on previous studies. Thus, the framework provides a theoretical basis for the results of the empirical part of the study. The main concepts are briefly introduced after Figure 1.

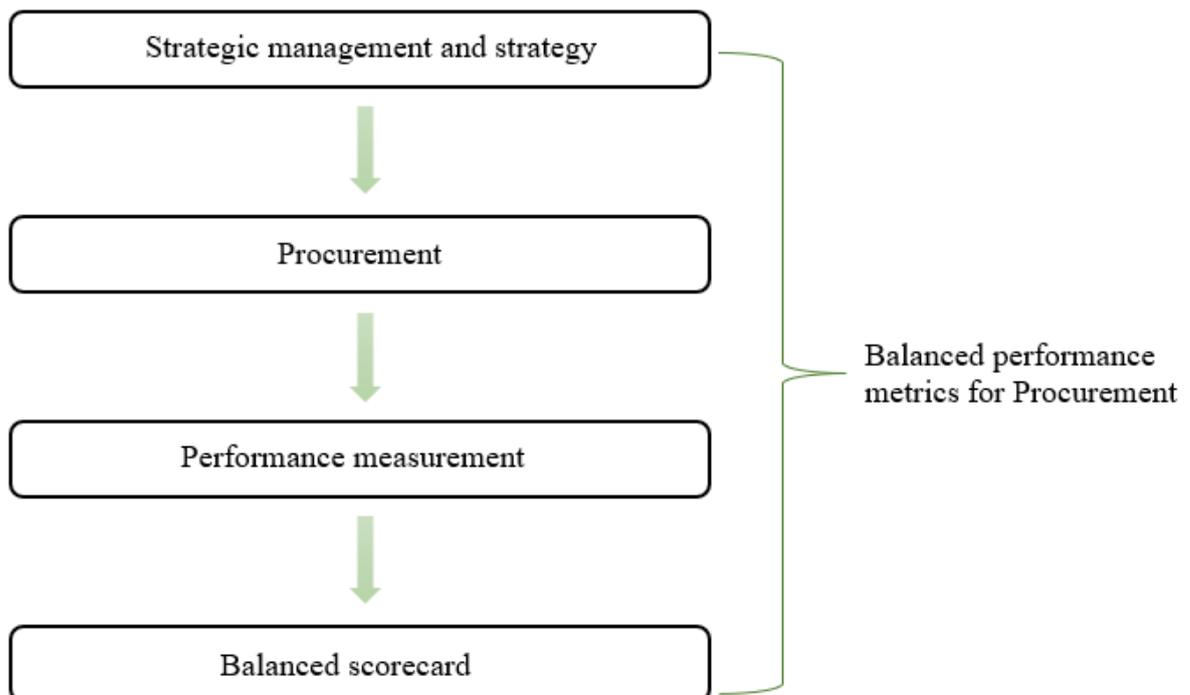


Figure 1. The conceptual framework of the study and the connections between the concepts.

Strategic management

Dan Schendel and Charles Hofer defined strategic management as “*A process that deals with the entrepreneurial work of the organization, with organizational renewal and growth, and more particularly, with developing and utilizing the strategy which is to guide the organization’s operations*”. Schendel and Hofer saw that companies needed a formal strategic management process because the business environment changed rapidly, and companies lacked a structured approach to help them manage the potential effects of changes in the business environment. (Cited in Andersen, 2013, 7) In line with this, Jasper and Crossan (2012, 838) state that a strategic management process is essential for companies to respond to external change. Therefore, it is an externally oriented management philosophy that combines strategic thinking and analysis with action. (Jasper & Crossan, 2012, 838)

Strategy

Strategy is widely cited in academic literature. As one of the earliest definitions of strategy, Alfred D. Chandler Jr. defined strategy as “*The determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals*” (Cited in Khalifa, 2020, 131). Khalifa (2021, 36) argues that the concept of strategy has been stretched and the term is used loosely today, which in turn can lead to a loss of meaning in strategy. In response to this problem, Khalifa (2020, 136) proposes the following strong definition of strategy, which takes into account the dimensions of strategy definition identified in previous studies: “*Strategy, rendered as a cohesive core of guiding decisions, is an entity’s evolving theory of winning high-stake challenges through power creating use of resources and opportunities in uncertain environments*”.

Procurement

According to Chick and Handfield (2015, 15), procurement is at the centre of supply chain management (SCM) and focuses on managing the upstream part of the supply chain, the part of the supplier. In particular, supplier relationships are at the heart of procurement (Chick & Handfield, 2015, 15; Nicoletti, 2017, 2). In addition to cost management, procurement

ensures that the supplier meets defined criteria in the fields of innovation, delivery, quality and service (Chick & Handfield, 2015, 16). Jiang (2017, 18) defines supply resources development, supplier qualification and selection as well as supplier relationship management (SRM) the core elements of procurement. In addition, the scope of procurement is expanded to demand management, product design and development and production operation assurance. (Jiang, 2017, 18) According to Nicoletti (2017, 11), procurement encompasses sourcing, design and development as well as logistics of goods and services for the company. In this study, the term procurement is used in the sense that it also includes elements of supply chain management as well as purchasing and supply, as the terms are often used interchangeably in the literature (Chick & Handfield, 2015, 14; Van Weele, 2014, 8). Thus, the term procurement is primarily used in this study to describe these elements. Terms other than procurement are also used to describe the concept of procurement, such as "strategic SCM" and "purchasing" if those terms are used in referenced sources.

Performance measurement

Neely, Gregory and Platts (1995, 80) define performance measurement as “*The process of quantifying the efficiency and effectiveness of action*”. Effectiveness in this context refers to how customer requirements are met and efficiency measures how financially a company's resources are used to achieve a certain level of customer satisfaction. (Neely et al., 1995, 80)

Balanced scorecard

The Balanced Scorecard is a strategic management tool introduced by Robert S. Kaplan and David P. Norton in 1992. The scorecard balances financial measures with operational measures. The original model of balance scorecard looks at the business from four perspectives: customer, internal, financial and innovation and learning perspective. (Kaplan & Norton, 1992) In their later publications, the innovation and learning perspective has also been called the learning and growth perspective (Kaplan & Norton, 1996; Kaplan & Norton, 2000). In this study, the fourth perspective is called the learning and growth perspective. These four perspectives on the scorecard help to clarify the metrics that are useful for the

company and minimize information overload by limiting the number of metrics (Kaplan & Norton, 1992).

1.4 Structure of the study

This thesis is divided to six main chapters. The first chapter introduces the research problem and its background briefly. The research questions created on the basis of the research problem are presented in this chapter, as well as the limitations of the research. The research methodology is also briefly presented. After this, the theoretical framework of the study and its key concepts are presented. The introduction chapter is followed by the theoretical part of the study, which is divided into two main chapters: strategic management of procurement and performance measurement in procurement. The first chapter describes the role of procurement in the supply chain and the importance of strategic procurement. The second chapter of the theoretical part focuses on measuring procurement performance and commonly used performance metrics. The chapter also discusses a balanced scorecard and its application to procurement.

After the theoretical part, the research process and its methodology are presented in more detail. This begins by presenting the case and its background in more detail. The methodology of this study and the process of data collection and analysis are then described. The methodology and process section is followed by an empirical section in which the empirical results of the study are presented based on the analysed data. In the final chapter, answers to the research questions are provided and a balanced scorecard is proposed. The chapter highlights the main findings and compares the research results with the theoretical background of this study. Finally, the reliability and limitations of the study are discussed and ideas for further research are presented.

2 STRATEGIC MANAGEMENT OF PROCUREMENT

Strategic management is undeniably at the heart of a successful business. The business environment is constantly changing, which requires the company to be able to constantly evaluate their strategy and take action to ensure that the company's objectives are achieved. Strategic management has an important role to play in this. It consists of decisions that determine the future direction of a company, such as its purpose, resources and interaction with the surrounding environment (Lynch, 2018, 5). The main questions of strategic management can be defined as follows: why some companies are more successful than their competitors and how companies can sustain competitive advantages? (Maijanen, 2020, 8). When a company has the answers to these questions, strategic management adds value and enables sustainable competitive advantages to be achieved (Lynch, 2018, 26). From a practical point of view, strategic management has the ability to respond to the day-to-day problems faced by companies, making it essential in business (Maijanen, 2020, 9).

Strategy is the core of strategic management as strategy is formulated, implemented and followed in the strategic management process. The strategy has been found to have the greatest impact on the company's performance (Heracleous, 2003, 4). Strategic management is often distinguished between corporate and business strategy (Bowman & Helfat, 2001, 1). Thus, strategic management can be implemented at the corporate and business level in the company. According to Lynch (2018, 14), at the corporate level, it considers the major objectives of the company as well as policies and plans to achieve these objectives. At the business level, strategic management seeks to match a company's internal capabilities with external relationships, such as customers and competitors. (Lynch, 2018, 14) Bowman and Helfat (2001, 1) outline that corporate strategy is considered when managing a set of businesses together in the company, whereas business strategy is considered when managing a single-business company or a business unit of a larger company that competes within a particular industry or market. However, the literature sometimes seems to use the terms interchangeably. According to Carr & Smeltzer (1997, 200), strategic management process presented in Figure 2 involves three levels of organization: corporate, business unit and functional. The corporate strategy asks what kind of business a company should have. The business strategy, in turn, asks how a company can compete in a selected area of business.

The task of functional level strategy is to integrate the company's functional activities and to link corporate and business-level strategies with functional activities to ensure that changes at the functional level are reflected in higher-level strategies. (Carr & Smeltzer, 1997, 200) The following sections of this chapter focus exclusively on strategic management in procurement.



Figure 2. Strategic planning in a company (Carr & Smeltzer, 1997, 200).

2.1 Procurement's role in supply chain management

Understanding the role of procurement in a company requires an understanding of the supply chain management as a whole. Supply chain management is extensively studied in the academic literature. Mentzer, DeWitt, Keebler, Min, Nix, Smith and Zacharia (2001, 2) identified reasons for the popularity of the concept in their article. The first reason for the growing popularity of the concept is the rise of global sourcing. The globalization of supply chains requires more effective supply chain coordination, which in turn requires closer supplier relationships. Second, competition in the market has intensified. Time and quality have become basic requirements in the market instead of competitive advantages. This has highlighted the importance of supply chain management. These reasons have increased environmental uncertainty. Its management requires more flexible supply chains and thus

more flexible supplier relationships. (Mentzer et al., 2001, 2) Lummus and Vokurka (1999, 12-13) highlight in part the same reasons for the increased interest in supply chains. In the 1990s, companies have continued to integrate vertically and outsource activities that are not their core competencies. Companies have realized that by collaboratively managing the entire network of supply, common performance can be optimized for the benefit of all. Second, competition nationally and internationally has increased, and buyers' purchasing patterns are constantly changing, making it difficult to maintain optimal inventory. Third, optimizing the performance of one function can potentially hamper the performance of another function, degrading the overall performance of the company. For this reason, a company must consider the entire supply chain when considering the consequences of a decision for a single function. (Lummus & Vokurka, 1999, 12-13)

There are several definitions of SCM in the literature, but their scope and descriptions vary. In some literature, SCM is defined in operational terms, while in some literature it is seen as a management philosophy or management process (Mentzer et al., 2001, 2). After analyzing 173 SCM definitions, Stock and Boyer (2009, 706) developed the following comprehensive definition of SCM:

“The management of a network of relationships within a firm and between interdependent organizations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to final customer with the benefits of adding value, maximizing profitability through efficiencies and achieving customer satisfaction.”

Lambert, Cooper and Pagh (1998, 1-2) present a framework of a supply chain as a network of multiple businesses and relationships. The framework is presented in Figure 3. The framework describes a simple supply chain network structure. The flows of information and products describe the direction in which they go in the supply chain. The key business processes run through functional silos within the company as well as through several corporate silos throughout the supply chain. Therefore, these businesses processes are considered as supply chain business processes that are linked over intra- and intercompany

boundaries. (Lambert et al., 1998, 1-2) The framework has 3 elements: network structure, business processes and management components. The network of members and the connections between these members form the structure of the supply chain. Business processes are considered as activities that produce a certain value of output for the customer. Management components are variables used to integrate and manage business processes in the supply chain. Thus, the implementation of supply chain management requires the identification of the network members and processes that need to be linked with the members, as well as the level of integration for each linked process. (Lambert et al., 1998, 4)

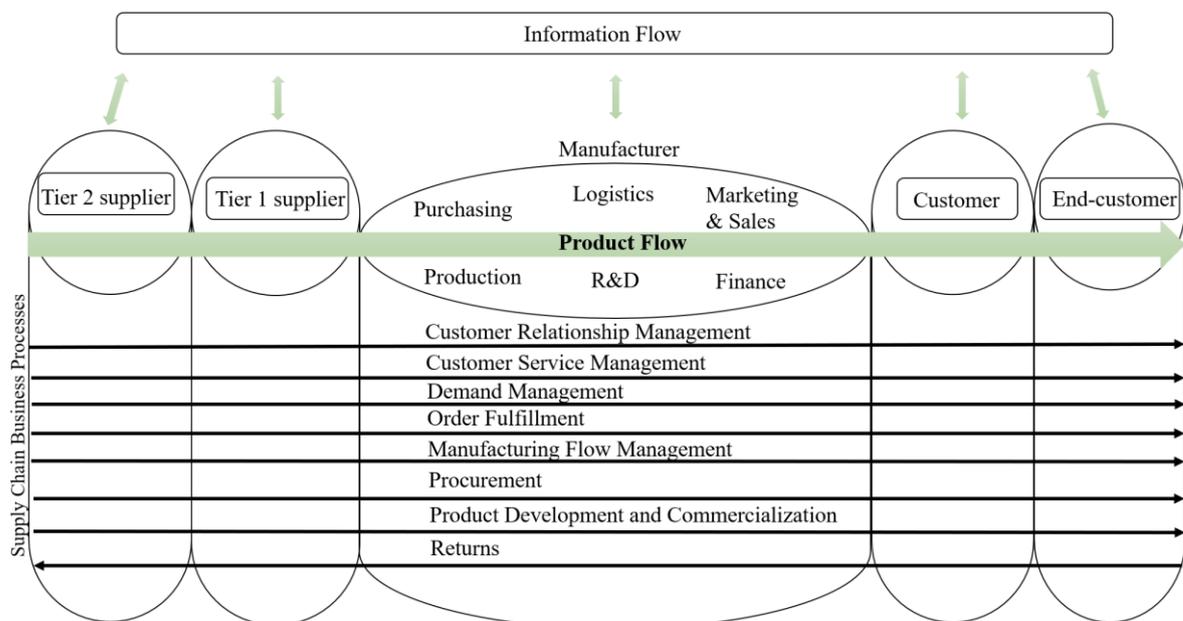


Figure 3. Supply chain framework (Lambert et al., 1998, 2).

Procurement is considered a critical part of SCM because it greatly affects the overall performance of the company (Khan & Yu, 2019, 192). It has previously been seen as a service to the company's other functions, but today the importance of the function has been recognized and it is considered one of the key functions (Nicoletti, 2017, 2). Van Weele's (2014, 8) definition of procurement and its activities, as well as other supply chain concepts, are shown in Figure 4. The importance of procurement in achieving competitive advantages by managing the upstream part of the supply chain is clear. Procurement does not manage

the entire supply chain to the end customer, but is responsible for the supplier-focused supply chain. The function focuses on supplier activities, but does not manage a broader business system that includes multiple layers of customers, distributors and others. (Chick and Handfield, 2015, 15). The area of responsibility for procurement includes, for example, many types of acquisition, such as purchasing, contracting and rental, selecting suppliers and negotiating prices and terms with them, expediting, materials handling and transport organization, receiving components and products as well as monitoring suppliers' performance. Procurement can be said to be responsible for the relevant activities required to get components, materials and services from the supplier to the company. Thus, information processing is an essential part. By collecting information from multiple sources and analyzing them, procurement transfers valuable information to the supply chain. (Khan & Yu, 2019, 191)

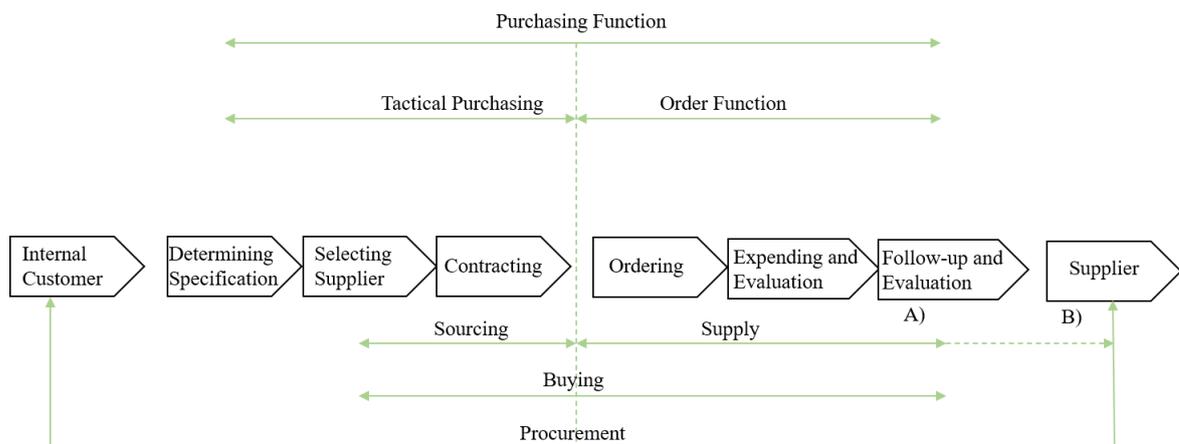


Figure 4. Supply chain concepts and their activities (Van Weele, 2014, 8).

In their book, Chick and Handfield (2015, 37) present a procurement maturity model that describes procurement's role in a company and the value the function brings to the company. The model is presented in Figure 5. The capability of procurement increases step by step and the value of their actions increases accordingly. At the bottom of the ladder, the function performs low-lever tactical activities to ensure supply assurance and thus the continuity of operations. At the top step of the ladder, procurement has progressed to a strategic role where the function directly influences business strategy. (Chick and Handfield, 2015, 37) According to Schnellbacher and Weise (2020, 3) the most common value-adding variables

that the procurement department can influence through its own activities are: cost savings, innovation, quality, sustainability, speed and risk.

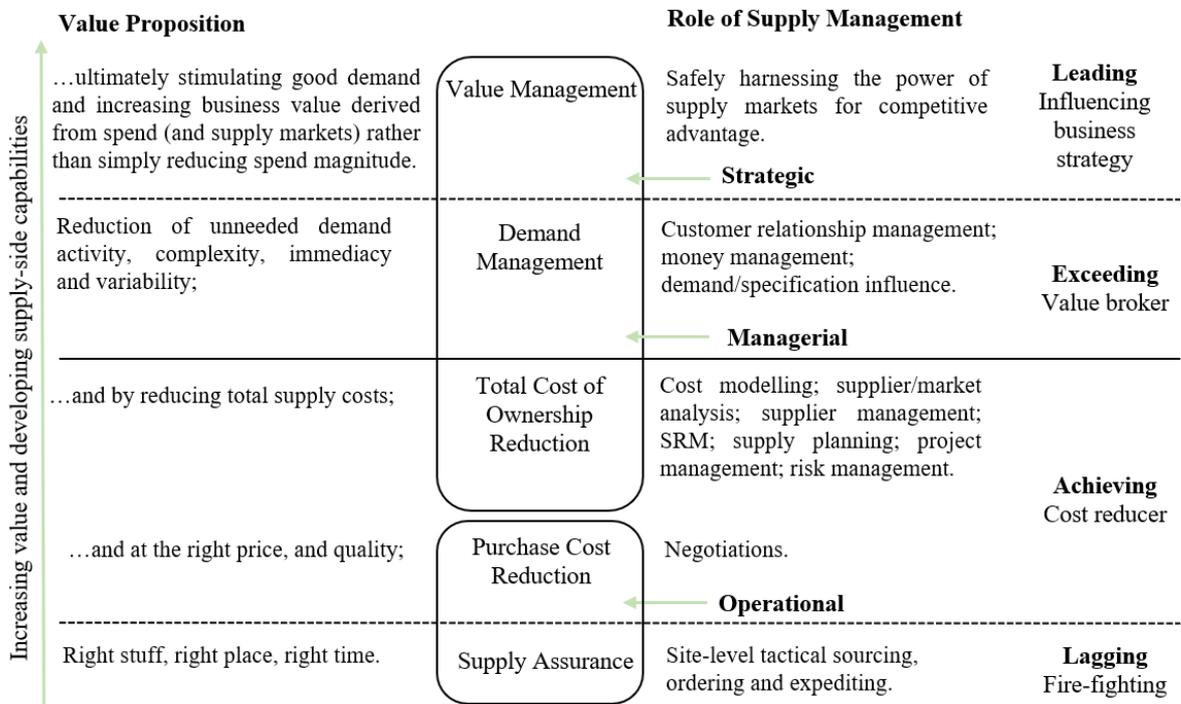


Figure 5. Procurement maturity ladder (Chick & Handfield, 2015, 37).

