Designing a Supplier Performance Measurement System:
A Case Study at Outnorth

Master Thesis

Faculty of Engineering
Department of Industrial Management &
Logistics Division of Engineering Logistics

Author
Arvid Wijk

Supervisor
Dag Näslund, Faculty of Engineering, Lund University
Jan Kantola, COO, Outnorth

Examiner
Jan Olhager, Faculty of Engineering, Lund University

Abstract

Background

Outnorth, a large Swedish Outdoor e-commerce retailer, is experiencing issues with lacking supplier performance, such as late deliveries and insufficient information. Concurrently they strive to strengthen their relationships with suppliers. In this study, a supplier performance measurement system, SPMS, is created to help Outnorth deal with supplier issues and facilitate communication and relationship building with suppliers.

Purpose and Research Questions

The purpose of this study is to design a supplier performance measurement system for Outnorth.

- RQ1: What factors contribute to a successful implementation of a supplier performance measurement system?
- RQ2: What supplier aspects are critical for Outnorth?
- RQ3: How can a supplier performance measurement system be designed for Outnorth?

Method

The study used a qualitative case study approach. A literature review was conducted which resulted in a theoretical framework guiding the study to design a performance measurement system. The data collection primarily consisted of interviews, which explored the areas in the theoretical framework. Afterward, the data could be analyzed in order to make conclusions and recommendations regarding SPMS design.

Conclusion

The study identified two critical success factors: strategically aligned metrics as well as communication and relationship building. Aligning metrics with strategy is crucial for a SPMS, making metrics evaluate strategy implementation. To facilitate strategic alignment, relevant stakeholders should also be involved in SPMS design. Communication and relationship building can be used in conjunction with a SPMS to promote its success. Furthermore, based on these critical success factors and the entirety of the literature review, a theoretical framework was created for design of a SPMS. The first step was to understand the environment: identifying strategic objectives and internal stakeholder priorities and examining supplier communication. The second step were designing the SPMS based on the environment. This included first defining the intended roles of the SPMS and defining critical supplier aspects. For Outnorth these critical supplier aspects were: correct information; strong relationship; delivery reliability; and strong brand and products. Lastly, as a part of the design, the metrics were created based on the roles and critical supplier aspects. 8 metrics were created and defined namely: on-time delivery; delivery quantity accuracy; EDI integration; missing delivery documentation; insufficient product information; supplier communication; supplier commitment; and customer product claims.

Acknowledgement

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List of Abbreviations

PMS	Performance measurement system
SPMS	Supplier performance measurement system
BSR	Buyer-supplier relationship
ETA	Estimated time of arrival
EDI	Electronic data interchange

1 Introduction

1.1 Background

A Performance Measurement System, PMS, is a tool that measures and evaluates organizational performance. It can be defined as "a set of metrics used to quantify both the efficiency and effectiveness of actions". (Neely et al., 1995, p. 81) Traditionally, performance measurement systems have been used for evaluating performance within an organization in, order to increase performance. However, with increasing complexity in supply chains, more reliance on suppliers, and a desire for more inter-organizational control, researchers recognized the need for performance measurement outside of company borders. This broadened the scope of performance measurement with many articles written about external performance measurement. (Hald & Ellegaard, 2011) One of the external areas addressed by literature is supplier performance measurement. Like a performance measurement system, a supplier performance measurement system can be defined as "a set of metrics used to quantify both the efficiency and effectiveness of supplier action" and is used to measure, evaluate and improve supplier performance. (Hald & Ellegaard, 2011 p. 890; Maestrini, Maccarrone, et al., 2018, p. 298; Neely et al., 1995, p. 81)

Due to the impact suppliers have on companies' value creation, a SPMS can be critical for companies looking to increase their performance. Firstly, a SPMS can be used to simply measure and evaluate suppliers along different dimensions, covering a multitude of perspectives. (Simpson et al., 2002) Designing the measures according to strategy is also throughout literature stated to be critical. Strategically aligned measures ensure that the SPMS is directly tied to the organizational objectives and that improvements of the metrics will help the organization fulfill its goals and strategy. (Prahinski & Benton, 2004) To ensure that multiple dimensions is covered and the SPMS aligned with strategy, all relevant stakeholders should be involved in the design process. For example, different departments have different expertise and perspectives and involving all facilitates that the right priorities is set for the measurement system. (Luzzini et al., 2014)

An SPMS can in addition to be used for evaluating purposes also be used actively to improve buyer-supplier relationships. Using the SPMS actively, frequently and updating it has the highest impact on increased supplier performance. (Maestrini, Luzzini, et al., 2018) The active use of SPMS leads to communication and relationship building with suppliers which in turn increases their performance. Active use can include performance discussions facilitated by the SPMS, and joint problem-solving in a preemptive way, actively and continuously engaging in a dialogue. (Cousins et al., 2008) In the end, a SPMS can be regarded as a communication tool between the buyer and supplier that can facilitate collaboration and improve relationships. (Schmitz & Platts, 2004)

Because organizational objectives differ between companies and no buyer supplier relationship are the same, no single SPMS fits all companies. An SPMS and its performance measures needs to be designed for a specific company and its environment. (Gunasekaran et al., 2004) This makes it complex to implement an adequate SPMS, especially for companies who have varying conditions from those studied in literature. Currently, there are extensive literature on SPMS in manufacturing and industrial companies. Even if these are within different industries, the almost always are producing goods. This case study aims to design a SPMS for a company within the e-commerce industry. However, there are very limited research on SPMS within the e-commerce context. The limited extent of articles creates hindrance for managers wanting to implement a SPMS within this industry. Research also fails to answer the question if there are any specific SPMS design suggestions for a successful implementation within the industry.

1.2 Problem formulation

Outnorth is Sweden's largest online outdoor retailer and sells products such as clothes, shoes and hiking equipment. The company sells products from their private label brands and external brands, sourcing from a wide range of suppliers In recent years, the company has significantly grown in revenue and aspires to grow even further, with the stated goal of becoming "the best online retailer for Scandinavian Outdoor." To make this happen a clear objective for Outnorth is to improve relations with their suppliers and form partnerships in order to increase risk sharing and assortment availability. Meanwhile, Outnorth are also experiencing that supplier performance often is lacking. The significant challenges include not receiving sufficient and correct delivery and product information as well as late deliveries. This can create both a loss of sales due to out-of-stock products and create overstock problems if products are received after a specific marketing campaign have ended.

To combat these issues and improve supplier management a SPMS can be created and implemented, which is the issue of this study. The system will help Outnorth evaluate their suppliers which can in turn improve their relationships with suppliers and increase supplier performance. The company itself are lacking adequate knowledge regarding supplier performance measurement and are now looking to implement solid system into their regular activities. This new SPMS instead need to be grounded on literature, designed with the organizational environment and its strategic objectives in mind with the goal to evaluate suppliers' performance to help align supplier relationships and increase supplier performance.

1.3 Purpose

The purpose of this study is to design a supplier performance measurement system for Outnorth to help evaluate its suppliers.

1.4 Research Questions

- RQ1: What factors contribute to a successful implementation of a supplier performance measurement system?
- RQ2: What supplier aspects are critical for Outnorth?
- RQ3: How can a supplier performance measurement system be designed for Outnorth?

1.5 Focus and Delimitations

In this study, the focus is to create a SPMS, which will include the design of the system and its metrics. However, it is outside the scope to implement and use the system, the actual process of collecting performance data and evaluating suppliers is not covered by the study. Instead, some recommendations for further use of the PMS will be stated but are proposed to Outnorth to carry through. Moreover, only Outnorth's suppliers for external brands will be the subject of the study and the SPMS will be designed with those in mind. The processes and products of private label brands suppliers are different and need to be evaluated on different grounds, hence it is not included in the study.

1.6 Contributions

The contribution from the study can be divided into two aspects, a theoretical and a practical.

Firstly, the study helps to bridge an identified gap in supplier performance measurement research. There is extensive literature on SPMS in the context of manufacturing but almost no research regarding SPMS and retail. In manufacturing SPMS are often used for supplier selection, something that is not always possible in retail, since customers' demands often determines which suppliers is contracted. There is also a potential difference in business environment and what aspects of supplier performance is valued the most. How these differences translate to SPMS design in an e-commerce setting is yet to be thoroughly examined. The study contributes by acknowledging this gap and help explore how a SPMS can be created within e-commerce.

Secondly, the practical contribution will be significant to Outnorth who will benefit from the study, mainly in the form of a created SPMS especially tailored to the organization and its needs. This SPMS is designed to measure and evaluate supplier performance and facilitate communication, both internal and external. In turn, this aids Outnorth in improving supplier management and, consequently, supplier performance. Additionally, the design process and the SPMS itself will contribute to raised awareness within the organization about processes, strategy, supplier issues and relationships.

2 Methodology

In this chapter the research approach and method are both stated and motivated. Additionally, the chapter also explains how the study has been conducted and explores the validity of the study.