2.2 Strategic Procurement

Once the importance of procurement has been recognized, the strategic importance of the function has attracted the attention of researchers and business managers. The importance of strategic purchasing has been emphasized in the literature since 1980’s (Carr & Pearson, 2002, 1032). Peter Kraljic’s famous publication “Purchasing must become Supply Management” in 1983 in the Harvard Business Review was a ground-breaking article that supported the rise of procurement as a strategic function (Chick & Handfield, 2015, 14). Also, Porter’s five-force model from the 1980’s, which emphasizes the importance of the buyer, has been a significant factor in considering the strategic aspect of the purchasing. During that decade, the idea of purchasing as a support role began to slowly shift toward a strategic function, and in the 1990’s, purchasing was seen in the literature as part of a

company's strategic planning. However, it was noted that purchasing must be a strategic function before it can be involved in a company's business strategy. (Carr & Smeltzer, 1997, 199) Few years earlier, Spekman, Kamauff and Salmond (1994) argued that companies need to embrace the strategic aspect of purchasing. In the late 1990s, purchasing was already seen in a critical role (Carr & Smeltzer, 1997, 199).

According to Paulraj and Chen (2007, 29) strategic procurement consists of strategic purchasing, communication, long-term relationship orientation, supplier integration and cross-organizational teams. Procurement can be considered a strategic function in a company when it plays an integrative role in the company's strategic planning process. As a strategic function, it aims to support the company's goals in a long-term. (Carr & Pearson, 2002, 1033) Chick and Handfield (2015, 19) have a similar idea of procurement's aims as they argue that the ultimate value of the procurement is measured by the support it provides for the company's overall business strategy. Thus, strategic procurement is much more than a simple purchasing process, it is an organization-wide process (Chenini et al., 2020, 2). The strategic purchasing function is integrative and long-term focused. It is a proactive function that seeks opportunities and presents ideas that could have a positive effect on product quality and future growth of the company. Employees are guaranteed the necessary skills as well as knowledge for strategic work. Skills are strengthened and knowledge is increased through training. (Carr & Pearson, 2002, 1033-1034).

Chenini et al. (2020,2) defined a simple strategic procurement process that reflects the key stages of procurement at an early stage. First, the company's current performance is benchmarked, and organizational needs and goals are identified. This is done by analyzing resources, costs and growth forecasts. Second, procurement evaluates the supplier market and collects information on potential suppliers. After this, the company formulates and implements a procurement strategy by selecting potential suppliers and developing them. At this point, it is important to consider that the procurement strategy is in line with the organization's goals. Finally, the negotiation and implementation of the transition plan is the final step in strategic procurement. (Chenini et al., 2020, 2)

2.2.1 Benefits of strategic procurement

The benefits of strategic procurement are, for example, shorter product development cycles, better delivery service and inventory reduction (Fawcett, Magnan & McCarter, 2008, 35). In addition to cost savings and improved operational efficiency, strategic procurement enables the accomplishment of strategic goals and the achievement of better responsiveness, competitiveness, customer service, flexibility and reliability. (Akyuz & Gursoy, 2020, 214; Bernardes & Zsidisin, 2008, 216-217). According to Chen et al. (2004, 505) strategic procurement creates sustainable competitive advantages as it enables companies to maintain closer relationships with a limited number of suppliers and the development of long-term relationships to create shared value as well as promotes open communication between the partners. This is in line with the results of a study by Paulraj, Chen and Flynn (2006, 117) on how a higher level of strategic purchasing is linked to higher supplier integration, especially to better collaboration between the supplier and the company. Thus, long-term strategic relationships are emphasized in strategic procurement (Paulraj et al., 2006, 117; Chenini et al., 2020, 2). This increases trust and reduces dysfunctional conflicts between the parties (Chenini et al., 2020, 7).

Continuous information flows between functions as well as with external stakeholders are also an integral part of strategic procurement. This enables better lead-time, manufacturing performance and speed-to-market. It is a positive chain reaction, as a shorter procurement lead-time leads to better production performance, which in turn enables a shorter time to market for goods and services as well as enables to reach customers quicker compared to competitors. Partnering with suppliers improves financial returns, reduces supply risks and provides better quality products. (Chenini et al., 2020, 2-3) The knowledge procurement has about supplier preferences and by seeking to bring strategic advantages to the organization through improved supplier performance, the function can also use the knowledge of supplier value to increase suppliers' interest in the company (Chick & Handfield, 2015, 198). In addition to the aforementioned benefits, strategic procurement allows a company to reduce product costs, respond better to unexpected events and make better use of assets (Fawcett et al., 2008, 44). It is important to note that strategic procurement also benefits the supplier and creates a win-win situation for the parties (Paulraj et al., 2006, 118).

2.2.2 Barriers and bridges to strategic procurement

Strategic procurement offers valuable benefits, but companies that partner in strategic supply chains also face barriers. The barriers exist in three levels: the organizational, intra-organizational and inter-organizational levels (Fawcett et al., 2008, 35). For example, strategic supply chains may face performance glitches that have serious impact on a company. Glitches can lead to, for example, an inability to meet customer demand, which can lead to inventory imbalances, which in turn can lead to a loss of sales and market share. They can also deteriorate customer service, leading to increased customer dissatisfaction and lower customer loyalty. A company's reputation and credibility can suffer, as a result of which the company may lose customers. These glitches and the actions taken to correct them may be reflected in increased costs. All in all, glitches can lead to low inventory and asset performance. (Hendricks & Singhal, 2005, 696)

The study by Hendricks and Singhal (2005, 710) confirms a serious impact on the firm, as a decline in operating income and return on sales of more than 100 percent was observed in the year the glitch was announced. Correspondingly, the return on assets decreased by 94 percent. The study also showed that recovery from the glitch is slow. (Hendricks & Singhal, 2005, 710) In their comprehensive study, Fawcett et al. (2008) summarized top 10 barriers and bridges to strategic procurement based on literature review, survey and case analyses. The results are presented in Table 1. Information, technology and measurement systems were seen as the biggest barriers to successful supply chain collaboration. However, the problems related to people, such as resistance to change and the willingness to cooperate, were seen as more challenging to direct. When investing in these barriers, companies need to keep in mind the importance of people as a bridge to barriers, as people were identified as the most important bridge for collaborative innovation. (Fawcett et al., 2008, 35)

Table 1. Top 10 barriers and bridges to strategic procurement (Fawcett et al., 2008, 44).

Barriers	Bridges
<i>Interfirm rivalry</i>	<i>Operations, process, and supply management</i>
-Inadequate information sharing	-Accurate comprehensive measures
-Inconsistent operating goals	-Supplier alignment and rationization
-Lack of willingness shared risks and rewards	-Effective use of pilot projects
-Lack of willingness to share information	-Process documentation and ownership
<i>Managerial complexity</i>	<i>People Management</i>
-Lack of alliance guidelines	-Managerial and employee support
-Processes poorly appraised in terms of costs	-Open information sharing
-Non-aligned measures	-Trust-based alliances
-Organizational boundaries	-Cross-trained experienced managers
-Measuring supply chain contribution	-Supply chain education and training
-Measuring customer demand	-Using chain advisory councils

2.3 Procurement strategy

The strategy can be considered as the core of strategic procurement, as it guides the work of procurement. Previously, procurement strategies were often designed solely based on the profit impact of materials and goods. Over time, companies realized that there were weaknesses in their procurement strategies, and the strategies did not promote competitiveness but rather hampered the company's competitive position. (Avittathur & Ghosh, 2020, 66) Today, it is considered one of the most important strategies of the company and it appears in many ways and from different perspectives (Ivanov, Tsipoulaidis & Schönberger, 2018, 107; Gonzalez-Benito, 2010, 775). The strategy gives a true picture of how the organization manages its procurement function and gives an overview of its administrative order. The strategy also guides how the organization implements purchasing activities so that they are in line with the strategy. (Chenini et al., 2020, 2) According to Van Weele (2010, 59), before formulating a procurement strategy, a company must be able to answer the following questions in order for the strategy to support the company's business strategy.

- What market is the company targeting and what are the major development on-going in this market?

- What kind of competition is there in the market? Is it possible for a company to achieve price advantages?
- Is there pressure in the market for price increases and if so, can the price increase be passed on to the end customer?
- Is the company making changes to its operations, information systems, or products?
- Is the company investing in new equipment or new technology?
- Does the company intend to remove products from the product range? (Van Weele 2010, 59)

Once a company has the necessary information about the market and a clear understanding of the direction of its operations, a strategy can be developed. The choice of a suitable procurement strategy is influenced by the business strategy as well as the company's power and competencies. The right approach is influenced by the nature of the goods, the complexity of the supply market and the procurement requirements. Often, a company can use multiple purchasing strategies simultaneously. (Virolainen, 1998, 680) In his research, Gonzalez-Benito (2010, 778) presented a model for a strategic planning process in procurement and manufacturing functions. The model is presented in Figure 6. The process combines both functions because the main responsibility for procurement is to ensure that manufacturing has the necessary resources, and therefore these strategies must be coherent. The formation of a procurement strategy begins with the selection of a particular competitive objective. (Gonzalez-Benito, 2010, 777) These objectives have been selected based on Krause, Pagell and Curkovic's (2001) study, which shows that purchasing strategy can also be expressed in terms of the four generic competitive objectives presented by Hayes and Wheelwright in 1984: cost, quality, flexibility and dependability. Based on the selected objectives, strategic choices are done to realize the objectives. As the model shows, the procurement strategy is presented at two levels, the first answering the question of what the company wants to achieve and the second how to achieve it. The author argues that the literature often focuses exclusively on the second level by classifying a procurement strategy according to what strategic decisions an organization makes. As the strategy is formed and implemented, the capabilities and performance procurement achieve are influenced by the chosen generic competitive objectives and strategic choices. These capabilities, in turn, affect the overall performance of the company. (Gonzalez-Benito, 2010, 775-781)

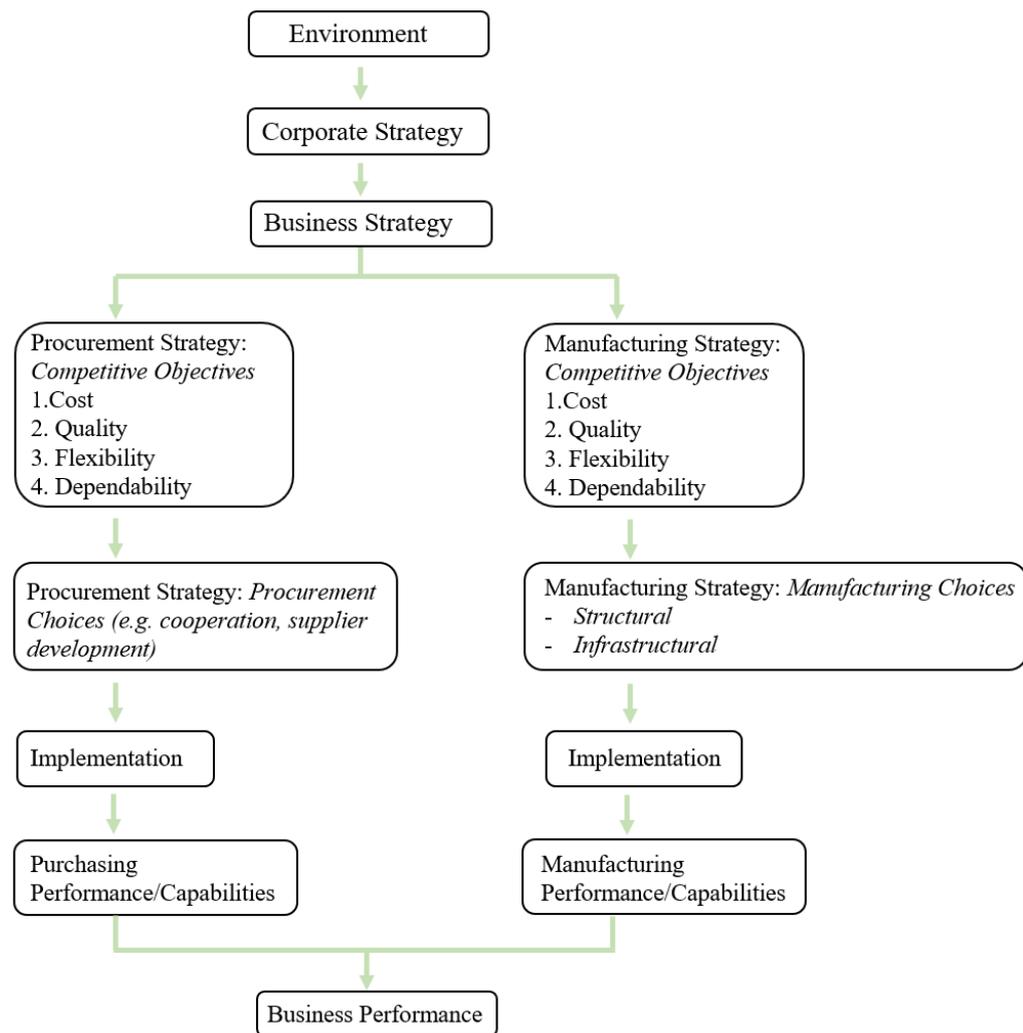


Figure 6. Strategic planning process in the procurement and manufacturing functions (Cited in Gonzalez-Benito, 2010, 778).

In his research, Virolainen (1998, 683) presents a framework for developing a procurement strategy that aligns the strategy with a company's competitive strategy and other functional strategies. The strategy development process can be divided into five stages, which are:

1. *Information gathering and evaluation phase.* In this phase, the internal and external environmental factors influencing the procurement strategy are determined. The factors can be divided into four groups: institutional factors, supply and sales markets, finance and profitability and production circumstances.
2. *Identification and determination phase.* In this phase, the following five points are identified and determined: the value chain position, procurement objectives, the

company's supply market and bargaining power, the strategic decision-making hierarchy and the choice of strategic tools and the organizational structure to support strategy development.

3. *Integration phase.* In this phase, the procurement strategy and capabilities are aligned with other functional strategies. All these strategies must be consistent and aligned with the business strategy. Suppliers must also be able to meet selected strategic priorities.
4. *Decision-making phase.* In this phase, important strategic issues are answered, such as whether the company should make or buy, what is the company's core competencies and whether the company should choose a partnership or competitive-based procurement strategy. To succeed, a company must use both a partnership and a competitive strategy, as different goods require different procurement methods.
5. *Implementation, measurement and evaluation phase.* In this phase, resources are allocated, individual objectives specified, and professionals trained and motivated. The effects of procurement strategies are also measured and evaluated. (Virolainen, 1998, 683-686)

In his model, Gonzalez-Benito (2010, 778) uses the same competitive objectives as the basis for the procurement strategy as Virolainen (1998, 683) in the identification and determination phase. In Ward, Leong and Snyder's study in 1990, innovation was added as a new objective (cited in Krause et al., 2001, 507). Virolainen (1998, 685) also emphasizes the importance of the question of whether a company should focus on core competencies and outsource non-core activities or manufacture internally. It is a key strategic decision that determines the direction of procurement. The decision shall take into account the costs, lead time and delivery reliability, quality, volume flexibility and supply uncertainty as well as possible risks such as loss of knowledge and competitive advantage. (Avittathur & Ghosh, 2020, 60-61) The choice of the type of supply relationship is another key strategic procurement decision that is emphasized in the framework (Virolainen, 1998, 681).

3 PERFORMANCE MEASUREMENT IN PROCUREMENT

Measuring performance is strongly linked to a strategy. Several studies show that there is a positive correlation between measuring performance and successfully implementing a strategy (Otheitis & Kunc, 2015, 141). In general, interest in measuring business performance has grown exponentially in recent decades (Neely, 2007, 2-3). Several new approaches to measuring performance have been developed and many new frameworks have been introduced (Marr & Schiuma, 2003, 680). One of the early publications that inspired researchers as well as business management to think about measuring performance more broadly than through financial figures was Eccles' (1991) article "The Performance Measurement Manifesto" in the Harvard Business Review. In the past, financial figures had been considered merely as a foundation for measuring performance, but the author recommended using them as part of a broader set of measurements. (Eccles, 1991, 131) Eccles' (1991) article can be considered a major innovation in the literature related to measuring business performance (Cited in Taticchi, 2010).

Measuring business performance has several implications for a company. In 2000, Parker concluded that the purpose of measuring business performance is to:

- Recognize success
- Identify if customer needs are met
- Help to understand the company's processes and confirm the information they have or bring in more information
- Identify problems and opportunities for improvement
- Ensure that decision-making is objectively based on facts and no subjective decisions are made. (Cited in Gunasekaran & Kobu, 2007, 2820)

Aligning performance measurement with strategy is essential. According to Neely, Mills, Platts, Gregory and Richards (1994, 140), one of the key factors in successfully aligning strategy and performance measurement is consistency, which consists of decision-making and action. Their research reveals that companies that compete primarily on time or quality emphasize performance metrics that are aligned with their strategy, while companies that

compete on price do not. Companies that compete on price seem to lack consistency. (Neely et al., 1994, 150) Financial metrics alone are not enough in a dynamic business environment. In order to achieve alignment, there needs to be a broader approach to the adoption, design and use of performance measures. Also, measures developed outside the context of the strategy will not lead to the results sought by the strategy. Thus, by aligning its strategy with performance metrics, a company can achieve great success. (Otheitis & Kunc, 2015, 141) The following sections of this chapter focus on measuring procurement performance.

3.1 Performance measurement

As the previous chapter pointed out, strategic procurement has an important impact on the function's own performance as well as the performance of the entire business. A strategic approach can be seen as the foundation for good procurement performance. In order to objectively determine the impact of procurement, measuring the performance of the function is required. The procurement business environment is changing rapidly, and companies face challenges in developing metrics that help make decisions that support the company's long-term goals. In addition, companies are required to continuously improve their supply chains in order to maintain their competitive advantages in a highly competitive market. In order to achieve continuous improvement, procurement must be able to measure its performance. However, measuring and evaluating purchasing performance is one of the biggest concerns for companies. Procurement performance measurement must be considered as a part of procurement management process. If the function does not have a clear vision during the development phase of the strategy and management reporting does not exist, systematic measurement and evaluation of performance is challenging. Systematic performance measurement is essential because the procurement function cannot be in control without it. (Van Weele, 2014, 285; 305)

There are many reasons to measure and evaluate procurement's performance. The costs generated by procurement are high that is one major reason why companies are particularly interested in measuring procurement performance. In general, about 60 percent of a producer's costs go to materials and components. As a result, even small improvements in

procurement activities can lead to large savings. (Khan & Yu, 2019, 192) Similarly, Chenini et al. (2020, 1) determine the cost of the procurement to be 50 to 70 percent of the goods delivered. Khan and Yu (2019, 208) mentioned four important reasons to measure and evaluate procurement's activities and performance. First, decision-making will improve as more information becomes available that provides an in-depth understanding of the current situation and helps to identify improvement opportunities as well as plan actions. Second, communication will improve and become more efficient throughout the supply chain. Information moves better between procurement teams and with business management and suppliers. Third, measuring performance provides an opportunity for feedback and optimization of performance. Feedback also allows to track performance over a longer period of time. Fourth, measurement motivates behaviour toward the desired output. A performance measurement system can do this with different techniques. For example, selected performance categories and targets indicate employees what actions management considers important. Another way is that performance goals are linked to a reward that guides employee behaviour. (Khan and Yu, 2019, 208) In his book, Van Weele (2014, 288) mentions very similar reasons to measure purchasing performance: enables better decision-making by identifying improvement opportunities and issues, improves communication and mutual understanding with other departments, creates transparency by reporting actual versus planned results that provide feedback to employees and information to management, as well as may increase employee motivation if a properly designed performance evaluation system meets the personal and motivational needs.

3.1.1 Effectiveness and efficiency dimensions

Efficiency and effectiveness are considered as two fundamental dimensions of performance and its measurement. Effectiveness considers the extent to which customer requirements are met. Efficiency measures how economically a company's resources are used to achieve a particular level of customer satisfaction. (Neely et al., 1995, 80) In the context of procurement, effectiveness refers to the extent to which a previously set objective or standard is met by choosing a particular course of action. Thus, effectiveness is related to the objectives of procurement. (Van Weele, 2014, 287) It refers to the performance characteristics that are specific to the suppliers the procurement function selected and to the

contractual conditions agreed with those suppliers. Typical measures of effectiveness are delivery times and dependability, unit costs, cost savings against budget and scrap rates. (Belvedere, Grando & Legenvre, 2018, 635). Efficiency, in turn, is fundamentally related to the relationship between planned and actual costs. It considers the resources needed to realize the previously set objectives and goals as well as related activities. Thus, efficiency is related to the procurement organisation. Procurement performance is the outcome of these two elements. The performance of procurement is thus considered as the extent to which procurement is able to realize the previously set objectives and goals with minimum costs. (Van Weele, 2014, 289)

In his book, Van Weele (2014, 291-292) identifies four key areas in measuring purchasing performance based on the two fundamental dimensions of performance, effectiveness and efficiency:

Purchasing effectiveness

Purchasing price and cost dimension (the relationship between standard and actual prices paid for services and materials)

- *Price and cost control.* This includes the continuous monitoring and evaluation of prices and their increases when materials are purchased from suppliers. The objective is control purchasing prices and prevent increases by monitoring the actual prices.
- *Price and cost reduction.* This includes the continuous monitoring and evaluation of activities taken to reduce costs. Cost reductions can be achieved, for example, by finding a new supplier, substituting a material, or coordinating purchasing requirements of several business units as well as conducting a value analysis. The main objective is to monitor the actual prices to reduce costs.

Purchasing product and quality dimension

- *Purchasing's involvement in product development.* The function's contribution to product innovation in terms of target cost and time to market is important. Typical measures are project's total lead-time, number of personnel hours purchasing spent on the project and number of engineering hours the supplier spent.

- *Purchasing's contribution to quality control.* The responsibility of the function to order goods and services that meet the requirements and specifications of the company. Typical measures are rejection rates of delivered goods, number of approved and certified suppliers, number of supplier quality agreements and number of reject reports.

Purchasing logistics dimension

- *Timely control and accurate handling of purchasing requests.* Typical measures are average administrative lead time for purchases, order backlog and number of orders placed.
- *Delivery control by time.* Measures in this area indicates how much control purchasing has over the incoming flow of materials and goods. Typical measures are delivery reliability, under/over delivery, just-in-time deliveries and material shortages.
- *Delivery control by quantities.* Sometimes purchasing is also responsible for controlling inventory levels. Typical measures are average order size, inventory turnover ratio, pipeline inventory and under/over deliveries. In general, supplier evaluations and rating are typically used to monitor and enhance supplier performance in terms of delivery reliability and quality.

Purchasing efficiency

Organizational dimension of purchasing (the main resources used to achieve the objectives and goals of the function)

- *Personnel.* Background, level and competencies of employees, training and development
- *Management.* The way in which the purchasing department is managed. This includes the availability and quality of purchasing strategies, reporting procedures and action plans as well as communication structures and management styles.
- *Procedures and policies.* The availability of guidelines and procedures for employees and suppliers, so the work can be done in the most efficient way.

- *Information systems.* Efforts to improve the systems employees use in their work and to provide management information on purchasing performance. (Van Weele, 2014, 291-292)

3.1.2 Typical issues in performance measurement

Measuring performance is complex. According to Van Weele (2014, 285), the major problem is that it has not been possible to develop one practical approach that is suitable for most companies, as procurement activities are measured and evaluated differently in each company. Procurement activities may also be measured and evaluated differently within the company, as some strategically related measures may be important to all business units, while some measures may only be important to certain business units (Banker, Chang & Pizzini, 2004, 5). Another common issue is that strategy and measurement practises are not connected. Due to the weak strategic link, functions may develop their metrics in isolation and combine incentives with them without communication between functions. This may drive the functions in different directions, which prevents the development of a functioning measurement system. (Holmberg, 2000, 851) Similarly, Piotrowicz and Cuthbertson's (2015, 1081) research reveals that the differences between organisational objectives were ranked as the main issue in measuring performance at the company level. As a result of this problem, there was a lack of visibility between organizational performance and supply chain-level performance. At the supply chain level, trust between supply chain partners was also recognized as an important issue. (Piotrowicz and Cuthbertson, 2015, 1081) Carter, Monczka and Mosconi (2005, 28-29) also highlight the challenge of coordinating and sharing company activities and strategies across the supply chain. They argue that the answer is to develop common measures that reflect joint action. The same challenge also exist between a company's strategic business units and thus, cross-functional measures are needed for the same reasons. (Carter et al., 2005, 28-29)

Khan and Yu (2019) summarized common issues in measuring and evaluating procurement's performance. There may be too much data in a company's measurement system, making it challenging to process all of this data. Because of too much data, the data

that gets attention is not what really should be looked at. Employees often monitor too many metrics, half of which are really critical. Another common problem is that metrics are not long-term focused. Even if a company has a lot of data available, sometimes reports are made too superficial, leaving no detail. This can make reports meaningless. For example, if a weekly report on the quality of suppliers presents only one figure, it is not easy for the employee to understand what kind of fault was, what it costed for the company, and whether similar faults happen to the supplier often. Setting inappropriate performance goals for an employee can guide the employee's behaviour to the wrong direction. For example, if a purchaser's performance is measured by the amount of purchase orders (POs), it can drive the purchaser to order from multiple suppliers instead of one. Lastly, measuring behaviour versus accomplishment is another important issue. The main issue in this is that behaviour will lead to anticipated objectives that has no guarantee. (Khan and Yu, 2019, 209-210)

Companies tend to place strong emphasis on financial figures as their key metrics, even though they inform more about the past than predict future performance. Financial metrics are lagging slightly behind and that is why they are not as useful for proactive action. Financial figures continue have an important role in strategic planning and performance measurement, but activities such as developing personnel skills, competencies and capabilities in problem-solving and innovation are seen more important. Another common issue is the use of too many incompatible measures and not updating them if strategies and underlying activities change. (Holmberg, 2000, 851-852) The emphasis on financial figures is also reflected in cost savings. The success of a procurement team is often measured unilaterally in terms of cost savings. It is indeed a central piece in procurement performance, but procurement's value is more strategic and thus approach that targets performance beyond cost savings must be adopted. (Chick & Handfield, 2015, 34, 202) In their study Caniato, Luzzini and Ronchi (2014, 630) also emphasize that the purchasing department is measured primarily by cost savings instead of other performance metrics. A wide range of incompatible measures makes it difficult to select the most appropriate KPIs. Identifying the complex relationships of individual KPIs and prioritizing their importance is challenging. Therefore, it is difficult for managers to identify critical KPIs and prioritize selected KPIs. This is one common bottleneck in companies. (Cai et al., 2009, 512)

3.2 Performance measures

Countless things can be measured and sometimes companies fall into this trap. The selection of performance measures is a critical part performance measurement. The right things need to be measured at the right time in the supply chain in order to respond with the right actions in a timely manner. Performance measurements are not just an objective measurement of performance. They also include emotions, politics and many other behavioural issues. Good performance measures promote more open and transparent communication, which leads to better collaboration and thus improves the performance of the organization. (Gunasekaran & Kobu, 2007, 2820)

Performance measure is defined as a metric that is used to quantify the efficiency and effectiveness of an action (Neely et al., 1995, 80). There are many ways to categorise supply chain performance metrics. Generally, they are categorized based on their qualitative and quantitative nature, supply chain operations reference (SCOR), their strategic, operational and tactical focus and based on what they measure. (Shanker, Shankar & Sindhvani, 2019, 34) Integrating organizational and supply chain performance measurement is important to increase understanding of the whole supply chain. In addition, supply chain partners should agree on common objectives that enable the selection of joint key performance indicators that are agreed, measured and shared among supply chain partners. (Piotrowicz and Cuthbertson, 2015, 1083) Cunha Callado and Jack (2015, 297), in turn, argue that measures and their use vary between roles in the supply chain. Therefore the development of a common practical scorecard would be truly challenging. In their study “Strategic Performance Measurement for Purchasing and Supply”, Carter and Monczka listed good practises for selecting appropriate performance metrics in procurement. The practises are:

- Procurement performance metrics should be aligned vertically with corporate objectives as well as horizontally with strategic business units and other functional units
- Procurement performance metrics should be dynamic, comprehensive and aggressive

- Procurement performance metrics should be transparent and communicated by the chief procurement officer and executive leadership throughout the organization
- Procurement performance metrics should be linked to performance-based incentives
- Procurement performance metrics should be supported by appropriate organizational resources and systems
- Procurement performance metrics should be guided by strong leadership. (Cited in Carter et al., 2005, 29)

3.2.1 Commonly used performance measures in procurement

Caniato et al. (2014, 620) defined six key performance areas for measuring purchasing performance based on a literature review. The most adopted areas – cost, time, quality, flexibility, innovation and sustainability – are shown in a purchasing KPI tree in Figure 7. Other areas have been known for a long time and are the most used measures in companies, but sustainability has also become an important factor for companies. Sustainability in the purchasing tree encompasses both environmental (e.g., carbon footprint, energy efficiency and water consumption) and social aspects (e.g., human rights, child labour and health and safety). The tree considers the internal process and the supplier-managed external process, both of which affect purchasing performance. The study shows that companies often measure supplier performance, but neglect paying attention to monitoring internal processes. This does not optimize purchasing performance because purchasing performance is seen as a combination of effectiveness and efficiency delivered by suppliers as well as effectiveness and efficiency of managing the purchasing process internally. They argue that the six performance areas should be measured at three levels. The first level is purchasing performance that measures the overall performance as perceived by the internal customer. The second level is internal processes where the performance of the internal purchasing processes is measured. The third level is the supplier level that measures the performance of suppliers. (Caniato et al., 2014, 620; 630)

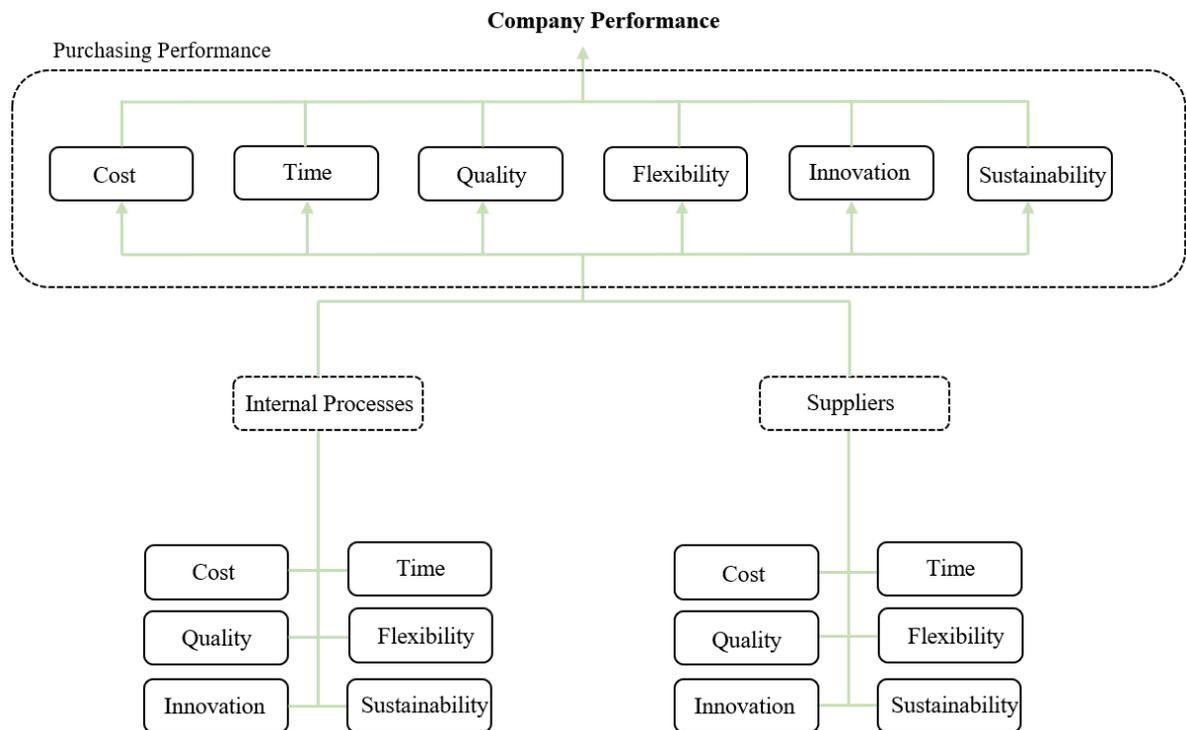


Figure 7. Purchasing KPI tree (Caniato et al., 2014, 621).

Piotrowicz and Cuthbertson (2015) researched the most important measures to quantify supply chain performance. They divided the measures based on the three sustainability dimensions – social, economic and environmental – and further divided them into three sub-dimensions each. Based on the results, the most important KPIs are presented in Table 2. Overall, companies rated economic measures as the highest. Of the economic measures, cost (total and transport costs) and customer-related measures, on-time delivery (OTD) and customer satisfaction, were identified as the key measurement areas. Outside of economic measures, employee-related measures in particular were considered important, especially employee skills and satisfaction. (Piotrowicz and Cuthbertson, 2015, 1081-1083)

Table 2. Most important supply chain metrics (Piotrowicz & Cuthbertson, 2015, 1082).

Social	Economic	Environmental
<i>Health and Safety</i>	<i>Quality</i>	<i>Emissions</i>
1. Number of accidents (employees)	1. On-time delivery	1. Level of carbon dioxide (CO2) emission
2. Work conditions	2. Customer satisfaction	2. Level of CO2 emission from transport processes
3. Number of accidents (non-employees)	3. Order fill rate	3. Level of CO2 emission from infrastructure
	4. Product/service availability	
<i>Noise</i>	<i>Efficiency</i>	<i>Natural Resources Utilisation</i>
1. Noise volume	1. Distribution costs	1. Energy use
2. Time of noise emission	2. Total costs	2. Water consumption
3. Noise emission in urban areas	3. Transport costs	3. Energy consumption/revenue
	4. Loading capacity utilisation	
<i>Employees</i>	<i>Responsiveness</i>	<i>Waste and Recycling</i>
1. Employees skills	1. Stock-outs	1. Level of waste
2. Employees satisfaction	2. Product lateness	2. Level of products recycled
3. Per cent of labour cost spent on training	3. Lead time	3. Level of products reused
	4. Forecast accuracy	

In their study, Gunasekara et al. (2001, 84) collected a list of key performance metrics used to measure supply chain performance based on a comprehensive literature review. The authors then illustrated these metrics in the four basic links in the supply chain. The links are plan, source, make and deliver and they reflect the SCOR model. The supply chain is presented in Figure 8. The study also revealed that the focus is currently shifting from the traditional cost accounting method to a technique that considers the costs of activities and their impact on other functions in order to include and emphasize the overall supply chain performance. The authors argue that employees should be responsible for the overall performance, not just the performance of their own function. (Gunasekara et al., 2001, 84-86) According to Shanker et al. (2019, 34-35) flexibility, lead time, customer satisfaction, innovation, responsiveness and reliability are the most referred supply chain performance metrics. Rodriguez-Aguilar (2020, 2165) divided common supply chain KPIs into finance,

customers, purchases and processes groups. Financial KPIs included metrics such as return on investment, cost of operation per hour and adjust with the budget. The customers group included metrics such as order delivery time, reliability of shipments, product quality and deliveries with zero defects. The purchases group included metrics such as sales ratio over expense, deviation from the budget and total cost savings. The process group included metrics such as supply chain cycle time, inventory costs and order cycle time. The study emphasized that these operational and financial metrics should be combined with the environmental KPIs. (Rodriguez-Aguilar, 2020, 2164-2165)

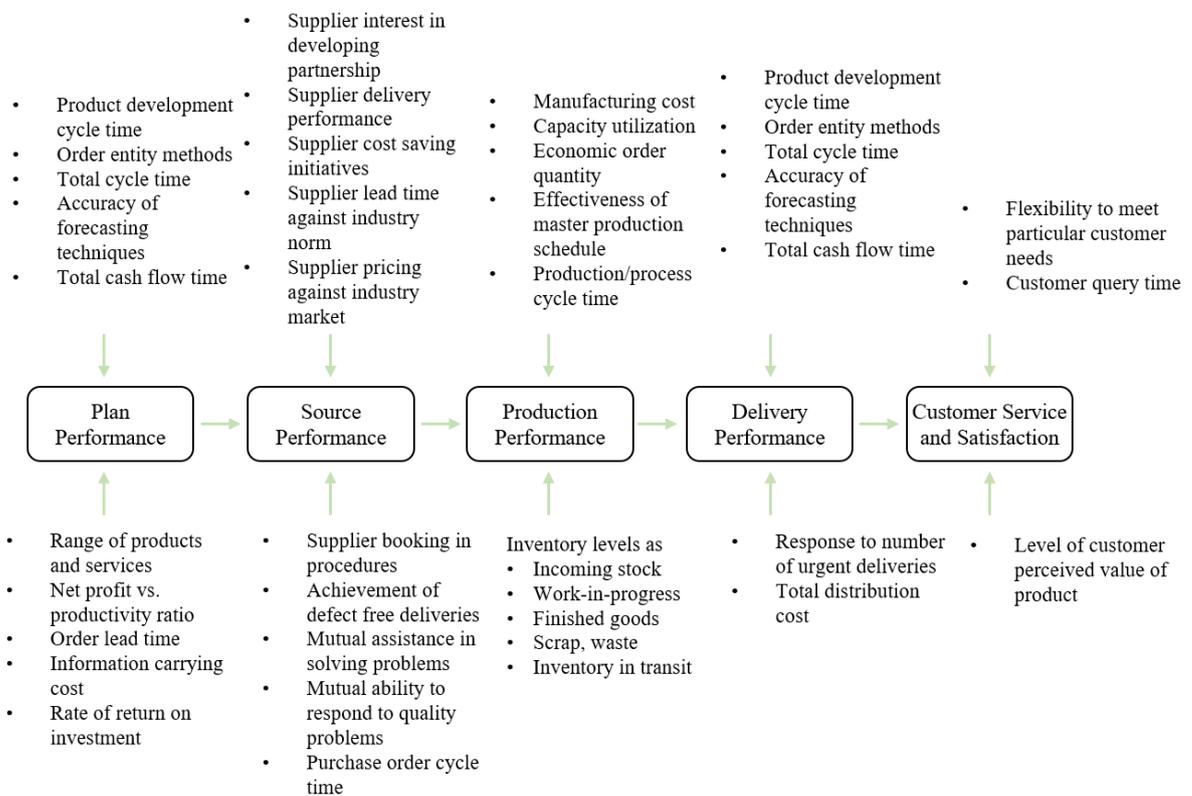


Figure 8. Performance metrics in the SCOR model (Gunasekara et al., 2001, 85).

3.2.2 Procurement priorities today

Since 2011, Deloitte (2021) has conducted an annual Deloitte Global Chief Procurement Officer (CPO) survey, which provides valuable information on current procurement challenges and opportunities, as well as future directions. The 2021 survey received more

than 400 responses from 40 countries. The results revealed new insights into procurement priorities, as for the first-time in the ten-year history of the survey, cost reduction was not the first priority for the CPOs. Cost reduction dropped to second place and driving operational efficiency took the first place. However, the difference between these priorities was small. Compared to the results of 2019, digital transformation and corporate social responsibility (CSR) in particular increased in importance among respondents. (Deloitte, 2021, 5) According to the results, so called “high performers” use a wider range of KPIs. Naturally, cost savings and cost avoidance are the most widely used KPIs, but sustainability is ranked third. The remaining KPIs are listed in this order: risk/compliance (incidents), supplier performance (delivery, innovation, quality), cash improvement (e.g., working capital), internal stakeholder satisfaction/service-level agreement, labour efficiency (e.g. operating expenses/headcount reduction), innovation enablement, speed to market and revenue uplift. (Deloitte, 2021, 9)

PwC (2021) also conducted their 3rd Digital Procurement 2020-2021 survey. The responses were collected between March and September 2020. The survey received more than 400 responses from 29 countries. In the results of their survey, cost reduction was clearly identified as the main strategic priority for procurement departments. Interestingly, the importance of cost reduction almost doubled in 2020 compared to 2019. The next two priorities are supplier sourcing/relationship management and process digitalisation. Surprisingly, CSR was only the seventh priority with a low 3 percent compared to cost reduction with 43 percent. (PwC, 2021, 4-9)

A study by the American Productivity & Quality Center (APQC) revealed that the top five sourcing priorities for 2021 are reducing supplier costs, standardizing processes, sustainable sourcing, identifying and implementing best practices and improving collaboration and communication. Thus, SRM, purchasing and procure-to-pay can be considered as the three main priorities. The results have clearly changed compared to last year when automation and digitalisation was the main focus area and process standardization was the main priority. In 2021 companies place greater emphasis on cost reduction, and prioritize sustainability more

than before. Last year, sustainable sourcing was not defined as a priority and this year it is the third highest procurement priority. (Cited in Brown, 2021, 54)

3.3 Balanced scorecard

The balanced scorecard has gained great popularity as a management tool. The original publication by Kaplan and Norton (1992) has been the most cited performance measurement article in the literature for many years in a row in the 21st century demonstrating the importance of balanced measurement of business processes (Gopal & Thakkar, 2012, 526). Similarly, the survey by Deloitte (2021, 6) revealed that the “high performers” are most likely to use a balanced scorecard that includes metrics on a wider scale than savings and cost avoidance. This is exactly what Kaplan and Norton (1992) aimed for. They developed the BSC so that managers did not have to decide between financial and operational metrics. The scorecard balances these measures enabling a quick but also comprehensive view of the business. Financial metrics show the results of actions that have already been taken, while operational metrics are the drivers of future financial performance. (Kaplan & Norton, 1992, 71) The scorecard allows to follow the company’s financial results while monitoring the progress of capability development and acquiring the intangible assets that are needed to enable future growth (Kaplan & Norton, 1996). A balanced scorecard consists of several important elements. The elements and their descriptions are presented in Table 3 (Wagner & Kaufmann, 2004, 271).

Table 3. BSC elements (Wagner & Kaufmann, 2004, 271).