2.1 Research Approach

A research approach is the overall strategy and procedures used to carry out research and can span from broad assumptions to specific methods. The choice of research approach is significant as it acts as a guide for the research and it should be based on a number of factors. This includes the research problem at hand, the researcher's philosophical worldview and the audience of the study. (Creswell, 2014)

Creswell (2014) describes three major research approaches, quantitative, qualitative and mixed methods research. Quantitative research tests theories and examines relationships between different variables, through measuring the variables and applying statistical analysis. In quantitative research generalizability and replicability is key and therefore protection against bias and controls against alternative explanations is often implemented. This approach is commonly used by positivist scholars who see the world as deterministic. The Qualitative research approach is more centered around a problem or phenomenon from the perspective of a group or certain individuals. The data is collected in the setting of the participant and interpreted by researchers. Conclusions is then drawn for the particular setting in order to build an understanding of the broader phenomenon. Lastly, mixed methods research draws from both the quantitative and qualitative approaches which can provide a more complete understanding of the phenomenon. (Creswell, 2014) Even though the research approaches are different from each other, there is no approach that are better than the other. Not all problems can be solved by the same research strategy and which research approach is the best depends on the problem studied. (Näslund, 2002)

In this study a qualitative approach is used. The design of a supplier performance measurement system will require analyzing intricate details, recognizing the complexity of the situation. The study will also analyze the issue of supplier performance from Outnorth's perspective. Therefore, the qualitative approach fits better with the purpose of the study, designing a supplier performance measurement system.

2.2 Research Method

To conduct a research project a method needs to be selected as a framework for creating a detailed plan. According to Höst et al. (2006) there are four main relevant research methods for a master thesis: survey; experiment; action research; and case study. A survey is generally a compilation of the phenomenon's current situation. It often involves collecting data from a sample and analyzing it to draw conclusion about the broader group. Experiments involve systematically isolating and manipulating one or a few factors in fixed environments to observe the effects on another variable, aiming to establish cause-and-effect relationships. Action research is a method where a specific problem is solved, the solution is implemented and later evaluated. This is often done as an iterative process where the steps are repeated based on the evaluation. A case study aims to thoroughly examine a phenomenon within a specific context or 'case', offering deep understanding, but generates findings that are not generalizable. (Höst et al., 2006)

According to Yin (2014), there are three different conditions to consider when choosing a research method: the type of research question posed, the control the researcher has over behavioral events and if the focus is contemporary or historical events. Depending on how these three different conditions are met, the choice of method varies, see table 1. (Yin, 2014) Creswell (2014) also states a framework for choosing a method based on the research approach. Some methods is better suited for the different types of research approaches as seen in table 2. (Creswell, 2014)

Table 1: Choice of research method based on the form of research question, if the study requires control of behavioral event, and if the focus is contemporary or historical. (Yin, 2014)

Method	Form of research question	Requires control of behavioral event?	Focuses on contemporary events?
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	No/yes
History	How, why?	No	No
Case Study	How, why?	No	Yes

Table 2: Suitable research methods for quantitative, qualitative and mixed methods research approaches respectively. (Creswell, 2014)

Quantitative	**Qualitative**	**Mixed Methods**
• Experimental designs • Nonexperimental designs, such as surveys	• Narrative research • Phenomenology • Grounded theory • Ethnographies • Case study	• Convergent • Explanatory sequential • Exploratory sequential • Transformative, embedded, or multiphase

For this study, the Case study was chosen as the research method. Based on the frameworks presented by Yin (2014) and Creswell (2014) it was deemed to have the best fit. The first condition presented by Yin (2014) regards the form of the research questions. The research questions in this study are of the forms how and what, see section 1.4. Case studies is one of the suitable methods for how questions, along with experiments and history, as can be seen in table 1. For what questions, the suitable methods depend on the type of what question. For exploratory questions, such as *RQ1 – What factors contribute to a successful implementation of a supplier performance measurement system?*, any of the research methods can be used. The second and third condition relates to what extent the researcher has control over actual behavioral events and if the focus is on contemporary or historical events. Since this this study will analyze Outnorth's current suppliers in a real-world setting, its focus is contemporary and behavioral events cannot be manipulated making a case study very well fitting. Moreover, the framework created by Creswell (2014) confirms the choice of method. For a qualitative approach where the setting and subjectivity is important, a case study is highly applicable.

2.3 Research Design

For case studies, Yin (2014) proposes 5 steps for research: plan, design, prepare, collect, analyze and share. Based on it, a new framework for the design of this specific study have been created, see figure 1. The following chapters will describe the different steps in this study in detail.
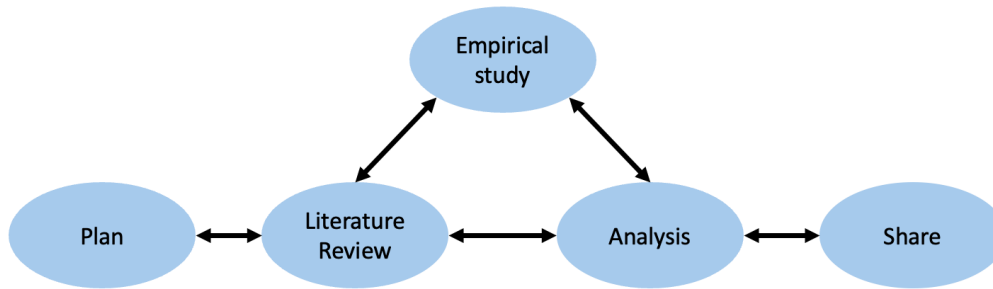
Figure 1: Research framework used for the study which is based on the Yin (2014) 5 steps for research.

2.3.1 Plan

The idea of creating a supplier performance measurement system originated from a meeting with the COO of Outnorth, discussing challenges regarding control over inventory and suppliers' deliveries. After establishing the purpose of the study, research questions, which is critical for the design of the study according to Yin (2014), were formulated. Related to the research questions, creating delimitations to ensure a focused study which is feasible within the limited timespan and can generate both theoretical and practical learnings was also done. Thereafter, a methodology fitting the purpose and research questions could be developed and research approach as well as method were chosen.

2.3.2 Literature Review

A literature review has several different essential roles within a study. A well-executed literature review will increase research quality of the study, decrease the risk of conducting an irrelevant study, and can be a contribution to theory in of itself. It also gives the researcher updated and comprehensive knowledge about the studied phenomenon. (Höst et al., 2006)

In well-studied areas where a phenomenon has been studied by researchers from various disciplines there is simply too many relevant articles to read all of them. For those types of studies semi-systematic literature reviews fit better. This allows for more flexibility and focuses on identifying research themes within the desired topic rather than finding all empirical evidence available for answering the research question. It often also more suitable for qualitative studies. However, the broad literature review require the researcher to be transparent with the literature review and selection process in to ensure high validity. (Snyder, 2019)

In this study, a semi-systematic approach is taken when reviewing literature based on the discussion above. To get an overview of the topics PMS and SPMS, broad searches were made on Web of Science and different keywords were explored. Then two specific searches were made. One of them regarded PMS and "performance measurement system" were topic searched in Web of Science, and the results were sorted on highest citations, and the top articles scanned for relevance. After the scan, 4 articles were selected on PMS. The other search were a topic search on supplier performance measurement with the keywords "supplier performance" and "performance measurement". It generated 33 results and all titles and abstracts where then scanned to filter out any non-relevant articles, such as articles regarding environmental performance measurement or mathematical models. This scan resulted in 13 articles that were used. To fill some gaps, mostly regarding types of metrics, backwards citation was used on the 13 articles found from search, to identify more relevant sources that were highly mentioned. This resulted in 4 more articles regarding SPMS making the sources on the subject 17 in total. These 17 articles were read and from these, SPMS success factors were identified and are explored in the literature review. A table of each articles' mentioned success factors can be found in Appendix B: Success Factors. After data collection, additional 4 sources were added to expand on perspectives that were highlighted during interviews, fill gaps in the literature review and would assist the analysis. In total 25 sources were used in the literature review. See Appendix A: Literature Review for a list of all searches and sources used in the literature review.

2.3.3 Empirical Study

Conducting a case study demands a lot from the researcher compared to other methods. Since procedures of case studies are not routinized and information are collected from real-world situations researchers need to make good decisions about data collection, take advantage of unexpected opportunities and avoid bias. Case study researchers need to ask good questions, be good listeners, stay adaptive, have a good understanding of the studied issue, avoid bias and conduct research ethically. (Yin, 2014) Therefore good preparation of the empirical study will be crucial in order to make qualitative research.

Yin (2014) lists 6 sources of evidence that can be used in a case study: documentation, archival records, interviews, direct observations, participant observation and physical artifacts. Interviews can offer targeted information collection and capture individual perspectives of the participants. However, interviews have drawbacks such as response bias and bias due to poorly designed questions, which need to be tackled. One important principle that can increase validation is using multiple sources of evidence. This is often called triangulation where a finding can more convincing if it is confirmed by another source. (Yin, 2014)

In this study, the primary source of data collection is interviews. To gain an initial understanding about Outnorth's situation, views on supplier performance and to test questions

for the main interviews, 2 pilot interviews were held, one with employees from purchasing and operations respectively. The data from the pilot interviews were only later used to a small extent in section 4.3 to describe the order process, and to aid the creation of the interview guide. All other information stated in the empirics chapter comes from the main interview stage and documents. After the literature review was conducted, an interview guide was created based on in. The questions regarded supplier aspects, supplier issues, metrics, strategy; communication and the full interview guide can be found in Appendix D: Interview Guide. A semi-structured interview was used, containing primarily open-ended questions, but also closed questions with specific alternatives. (Höst et al., 2006) This helped explore the interviewees opinions about topics and also generate tangible data for comparison respectively. Interviews were conducted with 10 employees at Outnorth from multiple different departments and functions, including purchasing, finance and operations, see Appendix C: Interviewees for the full list. This was done to allow involvement of multiple perspectives in the analysis and to validate the findings. Notes were taken during the interviews and the main points were summarized right after each interview. Data was also collected in the form of documents, in this case the company strategy, in order to be able to triangulate and confirm results from the interviews.