BSC Element	Description
Strategic goals	Long-term goals to improve the company's performance.
Perspectives	Multi-dimensional aspects of a business to meet the requirements of the key stakeholders.
Cause-and-effect relationships	Causal link between strategic goals within one perspective as well as between strategic goals across perspectives.
Indicators	Financial and non-financial indicators that monitor the implementation of strategic goals. Also referred to as KPIs and performance measures.
Targets	Target values for indicators.
Strategic initiatives	Tasks to be accomplished in order to achieve strategic goals.
BSC-matrix	Strategic goals, indicators and targets for each perspective presented in matrix format.
BSC-map	Graphical or visual representation of cause-and-effect relationships and hypotheses about the relationship strengths.
BSC-story	Verbal description of strategic goals as well as cause-and-effect relationships and the hypotheses.

The scorecard strategically links performance measurements together from four important perspectives — financial, internal process, learning and growth and customer — and thus allows to review the performance of these perspectives simultaneously. Each of these perspectives answer to one basic question. (Kaplan & Norton, 1992, 71-72) The perspectives and their questions are presented in Figure 9. Kaplan and Norton (1992, 79) argue that traditional, financial focused, performance measurement systems set control at the centre by defining certain actions that employees must take and then measuring whether those actions have been implemented accordingly. A balanced scorecard, in turn, sets vision and strategy at the centre. The scorecard guides employees toward the overall vision. It sets goals but does not control behaviour. Thus, it allows the employee the freedom to choose the best actions to achieve the goal. (Kaplan and Norton, 1992, 79) Importantly, the BSC shows cause-and-effect relations between employees' actions and their outcomes. This helps to understand how actions and performance measures turn into company-wide performance

(Banker et al., 2004, 3). Moreover, cause-and-effect relationships are an integral part of the BSC as they are important in the selection of suitable indicators (Wagner & Kaufmann, 2004, 271).

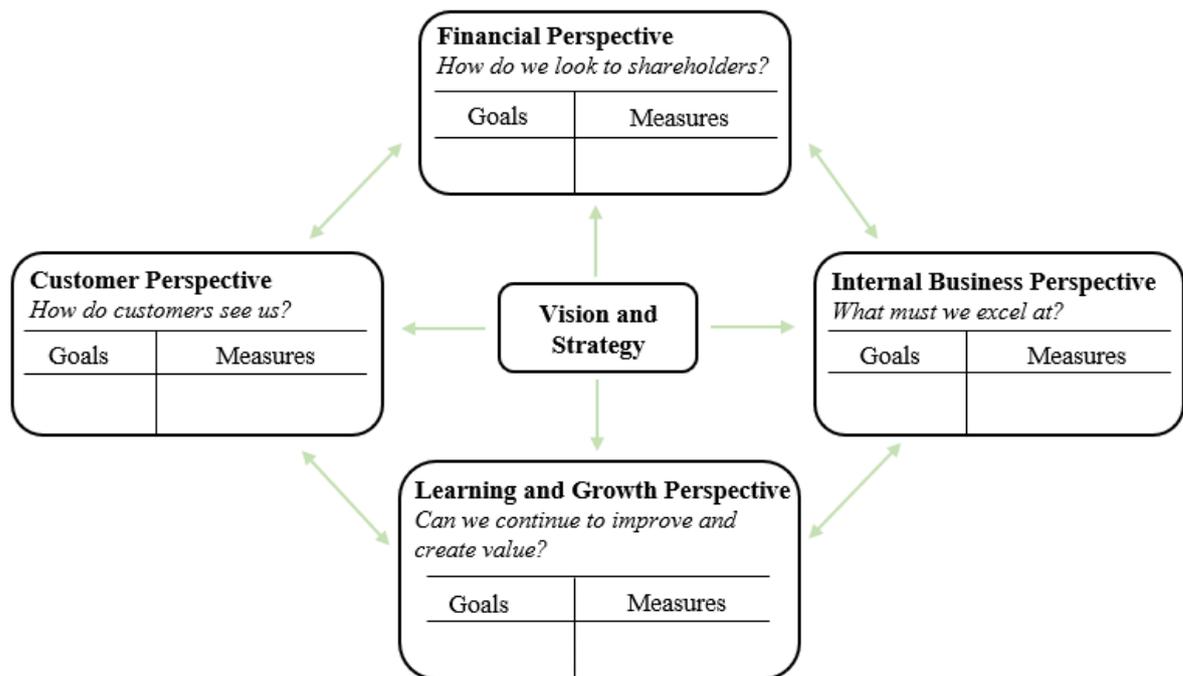


Figure 9. Balanced scorecard (Kaplan & Norton, 1992, 72; 1996, 76).

In order to initiate, develop and roll-out a BSC, a company has to go through several important steps. The process consists of the following steps:

1. Preparing the BSC process
2. Specifying perspectives
3. Specifying strategic goals and assigning them to perspectives (a maximum of 20-25 goals per BSC can be considered as a general guide)
4. Developing cause-and-effect relationships
5. Choosing indicators
6. Defining target values for indicators
7. Defining strategic initiatives that must be accomplished to achieve the goals
8. Planning the launch of the BSC (Wagner & Kaufmann, 2004, 271; 275)

3.3.1 Financial perspective

Financial measures measure how the implementation and execution of a company's strategy contribute to the bottom line. Growth, profitability and shareholder value are typical financial goals. (Kaplan and Norton, 2005, 178) Thus, return on sales and return on investment are typical financial measures (Banker et al., 2004, 3). Following the financial measures has received a lot of criticism. It is argued that they have many inadequacies, such as their backward-looking characteristic and inability to reflect modern value-creation actions. Thus, critics have argued that companies should stop directing by financial measures. However, financial measures have a place in measuring performance. Improved operational performance is not directly reflected in the bottom line if the company is unable to capitalize it. By following financial measures, the company sees how the improved operational performance is reflected in the bottom line. Thus, the company should be able to link operational activities to financial performance. That is, to know how operational improvements, for example in quality, cycle and lead time and product innovations, lead to, for example, higher market share, asset turnover rate and operational margin. (Kaplan and Norton, 2005, 178-180) Financial measures play an important role in the scorecard, but they should not play a major role. Therefore, the BSC prevents financial measures from being overweighted. Tracking financial figures alone can lead to misleading information about a company's continuous improvement or innovation. (Kaplan and Norton, 2005, 172)

Chia, Goh and Hum (2009) researched which performance measures are most used in different entities in the supply chain. Overall, the three most measured indicators – gross revenue, profit before tax and cost reduction – are all financial indicators. Indicators from other perspectives were clearly used less. On the financial perspective, procurement offices measured gross revenue and cost reduction equally. The third most measured was the profit before taxes and the last was the return on investment. (Chia et al., 2009, 610) Similarly, Cunha Callado and Jack (2015) conducted a study in the Brazilian agri-food industry and researched which performance measures are most used in certain supply chain roles. Based on their research findings, the authors developed a balanced scorecard framework structure for each role in the supply chain. In the producer's balanced scorecard, financial metrics

included profitability, cost minimization and operating costs. (Cunha Callado & Jack, 2015, 295)

3.3.2 Customer perspective

Providing value to customers is, of course, a top priority for companies. The balanced scorecard helps to translate this mission into measures that reflect factors valued by customers. (Kaplan and Norton, 2005, 175) Customer measures, like customer satisfaction, aim to measure the company's performance from customers' perspective (Banker et al., 2004, 3). In general, the four categories that customers are concerned about are time, cost, performance and service and quality. Time measures the time it takes from a company to meet customers' needs. For new innovations, it can measure the time to market and for existing products, it can measure the time it takes for a company to deliver an order from the moment the company receives the order. Quality can measure OTD or the level of defect in the products received by the customer, in which case the customer measures it. Performance and services can measure how certain products/services contribute to creating value for customers. To benefit from a balanced scorecard, a company needs to decide goals for each category and then turn those goals into specific measures. The company must also remember to remain sensitive to its own costs. (Kaplan and Norton, 2005, 175-176)

In their study of the most used performance metrics in different supply chain entities, Chia et al. (2009, 611) found out that on the customer perspective, procurement offices clearly measured customer satisfaction the most. Compared to other entities, procurement offices measured it by far the most. The number of customers retained was second and market share last. In Cunha Callado and Jack's (2015, 295) study, customer satisfaction and maximizing sales were selected as indicators of producers' customer perspective.

3.3.3 Internal process perspective

Internal process measures are used to identify core competencies, strengths and weaknesses, and to make improvements. (Banker et al., 2004, 3). They are important measures because they define what a company needs to improve internally to meet the expectations of its customers. Therefore, the company needs to focus on those internal operations that allow them to meet the needs of their customers. Measures from this perspective should address the business processes that have the highest impact on customer satisfaction. For example, factors that influence productivity, quality, cycle time, or employee skills. In addition, the identification and measurement of core competencies, such as critical technologies for market leadership, would be important. The company should identify the competencies and processes in which they need to excel at and define measures for each of these. It should be noted that in order to achieve the goals in areas such as productivity and quality, it is important to choose measures that can be directly influenced by employees through their actions. In this way, it is ensured that employees have clear goals for actions and decisions that contribute the company's overall mission. (Kaplan and Norton, 2005, 176-177) The measures of this perspective are primarily non-financial and generally focus on four performance attributes: time-based measures, quality-oriented measures, flexibility-oriented measures and cost measures (Brewer & Speh, 2000, 83-84).

In their study, Chia et al. (2009, 612) found out that on the internal process perspective, procurement offices emphasized OTD, which was by far the most measured indicator. The rest are in this order: quality of services, new services implemented per year and waste reduction. Cunha Callado and Jack (2015, 293) used the following indicators to measure the internal process perspective: productivity per business unit, new products, product turnover, new processes, suppliers, responsiveness of suppliers, flexibility, delay in delivery, after sales, operational cycle, response time to customers, waste, information/integration of materials and storage time. However, they chose new processes as the only indicator of internal processes in the producers' framework (Cunha Callado & Jack, 2015, 295).

3.3.4 Learning and growth perspective

As the business environment is constantly changing and competition is increasing, companies need to be able to innovate to achieve excellence. Learning and growth measure the factors that support continuous improvement. (Banker et al., 2004, 3) Thus, this perspective focuses on the future and asks what needs to be done to retain and delight customers (Brewer & Speh, 2000, 84). Companies need to continually improve their processes and products as well as innovate new products to stay ahead of the competition. A company's ability to learn, improve and innovate directly contributes to its value. (Kaplan and Norton, 2005, 177) Skills and capabilities are at the heart of this perspective (Wagner & Kaufmann, 2004, 271). This perspective highlights employees who are drivers of innovation and learning by including human resource management measures in the scorecard (Brewer & Speh, 2000, 84). Typical measures are the skills of the employees, process improvement rates and product development cycle time (Banker et al., 2004, 3; Brewer & Speh, 2000, 84).

In their study, Chia et al. (2009, 613) found out that on the learning and growth perspective, procurement offices measured employee satisfaction the most. Other indicators were measured in this order: employee turnover per year, money invested in employee training yearly and number of suggestions implemented per employee yearly (Chia et al., 2009, 613). Cunha Callado and Jack (2015, 294) used the following indicators to measure the learning and growth perspective: investment in training, employee motivation, employee satisfaction, employee capability, managerial efficiency, innovative management, technology investment, investment in information systems, risk management and number of complaints. In their final producers' framework, investments in training, technology and information systems represented the learning and growth perspective (Cunha Callado & Jack, 2015, 295).

3.4 Applying balanced scorecard in Procurement

The importance of integrated measures is also recognized in supply chain related research, as integrated measures enable to assess the overall competitiveness of the supply chain and to identify those internal improvement efforts that improve overall competitiveness the most (Gopal & Thakkar, 2012, 526). In their book, Kaplan and Norton note that the flexibility of the BSC allows it to be applied to a number of functional areas, such as departments, in addition to the traditional corporate and business unit strategies (cited in Wagner & Kaufmann, 2004, 270). Piotrowicz and Cuthbertson (2015, 1083) concluded that the balance scorecard is one of the supply chain performance measurement approaches companies should focus on because it allows easier integration across the supply chain. This is also supported by Chia et al. (2009, 617), who argue that measuring the performance of supply chain entities would be improved by using a balanced scorecard that would level metrics by reducing the overweight in financial metrics. The authors showed that companies clearly have a lack of metrics that measure the drivers of strategic future performance, such as metrics for internal processes and learning and growth perspectives. These metrics are known to be important, but they are still overshadowed by financial metrics. (Chia et al., 2009, 617-618) Axelsson, Laage-Hellman and Nilsson (2002, 61) also argue that the BSC would be well suited for procurement management.

However, the original version proposed by Kaplan and Norton (1992) does not provide a clear link between the strategic goals of supplier performance and SRM and the four perspectives. Thus, applying a balanced scorecard to the needs of a procurement department may require minor modifications to the scorecard. Academics have suggested some changes to solve the issue. According to Axelsson et al. (2002, 57), the original version can be used in procurement. However, the authors argue that although supplier relationships most likely influence all perspectives, procurement and suppliers are not adequately addressed in the BSC. It could be argued that procurement is included in the internal process perspective, but the authors believe that procurement should be included more clearly in the scorecard. (Axelsson et al., 2002, 57) Wagner and Kaufmann (2004, 271) suggested that if the importance of suppliers to a company is high, a “supplier” perspective may be as a fifth perspective. The perspective could include performance measures related to suppliers’ cost

and innovation potential, or the performance of a company's SRM or supplier portfolio. The proposal has been supported in the literature by several authors. (Wagner and Kaufmann, 2004, 271) Kumar, Ozdamar and Peng Ng (2005, 158) developed a framework for measuring the performance of procurement in the healthcare industry and proposed the following perspectives: supplier, customer, learning and growth, process, IT system and overall. In 2002, Weber, Bacher and Groll proposed that the customer perspective would be replaced by "co-operation quality" and the learning and growth perspective by "co-operation" intensity (cited in Wagner and Kaufmann, 2004, 271).

Also, Wagner and Kaufmann (2004, 275) noticed that some purchasing departments were struggling to define what the customer perspective meant for them. Purchasing departments were not sure which customers they should consider: the final customers as in the business BSC, internal customers such as production or R&D, or both. This shows how the customer perspective needs to be clearly defined. (Wagner and Kaufmann, 2004, 275) Axelsson et al. (2002, 57) suggest that the customer perspective should include internal customers and their views on operational development. Baily, Farmer, Crocker, Jessop and Jones (2008, 419) had a different view of the customer perspective, as they suggested adding supplier performance indicators to the customer perspective.

While a balanced scorecard has become popular, it does not guarantee a successful outcome. It is said that even most initiatives to introduce a balanced scorecard fail. The biggest reasons for failure are poor design and difficulty of implementing a BSC. (Niven, 2005, 2) Wagner and Kaufmann (2004, 278-279) identified the 12 most common barriers to the initiation and use of BSC in purchasing. The process was divided into two parts – initiation and set-up and roll-out and on-going use – into which the barriers were divided. The following barriers were identified during the initiation and set-up phase:

- *Lack of commitment.* Low motivation and lack of commitment from employees can be due to underestimation of the efforts required to start a BSC project, poor understanding or misunderstanding of the concept and inappropriate timing due to the company's situation or life cycle.

- *Adverse support from consultants.* Successful implementation of a BSC requires previous experience and a deep understanding of the concept. For this reason, the authors strongly recommend the help of consultants. However, they advise evaluating consulting firms carefully before selecting, as many consulting firms have begun offering services for scorecard implementation without sufficient expertise.
- *Lack of top-management support.* Top management support from start to finish is necessary for the successful implementation of the BSC. Inadequate support signals to employees that the BSC is not important, and the process is likely to fail.
- *Insufficient alignment.* A company may have several BSCs in use in different areas, such as business units, departments and geographic organizations. All of these BSCs need to be aligned and integrated to avoid sub-optimization of the corporation.
- *Lack of purchasing vision and strategy.* The strategy must be clearly formulated, approved and regularly repeated so that employees are aware of it and understand it well. Qualitatively and roughly expressed strategy can raise additional questions during the process.
- *Difficulties identifying strategic objectives and cause-and-effect relationships.* Companies face challenges in identifying important perspectives and strategic goals and choosing the right number of them. In addition, companies face challenges in identifying their cause-and-effect relationships.
- *Lack of completeness.* The last barrier is to complete the project and present its outputs. In particular, key elements of the BSC – the BSC-matrix, the BSC-map and the BSC-story – must be completed for the project to succeed. (Wagner & Kaufmann, 2004, 273-276)

4 RESEARCH METHODOLOGY AND PROCESS

This section presents the case background, research methods and data collection process of this study. This includes the case description, primary research methodology, data collection and analysing methods and motives for chosen methods. This section is also intended to serve as a link between the theoretical and empirical parts. This study is a qualitative case study, and the data are collected empirically. The data consist of nine interviews and a survey conducted at the case company.

4.1 Case background and description

The research topic originated from the need of a global technology company that provides advanced technologies, services and end-to-end solutions in their area of expertise. The company operates in more than 45 countries and employs more than 15,000 people worldwide. To ensure privacy, the company is considered anonymous in this study. The company is referred to using only the word “company” instead of their real name. The company recently merged with another technology company. The merger significantly strengthened the company's market position. Due to the merger, the operations of the companies were integrated, and the corporate strategy of the new company has been unified and reformed.

The merger naturally led to major changes in the company’s procurement function. The function was completely reorganized, as were all the functions of the company. The work has been going on for some time, but since it is a merger of two large global companies, it will take a long time to unify all operations. Thus, the company's operations and practices are still being harmonized. The company’s major policies, such as corporate strategy, have already been published and the organizational structure implemented. However, the consolidation of operations, practises and IT systems continues within functions. This also applies to the company's procurement function, as it takes time to consolidate two large global supply chains. The merger required the company to create a new common supply

strategy that is aligned with the company's new corporate strategy. As a result of the merger, the supplier bases of the two companies are consolidated. This changes the company's position towards suppliers, as the company is now a stronger player in the field. The company can be expected to have more power over suppliers than before. In addition, combining all supplier and purchase data from multiple enterprise resource planning systems takes a long time and work is still in progress.

The topic of this research was offered by the case company's Procurement Excellence team. The team is part of the company's Global Procurement function and is responsible for implementing best-in-class procurement practises and tools as well as providing in-depth intelligence and analytics across the organization. The company's procurement function manages external spend and all operational activities where products and services are purchased from external suppliers. With the new supply strategy, the performance metrics used in previous companies will need to be re-examined to support the company's long-term strategic objectives. At present, the individual performance metrics used by the legacy companies are largely in use, and a common comprehensive set of KPIs has not yet been created for the new company. Therefore, the research topic arose from the need to link the company's new supply strategy with suitable performance metrics. The existing metrics will be used in this study in addition to new metrics. As the benefits of a balanced scorecard include a holistic view that also takes into account non-financial performance metrics, the company wished to use this strategic management system as a basis for this study.

4.2. Case study methodology

This study is conducted as a case study. A case study is an empirical study that examines contemporary phenomenon in depth and within its real-life context. This method is suitable for answering questions that start with how, why, who. The purpose of case studies is to study in depth, seek explanations, and gain an understanding of a phenomenon through multiple sources of data, and through this understanding to expand or test a theory. Case studies are valuable to business because they allow the research question to be studied in a real-life situation. (Farquhar, 2012, 6; 8) Already existing theories can be used to form the

first understanding of the phenomenon studied (Seuring, 2008, 130). In this study, a literature review was conducted to form a first understanding of the topics studied.

According to Yin (2003, 3), case studies can be divided into three types: exploratory, descriptive and explanatory studies. This study is an exploratory case study using interviews and a questionnaire as data collection methods. In the study, the case is to develop a balanced scorecard for an individual procurement department. Because only one case company is used in this study, it is a single-case study. The benefit of a single case study is that the study can be conducted in more depth when only one individual case is investigated. However, this limits the generalization of the results, as the data used in the study is limited to only one case. (Voss, Tsiriktsis & Frohlich, 2002, 203)

4.3 Data collection

In a case study, it is typical to collect data from multiple sources, using a variety of data collection methods. The data collection methods chosen should complement the ability of the case study to investigate the research question or problem in depth and in context. (Farquhar, 2012, 65; 68) In this study, the empirical part is conducted through semi-structured interviews and a survey. Mixed methods refer to the ways in which data are collected and analysed (Farquhar, 2012, 22). Therefore, the research data collection methods of this study are mixed. However, the research approach of this study is still qualitative because this study does not perform statistically generalizable testing of the theory, as the collection and analysis of the data is focused on one specific company. According to Johnson and Onwuegbuzie (2004, 18), research questions can often be answered more comprehensively by mixed data collection methods that combine quantitative and qualitative techniques. Interviews with company managers are considered to be the main source of the empirical part, but the survey is included to also highlight the employee perspective.

The semi-structured interview method was chosen because it is versatile and flexible method. The method enables follow-up questions and allows flexible verbal expressions

during the interview. The literature review provides a good starting point for interviews, as prior to the semi-structured interview, knowledge must be gathered on the topic of the research, which is used to form interview questions. (Kallio, Pietilä, Johnson & Kangasniemi, 2016, 2955; 2961). The survey will be used to support managers' interviews in order to obtain more detailed information on employees' views. The survey fits well into the data collection methods of the case study. It can be well combined with, for example, interviews and a secondary source of information. (Farquhar, 2012, 70) The advantages of the survey include its ability to collect responses from a wide range of respondents and from many locations at once (Rowley, 2014, 309). These advantages support the use of the survey in this study in addition to interviews, as the survey enables the collection of responses from multiple teams and different geographical areas in a global company.

As mentioned earlier, interviews are the main source of data for this study. A total of nine managers were interviewed for the study. Seven of the interviewees work in the case company as Vice Presidents in the different business areas and support functions. One interviewee works as Procurement Director, sharing responsibility for the business area with one Vice President. The senior managers of different business areas were interviewed to get an idea of which metrics serve all business areas and to see how needs differ between business areas. The Vice Presidents responsible for both global and indirect procurement were interviewed to align the view of the support functions with the business areas. In support of the interviews with the Vice Presidents and the Procurement Director, the Director of Procurement Excellence was also interviewed. The aim of this interview was to understand the measurement of procurement performance at the case company as a whole across all business areas and global procurement. With this information, a unified set of metrics can be created that guide the procurement function in the same direction. Thus, the aim of the interviews was to understand which areas are most important in terms of procurement performance and which metrics are best suited to measure the strategic objectives of these areas. The main selection criteria for the interviewees were their senior management positions, where they are responsible for the strategic management of procurement. Interviewees and their background information is presented in Table 4.

Table 4. Interviewees and their background information.

Position	Location	Interview date
Vice President, Business Area Procurement	Finland	31.8.2021
Vice President, Business Area Procurement	Finland	9.9.2021
Vice President, Business Area Procurement	Finland	1.9.2021
Vice President, Business Area Procurement	Brazil	31.8.2021
Vice President, Business Area Procurement	Germany	6.9.2021
Director, Business Area Procurement	Finland	7.9.2021
Vice President, Indirect Procurement	Finland	13.9.2021
Vice President, Global Procurement	Finland	2.9.2021
Director, Procurement Excellence	Germany	27.9.2021

The interviews were conducted during August and September 2021. All interviews were conducted as individual interviews. The interviews were held remotely via Microsoft Teams due to different geographical locations and COVID-19 restrictions. Microsoft Teams was chosen as a communication platform because it is the company's official communication platform. Video was used in the interviews as it is a common practice in the procurement function, especially in one-on-one meetings. This allowed the interviewer to see the facial expressions and gestures of the interviewees in addition to the voice. Out of a total of nine interviews, five were conducted in Finnish and four in English due to different mother tongues. The interviews took approximately an hour as scheduled, except for the interview with the Director of Procurement Excellence, which lasted about 30 minutes. The interviews were recorded with the permission of the interviewees so that the interviewer could focus on listening during the interview and ask further questions if necessary. However, short notes were written during the interview on specific questions so that the interviewer could refer to these answers in subsequent questions.

The interview questions were sent as an attachment to the interview invitation so that the interviewees had time to prepare. The structure of the interview was the same for all Vice Presidents and the Procurement Director, as their job descriptions and responsibilities were similar. The questions were divided into two themes: strategy and performance metrics. The structure of the interview was slightly modified for the interview of the Director of Procurement Excellence. The questions were divided into two themes: performance metrics and the development and implementation of metrics. Interview questions for the Vice Presidents and the Procurement Director are presented in Appendix 1. The interview questions for the Director of Procurement Excellence are presented in Appendix 2. As the interview method was a semi-structured interview, in addition to the interview questions, additional questions were asked as needed depending on the answers of the interviewee. Interviewees also had the opportunity to ask questions from the interviewer and raise new aspects of the topic.

In addition to the interviews, a survey was conducted. The aim of the survey was to research the employees' views on the company's procurement strategies in different business areas and their compatibility, as well as on the KPIs used and their balance. There was a desire to gather the views of employees as widely as possible, so the selection criterion was all employees globally who work in the procurement function of the company. Therefore, the questionnaire was sent to the company's procurement community. The managers interviewed for the study were removed from the distribution list so that they could not participate. The questionnaire was sent to procurement professionals working under their authority. Overall, the questionnaire was sent to 423 employees globally. These procurement professionals work in a number of roles. In the questionnaire, roles were divided into the following categories: sourcing, operational, quality and sustainability, procurement excellence and not working in procurement. If the respondent chose "I don't work in procurement", the questionnaire ended there. This ensured that the results of the survey were not distorted by responses from employees who were not in the target group of the survey. In total, 110 employees responded to the questionnaire, so the response rate to the questionnaire was 26 percent. A link to the questionnaire was emailed to the employees and they were given about a week and a half to respond to the questionnaire. Two reminders were sent during this time in order to gather as many responses as possible.

The survey was conducted using the Microsoft Forms tool. This survey tool was chosen because Microsoft Office 365 is the company's official software, so there was no additional charge for using the tool and all employees had access to it. The tool is also easy to use, and it allowed the use of branching logic. This means that the questionnaire changes according to the responses to specific questions. This makes answering the questionnaire more meaningful and helps to gather only relevant information. The basis of the questionnaire was the same for everyone, but the branch logic helped to personalize the questions according to which questions were relevant to whom. The questionnaire is presented in Appendix 3. The survey was conducted anonymously to make the answers as truthful as possible. It was conducted in English, as it is the official language of the company and despite several mother tongues, everyone was able to answer the questionnaire in English. Pre-testing and piloting the survey allow problematic questions to be identified and corrected before the survey is published and data collected. Respondents often have a narrower knowledge of the topic of the survey. In addition, the author of the survey has a better understanding of the connection between the questions and the conceptual framework of the study. (Ornstein, 2013, 100) Therefore, prior to publication, the questionnaire was piloted with two employees. This ensured that the questions were understandable, and the idea of the questionnaire was clear. Testing the questionnaire revealed good points that allowed the survey to be fine-tuned before publication.

4.4 Data analysis

Data analysis of the case study can be inductive or deductive. The research method influences the choice of analysis. (Farquhar, 2012, 93) Case studies often use inductive reasoning, as they often focus on creating a new theory rather than testing an existing theory (Farquhar, 2012, 27). Inductive research is about exploration and understanding, as the goal of the researcher is to create a theory of data by searching for formulas in the data (Farquhar, 2012, 26). Inductive analysis examines whether there are common ideas and themes emerging from the data that are supported by the interviews. The purpose of deductive analysis, in turn, is to test a theory developed for a conceptual framework. (Farquhar, 2012, 93) The combination of deductive and inductive reasoning is called abductive reasoning (Farquhar, 2012, 27). Abductive approach emphasizes the combination of appropriate

theories with empirical observations. Abductive research can begin with a theoretical section, followed by real-life observations. Empirical observations are combined with the initial theory and the aim of finding a new matching framework or extending the initial theory based on the observations. The final conclusions can then be drawn. (Kovács & Spens, 2005, 138-139) This study uses an abductive data analysis method that begins with a theoretical background of the phenomenon under study and continues into an empirical section. Based on the theoretical part, interviews and a survey are conducted that provide real-life observations. On the basis of these observations and the theoretical background supporting them, a deep understanding of the phenomenon under study is obtained and final conclusions can be drawn.

Data analysis of the interviews was performed by writing detailed notes of the interviews. Recording the interviews made it possible to write accurate notes, as the interviewer was able to listen to the interviews afterwards and pause the recording if necessary. Based on these notes, the responses were divided into categories, which allowed for a more detailed analysis of the responses. Comments that did not fit in other categories but were relevant were classified as "other comments". The categories are presented in Table 5. The material had to be reduced due to the sensitivity of the topic so that too sensitive information about the company's strategic initiatives would not be revealed despite anonymity. The purpose of the data analysis was to compare the respondents' responses with each other and to find similarities and differences between the interview material and the literature.

Table 5. Categories of interview material.

Categories of interview material
1. Procurement vision
2. Long-term goals
3. Short-term goals
4. Procurement performance areas
5. Strategy alignment
6. Currently used performance metrics
7. The most critical performance metrics
8. Functionality of current performance metrics
9. Balance of current performance metrics
10. Development needs for existing metrics
11. Alignment of metrics between business areas
12. Challenges in developing and implementing performance metrics
13. Other comments

The results of the survey were analysed in Excel. The survey data was transferred from Microsoft Forms to Excel, which allowed more detailed analysis of the data. The questions were roughly divided into main themes, which facilitated the analysis of the answers. The categories are presented in Table 6. Tables and graphs were used to analyse the data, which helped to outline recurring trends and differences in responses. The answers in the open text field were compiled on a question-by-question basis, which made it possible to perceive the overall picture. A link to the survey responses in Microsoft Forms was distributed to senior managers who were interested in reading the survey responses.

Table 6. The main themes of the survey.

The main themes of the survey
1. Background information
2. Procurement strategy
3. Following KPIs
4. Functionality of actively followed KPIs
5. Balance of the KPIs in use
6. Team leaders' KPIs
7. Missing KPIs
8. Optional comments

4.5 Validity and reliability

Validity and reliability are important in a case study to ensure its quality. Validity indicates whether the evidence stated is valid, while reliability indicates whether the evidence stated is correct. A well-structured and presented research process ensures the validity and reliability of the research. The following dimensions must be taken into account when ensuring the quality of a case study: construct validity, internal validity, external validity and reliability. (Seuring, 2008, 131; 135)

Construct validity refers to the extent to which a study examines what it claims to examine. The validity of the structure can be proven by triangulation, which means using multiple data sources to minimize biases. Another way is to describe the research process as accurately as possible so that the reader understands how the researcher has progressed from research questions to conclusions. (Farquhar, 2012, 101) Construct validity mainly concerns the data collection phase (Gibbert & Ruigrok, 2010, 713). Because this study is conducted as a single case study, the data sources are limited to a single company. However, the study has sought to interview as many sources as possible within the researcher's resources in order to have multiple sources. In addition, the survey diversifies the data sources of the study. To prove construct validity, the research process is described as accurately as possible so that the reader understands how the conclusion has been reached.

Internal validity refers to the existence of causal relationships between variables and outcomes. The researcher should be able to construct a plausible causal argument that is convincing enough to defend the conclusions of the research. Internal validity applies at data collection and analysis phases. (Gibbert & Ruigrok, 2010, 713) The aim is to convince the reader that the research results are based on a critical examination of the data. Internal validity can be evidenced by providing detailed information on how the data was analysed. (Farquhar, 2012, 101-102) The data analysis phase of this study has been described as accurately as possible so that the reader knows that the data has been critically examined. The use of multiple sources also makes it possible to find similarities in responses and decreases the weight of a single response.

External validity suggests that the theory of the phenomenon must also be able to be applied in an environment other than where it was studied. External validity is also called as generalizability. (Gibbert & Ruigrok, 2010, 714) Case studies are often criticized for not being able to generalize their findings (Farquhar, 2012, 103; Stuart et al., 2002, 430). However, this is not so unequivocal. Gibbert and Ruigrok (2010, 714) argue that researchers should not give up on generalization, as the difference between statistical and analytical generalization is the key thing in case studies. Statistical generalization means generalization from observation to population, while analytical means generalization from empirical observations to theory. (Gibbert & Ruigrok, 2010, 714) If the case study is appropriately conducted, its findings can be analytically generalized, although statistical generalization is not possible (Kähkönen, 2011, 39). It is important to explain why this case study was chosen and to provide sufficient details about the context of the case study (Gibbert & Ruigrok, 2010, 714-715). In this study, the background of the case has been explained as accurately as possible, taking into account the privacy of the company, which limits the sharing of details.

In addition to validity, reliability plays an important role in the quality of research. Reliability means that if the study would be re-conducted, researchers would come to the same insights. So the evidence would be stable and consistent. (Farquhar, 2012, 102) Replication and transparency are key to proving reliability. Transparency can be improved through clarification of research procedures and careful documentation. It would also be important to refer to the database where the research data is stored. This will make it easier to repeat the case study in the future. (Gibbert & Ruigrok, 2010, 715) Every effort has been made to carefully document all phases of this study. The case company has been given access to the survey data to ensure reliability. With this, the research data can also be used in other contexts in the company, if necessary.

5 EMPIRICAL FINDINGS AND ANALYSIS

In this chapter, the empirical results of the study are presented and analysed. The results of the interviews are reviewed first, followed by the results of the survey. The chapter deals with the measurement of procurement performance at the case company from both a senior management and employee perspective. The empirical results of the study form a picture of the important performance metrics for procurement and their balance. In addition, the chapter highlights important points that need to be considered in order for a balanced scorecard to be successfully implemented at the case company. The empirical part of this study is based on the idea of Kaplan and Norton (1992) that the development of a balanced scorecard starts from the company's vision and strategy. More specifically, the empirical part follows the scorecarding process steps defined by Wagner and Kaufmann (2004, 271). However, due to the sensitivity of the topic, the company's strategic objectives are not specified in detail and the target values of the KPIs and the strategic initiatives to achieve the objectives are not addressed. Therefore, this study focuses on the first five steps of the process, which are: preparing the BSC process, specifying perspectives, specifying strategic goals and assigning them to perspectives, developing cause-and-effect relationships and choosing indicators (Wagner & Kaufmann, 2004, 271).

5.1 Interview results

The case company is strongly business-driven, which was reflected in the responses. The visions emphasized the ability to be able to provide supply solutions for business needs and support business growth. Business needs change rapidly, and procurement must be able to meet them and always be a couple of steps ahead so that procurement does not become a bottleneck for business growth. Bottlenecks can be caused by problems with the supplier's capacity or location, for example. One vision mentioned was to be a procurement organization with a consolidated supply chain and capable of providing the best supply chain with a global footprint for business needs. With the business-driven operating model, procurement has been seen more as a support function than as a driving function. The vision of one respondent was to be an independent procurement organization that has successfully

increased the role of procurement in its business area. Similarly, one vision was to be a recognized business partner with a clear role and scope to support business decision-making in the best possible way. The responses also indicated a desire to be the best performing procurement team in the company and a benchmark for other companies in the industry. The importance of digitalization was also evident, as one respondent's vision was to be a highly digitalized procurement function that leverages big data and artificial intelligence to reduce manual work that can be automated. This allows procurement to focus on generating value in strategic procurement, such as in sourcing, spend management and negotiations, rather than in operational and manual tasks. However, an important consideration is that the entire supply chain should be managed in the same way, as procurement must have a link to the rest of the supply chain.

5.1.1 Strategic goals

Continuous improvement is an integral part of the strategic goals of procurement. Responses to long-term goals often repeated a competitive supplier base, which was seen as the core of continuous improvement and an enabler of growth, leading to increased profitability. According to one respondent, a competitive supplier base is achieved by following business specifications and materials to select the most suitable suppliers for their needs that are flexible and competitive. With regard to a competitive supplier base, consolidating the supplier base and building broad supplier networks to achieve the best cost competitiveness in the market were emphasized in the long-term goals. Supplier networks are built over the long term through expertise and certain elements that tie suppliers to the company. Broad supplier networks enable a global and sustainable supplier footprint. A competitive supplier base is also sought by eliminating single sources and looking for alternative suppliers in different locations that are competitive and close to the market. Eliminating single sources was seen as important as it reduces risks. These risks include, for example, disruptions in manufacturing or transportation. A broader supplier network also helps to design logistics more competitively based on the location of the customer market.

Internal goals also emerged in the interviews. One of the respondents mentioned the long-term goal of building a flexible, agile and professional procurement organization that meets customer needs and supply requirements in a long term. One respondent also mentioned the long-term goal of maintaining good employee skills as well as motivation that enables a brilliantly performing procurement team. Harmonized, well-described and efficient processes and models were also seen as an important goal to support procurement in the long run. In particular, a systematic and companywide harmonized SRM process was seen as a particularly important goal towards successful procurement. This requires precise segmentation of suppliers, allowing supplier performance to be factually justified and compared to their segment. The digitalization of procurement processes and systems was also reiterated as a long-term goal in several responses. It is perceived to allow a better focus on value-added activities in strategic procurement. As one example of value-added strategic sourcing, one respondent specifically mentioned supplier management from the perspective of quality and sustainability. According to one of the managers, digitalization also aims to better integrate the supplier into the case company's capacity management. Advanced planning system is able to better assess supplier capacity. This in turn helps procurement to better predict availability, which prevents late deliveries.

One of the managers summed up that the long-term goal is to show the improvements achieved by procurement through KPIs. Especially through cost savings that lead to higher profitability and potentially business growth. The respondent, whose vision was to be an independent and respected procurement organization, emphasized the ability to make a profit as a long-term goal. This helps to recognize the importance of the role of procurement, which in turn leads to an increase in responsibility. The results are achieved by successfully solving the challenges faced by the business. Similarly, the respondent, whose vision was to be a recognized business partner, aimed to participate more deeply in decision-making by increasing the role of procurement and employees' strategic procurement skills. The main long-term goals are summarized in Figure 10.

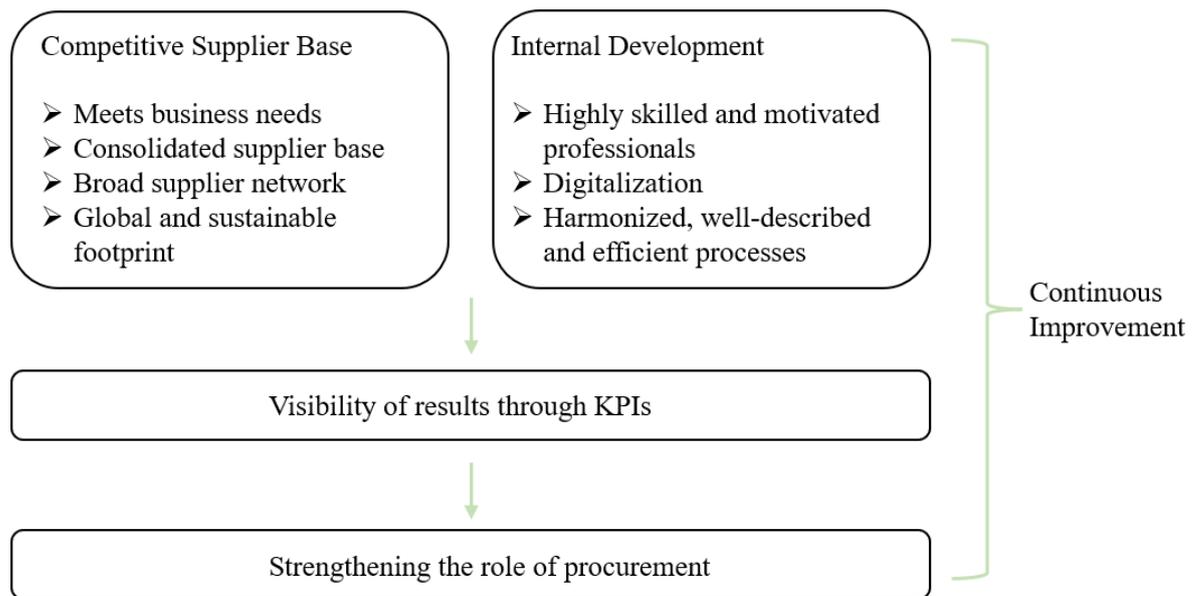


Figure 10. The main long-term goals of the case company.

The short-term goals highlighted the current market situation, which has led to a rapid increase in the order intake of the case company, and the changes caused by the merger. Increased order intake, problems with supplier capability and availability as well as the current raw material market situation have kept procurement busy. Therefore, operational activities, such as the delivery of existing orders and coping with the cost pressures of the current market situation, are mentioned in several responses as key short-term goals. One of the managers also mentioned the importance of finding solutions to bottlenecks due to problems at the moment and noted that the three important pillars at the moment, and also in the long-term, are quality, delivery and cost. This has reduced resources in development projects. One of the managers noted that due to the current very high workload, they are looking for quick fixes to improve their processes and systems with small investments but quick paybacks. However, the intention is also to kick-off longer-term projects to get the resource base in shape, after which they can focus on developing the supplier base. The merger caused a lot of changes in the company and also in the procurement function, so building the foundation was mentioned as important in several interviews. One of the mentioned goals was to adapt the new operating model as a foundation for procurement operations. According to one respondent, this includes connecting procurement functions and aligning their way of working as well as adapting the category view of supplier

management. The manager also mentioned the harmonization of policies and practices as an important part of the foundation. In addition to harmonized working methods, one respondent mentioned harmonization of savings methodology and reporting, improved spend visibility, development of KPIs and employee training. One of the managers mentioned stabilizing operations after changes in the footprint that support their goal of cost competitiveness.

The responses also reiterated the building of strong collaboration between procurement organizations as well as with other stakeholders. The manager, whose vision was to be an independent and respected procurement organization, highlighted the better networking that has begun by starting strategy work with business area stakeholders. According to the manager, becoming an independent organization also first requires creating your own identity. The manager, who mentioned enabling employee skills and motivation as one of the long-term goals, mentioned the importance of taking good employee performance into account in the short term.

The manager, whose vision was to be a highly digitalized procurement function, highlighted the creation of data accuracy, which is the basis for successful digitalization, and the preparation of the foundation for further optimization of human resources. Digitalization and better data accuracy also support the understanding of suppliers' cost structure and processes across cycles, that is the short-term goal of one respondent to ensure that suppliers remain competitive in the future. As another goal, the manager mentioned proactive supplier support for sustainable investments, which will ensure better cost-effectiveness in the future. The main short-term goals are summarized in Figure 11.