After the results from the data collection were analyzed, metrics suggestions were created. To increase construct validity and to help create specific and suitable metrics a workshop with 5 employees from different apartments was held. In the workshop, participants gave feedback on the proposed metrics created and suggested different definition variations. This was only to validate the metrics created and did not have any major impact on the final metrics design. Only small definition changes were made afterwards, tailoring the metrics to the organizational needs. The first metric suggestion presented in the workshop along with the feedback can be found in Appendix F: Workshop.

2.3.4 Analysis

One of the four general strategies for analysis Yin (2014) mentions is relying on theoretical propositions, which is also the one mostly used in this study. This involves using existing literature, frameworks and propositions as a basis for the analysis. (Yin, 2014) The findings from the literature review constitute a base for the whole study, shaping the interview design and analysis. A theoretical framework was created based on the literature review that was used for the analysis, see section 3.5. This framework consisted of three major steps and aided the analysis, providing a natural flow for both the analysis and written report. In the analysis, only the unit of analysis was regarded to help keep it focused. Essentially, this is the case that is analyzed which in this study is the company in question, Outnorth, and its suppliers.

Three steps were carried out for the analysis:

1. Coding
    - o After data collection, the interview notes were systematically read to identify keywords. To facilitate this process, all interviewees' answers were summarized in an Excel spreadsheet where these keywords were recorded.
2. Identification of themes
    - o The coded material and identified keywords were grouped into broader themes. For example, individual keywords like "late deliveries", "on-time delivery" and "delivery accuracy" could be grouped under the broader theme of delivery reliability. These themes represented patterns that proved valuable for the analysis that related to the research questions. The structure of the written analysis drew on, among other things, these key themes.
3. Conclusions and Recommendations
    - o When themes were identified, a SPMS for Outnorth could be designed. Due to the coding and identification of themes conclusions could more easily be drawn and research questions could be answered.

2.3.5 Share

Lastly, the insights gained from the study are going to be shared both to the company and to academia. After literature review, empirical study and analysis, the written report is finalized and distributed to both the faculty and the company. Moreover, the findings from the study is also presented to the company in a more condensed and easily understandable to help it learn and gain value from the study.

2.4 Research Quality

The research quality of case studies within logistics have been lacking and which is a problem needing to be addressed. To ensure high quality, researchers need to be educated in research methods and have knowledge about proper quality criteria. (Pedrosa et al., 2012) According to Yin (2014) there are four different quality criteria that can be evaluated in order to test a study's quality which are construct validity, internal validity, external validity and reliability. These criteria will be described and reflected on regarding this study, in the following sections.

2.4.1 Construct Validity

Construct validity concerns identifying correct operational measures of the phenomenon being studied, accurately measuring the intended phenomenon. To increase construct validity the phenomenon should be able to be defined in terms of specific concepts and operational measures need to be matched to those concepts. Out of all criteria, case studies is most criticized for having low construct validity due to subjective judgments influencing the selected measures. One way to counteract this is through using multiple sources of evidence. (Yin, 2014) As mentioned before, this was done through interviewing employees from multiple departments, asking both qualitative and quantitative questions and using documents to verify the findings. A workshop where the metrics were validated by Outnorth were also incorporated. However, documents only existed for one of the areas examined, the strategy, which lowers the construct validity.

2.4.2 Internal Validity

If the results of a research study accurately can establish a causal relationship between variables being investigated, without the influence of external intervening factors it has internal validity. This is primarily a concern for explanatory case studies and since this study does not aim to find any causal relationship between variables, lacking internal validity is a primary issue. (Yin, 2014)

2.4.3 External Validity

External validity regards whether a study's findings are generalizable and applicable beyond the immediate study. In order to ensure external validity the design of the research questions is at the core. To have external validity, research questions should be stated during the research design phase and must be formulated in a way so that learnings can be applicable outside the specific case. In a single case study, the findings also need to be connected to previous literature to confirm the gained insights. (Yin, 2014) Even though this is a single case study for a specific company, steps have been taken to increase external validity. In this study the research questions were formulated during the planning phase of the study, only modifying minor words for clarity during the later stages of the process. The company and its situation will also be described in depth to allow readers to judge applicability of the case. Lastly, In the discussion and conclusion chapter of this study, the findings are also linked to the literature review for achieving external validity. However, even if these things described were done to increase external validity, the single case study makes is difficult to draw broader conclusions with certainty.

2.4.4 Reliability

Reliability evaluates if a study's findings and conclusions can be replicated by a later researcher by following the same procedures as used in the study. This regards studying the same exact case again, not using the same procedure on a different case. In order to achieve

high reliability research procedures need to be thoroughly documented. (Yin, 2014) Mainly, this chapter should give a good understanding of the procedures used to conduct the study. Appendix A: Literature Review along with the Appendix D: Interview Guide can also give insight into what sources were used and how interviews were conducted. Furthermore, the theoretical framework created based on the literature review also contained several steps which were conducted during the analysis. This will provide the reader with additional insight into the research process and can be found in section 3.5.

3 Literature Review

The literature review in this study is based on 25 sources and serves to establish a theoretical foundation for the data collection and analysis. It explores key concepts and findings from existing research on PMS, performance measurement system, in general, and SPMS, supplier performance measurement system, in particular. First the review delves into the definitions and roles of a PMS highlighting their strategic importance for organizations. Then it also defines SPMS and examines success factors for SPMS implementation. Additionally, the review discusses various types of metrics used in SPMS. Lastly, a framework is created by synthesizing the insights from the literature review.

3.1 Performance Measurement System

3.1.1 Definition

Neely et al. (1995, p. 80) define performance measurement as the "process of quantifying the efficiency and effectiveness of action". Performance is simply measured to monitor if organizational goals are met and if customers are served with greater efficiency and effectiveness compared to competitors. To evaluate the organization, a performance measurement system, PMS, can be implemented which is a "set of metrics used to quantify both the efficiency and effectiveness of actions". (Neely et al., 1995, p. 81) This definition is the most often used within academia, however, due to diverse and multidisciplinary performance measurement research, there is multiple definitions and little consensus on what the concept encompasses. (Franco-Santos et al., 2007)

3.1.2 PMS Roles

Even if a PMS is used to measure an organization through a set of metrics a PMS can have multiple areas of application. Franco-Santos et al. (2007) argues that the only strictly necessary role for a PMS is measuring performance, simply monitoring progress and evaluating performance in itself. Often however, a PMS is implemented for additional reasons and strategy management is the most common of them as it is included in a majority of PMS definitions. A PMS can be used to help to revise the strategy, implement strategy and align actions with it. (Franco-Santos et al., 2007) A PMS can also be used to facilitate internal communication between departments, from management to the organization and external communication to outside stakeholders. Communication is also often used in junction with strategic management as the PMS can communicate the strategic values and objectives to change organizational behavior. (Micheli & Manzoni, 2010) Furthermore, the system can utilized to influence behavior, by incorporating rewards or penalties tied to the metrics, and can therefore be used to manage relationships. (Franco-Santos et al., 2007) Lastly, PMSs can provide learnings and possibilities for improvements in the organization. For example, different metrics can create both feedback and feedforward loops, providing insight into both

past action effects and give suggestions for future strategic implementation. To ensure the effectiveness of the PMS it is crucial to clearly define the purposes for the PMS and for each metric during the design phase. The purposes should then be communicated during implementation. After all, the benefits of any measurement system depend on both its design and its intended roles. (Micheli & Manzoni, 2010)

3.1.3 PMS Stages

In PMS research there has been a prevalent focus on the early stages of system design, selecting the right performance measures, although PMS implementation involves much more than that. Bourne et al. (2000) categorizes three steps that organizations go through when designing PMS systems. These are: the design; implementation; and use of the performance measures. The design step involves identifying key objectives and stakeholder needs and designing the metrics themselves in accordance with these. Implementation regards the creation of procedures and system which collect the data needed for measurement. Use is the process of utilizing the system for its purpose, assessing the company's performance. (Bourne et al., 2000) Use of the PMS can also involve interpreting the metrics to make decisions to improve performance, and giving rewards based on the PMS. (Franco-Santos et al., 2007) To take action, Bourne et al. (2000) recommend a forum, for example regular meetings, where metrics are discussed and the course of action is decided by managers who have responsibility over the measured performance. Although not one of the 3 design steps, updating and reviewing is also mentioned to be critical for PMS implementation. Management should ensure that the PMS reflects the strategy over time, and metrics should therefore be changed if the strategy shifts. (Bourne et al., 2000)

3.1.4 PMS and Performance Management

If a PMS not only monitors performance, but also has other roles, some of which were explored in section 3.1.2, the more it gets intertwined with performance management. (Franco-Santos et al., 2007) In most cases a PMS aims to facilitate performance management, which is the process of aligning company actions and performance with strategy and business objectives. Performance management can include strategy development, creation of action plans, incentive schemes, all of which a performance measurement can support. Essentially, PMS is the information system in performance management which can be used by managers to provide feedback regarding their management efforts and help redirect them to increase performance. (Bititci et al., 1997)

For a PMS to effectively facilitate performance management, a PMS must consider its business environment. The PMS environment encompasses all the internal and external factors that can affect the design and implementation of a PMS. (Neely et al., 1995) This includes the company's strategy, processes, culture, attitudes, responsibilities, relationships, and information technology. However, there are two key environmental considerations for performance measurement systems to support performance management in the organization (Bititci et al., 1997):

1. Deploying the strategy and business objectives in the whole company
2. Promoting integration between functions and levels within the company.

These two are discussed in the following sections.