Figure 11. The main short-term goals of the case company.

The business-driven operating model is strongly reflected in the responses related to strategy alignment. Respondents were almost unanimous that procurement strategies are not aligned across business areas. Business areas and their goals and requirements vary greatly. As a result, developing a completely common procurement strategy was perceived as challenging. As an example, one respondent highlighted differences in the markets targeted by business areas. This has a major impact on the work of procurement and the supplier base they manage, making it challenging to create and implement a fully integrated strategy. The requirements of business areas towards suppliers can also vary a lot. For some business areas, availability and being closer to the customer market may be more important, while some areas may place more emphasis on the best cost. Thus, the prevailing mindset is that the procurement team must primarily support the strategy of their own business area, which is aligned with the corporate strategy. However, one of the respondents stated that the strategies of the business areas do not sufficiently emphasize the importance of procurement for the company. This is reflected precisely in the fact that procurement is seen in the support role rather than as a driving function.

Despite the different needs of the business areas, cooperation between business areas and with global sourcing was seen as important. It was seen that the strategies are not fully aligned, but they are also not going in opposite directions. One of the respondents called it a "high-level alignment". One manager stated that *"In daily sourcing and in how we do it,*

there are not many similarities with others. However, it must be ensured that those minor similarities are aligned". Cooperation with global procurement in particular was seen as a unifying factor. The strategies were also intended to be coordinated with global procurement to look at how global procurement can support business areas. Aligning the similarities between procurement functions was also seen as a responsibility of global procurement. One of the respondents felt that active discussion and exchange of information would be important so that procurement functions can learn from each other and overlapping priorities where global procurement can support others can be noted. Active discussion also helps to highlight common project opportunities. One respondent points out that strategy should always be value-adding, and actions should be seen at product level, so that actions have a clear link to products and therefore also have an impact at product level.

5.1.2 Procurement performance areas and metrics

When asked about the most important areas of procurement performance, there were many similarities in the responses. All the areas mentioned are listed in Table 7. The financial perspective was the most mentioned area of performance. In terms of financial performance, cost savings and payment terms were particularly emphasized. The need for profitability and cost competitiveness in the overall picture was mentioned as an important part of financial performance. The importance of sustainability was also clearly emphasized in the responses. The case company invests heavily in sustainability, which is also reflected in procurement. The procurement emphasizes, for example, the carbon dioxide emissions of suppliers and in-house manufacturing, as well as the carbon footprint as a whole. Sustainability was also seen as an important link to better financial performance, for example through reduced emissions and energy consumption.

Table 7. The key areas of procurement performance.

Key Areas	Key Elements	Mentions
Financial	Profitability, cost competitiveness	8
Sustainability	Carbon footprint	5
Customer	Quality, delivery, availability, responsiveness, internal cooperation with internal customers	3
Internal Processes	Digitalization, policies & guidelines, internal cooperation	3
Employee	Employee training, career development, onboarding, retention	3
Market Understanding	Market analytics, benchmarking	2
Process Efficiency	Efficiency of internal processes	1
Supplier Footprint	Global supplier base	1
Service Performance	Quality, service performance	1
Learning & Growth	Employee training, career development	1
Operative Operations	Lead-time, internal actions	1
Procurement Innovation	Innovation work, technology, analytics	1
Procurement Involvement	Co-operation with stakeholders, contribution to technical design	1
Interdisciplinary Cooperation	Internal and supplier cooperation	1
SRM	Procurement effectiveness, supplier collaboration	1
Availability and Quality	Product availability and quality	1
Availability	Product availability	1
Quality	Product quality, internal process quality	1
Risk Management	Internal risk management processes	1

Performance that affects customer satisfaction was naturally seen as important. In particular, metrics related to quality, delivery and availability were perceived as an important part of the customer perspective. The performance areas of these metrics were called by different names in the responses. For example, service performance and availability and quality included similar elements as the customer perspective in the other responses. In one interview, availability and quality were both mentioned as separate perspectives. Thus, these different areas can be combined. One of the respondents also mentioned that it is important to divide the customer perspective into internal and external customer. From an internal customer perspective, the respondent emphasized collaboration with, for example, engineering and the research and development team. This corresponds to the interdisciplinary cooperation and procurement involvement perspectives mentioned by other

two respondents. The procurement innovation perspective also addressed the involvement of procurement in innovation work. Technology and market analytics were also mentioned as part of the perspective, which also corresponds to the market understanding perspective. Internal cooperation was also mentioned in the internal processes perspective. In addition to this, other areas such as policies, guidelines and digitalisation were mentioned as part of internal processes. Internal processes were seen to be an important link to financial performance as well as to customer and employee satisfaction. Process efficiency was seen as an important element that reflects the internal efficiency of the function. In addition, risk management was mentioned as one perspective, which takes into account internal risk management processes, such as contract coverage. The employee perspective was mentioned three times. The learning and growth perspective also covered the same elements. Both emphasized employee training and career development. The SRM perspective emphasized supplier collaboration and involvement, and in particular measuring the effectiveness of procurement against its actions.

There were also many similarities in the performance metrics monitored by the procurement organizations. Although the needs of the business areas differ, most procurement organizations follow the same basic metrics. The most closely monitored and also most often mentioned as the most critical of all metrics are cost savings, on-time arrival (OTA) and payment terms. Other commonly monitored indicators include, for example, claims, best cost country (BCC) sourcing, spend under management, cost development and lead time. All metrics that were mentioned more than once are shown in Table 8. In addition to these metrics, quantity of POs per buyer, risk observations in suppliers' premises, number of SRM suppliers, budget performance, non-conformity reports (NCRs), science-based target (SBT) and price list coverage were mentioned once. In one of the business areas, sustainability measurement was already really advanced and other business areas were currently developing sustainability measurement to reach an advanced level. This is clearly one of the most important development projects that supports the company's long-term goals.

Table 8. The common performance metrics and their criticality.

Common Performance Metrics	Overall Mentions	Considered as Critical
Cost savings	8	5
OTA	7	6
Payment Terms	6	3
Claims	3	2
BCC Sourcing	3	2
Spend Under Management	2	2
Cost Development	2	2
Lead Time	2	2
Approved Suppliers	2	1
Supplier Capacity	2	1
Audits	2	
Carbon Dioxide Emissions	2	

The image of performance provided by the metrics divided opinions among respondents. Some procurement functions had better performance metrics within their business area than others. About half of the respondents felt that the current metrics provide a relatively realistic and comprehensive picture of procurement performance. However, as one manager noted, there is still room for improvement. One manager stated that *“If the current metrics would work and we could slice and dice them as needed, they would give a sufficient picture of our performance”*.

Data quality and accuracy were seen as major problems, that are root causes for reporting problems as well. One of the respondents pointed out that it is not useful to monitor the metrics in use, as they do not give a true picture of the procurement performance of that business area. Similarly, one manager stated that they cannot always rely on numbers. Because of this, they have to do a lot of manual work to check that the numbers are correct. They maintain Excel files manually that allow them to compare the numbers presented in the reports to the correct numbers so that errors can be noticed and corrected. Overall, the manager felt that the landscape of the systems is too manual and that there is too little automatically generated data. For this reason, the development of internal processes and especially their automation are important, which is reflected in efficiency, but also in employee satisfaction. One major problem that is derived from data quality is the slowness

of report updates. This frustrates managers as the reports are updated closer to the middle of the month than the beginning. As two managers point out, the figures for the previous month should be available on a specific day at the beginning of the following month so that the previous month's performance can be repeated immediately after the month changes, after which the focus can be on the current month. Procurement often lives on monthly cycles, which is why the figures coming in the middle of the month are already too old. As one manager stated, *"Procurement should be at the forefront of generating numbers and lead by example because we have a lot of data sources that can be analysed"*.

Interviews revealed that although procurement organizations follow partly the same metrics, they use different definitions and calculation methods for certain metrics. For example, cost savings are monitored in several ways. In this context, the need for clear guidelines on how metrics work and how to use them were seen as an area for development. After this, employees would know what the values really indicate, what they mean and how to use them. One example is cost savings versus cost avoidance. Two managers also pointed out that it is not currently possible to compare performance with other target groups. One of them stated that *"We see well whether we have run harder than last month or year and how we have improved in relation to our own operations, but we do not clearly see how we have performed compared to others, such as internally to other business areas"*. Therefore, from an analytical point of view, the manager considered it important that measurement systems and metrics would be "in the same package" in order to compare the performance of procurement organizations in different business areas. However, four managers highlighted different and fragmented ways of working between teams and entities, which makes measuring and comparing results challenging. This would first require the harmonization of processes and guidelines. The emphasis here is also on building the foundation, as performance can be compared when the accuracy of the underlying data makes it more comparable. According to one manager, spend visibility and cost savings need to be prioritized as they are the cornerstones of procurement. One of the managers also highlighted that before releasing new metrics, it is important to make sure that the metrics show where performance is going, i.e. for better or worse. Thus, metrics should not just be a snapshot of the current situation.

Expanding the use of the supplier scorecard and supporting the SRM program with data were also considered important in the procurement function. One of the respondents highlighted the importance systemic use of a scorecard. According to the manager, the systematic use of the scorecard helps to show trends that can be used to make changes. The scorecard helps the supplier understand what is expected from them and shows what has been achieved. The scorecard enhances trust, commitment and communication between the parties. In addition to the scorecard indicating how the supplier has performed, it also tells how procurement has been successful in its own work. Better data quality and accuracy would also to help maintain the SRM program and allow the scorecard to be integrated into the program. The idea of one manager was to utilize scorecard data, among other reasoning, in selecting suppliers to the SRM program. If a supplier's performance falls below a certain threshold, the supplier is added to the SRM program until their performance has improved. This would allow the facts to be used as reasoning. One of the managers noted that the current SRM program is still weak and also hoped for a company-wide and harmonized supplier scorecard for supplier management. The manager concluded that the SRM activities should be better measured because they are activities where procurement provides a lot of value.

5.1.3 Balance of the metrics

The balance of metrics divided opinions and respondents looked at balance from several different perspectives. A couple of respondents saw the metrics as sufficiently balanced, while the rest experienced an imbalance from different perspectives. However, one respondent pointed out that the suitability of metrics for their purpose is paramount. If metrics are relevant and important, they stay in use, but less relevant metrics are easily forgotten. Therefore, the manager would challenge a bit of the view that all metrics need to be in balance according to a balanced scorecard. Rather, the focus should be on finding the most appropriate and relevant metrics for a particular activity (company, function, et cetera) that best serve their purpose. The manager stated that relevance and appropriateness should take precedence over balance.

Four of the interviewees saw an imbalance between financial and non-financial metrics. In all cases, it was felt that financial metrics are overweighted. One of these four managers stated that *“It is something from where we should move forward and learn from others”*. Cost savings were clearly considered to be the most important financial metric. As stated by one of the respondents, cost savings can generally be considered as the primary goal of procurement. In few interviews, the balance of the metrics was justified by the fact that the procurement uses metrics to also measure quality, supplier performance and sustainability. One respondent stated that the focus on financial metrics is natural, as the company is listed on a stock exchange. The respondent noted, however, that non-financial metrics cannot be overlooked in order for the company to be able to retain skilled employees. Another respondent stated that almost all metrics are financial in one way or another, as the purpose of a business is to make a profit. For example, OTA demonstrates the operational performance and reliability of procurement, but it also ultimately leads to how procurement has performed financially. If it is simply interpreted that financial metrics are expressed in monetary units and non-financial indicators cannot be expressed in monetary units, the respondent saw that the indicators in use are in balance. One of the managers noted that financial metrics are overweighted, and that quality metrics are rather underweighted. The manager saw that procurement should be more strongly involved in taking care of the quality experienced by the customer. For example, by measuring how many complaints the customer has sent to the company and what is the reliability of delivery achieved by the company to the customer.

The balance of strategic and operational metrics provoked the most discussion. It was generally felt that the emphasis is placed on operational and short-term performance metrics and that the long-term development of strategic goals is not monitored. One manager stated that *“The current indicators describe well the performance of key areas in day-to-day operational activities, but do not report progress towards long-term strategic goals”*. Similarly, another manager noted that the metrics procurement have, do not provide an overall picture of strategy development and focus too strongly on short-term operational targets. In general, the manager felt that strategic goals should be better monitored and more communicated. The manager saw shortcomings, especially in the metrics related to the development of the procurement function. The development of employees’ skills and

processes was mentioned in the long-term goals. The manager noted that these are important topics they intend to focus on, but pointed out that there are no good metrics for measuring them. The same opinion was repeated in several interviews. For example, one of the managers pointed out that financial metrics should be balanced with process and employee metrics in order for metrics to be balanced. Process efficiency could be measured, for example, by measuring how much is operated inside and outside of the processes, certain steps in the process and the efficiency of the supplier base. However, the efficiency of the process can only be measured when the process is in place. Some long-term goals, such as cost competitiveness and sustainability, were felt to be monitored over the long term and were seen as links to operational metrics. One of the managers pointed out that while OTA and quality metrics are operational, they are needed to set strategic goals, such as customer satisfaction goals, and thus strongly tied to achieving strategic goals. Two managers also pointed out that it is important to consider whether the metrics are in conflict with each other. In both interviews, a potential conflict between cost savings and sustainability emerged. For example, the often-mentioned long-term goals, cost competitiveness and sustainability, may conflict, as suppliers' investments in sustainability can raise the company's purchase prices, which can affect cost competitiveness.

Several managers saw deficiencies in employee-related metrics. The company has regular employee surveys, but not everyone considered them sufficient. The importance of the professionalism and well-being of employees is recognized and in many cases it was listed in the strategic objectives, but its measurement in the procurement function is deficient. One of the managers saw retention management as particularly important for performance and taking the business in a positive direction. This requires employees to remain healthy, happy and motivated so that they can contribute positively to the job. The manager felt that the procurement function had shortcomings in its development as well as in the metrics that enable the measurement of retention management. The manager also pointed out that working life is undergoing a transformation, with more and more attention being paid to work-life balance. As a result, companies have begun to pay more attention to employee well-being, and this is something that procurement must also pay attention to in order to retain skilled employees. The employee metrics suggested in the interviews were investment in employee training, time spent on training, employee turnover and skills diversity. One of

the managers presented an idea of setting up a procurement academy with different levels to train employees. However, one of the managers pointed out that employee-related data is very restricted in some countries, which can pose challenges in the use of employee-related metrics. In few interviews, measuring employee skills, ambition and productivity was perceived as difficult, although the importance of measurement was identified.

Partly related to the overweighting of operational metrics, the lack of forward-looking and future-oriented metrics was also mentioned. Few respondents mentioned that it is not possible to interpret future performance from current metrics. One of the managers saw that the most commonly used metrics could also be translated into forward-looking metrics relatively simply. For example, certain cost savings could be calculated by comparing the purchase order backlog to the baseline that would help determine market prices in a timely manner. The example mentioned by another manager was a savings pipeline that would indicate possible future cost savings. The cost savings could be divided into potential, verified and realized cost savings. Overall, forward-looking metrics would make forecasting easier, and procurement could respond more quickly to change. One manager stated that *“We do not really see what is happening in the market and what is the current business cycle. We see that we are going up but not how fast, is this the peak and will this continue”*. However, the manager pointed out that forecasting is not easy and metrics that reflect past performance are the only fact-based metrics.

In particular, one of the managers experienced shortcomings in measuring the effectiveness of procurement. The manager noted that the procurement function do not measure how effective procurement is against its actions. According to the manager, the actions procurement takes should be measured against improvements in KPIs. In other words, the interaction of procurement with suppliers should be measured and compared to the improvement of metrics, such as OTA, cost development and quality indicators in order to see the effectiveness of procurement. For example, if a supplier has quality problems and procurement has taken actions to resolve them, but the number of claims is still the same or even increasing, it indicates that procurement is not effective. The manager listed the following measures as examples of measuring the effectiveness of procurement actions:

- How many interactions procurement has with the supplier?
 - How many meetings procurement has with the supplier?
 - How many calls procurement has with the supplier?
 - How many contracts procurement has done?
- How many transactions less purchasers do in order to get the same spend placed?
- How many times procurement has involved supplier to product design?
 - How many drawings have the suppliers approved?

Procurement effectiveness was also considered to be related to the SRM process because it shows how procurement handles suppliers and measures cooperation with the supplier as well as supplier involvement. The manager noted that while traditional metrics are needed, they are not enough to take procurement to the next level. According to the manager, cost savings and OTA are no longer enough, and procurement should not focus on them but look at the total view. Measuring the effectiveness of the actions taken also received support from another interviewee. However, the manager recalls that problems with standard metrics need to be resolved first and processes and practices need to be harmonized so that results are comparable. One of the managers sees the current view as silo-focused that leads to suboptimization. The manager points out that *“KPIs should challenge the way of working so productivity of the individual head count could be improved”*. As a result, productivity increases, which in turn increases the value of procurement. Efficient use of tools is also strongly associated with productivity growth, so measuring tool use was seen as useful. One of the managers summed up that *“We may have the tools, but the question is are we using them correctly and in the best possible way?”*.

5.2 Survey results

A total of 110 responses were received to the survey. The first question in the questionnaire concerned the role of the respondent in the procurement function. Exactly half of the

respondents worked in sourcing positions. The second largest group of respondents worked in operational roles, such as purchasing, with a share of 18%. Fifteen percent of respondents worked in quality and sustainability roles, while 7% of respondents worked in the Procurement Excellence team and 9% did not work in a procurement function, ending their survey with the first question. Therefore, the involvement of these ten respondents is not taken into account in the total number of respondents to the following questions. The number of respondents for each role is shown in Figure 12.

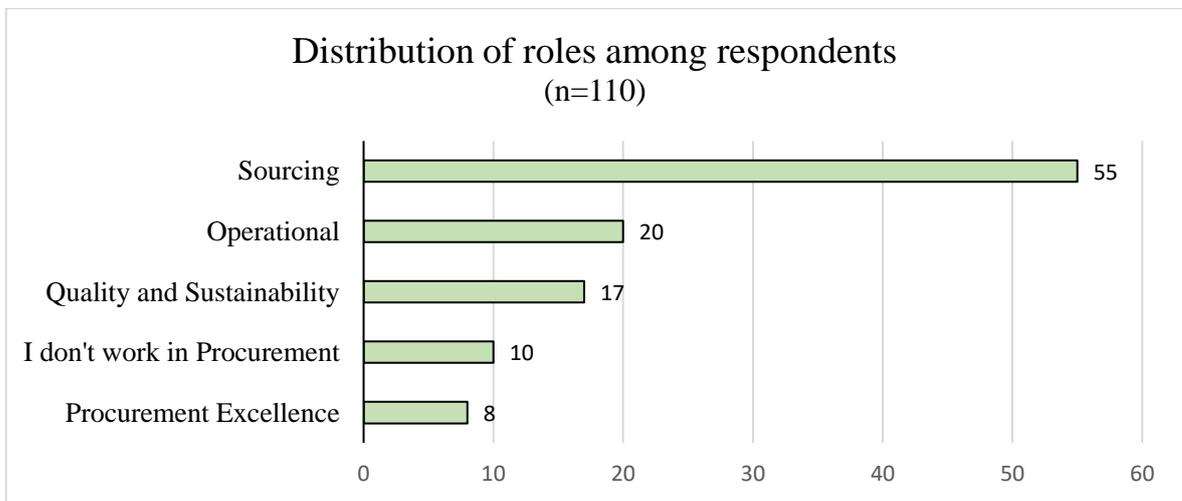


Figure 12. The number of respondents for each role.

5.2.1 Strategy and KPIs

The first theme of the survey briefly addressed the procurement strategy with a couple of questions, followed by a focus on the metrics in use and their functionality. More than half, 66%, of respondents felt that their business area's procurement strategy has been clearly communicated over the past 12 months. Respondents who felt the strategy was clearly communicated were asked on a scale of zero to ten how well the strategy guides their daily work. Zero meant the strategy does not guide the work at all, while ten meant that the strategy strongly guides the work. The average given by the respondents to whether the strategy guides their work was 8.02. The median, in turn, was 8, reflecting a very symmetric distribution. The standard deviation was 1.42. Of these respondents, 47% felt that strategies

were aligned between business areas, while 38% were unsure and 15% felt that strategies were not aligned. This can be considered a surprisingly good result, as in the interviews, managers were almost unanimous that strategies have not been aligned with each other. However, as the interviews and the survey revealed, the business areas follow the same basic metrics, which may explain why nearly half of employees feel the strategies are aligned. Based on the roles, the members of the Procurement Excellence team were most satisfied with the communication of the strategy. While 66% of respondents felt that the strategy has been clearly communicated, the rest of the respondents, i.e. 34%, felt that the procurement strategy had not been clearly communicated in the last 12 months. The least satisfied were those working in an operational role, 40% of whom felt that communication had not been sufficient. Also close by were employees working in sourcing as well as in quality and sustainability roles, 35% of whom in both groups felt that communication had not been sufficient.

A clear majority of respondents, i.e. 95%, actively follow some KPIs in their work. Of these respondents, 46% follow 1-3 KPIs and 38% follow 4-5 KPIs. More than five KPIs are followed by 15% of respondents. One respondent, who follow some KPIs, did not answer this question, resulting in an overall percentage of 99. The three most important KPIs were OTA/OTD, cost savings and terms of payment. During the research process, it became clear that the metrics of reliability of delivery, OTA and OTD, mean the same thing in the procurement function. One of the legacy companies used the term OTA, while the other legacy company used the term OTD, so now the terms are used interchangeably. In the "other" option, health, safety and environmental (HSE) KPIs were mentioned several times, as well as individual KPIs such as quality KPIs and spend under management. The most important KPIs for respondents are presented in Figure 13. In relation to respondents' roles, all roles except quality and sustainability most often followed the three most followed metrics, namely OTA/OTD, cost savings and payment terms. Instead of payment terms, NCR quantity was the most important metric for those working in quality and sustainability roles. The results correspond well to the results of the interviews. The three most important metrics were the same ones that managers mentioned most often as well as the most critical in the interviews. KPIs such as lead time, BCC rate and spend under management were also mentioned in several interviews. In addition, HSE and quality related KPIs also emerged

from the interviews. All 5% of respondents who did not actively monitor any metrics felt that monitoring certain metrics would be beneficial. These included quality metrics, cost savings, OTA, spend under management, terms of payment, logistics costs, market outlook, goods received completed, NCR quantity and supplier's customer orientation. Respondents represented all roles almost evenly.

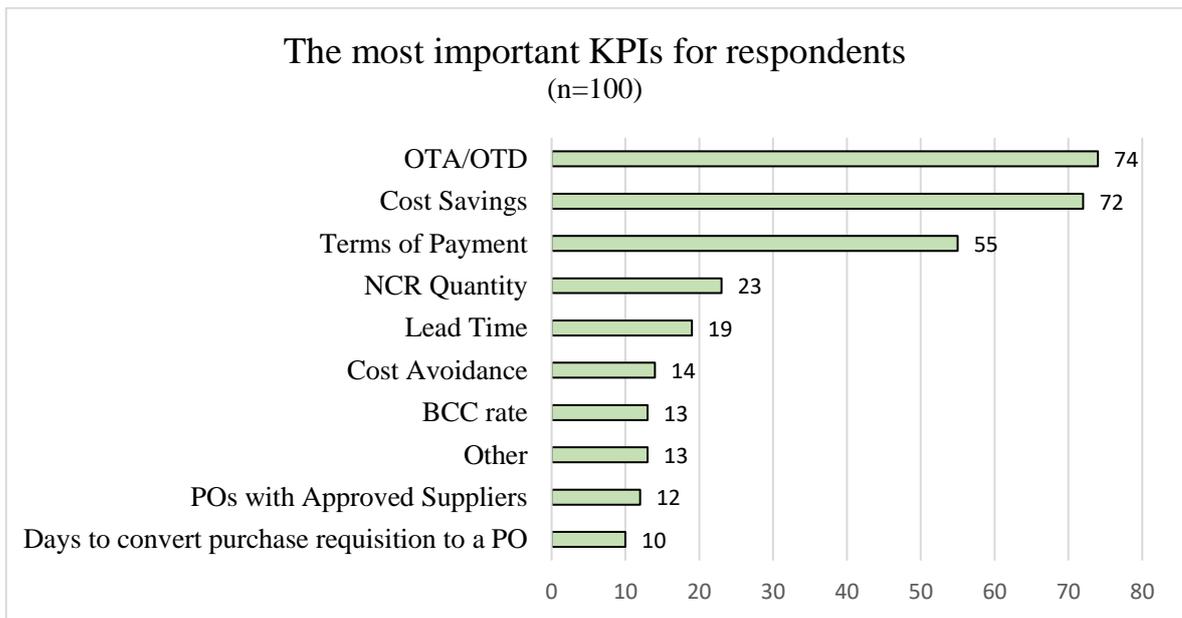


Figure 13. The most important KPIs for respondents.

Respondents who actively monitor KPIs were presented with statements about the functionality of the KPIs. The statements and their results are shown in Figure 14. Overall, the vast majority of respondents agreed with the statements. Respondents agreed most strongly that they understood how they can affect the KPIs and that clear target values have been defined for the KPIs. The biggest development is clearly the tools used to monitor the KPIs, as there was the most disagreement and the least agreement with this statement. The second most disagreed and the second least agreed statement was that the KPIs do not conflict with each other. For 80 percent of these respondents who actively monitor KPIs, one or more of these metrics are linked to their incentives. Respondents were asked to rate on a scale of zero to ten how well these KPIs reflect the success of their work. The average was 7.74, the median was 8 and the standard deviation was 1.64. This indicates a slightly

left skewed distribution. Thirty-seven percent of respondents who actively monitor KPIs have to calculate some metrics manually. This supports the fact that the tools used to monitor KPIs are seen as the biggest shortcoming. The results of the question highlight the poor quality of the data as a reason for manual calculation, which also emerged as an important area for development in the interviews, and the weaknesses of the systems for calculating KPIs. Clearly, different types of cost savings were most often mentioned, followed by OTA and payment terms a couple of times. In addition, several individual KPIs were mentioned.

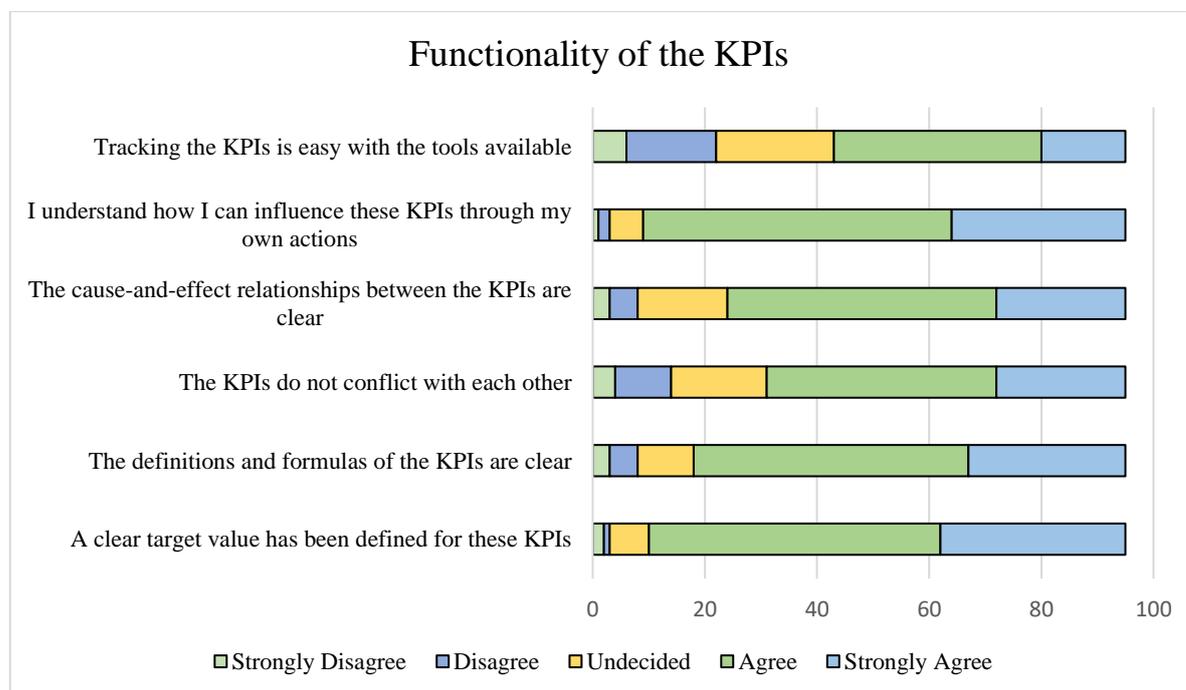


Figure 14. Functionality of the KPIs.

5.2.2 Balance of the KPIs

Overall, 47% of respondents believed that stakeholder expectations are well enough considered into target setting and KPI measurement, while 38% were unsure and 15% believed that expectations are not sufficiently considered. Only some respondents working in sourcing and operational roles, 20% of both groups, did not feel that stakeholder expectations are well enough considered. Internal and interdisciplinary collaboration was seen as important in the interviews. Listening to stakeholders is strongly linked to co-

operation and based on the results of the question, there is still room for improvement in co-operation from the perspective of employees as well.

Looking at employees' perceptions of the financial balance of the current KPIs, the results reveal that the KPIs were seen as moderately balanced. Employees estimated the balance between financial and non-financial KPIs on a scale of zero to ten. Number five represented perfectly balanced KPIs, while zero represented strongly financial-focused and ten strongly non-financially focused KPIs. The average was 4.53, the median was 5 and the standard deviation was 2.48. This indicates a slightly left skewed distribution. It should be noted, however, that the standard deviation is moderately large, so employee opinions vary in both directions. In sourcing, the KPIs were perceived to be the most financially focused with an average of 4.04 and a median of 4. In the quality and sustainability and procurement excellence roles, the KPIs were seen as slightly more non-financial focused, with an average and a median of 5-5.53.

When looking at measuring internal processes, 65% of respondents were not aware of KPIs that measure the efficiency of internal processes. Respondents who were aware of the KPIs most often cited days to convert purchase requisition to a PO as a KPI of internal processes. In addition, OTA was mentioned in several responses, but this cannot be directly considered as a measure of internal processes, as it also includes the supplier's delivery time as well as the third party's transportation time. Similarly, savings cannot be considered a measure of the efficiency of internal processes. By filtering out OTA, savings and blank responses, only 13% of respondents were able to name at least one KPI of internal processes. Respondents were asked to rate on a scale of zero to ten how well current KPIs allow for the detection of weaknesses that prevent continuous improvement. Zero means the KPIs do not help at all, while ten means the KPIs help really well. The average was 6.4, the median was 7 and the standard deviation was 2.21. This indicates a slightly left skewed distribution and based on the median, employee opinions vary in both directions with the left tail being longer. Based on the roles of the respondents, those working in the sourcing role had the most difficulty in detecting weaknesses. The result cannot be considered particularly good, as the lack of opportunity for improvement is a major risk for the company's growth. Based on the result,

it may be questioned whether the current metrics are appropriate and sufficient to monitor procurement performance. When looking at measuring sustainability, 46% of respondents were aware of KPIs that measure sustainability. By filtering out blank responses, OTA and BCC rate that cannot be considered as sustainability KPIs, 30% were able to name at least one sustainability KPI. The most frequently mentioned KPIs were CO2 emissions, audits and the number of suppliers engaged to SBT.

Respondents who lead a team were asked a few questions about KPIs related to leadership, particularly employees. A total of 25% of all respondents led a team. The questions and their results are shown in Figure 15. The results showed that investment in employee training in particular is rarely measured, with only 24% of respondents having a KPI to measure it. This result is in line with the interviews, which clearly showed shortcomings in employee-related metrics. The results of measuring employee satisfaction and engagement were quite similar. In both questions, a small majority had KPIs to measure employee satisfaction and engagement. A company-wide satisfaction survey measures the employee net promoter score, which can explain clearly higher scores in measuring satisfaction and engagement. The team leaders were also asked on a scale of zero to ten how well the KPIs in use give an idea of what is needed in the future to achieve sustainable continuous improvement. The average was 6.48, the median was 6 and the standard deviation was 1.66. This indicates a slightly right skewed distribution with the right tail being longer. This result is also in line with the interviews, as it was also pointed out in the interviews that there are no forward-looking KPIs among the metrics in use and the current metrics do not provide a comprehensive picture of procurement performance.

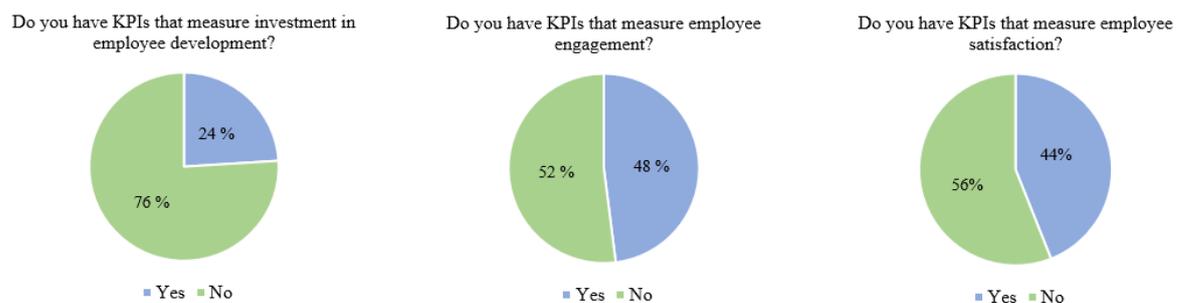


Figure 15. Employee-related questions for team leaders and their answers.

In total, 19% of all respondents felt that they needed KPIs in their work that the procurement function does not have. The desired KPIs represented a wide range of metrics, including metrics related to sustainability, quality, lead time, market outlook and costs. Among the desired KPIs, there were also a couple of specific metrics that also emerged from the interviews. One of the respondents wanted visibility on the savings in terms of opportunities, potential and realized savings. This is very consistent with the savings pipeline proposed by one manager. Another respondent called for metrics specifically to measure supplier responsiveness and contribution on development, innovation and solution finding between the supplier and the procurement organizations. These metrics are very similar to the following performance areas and their key elements proposed by managers: procurement innovation, procurement involvement, interdisciplinary cooperation and SRM. The open comments included on a number of topics. The comments are not covered in detail in this study while respecting the privacy of the company. However, the same issues emerged in the open comments as in the interviews. These include, for example, the lack of data accuracy and cooperation within the procurement function, unclarities with KPI definitions and calculations and the difficulty of monitoring KPIs due to too many tools. One response also stated that streamlining of KPIs within business areas and preferably across the entire procurement function would be desirable. The same reply also stated that weighting of KPIs according to importance would be desirable, as if certain KPIs are slightly conflicting, the weighting would indicate the order of importance of the KPIs.

6 DISCUSSION AND CONCLUSIONS

In this chapter, the answers to the research questions are provided based on the empirical results of this study. The empirical results of the study are also discussed against the theoretical part of the study. The aim of this study was to create a balanced scorecard for procurement. Based on the empirical results of the study, a recommendation for the scorecard is given to the case company. After this, the reliability of the study is discussed as well as the limitations of the study are presented. Finally, ideas for further research are presented.

6.1 Answers to research questions

The main question of the study is presented below.

How to build a balanced scorecard for the procurement function to measure its performance?

This case study has examined the development of balanced KPIs for the case company's procurement function, specifically from the perspective of a balanced scorecard. This study aimed to create a balanced scorecard that supports the long-term strategy of the procurement function. The scorecard was built on the basis of the strategic objectives of the case company's procurement function, in which case the findings of the study are generally only applicable to the case company. However, the empirical results of this study have similarities to previous literature on measuring procurement performance. The main aspects of the function's long-term strategy were a competitive supplier base and internal development, which enable continuous improvement and the role of procurement in the case company to be strengthened. A balanced scorecard must support these objectives, and therefore financial, customer, sustainability, procurement processes and people and collaboration were chosen as the scorecard's perspectives.

In order to examine the topic at a more detailed level, three sub-questions were established. The answers to the sub-questions are presented below.

a) What are the KPIs for the procurement function?

Based on the findings of the study, achieving cost savings was considered as the priority of procurement, which leads to improved profitability and thus business growth. In addition to cost savings, OTA and payment terms were considered to be the most important KPIs. These KPIs clearly emerged as the most important in both the interviews and the survey. They can be considered necessary for procurement, but given the long-term goals of the function, the metrics are not sufficient to measure performance to achieve these goals. In addition, more than one manager named the following metrics as critical: claims, BCC rate, spend under management, cost development and lead time. The current metrics emphasize metrics related to suppliers and thus support the goal of a competitive supplier base. Part of the goal was to build a sustainable supplier base and sustainability emerged as one of the most important areas of performance in the interviews, but the survey showed that sustainability KPIs are not known to all employees. This result indicates that sustainability metrics are important to incorporate into a balanced scorecard to improve their visibility. By incorporating sustainability metrics to the scorecard, they are also prioritized higher. CO2 emissions emerged in the study as the most common metric of sustainability.

With current metrics focused on suppliers, procurement does not have sufficient KPIs in place to measure internal development, which is another of the long-term goals of the function. The findings of the survey also indicate that employees are not able to detect weaknesses particularly well with current KPIs, suggesting that they are insufficient. Therefore, it can be concluded that the current metrics do not provide a comprehensive picture of the performance of the function and do not fully support long-term goals. The internal development goal placed special emphasis on employees and efficient and well-described processes, which also enable digitalization and process automation. However,

these targets were not reflected in the current metrics. As a result, the function must introduce KPIs related to employees and processes.

b) What should be considered when developing a balanced scorecard?

The imbalance between current metrics needs to be corrected. There were differences in the opinions of the interviewees, but the most common reasons for the imbalance were the overweighting of operational metrics, which is also strongly linked to the mentioned lack of employee and process related metrics, and the lack of forward-looking metrics. These findings are also supported by the results of the survey, as less than a quarter of team leaders had metrics related to investment in employee training and current metrics were not perceived to provide a clear idea of what is needed in the future. In order to balance the KPIs and take into account the long-term strategy of the function, a balanced scorecard based on the results of this study is proposed to the case company in the Managerial Implications section of this chapter.

The study also highlighted important findings on what needs to be considered in the development phase of a balanced scorecard. The results of the survey supported the findings of the interviews, and the optional comments highlighted several of the same themes as the interviews. The quality and accuracy of the data was seen as the major problem, from which other problems also arise. In order for a balanced scorecard to be considered reliable, the accuracy of the data must be verified first. Another issue to consider is the mixed policies and ways of working that should be harmonized in order for the scorecard figures to be comparable across business areas. This requires stronger collaboration between procurement organizations. In addition, it is necessary to clarify the definitions and calculation methods of the KPIs. This helps employees understand what the values indicate and what actions need to be taken to reach the target values. As the interviews highlighted, these shortcomings need to be addressed first in order to build a strong foundation for a balanced scorecard.

c) What are the benefits and obstacles of a balanced scorecard?

Based on the findings of this study, it can be concluded that the advantage of a balanced scorecard is how it takes into account strategic objectives in the selection of KPIs. This ensures that the KPIs chosen, and the actions taken as a result lead procurement towards the strategic objectives it has set that support the vision. A clearly constructed scorecard also helps employees understand what the key priorities are and see an overall picture of what procurement is striving for. This can also help to better understand the strategy in practice. Once the accuracy of the data is verified and the figures are comparable, the harmonized scorecard also enables benchmarking between business area results.

Based on the findings of the study, the biggest obstacle is the different needs and goals of the business areas. In addition to this, opinions differed in part between the interviewees, so a completely unanimous view was not found. This makes it challenging to create a common scorecard for the entire procurement function that perfectly fits the needs of all business areas. In addition, it is difficult to create harmonized definitions and calculation methods for KPIs, as different business areas may interpret the same KPIs in different ways.

6.2 Theoretical implications

The theoretical framework of the study was divided into two parts, the first dealing with strategic management of procurement and the second with measuring performance in procurement. The first part covered the concepts of strategic management and strategy combined with the procurement concept. The second part covered the concepts of performance measurement and a balanced scorecard combined with the procurement concept. A comprehensive theoretical background was needed to compare the empirical findings of the study with previous literature and to look for confluences.

Systematic performance measurement is essential, but it is not easy, making it one of the biggest concerns for businesses (Van Weele, 2014, 285; 305). Companies face several

challenges when measuring their performance and many of these challenges also emerged in the case company. Banker et al. (2004, 5) pointed out that some strategic metrics may only be important for certain business units. This is exactly what was highlighted in the interviews, as a result of which the strategic objectives and thus also the metrics varied between the business areas. Thus, developing one practical approach is challenging, which Van Weele (2014, 285) also identified as the major issue in measuring procurement performance. As Holmberg (2000, 851) noted, the development of metrics without cooperation can drive functions in different directions and hinder the development of a functioning measurement system. A strong business-driven operating model can easily drive the case company's procurement organizations in different directions, emphasizing the importance of collaboration between procurement organizations. Carter et al. (2005, 28-29) noted that the solution to the problem is to develop cross-functional metrics that reflect joint action. The development of a harmonized balanced scorecard at the case company support this, as it seeks to develop cross-functional metrics that support the common goals of the entire procurement function. Collaboration also ensures that the harmonized balanced scorecard works at the entire function level.

There were clear similarities in the performance metrics to the previous literature. The importance of cost savings in procurement was also emphasized in the previous literature. As Khan and Yu (2019, 192) and Chenini et al. (2020, 1) noted, the costs of procurement are high, which explains the emphasis on cost savings. This was also evident in the interviews, several of which mentioned savings as the core of procurement. This finding is also supported by Chick and Handfield, (2015, 34; 202) and Caniato et al. (2014, 630), who conclude in their studies that that procurement performance and success are often measured unilaterally by cost savings. However, as Chick and Handfield (2015, 34) noted, procurement is a strategic function that needs to look beyond cost savings. Similarly, Otheitis and Kunc (2015, 141) argue that financial metrics alone are not enough in a dynamic business environment. The results of this study also indicate that the focus is more on cost savings and other operational metrics, leaving metrics measuring longer-term strategy more in the background.