3.1.5 Strategy

In literature there is a strong consensus that a PMS should be based on strategy. A PMS can then be used to measure the success of the strategy implementation but also used to test the validity of the strategy itself, challenging the strategic assumptions. (Bourne et al., 2000) By carefully selecting the measures based on strategy and monitoring them, managers can influence behavior in the organization and align them with the strategy and objectives, potentially increasing performance. This also makes PMS a tool for managers to implement their strategies. To create a PMS that measure and control strategy, companies can first clearly define their mission statement and create strategic objectives with the mission in mind. The different functional areas in the organization should also be analyzed to understand how they can contribute to the strategic objectives. After this, strategically aligned metrics, that enforce the strategic position, can be created. (Neely et al., 1995)

Since strategy is such a core concept to PMS, and companies need to clearly define their strategy before creating a PMS, it is important to understand what a strategy is. According to Porter (1996), strategy is essentially a unique position taken by a company, relying on a set of activities that differs from competitors in order to create value. Central to a strategy is tradeoffs, setting organizational priorities and choosing certain activities. Not all activities are compatible with a sustainable strategy and a company should select and prioritize activities that enforces the strategic positioning. If activities and priorities are aligned with the overarching strategy, they complement each other and enforces the strategy, the unique position. In all, the alignment of activities makes it difficult for other firms to imitate as it needs to imitate the whole system and its processes, not just the activities. (Porter, 1996) Alignment of activities is what a PMS aims to do. It facilitates consistency in decision-making in line with the strategy, which is crucial for strategy realization. A PMS aims to influence behavior in a way that highlights activities and tradeoffs that enforces the strategy. (Neely et al., 1995)

3.1.6 Functional integration

As stated earlier, a PMS exists in an environment that should be considered during design and use. One main aspect of the environment is the internal functions within the company and their interactions with other functions. (Bititci et al., 1997) Companies are often divided into departments, that help organize the company allocating tasks and responsibilities to a specialized group. However, this separation of departments can also cause silo-thinking, where groups within a company create boundaries, hindering, skill- and information sharing between each other. Processes are also often sub-optimized within a certain department, not accounting for how these actions affects the whole organization and sometimes, complete systems are adopted in isolation without integration with other functions. This damages cross-functional cooperation and end-to-end processes within the organization which ultimately affects customers and the bottom line. (de Waal et al., 2019) If poorly created, PMSs can contribute to the silo mentality and cause conflicts between departments. For example, marketing departments might be evaluated based on sales growth or market share, while manufacturing departments might be assessed based on cost reduction or efficiency. These differing objectives can lead to misaligned incentives and hinder overall organizational performance. (Neely et al., 1995)

To combat silo-thinking and encourage functional integration, plenty of things can be done. Managers need to implement clear values and common goals within the whole organization to create a sense of community. Furthermore, the company should move towards process thinking and increase collaboration, standardizing and integrating processes across the organization. In practice this can take the form of creating cross-functional teams that together solve problems with knowledge of whole system, decreasing the risk of sub-optimizing. (de Waal et al., 2019) If designed and implemented correctly a PMS can also help integrate the different functions. As discussed earlier, aligning the PMS with strategy facilitates functional alignment with strategy and makes the departments work together. A properly designed PMS promotes part ownership of problems, eliminating the mindset of that issues are somebody else's faults. (Neely et al., 1995) By establishing a shared set of metrics that are understood and agreed upon by all parties involved, organizations can foster transparent communication and a collaborative environment. Regular meetings and implementation of information system can additionally be utilized to further break behavioral and political barriers. (Gunasekaran & Kobu, 2007)

3.2 Supplier Performance Measurement System

3.2.1 Definition

In today's business environment, suppliers have a large impact on value creation and there is emphasis on establishing good byer-supplier relationships, BSR. This have made selecting and evaluating suppliers become important to companies, essentially applying performance measurement outside the organization. (Prahinski & Benton, 2004; Simpson et al., 2002) In this study the term Supplier performance measurement is defined as "the process of

quantifying the efficiency and effectiveness of supplier action" and connects the concepts of evaluating suppliers with performance measurement (Hald & Ellegaard, 2011 p. 890; Maestrini, Maccarrone, et al., 2018, p. 298; Neely et al., 1995, p. 80). This is often done through a supplier performance measurement system, SPMS, which is defined as "a set of metrics used to quantify both the efficiency and effectiveness of supplier action" (Hald & Ellegaard, 2011 p. 890; Maestrini, Maccarrone, et al., 2018, p. 298; Neely et al., 1995, p. 81). These metrics are used to evaluate or select suppliers based on different aspects important for the buyer, such as quality, delivery, and financials. (Simpson et al., 2002) When suppliers do not meet satisfactory performance, it is assumed that the SPMS can be used to communicate and motivate suppliers in order to improve the relationship and results. (Prahinski & Benton, 2004)

3.2.2 SPMS Roles

As a SPMS is a type of PMS, most remarks regarding PMS are also true for SPMS. However the applications of the system are slightly different as the system aims to measure supplier performance instead of internal process performance. In their study, Schmitz and Platts (2004) identifies functions of SPMS and highlights the most important ones of these. Communication with suppliers is primarily the main application area as a SPMS can help communicate dissatisfaction with suppliers, provide basis for rational argumentation and increase authority in communication and negotiation. Another main function is internal communication as a SPMS can help share supplier performance information in the organization, especially to the purchasing department who deals with the suppliers. It can also increase the importance of logistics for the purchasing decisions. Lastly, it provides documentation of performance which can be used for discussion. (Schmitz & Platts, 2004)

Similarly, Maestrini, Luzzini, et al. (2018) identify two main roles of a SPMS: diagnostic and interactive use. Diagnostic use is the traditional control function of an SPMS, where suppliers are measured against a benchmark, and metrics are reported to suppliers. This approach applies constant pressure on suppliers to achieve targets, sometimes utilizing penalties or incentives to drive improvement. On the other hand, interactive use involves suppliers in a dialogue regarding the SPMS, their performance, and improvement opportunities. This can include data sharing, discussion of results, and mutually agreed improvement plans. While these two functions may sometimes conflict, they play complementary roles in an organization and should according to the authors, both be utilized. Diagnostic use can be more effective in improving short-term operational aspects, such as service levels and quality, while interactive use can contribute to long-term performance increases as suppliers develop strategic capabilities. (Maestrini, Luzzini, et al., 2018)

3.3 SPMS Success Factors

In order to explore how a SPMS could best be implemented in order to be successful, literature was analyzed to find success factors for implementation. If a success factor were mentioned in the results, discussion or conclusion in an article, it was counted. From 17 different articles about SPMS, 8 different success factors were identified: strategically aligned metrics; balanced metrics; include relationship metric; involvement of all relevant departments; involvement of suppliers in design or review; communication and relationship building; transparent performance sharing; and supplier commitment. The success factors and their respective mention frequency can be seen in figure 2. These are elaborated on one by one in the following sections, except for include relationship metric which is discussed in section 3.4.5 together with the other metric categories. The whole list of articles and their respective success factor can be found in Appendix B: Success Factors.
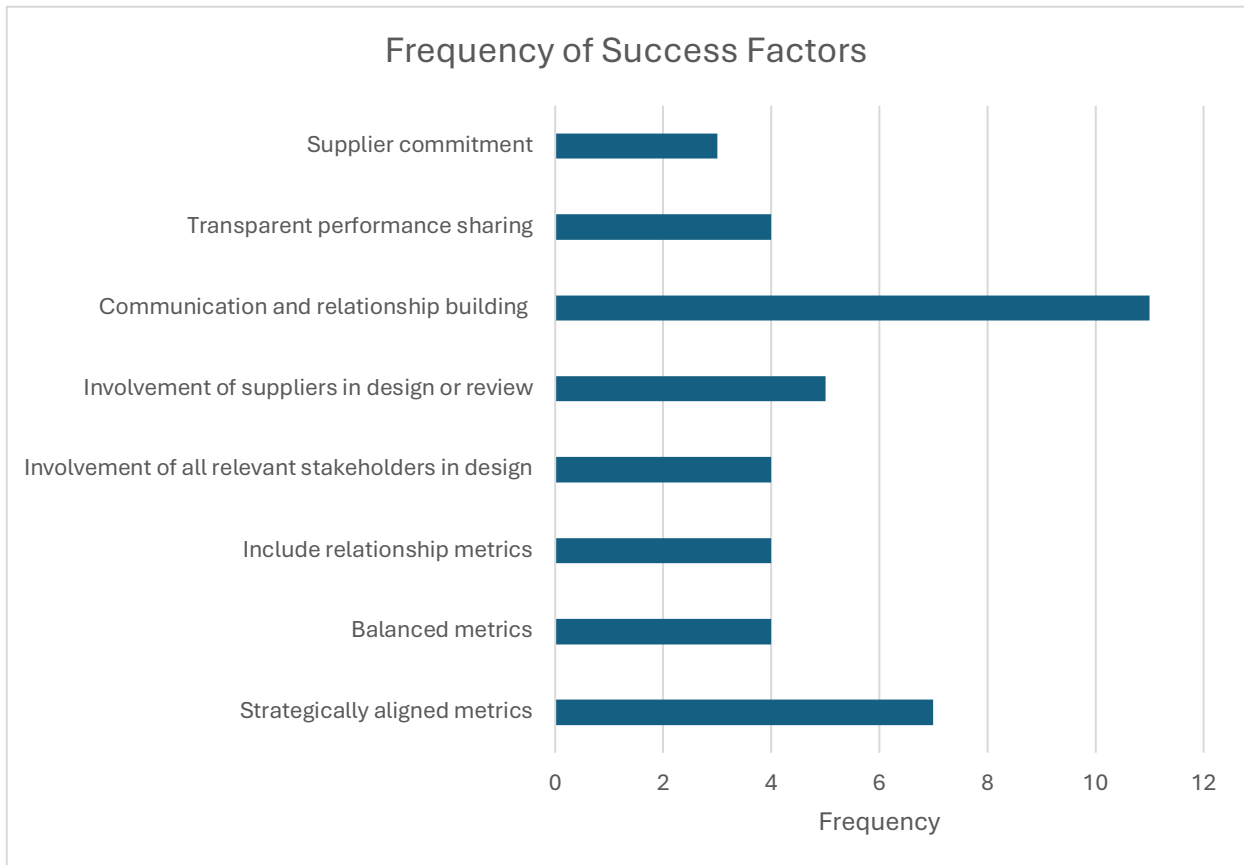
Figure 2: Frequency of success factors in scanned literature, see Appendix B: Success Factors for the full list. The two success factors strategically aligned metrics as well as communication and relationship building are seen as critical.