Despite the emphasis on cost savings, other important performance metrics also emerged from the study. The six key performance areas Caniato et al. (2014, 620) identified have clear similarities to the findings of the study. In addition to costs, this study covered metrics related to time, quality and sustainability. Innovation also emerged as one performance area that was identified in the interviews and, according to one survey respondent, as a measure that is currently missing from the case company. In their study, Caniato et al. (2014, 620) also pointed out that companies often measure supplier performance, but forget to pay attention to monitoring internal processes. Similarly, in their research, Chia et al. (2009, 617-618) revealed that companies have a lack of metrics that measure the drivers of strategic future performance, such as metrics for internal processes and development. This was evident in the case company, where internal development was one of the main long-term goals and within it, the goals included efficient processes and highly skilled employees, but there are still clear gaps in their measurement.

Surveys conducted by Deloitte (2021), PwC (2021) and APQC (cited in Brown, 2021) on today's procurement priorities highlighted several of the same areas in which the case company wants to invest in the short or long term. The order of priorities varied slightly between surveys, but it is clear that, procurement is much more than cost savings, so performance also needs to be measured more holistically. In addition to cost savings, the priorities highlighted in the surveys were operational efficiency, digitalization, process standardization, SRM, collaboration and sustainability. (Deloitte, 2021, 5; PwC, 2021, 4-9; Brown, 2021, 54) This study supports the findings, as all of these priorities also emerged in the objectives of the case company. Process standardization was not mentioned in this particular term, but process harmonization and better process description clearly emerged in the study that are related to process standardization. In particular, digitalization, leading to better operational efficiency, and sustainability were reflected in the case company's both short- and long-term goals.

As several studies have shown, the original balanced scorecard is also suitable for measuring supply chain and procurement performance (Axelsson et al., 2002; Chia et al., 2009; Cunha Callado & Jack, 2015; Piotrowicz & Cuthbertson, 2015). However, as Axelsson et al. (2002,

57) pointed out, procurement and suppliers are not adequately addressed in the original BSC. Thus, several modifications to the original model have been proposed (Baily et al., 2008; Kumar et al., 2005; Wagner & Kaufmann, 2004). According to this study, the original version can also be applied to measure procurement performance, as the perspectives of the original scorecard were also mentioned in the interviews. However, this study also supports the view of Axelsson et al. (2002, 57), who argued that when measuring procurement performance, procurement could be more strongly embedded in the scorecard. The study identified several areas of procurement performance that differ from the perspectives of the original BSC and are specific to procurement, such as SRM and supplier footprint. This shows that modifying the scorecard to better meet the specific needs of procurement, depending on the strategic objectives, can be considered favourable.

The second most frequently mentioned area of procurement performance in the study was sustainability. As stated earlier, this was, naturally, also strongly emphasized in the strategic objectives of the case company. The importance of sustainability in procurement is also supported by previous literature, in which sustainability is seen as an important part of measuring procurement performance (Caniato et al., 2014; Piotrowicz & Cuthbertson, 2015; Rodriguez-Aguilar, 2020; Deloitte, 2021; Brown, 2021). Although Chia et al. (2009, 612) and Cunha Callado and Jack (2015, 295) mentioned waste reduction as one measure of internal processes, the importance of sustainability is not sufficiently reflected in a balanced scorecard. Based on the findings of this study, it can be concluded that sustainability should be added to the balanced scorecard as a separate perspective. Based on this study, this concerns the measurement of procurement performance. However, given the importance of sustainability for the planet, and therefore for all business, the recommendation can be considered to be generally valid when a balanced scorecard is used in business.

6.3 Managerial implications

In this part, recommendations are given for the case company on how they could create a balanced scorecard for procurement. Thus, a balanced scorecard created based on the results of the study is presented. The scorecard is presented and discussed in the order of Wagner

and Kaufmann's (2004, 271) BSC process. As mentioned earlier, this study focuses on the first five stages of the process. First, perspectives are defined as well as strategic objectives that are combined with appropriate perspectives. The cause-and-effect relationships of strategic objectives are presented on the BSC map. Finally, KPIs are proposed for each perspective and a visual proposal of a balanced scorecard is presented.

Defining perspectives starts with a vision and long-term goals that can be divided into two main categories, a competitive supplier base and internal development. The BSC map is shown in Figure 16. A competitive supplier base is strongly linked to financial performance, which was also most often mentioned as an important area for procurement. Thus, the financial perspective, which also appears in the original scorecard, was chosen as one of the perspectives on the procurement scorecard. As cost savings are one of the key priorities for procurement, cost competitiveness has a major impact on a competitive supplier base. A competitive supplier base, in turn, aims for continuous improvement and growth, leading to better profitability. Cost competitiveness and profitability were seen in the interviews as key elements in financial performance. Thus, they are the main goals of the financial perspective. The customer perspective, which is also on the original scorecard, is an integral part of all business and is therefore also part of the procurement scorecard. Procurement performance has a major impact on customer satisfaction, so in order to support a business, procurement must ensure great performance in this area. The study highlighted in particular the importance of quality and service performance, which were identified as strategic goals for the perspective. The customer was named as one of the most important areas of performance in the interviews and several areas with the same elements were mentioned. High quality and service performance improve customer satisfaction, which leads to increased sales and thus profitability.

Another of the main long-term goals was internal development, which is not clearly reflected in the current metrics. Internal development placed particular emphasis on process development, digitalization and support for employee learning and career development. Thus, procurement processes is the fourth perspective of the scorecard. Internal processes were also named as one of the most important areas of performance in the interviews. Improving processes is the first goal of the perspective. Especially due to the merger, there is still much room for improvement in the case company's processes. This starts with the harmonization of existing processes and the creation of new common processes that are well-described and efficient. Creating such processes enables digitalization and automation of manual activities, freeing up time for more value-adding strategic activities. This will streamline procurement activities, which will be reflected in improved profitability.

The last perspective on the scorecard is people and collaboration. This is required to build a strong foundation and can be seen as the basis for procurement work. The internal development goal included supporting employee learning and career growth, which is the first goal of the perspective. Employees were also named as one of the most important areas of performance in the interviews. Skilled and motivated employees play a key role in improving performance. Successful performance and cooperation are sought to lead to a strengthening of the role of procurement in the case company. Thus, another goal of the perspective is to strengthen the role of procurement. This requires collaboration both internally and with suppliers. The strengthening of the role of procurement has a really big impact on the work and performance of the whole function. Active cooperation internally and with suppliers supports other goals in the BSC map, in particular the commitment of suppliers to sustainability and ensuring high quality and delivery performance.

After defining the perspectives and their strategic goals, the KPIs for each perspective are selected. The balanced scorecard created for the case company is shown in Figure 17. The KPIs of the financial perspective are cost savings, payment terms, BCC rate and return on investment (ROI). Cost savings and payment terms were two of the three most common metrics in both the interviews and the survey. Cost savings could be measured in the form of a savings pipeline, as suggested by one of the interviewees as well as one of the survey

respondents. This would make the KPI more forward-looking. Cost savings can also be replaced by monitoring cost development that include both cost savings and cost increases. The BCC rate was also particularly emphasized in the interviews. These three KPIs have an impact on cost competitiveness, which was one of the perspective's goals. ROI, in turn, measures the profitability of procurement, which was the second goal. The KPI reflects the profitability and cost-effectiveness of procurement investments, which is why it was chosen for the scorecard.

Audited suppliers, the perfect order rate, supplier claims, and supplier availability were selected as KPIs for the customer perspective. Audits are important to ensure suppliers' quality, but also processes and sustainability. The perfect order rate is a combination of several metrics that reflect how successfully the supplier has executed the PO. This has a big impact on both service performance and quality. The metrics included in the KPI may vary as needed, but this study recommends that the KPI include OTA, which was one of the three most important metrics in the study, as well as in-full delivery, damage-free delivery and documentation accuracy. These metrics provide a comprehensive picture of order fulfilment, which is essential for procurement performance and thus customer satisfaction. In addition to this, the exact number or value of claims arising from deliveries that were not damage-free can be monitored separately in order to obtain more accurate information on the costs caused by the issues. Claims were named the fourth most important metric in the interviews. The availability of suppliers became an important theme in the interviews, especially as an important element of customer satisfaction. Thus, it is the last KPI of the customer perspective.

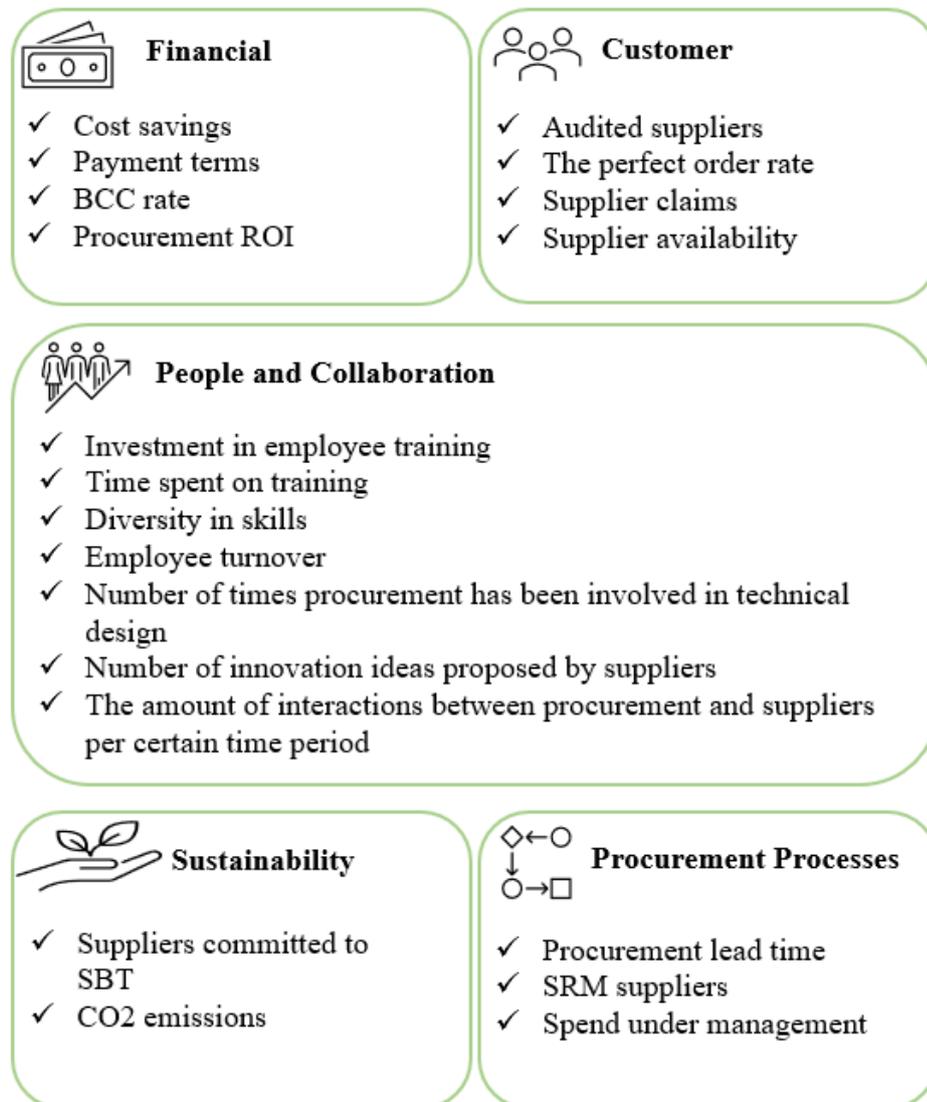


Figure 17. A balanced scorecard for the case company.

Based on the study, suppliers committed to SBT, and CO2 emissions were selected as KPIs of sustainability. The company is strongly committed to the SBT and therefore suppliers are also expected to commit to it. The case company has set a target that by a certain year a certain percentage of supplier spend will be with those suppliers who have set a SBT emission target. Suppliers committed to SBT provide a good overview of how much of the supplier base is already committed to the target and thus, how close the case company is to their goal. The case company also aims to significantly reduce CO2 emissions by a certain year. This was also reflected in the interviews. Thus, CO2 emissions are the second KPI of the perspective.

Procurement lead time, SRM suppliers and spend under management were selected as KPIs of the procurement processes. Lead time is a metric used by the case company. There may be several definitions of lead time, but in this study, it is defined as the period of time that begins when starting an order and ends when the order arrives. The KPI reflects the efficiency of the procurement processes as a whole and is a good KPI to get an overall picture of the processes. For example, the automation of manual processes, which was one of the goals of the case company as part of process improvement, is reflected in a reduction in lead time. The SRM program also emerged strongly in the interviews. It is a structured and essential process, and therefore it is important to be measured. The share of SRM suppliers in the total supplier base is a simple measure of how many suppliers are covered by this structured process. The development of the SRM process is still ongoing in the case company, so it is difficult to create more detailed metrics at this stage. If it is decided to add suppliers to the program based on the poor performance on the supplier's scorecard, as suggested by one of the managers in the interviews, it could be measured how many suppliers are added to the program for this reason and how long it takes for their performance to improve. In this case, when determining the KPI target, it must be made clear whether the target is to have as few or as many SRM suppliers as possible. Spend under management emerged as one of the metrics used in the case company. It can be used to measure the effectiveness of the supplier base and reflects how much of the spend is covered by pre-established procurement processes.

The people and collaboration perspective includes many important KPIs. Investments in employee training, time spent on training and diversity in skills support and follow the goal of employee learning. Employee turnover provides an indication of whether employees are able to take new steps in their careers within the company or whether they need to change employer to do that. These KPIs came up in the interviews as potential employee-related metrics. If the procurement academy is set up, as suggested by one of the managers, the program could be used to measure, for example, the progress of employees from one level to another and employee satisfaction with the program. The procurement academy would also help in measuring the diversity of skills. The program would ensure systematic employee training. The number of times procurement has been involved in technical design reflects how the involvement of procurement is improved inside the company. Procurement

involvement is also influenced by supplier proactivity and collaboration, which can be measured by the number of innovation ideas proposed by suppliers. The effectiveness of supplier collaboration as a whole can be measured by the number of interactions between the parties. An increasing amount of interaction should take other KPIs toward their goals in order for activities to be effective. However, this requires systematic and consistent communication practices that are measurable and is therefore a challenging KPI to implement.

6.4 Reliability and limitations of the study

This study examined performance measurement, and, in particular, applying a balanced scorecard to the procurement function. The study did not aim to examine the measurement of supply chain performance as a whole. Relatively little previous literature specifically on measuring the performance of the procurement function was found. Therefore, the literature on supply chain performance measurement was used to support the theoretical part of the study. Similarly, previous literature on the application of a balanced scorecard specifically to the procurement function was less available than on the application of a scorecard to the entire supply chain. Thus, the theoretical part of this study cannot be considered completely ideal, as the supply chain as a whole is a broader concept than procurement. Despite the limited availability, the theoretical part can be concluded to form a sufficiently comprehensive basis for research.

The research data collection method was mixed, as the data were collected through interviews and a survey. Nine managers participated in the interviews and 110 employees responded to the survey. This can be considered as a comprehensive sample size for this study. The reliability of the study is also enhanced by the fact that the sample covered the perspectives of the managers and the employees working under them. As a result, the study covers the phenomenon under study from two perspectives. The study also found similarities both between the interviews and especially between the themes that emerged in the interviews and the results of the survey. However, although similarities were found between the views of interviewees, differing opinions also emerged. As a result, the views of

individual respondents also emerged in the interviews. However, with the large sample size, this study as a whole can be considered reliable.

The responses to the survey background information, i.e., role and procurement organization, cannot be considered completely reliable. In the data analysis phase, it was found that eight of the respondents had chosen to work in the Procurement Excellence team, although a questionnaire was sent to only six people working in the team. In addition, six of these eight respondents had responded to working for a different procurement organization than the one to which the team belongs. However, 93% of respondents chose another role or chose to work outside of procurement, so this does not have a significant impact on the reliability of the survey. The survey was piloted with two employees. One represented strategic procurement and the other operational procurement. This ensured that the issues could be identified as widely as possible and that the survey would work for all respondents. Interview questions were not tested in advance, which would have been desirable. The discussion flowed smoothly, and the interviewees generally understood the interview questions well. Two of the questions were too similar, so the interviewees basically answered both questions at once, when the later question no longer added value.

The subject of the research can be considered very sensitive, as the strategic objectives of businesses are very private information. As a result, the research material related to the case company has been handled at a very high level, respecting the sensitivity of the topic. This has limited the depth of the analysis and therefore has also affected the results of the study. This study was conducted as a single case study, in which case the findings of the study cannot be generalized in their entirety. The balanced scorecard created based on the findings of the study has been compiled according to the objectives and views of the case company, in which case it can only be considered suitable for the case company. However, the study provides ideas on how procurement performance can be generally measured. In addition, the recommendation to add a sustainability perspective to a balanced scorecard, especially when measuring procurement performance, can be considered generalizable.

6.5 Future research

Research could be taken forward in the future by examining how certain procurement actions affect the development of KPIs. The research could be carried out using an observational research method. This would allow the impact of the actions on the performance of procurement to be monitored over a period of time. The findings of the study would make it possible to find the actions that have the most favourable impact on performance and therefore on the KPIs. In this way, the effectiveness of procurement could be improved by focusing on actions that have a greater impact on performance and excluding actions that have a negative or negligible impact.

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APPENDIX 1. INTERVIEW QUESTIONS FOR THE VICE PRESIDENTS AND PROCUREMENT DIRECTOR

Theme 1: Strategy

1. What is the procurement vision of your team for the next 3 to 5 years, i.e. a clear and goal-directed, but at the same time realistic view of the desired future state?
2. In a few sentences, describe what your long-term goals are? And what are your short-term goals?
3. What do you think are the most important areas of procurement performance where, by succeeding, the procurement function achieves its long-term and short-term goals? (Mention 4-6 areas)
4. Have you aligned your procurement strategy with other business areas/global procurement?

Theme 2: Performance metrics

5. What metrics do you currently use to measure procurement performance and which of these metrics are the most critical?
6. How do you ensure that the metrics you use give a realistic and comprehensive picture of your performance? If they do not, why?
7. Are the metrics you use balanced?
8. If yes, how have you balanced financial and non-financial metrics? How about operational and strategic metrics? And how about internal and external metrics? If not, what have been the obstacles to balancing the metrics?
9. Are the metrics in use designed in collaboration with the procurement organizations of other business areas/global procurement?
10. How the metrics in use support your long-term and short-term goals? If they do not, what needs to be changed?

APPENDIX 2. INTERVIEW QUESTIONS FOR THE DIRECTOR OF PROCUREMENT EXCELLENCE

Theme 1: Performance metrics

1. What do you think are the most important areas of procurement performance where, by succeeding, the procurement function achieves its highest performance? (Mention 4-6 areas)
2. What do you think are the key metrics for measuring procurement performance?
3. Do you think the metrics we use are in balance? If not, how they are imbalanced and what do you think are the obstacles to balancing the metrics?

Theme 2: Development and implementation of metrics

4. What do you see are the biggest challenges in developing and implementing procurement performance metrics?

APPENDIX 3. THE QUESTIONNAIRE

Background information

What role do you work in?

In which business area do you work?

Theme 1: Strategy and key performance indicators (KPIs)

Within the last 12 months, do you feel that your business areas procurement strategy has been clearly communicated?

- Yes
 - The strategy guides my daily work
- No

Are procurement strategies are aligned across different business areas and global procurement?

Are you actively following some key performance indicators (KPIs) in your work?

- Yes
 - How many KPIs do you follow?
 - What are the most important KPIs in your own work?
 - To what degree do you agree with following statements:
 - A clear target value has been defined for these KPIs
 - The definitions and formulas of the KPIs are clear
 - The KPIs do not conflict with each other
 - The cause-and-effect relationships between the KPIs are clear
 - I understand how I can influence these KPIs through my own actions
 - Tracking the KPIs is easy with the tools available
 - Is any these KPIs linked to your personal incentive?

- Yes
 - The KPIs linked to my personal incentives reflect the success of my work
 - No
 - Do you have to calculate the value of certain KPI(s) manually instead of coming automatically from the system?
 - Yes
 - What is the KPI that you need to calculate manually?
 - No
- No
 - Do you think it would be beneficial to follow certain KPIs?
 - What are the top 3 KPIs you would follow?

Theme 2: Balance of the KPIs

Do you believe that our stakeholders' expectations are well enough considered into our target setting and KPI measurement?

How balanced are the financial and non-financial indicators of procurement?

Are you aware of indicators that measure the efficiency of internal procurement processes?

- Yes
 - What are these KPIs?
- No

Are you aware of indicators that measure the sustainability of procurement?

- Yes
 - What are these KPIs?
- No

Current indicators make it possible to detect weaknesses that prevent continuous improvement

Are you leading a team?

- Yes
 - Do you have KPIs that measure investment in employee development?
 - Do you have KPIs that measure employee satisfaction?
 - Do you have KPIs that measure employee engagement?
 - The KPIs in use give an idea of what is needed in the future to achieve sustainable continuous improvement
- No

Do you need some KPIs in your work that are not currently available?

- Yes
 - What are these missing KPIs?
- No

Optional comments