Of these 8 success factors, 2 stand out and can be regarded as critical: connection to strategy and communication and relationship building. These are seen as especially crucial for the success of a SPMS. This is not only because they are mentioned the most but also because other success factors are connected to these two. Firstly, the success factors balanced metrics, include relationship metrics and involve all departments in design are all connected to the

success factor connection to strategy. Involving all departments in the design is described to facilitate a SPMS connected to strategy through a shared definition of objectives. Involving all departments will also ensure that the metrics are varied with a balance between metric categories that represent the strategy correctly. (Hald & Ellegaard, 2011; Luzzini et al., 2014) Secondly, the success factors transparent performance sharing, and supplier commitment are connected to communication and relationship building. Relationship building often include and transparent performance sharing and both can improve the BSR. (Maestrini et al., 2021) Furthermore, communication and relationship building and supplier commitment are also interrelated as the former can improve the latter. (Huang & Keskar, 2007) With everything considered, there are hence two major success factors: connection to strategy as well as communication and relationship building.

3.3.1 Balanced Metrics

Organizations should opt for a balanced set of metrics, including multiple dimensions of supplier performance. (Simpson et al., 2002) A SPMS should be complete, not ignore any important aspects and be tailored to the needs of the relevant stakeholders. The term balanced originally comes from the balanced scorecard model. Mainly this model is concerned with measuring more aspects than only financial ones as it gives a better more well-rounded system. (Gunasekaran et al., 2004) Furthermore, both soft and hard metrics have their place in a SPMS. (Kannan & Tan, 2002) To exemplify, metrics measuring buyer supplier relationship, BSR, should be included as well as metrics regarding operational performance, in dimensions as cost reduction, delivery and reliability. (Cousins et al., 2008)

3.3.2 Strategically Aligned Metrics

There is no single set of metrics that fits all organizations and selection needs to be tailored to the specific context the system is used in, aligning it to the company strategy. (Gunasekaran et al., 2004) Remarkably, the same reasoning used in PMS literature is also used with SPMS. To align the SPMS with strategy, business objectives must first be established and clearly defined. The sequence starts with defining the corporate strategy and then basing the individual business unit strategies, such as the purchasing strategy, on it. The individual units' strategies should also align with each other, making every department contribute to the overall business position. (Luzzini et al., 2014) Then, if the SPMS and its metrics is created to reflect the strategy, the idea is that suppliers align to the SPMS, which in turns aligns them with the corporate strategy. (Prahinski & Benton, 2004) Since a SPMS creates a list of priorities which are communicated to the supplier, it is crucial for the SPMS to be well aligned with strategy. If it is not, a supplier aligned with the buyer company strategy, but misaligned with specific metrics can become confused, frustrated and de-motivated. (Hald & Ellegaard, 2011) Lastly, it is important to review and update the metrics regularly if needed. The business environment and strategy change over time, making updates needed for the SPMS to stay relevant. (Gunasekaran & Kobu, 2007)

3.3.3 Involvement of Relevant Stakeholders

In order to ensure an effective and strategically aligned SPMS, all relevant stakeholders, particularly internal stakeholders or departments, have to be engaged in the design and implementation of the system. By including all relevant business units in the creation of the system, the company can use its wide range of skills and knowledge to set the right priorities for the system. Selection of metrics should be made from business objectives accepted by the whole organization and come from collaboration, or even negotiation between departments. This cross-functional cooperation is key, even if one department, often purchasing, is primarily responsible for evaluating the suppliers. Involving multiple departments can also contribute to a state of consensus of how suppliers perform and how they should be evaluated, especially if everyone is included early in the process. (Luzzini et al., 2014)

When creating a SPMS, every actor involved in the process will have certain preconceptions and interests that will be expressed in the final system in some way. If these are not controlled and balanced, these interests can cause the SPMS to diverge from the company strategy. (Hald & Ellegaard, 2011) This makes internal power structures crucial to consider during design of an SPMS as the company can not only be regarded as a whole unit. Different departments interact with suppliers in different ways, are in constant interaction with each other and frequently compete for authority within the organization. These power structures can in turn affect the implementation of SPMS. The SPMS can also change the power structure, or at least the perceived power of departments within an organization. (Schmitz & Platts, 2004)

3.3.4 Involvement of Suppliers

Not only including different internal business units, but also involving suppliers in the design process and listening to their feedback can increase the chances of a successful SPMS implementation. It is important to for a company understand its suppliers and analyze their perspective, in order to design metrics that benefits both the buyer and the supplier. (Romule et al., 2020) Moreover, Maestrini, Maccarrone, et al. (2018) concludes that early involvement of suppliers, deciding on common goals and metrics, makes the supplier take active interest in the SPMS which increases trust and often leads to corrective actions. Despite the benefits mentioned, involving suppliers in the design stage still remains a very rare phenomenon in practice. (Maestrini, Maccarrone, et al., 2018)

3.3.5 Communication and Relationship Building

Communication is key in successful SPMS implementation and it is one of the main reasons why SPMS lead to increased performance. (Cousins et al., 2008) A SPMS can even be regarded as a powerful communication tool that helps buyers, the buying company, and suppliers as well as internal departments communicate. (Schmitz & Platts, 2004) A SPMS facilitate buyer-supplier engagement and communication as act of measuring supplier

performance creates opportunities for communication and collaboration between buyers and suppliers. (Cousins et al., 2008) This can involve meetings, creation of common goals, workshops and visits which help create common norms and personal relationships between the supplier and buyer. These norms and relationships promote joint problem-solving, trust and integration between the companies, which in turn increases supplier performance. For example, a good relationship with a supplier can help the parties deal with conflicts and exceptional events more easily such as shortage of supply. Therefore, companies should use the SPMS in a preemptive manner, communicating, building relationships and trust with suppliers, instead of only taking action and communicating when a supplier's performance metrics are below expectation, during exceptions. (Cousins et al., 2008)

All literature does not agree on to which extent communication has a direct effect on performance. Cousins et al. (2008) identify a direct link between socialization and performance, stating that interaction and relationship building fully mediate the positive effect of SPMSs. Jääskeläinen et al. (2023). Prahinski & Benton (2004) on the other hand, recognizes communication as crucial for SPMS but state an indirect relationship with performance. Communication increases other SBR aspects, such as supplier commitment, which in turn can, but not necessarily will, increase performance. (Prahinski & Benton, 2004) Nevertheless, building strong relationships is a complex process, involving gaining trust, sharing information and involving suppliers in the SPMS. (Jääskeläinen et al., 2023)

3.3.6 Transparent Performance Sharing

For communication and relationship building to work, sharing of information needs to be transparent and clear. In an article by Maestrini, Maccarrone, et al. (2018) discussing SPMS communication, the authors identify four communication modes for SPMS: no sharing; synthetic sharing; performance sharing with explanation; and joint design. Buyers using synthetic sharing, only sharing a condensed score, received no or very low interest from suppliers in the SPMS. Instead, suppliers became annoyed by the SPMS. For example, when suppliers received a good score, they tended to overestimate their performance, forgetting the SPMS and continuous improvement. Furthermore, when they received a low score, they started to question the legitimacy of the SPMS, as they had no insight in how the system worked and on what dimensions their performance were lacking. Buyers using performance sharing with explanation or joint design instead, got suppliers significantly more interested in the SPMS, highlighting the importance of transparent information sharing. (Maestrini, Maccarrone, et al., 2018)

In their article, Hald and Ellegaard (2011) define five dynamics that shape and reshape information in supplier performance communication. These are: representing; reducing; amplifying; dampening; and directing, see table 6, and can happen in different parts of the communication chain between the buyer and supplier. For example, representing arises at the buyer in the design phase and dampening happens during SPMS use in the buyer-supplier

communication. When information is modified in an unfavorable way, hindering transparent communication, these dynamics can arise. Intransparency is often caused by seemingly harmless actions but can significantly alter information, negatively impacting the success of SPMS outcomes. To combat this the authors suggest adopting a process approach, mapping the activity chain and identifying where the concerning dynamics originate. (Hald & Ellegaard, 2011)

Table 3: Types of dynamics that can arise between the buyer and supplier. These dynamics happen along the chain of communication with representing solely happening internally at the buyer and directing happening solely at the supplier. (Hald & Ellegaard, 2011)

Dynamic Type	Dynamic	Issue	Communication Direction
Representing	Performance communication to suppliers is based on the perceptions of specific interest groups.	Supplier feedback becomes misaligned with strategy and more aligned with prioritizations and identities from specific department, not the whole organization.	Evaluating Buyer
Reducing	Buyers reduce the available information in the communicated performance data. This can happen when multiple complex performance dimensions are reduced to a single score.	Performance signals are sent to suppliers, inadequate in its scope and strategic connection. This hinders suppliers from having the information needed to support essential performance improvement.	
Amplifying	Buyers exaggerate bad performance, adding or dosing information to fit their notion of how to best evoke performance improvement.	Suppliers becomes de-motivated and feels unfairly treated due to unreasonable performance demands.	
Dampening	The supplier dampens negative performance feedback to avoid de-motivating and damage to the BSR. Opposite to amplifying.	Can restore goodwill sometimes, but will mostly confuse suppliers, making them question the reliability of the evaluation.	
Directing	Buyers or suppliers hinders information from arriving at the intended contact or destination.	Information is partially or completely blocked, making it more difficult for the right employees to change their behavior or course of action.	Evaluated Supplier

However, some companies see advantages with non-transparent supplier performance communication, making it a strategic choice. Firstly, companies could just use the SPMS to identify a poorly performing supplier and then switch, if the product is not seen as strategic and the relationship is not worth investing in. Secondly, supplier performance could be communicated only through a single score to allow for opportunistic behavior. Not being fully transparent with suppliers can give buyers more room in negotiations, gaining more bargaining power. (Maestrini, Maccarrone, et al., 2018)

3.3.7 Supplier Commitment

How the buyer designs the SPMS and communicates supplier performance is crucial, yet the successfulness of a SPMS is also dependent on suppliers, especially their commitment to the buying firm. In general, committed suppliers perform better than uncommitted suppliers. (Patrucco et al., 2021) For uncommitted suppliers a SPMS is not as effective as buyers influence the supplier's performance to a lesser extent. Therefore, buyers should put more effort into SPM with committed suppliers than those with low commitment. (Prahinski & Benton, 2004) Having similar values and objectives as a supplier is beneficial for the successful use of a SPMS. Similarities in culture serve as a foundation to build the relationship on and helps align objectives. A reason for this may be that suppliers more easily interpret performance information. (Jääskeläinen et al., 2023)

Thankfully for buyers, supplier commitment is not constant as buyers can take action to increase commitment from suppliers such as involving suppliers in the SPMS. Suppliers can both be involved during design, with collaborative metric and goal creation, and during use, utilizing feedback to review the SPMS. (Maestrini, Maccarrone, et al., 2018; Prahinski & Benton, 2004) This improvement of commitment can hence in turn improve performance. (Prahinski & Benton, 2004)

3.4 Types of Metrics

When it comes to the design of a SPMS, choice of metrics is essential. As discussed, it is critical that the metrics spans over different areas of performance and are derived from strategy. The choice of metrics is a difficult one as there are essentially countless of options. To illustrate, in a survey with 162 SPMS users, over 120 different metrics were identified, not counting different definitional variations. (Simpson et al., 2002)

To be able to analyze and discuss metrics on a broader level, metrics are often grouped into categories measuring different dimensions of performance. To establish what categories were both common and important, literature regarding different SPMS metrics where scanned. In total 5 categories were identified based on category divisions from journal articles. In table 4 these categories are reported along with examples of metrics in each one. In the coming sections, these categories are discussed in terms of their scope and significance. Examples of

specific metrics from each category will also be given. However, it is important to note that the optimal metrics for a company heavily relies on its strategy. These examples will only aid in metric selection, not decide it. (Maestrini, Martinez, et al., 2018) Companies should not hesitate to create their own metrics and categories to make a system that truly reflects the strategy and business model of the company. (Huang & Keskar, 2007)

Table 4: Summary of different metric categories, examples of their respective metrics, and the categories counterparts in literature. These metric categories in the leftmost column were derived from the categories in journal articles which can be seen in the rightmost column.

Metric Category	Metric Examples	Categories in Literature
Financial Performance	- Price of product - Price variance - Supplier profitability - Payment terms	- Cost and Financial (Huang & Keskar, 2007) - Financial (Maestrini, Martinez, et al., 2018) - Net profit (Romule et al., 2020) - Price; financial condition; invoicing (Simpson et al., 2002)
Product Quality	- Quality requirements met - Product defects - Product returns	- Product/Service Exchanged (Maestrini, Martinez, et al., 2018) - Product Quality and Availability (Romule et al., 2020) - Quality and Process control; Certifications (Simpson et al., 2002) - Delivery and Service Quality (Kannan & Tan, 2002)
Delivery Performance	- On-time delivery - Delivery quantity accuracy - Delivery documentation accuracy	- Reliability (Huang & Keskar, 2007) - Delivery and Service Quality (Kannan & Tan, 2002) - Operations (Maestrini, Martinez, et al., 2018) - Delivery (Simpson et al., 2002) - Supplier delivery performance (Gunasekaran et al., 2004)
Flexibility	- Supplier order lead time - Order flexibility	- Flexibility (Huang & Keskar, 2007) - Planning (Maestrini, Martinez, et al., 2018) - Responsiveness (Kannan & Tan, 2002) - Flexibility and responsiveness; Cycle time (Romule et al., 2020)

Relationship and Information Sharing	• Goal alignment • Commitment • Communication frequency • Buyer percentage of supplier revenue • EDI integration	• Relationship and Intangible Capabilities (Maestrini, Martinez, et al., 2018) • Customer Relationship (Simpson et al., 2002) • Information Sharing; Strategic Commitment of Supplier to Buyer (Kannan & Tan, 2002)

3.4.1 Financial Performance

Financial metrics often regard costs related to purchasing from suppliers but can also include other financial areas. (Huang & Keskar, 2007) Maestrini, Martinez, et al. (2018) describe the financial dimension as aspects that directly impact profit, thus metrics that assess cost reduction or revenue growth. Being profitable is often the goal of a company and this can therefore be a significant area to measure. However, there are often an overemphasis on financial measures, and companies need to understand the importance of a balanced approached of performance measurement. (Maestrini, Martinez, et al., 2018)

Historically, price has been one, if not the most important aspect on which suppliers have been evaluated on. However, placing a heavy emphasis on this is not necessarily optimal, as there are other aspects much more important to consider. Instead of just the price of the products, all costs, both direct and indirect, regarding the specific supplier should be evaluated and accounted for. A low price of a product can be offset by factors such as poor product quality and delivery accuracy, resulting in higher costs for the company than the initial price suggests. Today, price has become more of an order qualifier than an order winner, as aspects such as delivery often are order winners instead. (Simpson et al., 2002) Although not regarded as the most important, price and cost can still have its place in an SPMS. Examples of such metrics are, price of product, price variance, price reduction initiatives, delivery cost, total cost of sales. (Huang & Keskar, 2007; Kannan & Tan, 2002; Maestrini, Martinez, et al., 2018; Simpson et al., 2002)

There are also plenty of other financial metrics, such as metrics evaluating financial stability, taking for example liquidity, profitability, economic value, credit score into account. (Huang & Keskar, 2007; Kannan & Tan, 2002; Romule et al., 2020; Simpson et al., 2002) These can be included in a SPMS in order to determine a company's health and risk profile as it could affect supplier performance. (Romule et al., 2020) Additionally, payment terms and inventory turnover can be an important aspect to include in an SPMS as it impact the liquidity of the buyer. (Huang & Keskar, 2007)

3.4.2 Product Quality

Quality is in literature often mentioned as a crucial evaluation criterion and Simpson et al. (2002) is determines it to be the most used category within companies for performance

measurement. Kannan and Tan (2002) describe quality it as the ability to deliver according to buyer expectation. Moreover, quality is a broad term, that can include many aspects which makes it difficult to define and describe. Product quality, process quality and service quality are all examples of different dimensions of qualities. While SPMS literature often aggregates these dimensions, product quality is the most common type. To bring clarity in terms of quality, this study defines product quality as the metric category.

Product quality can be very important, especially for manufacturing companies. High-quality delivered goods directly impact the buying company's quality, which can be a differentiating factor when competing with other firms. (Kannan & Tan, 2002) Sufficient product quality is essential for creating value for customers and Gunasekaran et al. (2004) argues that product quality along with timely deliveries and good, flexible service is the core of meeting customer's needs. Moreover, Romule et al. (2020) also mention that product quality is one of the most important indicators for a high-performing company.

Similar to the concept of quality, quality metrics described in literature are sometimes vague in their definitions. Examples of this is metrics like quality management, preventive measures and even quality of delivered goods. (Gunasekaran et al., 2004; Simpson et al., 2002) These are highly subjective if not further defined. However, there are also more specific metrics mentioned in journal articles that are good indicators of product quality. According to Simpson et al. (2002), customer quality requirements met is a very common metric, which judges the quality based on the pre-defined customer requirements, and is used by 77% of surveyed companies in their study. Measuring quality system certification can also evaluate quality based on a standard. (Huang & Keskar, 2007) Lastly, number of defects or number of returns is also a metric that can be used to measure product quality. (Huang & Keskar, 2007; Maestrini, Martinez, et al., 2018; Morgan & Dewhurst, 2007)

3.4.3 Delivery Performance

Timely and adequate deliveries are often mentioned as one of the most important attributes for a SPMS. Gunasekaran et al. (2004) describe it as the primary determinant of customer satisfaction, emphasizing its importance for buying companies. In a study by Romule et al. (2020), 95% of respondents strongly agreed with supplier delivery performance being an important aspect to measure. Why this is depends on several reasons. Poor delivery performance can result in shortages, excess products, and high returns which in turn can affect the customer service level of the buying company, damaging its reputation. Supplier delivery performance is also directly linked to financial performance of the buying company. (Romule et al., 2020) Moreover, late deliveries, incomplete deliveries or inaccurate delivery documentation can hinder coordination and cause issues for operations at the buying company resulting in an interrupted material flow. (Maestrini, Martinez, et al., 2018)

Certain delivery performance metrics are widely used in literature and can be regarded as specifically important. The most used one is on-time delivery. (Huang & Keskar, 2007; Kannan & Tan, 2002; Maestrini, Martinez, et al., 2018; Simpson et al., 2002) It can both be measured as the percent of orders that are received in the same day, or timeslot, as the estimated time of arrival, ETA, or the percent of orders that are received before the date they are needed. (Huang & Keskar, 2007). The second common metric is quantity accuracy. (Huang & Keskar, 2007; Kannan & Tan, 2002; Simpson et al., 2002) This metric can have many different names, but it essentially measures that the right things are delivered and can for example be measured as the percent of orders that are received in full without missing items. Thirdly, delivery documentation accuracy and potentially also delivery documentation adequacy can be important to measure as it can disrupt operations. (Kannan & Tan, 2002; Maestrini, Martinez, et al., 2018; Morgan & Dewhurst, 2007; Simpson et al., 2002) Lastly, measurements regarding damaged goods is sometimes also included in SPMS. (Huang & Keskar, 2007)

3.4.4 Flexibility

Flexibility fundamentally refers to the ability to quickly respond and adapt to unexpected changes in the market or the company's environment. With the current global market uncertainty have increased forcing supply chains to be more flexible and responsive. High responsiveness is also a good indicator of high performing organizations and practitioners agree that measuring responsiveness is key to include in an SPMS. (Romule et al., 2020). In a study conducted by Kannan and Tan (2002) the criteria quick response time in case of emergency, problem, or special request where rated 4.4 of 5 on importance, being the fourth most important criteria of supplier evaluation. Moreover, the study concluded that there was a correlation between supplier responsiveness and return on assets of the buyer. This suggests that responsive suppliers also makes the buyer able to respond more quickly to the market and utilize their recourses better, making responsiveness beneficial to include in SPMS. (Kannan & Tan, 2002)

Flexibility and responsiveness can be measured through metrics such as cycle time, supplier lead time or cost of expediting delivery which assess how fast the supplier can deliver customer orders. Metrics measuring the supplier's ability to change capacity and respond to changes in demand are also relevant for SPMS. This can be measured through order flexibility and production flexibility. (Huang & Keskar, 2007)

3.4.5 Relationship and Information Sharing

Good BSR are critical for supplier performance, as discussed in section 3.3 about success factors. A good relationship with frequent communication and information sharing builds trust and aids joint problem-solving which increases performance. (Cousins et al., 2008) Including relationship-related metrics in the SPMS can consequently promote higher supplier performance. (Kannan & Tan, 2002) Metrics assessing the health of buyer-supplier

relationships encourage interactions between the two parties which in turn improves the relationship. (Cousins et al., 2008) This category of metrics is often not perceived as important for practitioners as other categories, but can surprisingly have a significantly high impact on performance. (Kannan & Tan, 2002)

Most metrics assessing BSR and information sharing are rather subjective as it can be difficult to measure the strength of a relationship in terms of a unit. This is necessarily not a problem and Kannan and Tan (2002) argues that it is important to still include metrics that are subjective when evaluating suppliers. Examples of such metrics are customer focus, goal alignment, mutual trust, willingness to share information and supplier commitment. (Kannan & Tan, 2002; Maestrini, Martinez, et al., 2018; Simpson et al., 2002) Despite this, other more objective indicators of a good BSR exist. Communication frequency or number of meetings can indicate relationship building and communication follow-up time could potentially be measured to judge BSR. (Kannan & Tan, 2002; Maestrini, Martinez, et al., 2018; Schmitz & Platts, 2004; Simpson et al., 2002) Supplier commitment can also be measured via buyer's orders as percentage of total supplier revenue. (Kannan & Tan, 2002) The metrics EDI integration and documentation accuracy are two examples of information sharing metrics. (Kannan & Tan, 2002; Simpson et al., 2002)

3.5 Theoretical Framework

From this literature review, a framework for developing a SPMS has been created. The framework is based on aspects discovered in the literature review and acts as a basis for the analysis and discussion. It consists of 3 stages: Understand the business environment; Design the SPMS; and Give recommendations for Use. These are individually discussed below:

1. Understand the Business Environment
   - Identify strategic objectives
   - Identify internal stakeholder priorities
   - Examine supplier communication
2. Design the SPMS
   - Define roles for the SPMS
   - Define critical supplier aspects for the company
   - Design metrics
3. Give Recommendations for Use

3.5.1 Understand the Business Environment

For a PMS to not only be a measurement instrument but also support performance management, it is key to understand the business environment before SPMS design. To do this, three sub-steps can be carried out; identify strategic objectives, identify internal stakeholder priorities and examine supplier communication. Perhaps the most frequently considered aspect of the SPMS environment is the strategy. The strategy should guide metric creation so that metrics both evaluate the strategy implementation and align suppliers with it, promoting increased supplier performance. Therefore, a sub-step is to identify strategic objectives.

Moreover, internal stakeholder priorities regarding suppliers are also crucial to identify to make the SPMS cover all important aspects and will make all departments use their joint experience and knowledge in SPMS design. This will lead to a more widely accepted system. Because this study aims to create a SPMS, the supplier-related priorities of internal stakeholders, including the departments, will be identified. This involves determining what different stakeholders within Outnorth consider as important characteristics of a supplier and what dimensions of supplier performance needs to be improved. In this context, the internal stakeholders are individuals or groups within the company who are affected by or have an interest in supplier performance. To understand the internal stakeholders and their relations with suppliers, the order process is examined to identify the most relevant stakeholder groups. By understanding the order process, it becomes clear which departments and roles are directly involved in interactions with suppliers and are therefore most impacted by their performance.

Furthermore, the communication between Outnorth and suppliers should also be examined. Since communication is a main role of a SPMS, it is important to understand the buyer-supplier communication practices, both in regular interactions and during exceptions or issues. Examining the frequency, mode, and content of communication can reveal potential bottlenecks or areas for improvement. This will facilitate the design of the SPMS and the formulation of recommendations to support communication and relationship building.

3.5.2 Designing the SPMS

After understanding the business environment, the SPMS can be designed while taking the environment into consideration. The design of the SPMS consists of 3 sub-steps. Firstly, the roles of the SPMS should be defined based on the needs of the organization and issues that a SPMS potentially can bridge. The defined roles will make it clear what the SPMS aims to contribute to and how it can be used in the organization. Secondly, the critical supplier aspects should be defined. This is essentially the aspects and characteristics that Outnorth value the highest in a supplier and what type of supplier performance is the most important-The critical supplier aspects should be derived from both strategy and the key supplier-related priorities of internal stakeholders, combining these two perspectives. Lastly, the metrics are created based on the defined critical supplier aspects. Because these in turn are based on the strategy and the internal stakeholder priorities, the SPMS should be aligned with strategy which was identified as a critical success factor, and cover all key areas for Outnorth. The major metric categories identified in the literature review should also be used to aid metric creation although to a lesser extent than the environment.

3.5.3 Give Recommendations for Use

To contribute to performance management and increased performance within Outnorth, additional recommendations of improvement are given. The recommendations should be based on the analysis of Outnorth's business environment and the literature review, addressing identified issues and outlining how the SPMS can be best utilized to facilitate improvement in these areas and fulfill its defined roles. These are only recommendations for Outnorth as they will not be implemented as a part of this study.

4 Empirics

In accordance with the framework created in the literature review, the empirical study has been conducted to collect information regarding Outnorth, its strategy, internal and external supplier performance communication and processes. The data collection was based on interviews made with employees and internal documents. The results from the data collection is presented in the coming chapter.

4.1 Background

The company investigated in this study is Outnorth, one of Sweden's largest Outdoor retailers. Although they have two physical stores in Växjö and Kalmar, their revenue is negligible compared to Outnorth's website, outnorth.se, where almost all revenue is generated. Sweden is Outnorth's largest market, Norway the second largest and together all the Nordic Countries stand for about 90% of the total revenue of 1 050 million SEK. Outnorth have two offices, one in Växjö and one in Gothenburg, where its warehouse also is situated.

In total Outnorth have over 130 employees and 6 major departments, see figure 3. There are three departments with a supporting role; HR; Finance; IT and three which have core functions: commercial; purchasing; and operations. These core departments are the ones directly affected by the suppliers as they are responsible for the different part of the overarching supply chain process. Purchasing and Operations are the two largest departments and are divided into different sub-functions. Within purchasing there is both the category function which selects Outnorth assortment and places the orders pre-season and Need and Demand which are instead responsible for re-order purchases and monitoring orders. Operations are divided into Inbound Logistics, Warehouse and Customer support. Inbound Logistics works with managing the inbound flow, import and customs. The warehouse function mostly contains manual labor-workers receiving, packing and picking but some employees are also responsible for warehouse management and outbound deliveries. The commercial team are also one of the core functions and is responsible for driving sales, creating campaigns and managing the website. However, this department have been under a reorganization during the time of the study. Of the core functions, all are located at the Växjö office except for the inbound logistics and warehouse teams.
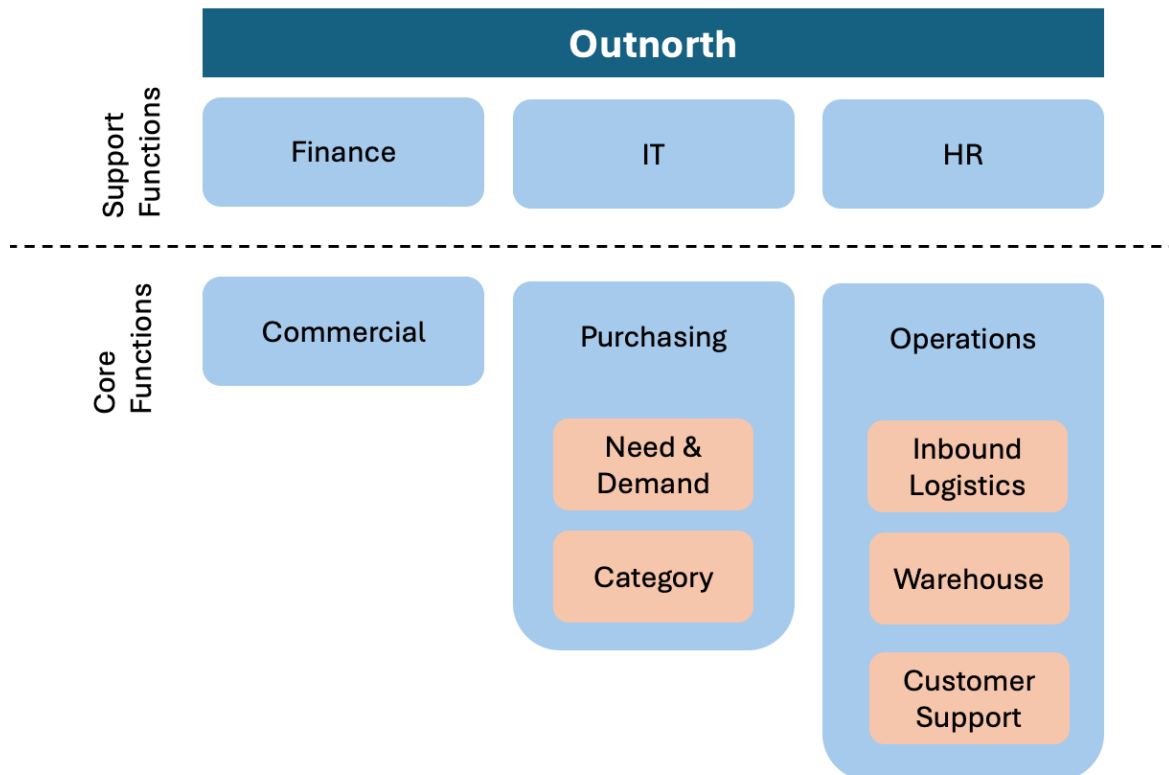
Figure 3: An overview of Outnorth's different departments and functions.

Within Outdoor, Outnorth have products within almost all categories, among them tents and sleeping bags, canoes, skiing equipment, shoes and freeze dried meals, but the largest category is clothing. Due to its broad assortment, Outnorth sells products from a large number of brands, and sources from a large variety of suppliers consisting of both supplier's for Outnorth private label brands and name brands. In the last years, Outnorth have increased focus on their private label brands, referred to as own brands, to provide good more inexpensive alternatives to customers and to increase margins on the sold products. Although these products share the same warehouse, picking and packing process and outbound shipping, the sourcing process are completely different. The products are collaboratively designed by Outnorth and its suppliers and shipments come in bulk with Outnorth overseeing distribution from the suppliers' site to the own warehouse.

The vast majority of sales however, comes from name brands and the around 500 suppliers vary heavily in size. It is also these suppliers that are the subject of this study. They include large international supplier's such as Amer Sports (owning brands as Peak Performance, Arc'teryx and Solomon) with over $4.4 billion in revenue, big national suppliers such as Haglöfs with around 1 billion SEK in revenue and small ones like Casström with 15 million SEK in revenue. Moreover, the ordered value from these suppliers differs significantly but no supplier stands for more than 10% of the total purchasing cost. All these varieties together make the supplier base of Outnorth complex to manage, with vast differences in suppliers' order and delivery processes, levels of commitment and varying degrees of attention required

from Outnorth. The general order process for these suppliers is described further in chapter 4.3.

4.2 Strategy

Since one step of the theoretical framework specifies identifying strategic objectives, the following chapter will regard Outnorth's strategy. First, the strategy is described based on a strategic document made by the Outnorth management. Then, the employees' view collected through interviews is stated. It is important to note that some details have been left out for confidential purposes, but all relevant information to the study is included.

4.2.1 Corporate Strategy

Recently, Outnorth's new CEO started an initiative to create a new strategic ambition for 2027, which includes a vision, goals, strategic areas and initiatives. Outnorth's vision is "to be the best online retailer for Scandinavian Outdoor" and they also have five overarching goals for 2027, see figure 4. (Outnorth, 2024)

Strategy

"To be the best online retailer for Scandinavian Outdoor"

Strategic Goals

- Yearly revenue growth with stable EBIT
- Operational Excellence
- Excellent customer experience
- Excellent customer experience

Strategic Areas

| Profitable and sustainable growth | Outdoor Products Expert | Customer experience & Satisfaction |

| Data driven organization & automized processes | Most attractive e-commerce employer |

Figure 4: Outnorth's Strategy, divided into vision, goals and strategic areas.

To reach these goals Outnorth have broken down their strategy into 5 strategic areas. These are described in turn here.

Profitable and Sustainable growth

In recent years, Outnorth has grown significantly in revenue, doubling it within the 5 last years, and aims to continue growing at a sustainable rate with a stable profit. To allow this, multiple initiatives have already been initiated, or is planned to be, within the following years. One of these initiatives is to avoid overstocking, reducing the need for clearance sales or obsolescence. To do this, Outnorth wants to increase inventory risk sharing with suppliers, making both Outnorth and the supplier responsible for excess stock. An additional objective is to increase the ratio of re-orders relative to pre-orders which improves stock flexibility. (Outnorth, 2024)

Outdoor Products Experts

Outnorth are committed to becoming experts within outdoor products, essentially meaning to be a respectable retailer especially known for their expertise within the category of outdoor. Outnorth have selected critical segments to focus on as they are important for Outnorth's main business and build trust towards consumers. Within these categories, Outnorth must sell high quality products that are from top brands and are in high demand to signal their identity as an outdoor product expert. All employees, especially category managers, need to improve their knowledge of these selected segments to be able to fulfill the strategy. Key is also to build stronger relationships with partner brands, especially the premium brands. Additionally, Outnorth wants to strengthen their own brand as well as communicate their sustainability efforts better. (Outnorth, 2024)

Customer experience and satisfaction

For Outnorth to be the best online retailer for Scandinavian Outdoor, it needs to improve its customer experience and satisfaction, as the customer is core to the business. More concrete, Outnorth wants to have, a personalized and experience and inspiring marketing enabled by collecting and using data analytics technology. (Outnorth, 2024)

Data Driven Organization and Automatized Processes

Basing decisions on data instead of pure employee intuition to improve decision making is also one of Outnorth's strategic priorities. Outnorth strives to become more process oriented and use automatized processes for better efficiency. This firstly requires Outnorth to have better control of data, improving data collection, ensuring data accuracy and formatting. Outnorth also needs to have better control over their processes and be a more proactive and demanding organization. This means, to proactively identify and address process inefficiencies, confidently advocating for necessary changes from both employees and suppliers. Already this year Outnorth have created 3 initiatives to get closer to their strategic goal. They are identifying the main processes within Outnorth, recognizing the process leaders for those processes, and implementing an electronic data processing system to visualize data. (Outnorth, 2024)

Most attractive e-commerce employer

To be able to fulfill all other strategic initiatives and succeed Outnorth needs to be a outstanding employer. This involves having a high performing, skilled and cooperative workforce and being a workplace that attracts talented people. The main priority for increasing attractiveness is to steer towards being a value driven organization with clear values and goals that are accepted and known throughout the organization as well as a matching culture, creating a sense of community. Other initiatives related to this strategic area is to strengthen their leaders, have a clear business plan, incorporate individual goals for employees and be a data driven organization. (Outnorth, 2024)

4.2.2 Employees View of Strategy

During the interviews the question "What strategic objectives do you think is the most important for Outnorth, as a whole?", was asked to understand employees' view of the corporate strategy. After interviews the answers were coded into different keywords representing different strategic objectives. These were then summarized into which are displayed in table 5 and are further discussed below.

Table 5: Compilation of employees mentions of important strategic objectives at Outnorth. The mentions were divided into different strategic aspects showing interviewees' comments and mentioned frequency for each.

Strategic aspect	Interviewees' Comments	Frequency
Profitable Growth	• Increase margins and prices • Sustainable revenue • "A goal to aim toward"	6
Data Driven Decisions	• Basing decisions on shared spreadsheets • Data aid in purchasing decision	3
Customer Experience	• Create a Outnorth identity • "Keep the customer in mind" • High product availability	3
Digital Tools	• Good web platform, use of BI-tools • EDI	2
Workforce	• Collaborative Work Culture • Happy employees	2
Supplier Partnerships	• "Be a good customer"	1
Outdoor Products Expert	• Sell products with high customer demand	1
Efficient Inbound Flow	• Control over delivery dates	1
Correct Assortment	• (No comments mentioned)	1

When asked about strategic objectives the answers differed widely between employees. However, most responses were mostly regarding goals the business should aim for, not what needed to be done in order to reach them. Sometimes different keywords were used by multiple employees, however with different meanings. Profitable growth was mentioned, primarily by purchasing, as an important objective. Several respondents did not elaborate on their reasoning, but some suggested that prioritizing sales over profitability is not advisable, advocating instead for increased profit margins. One respondent mentioned that profitable growth was an important goal to aim toward, without any explanation on why. Furthermore, customer experience was mentioned by three people but with different views of how this would be achieved, with suggestions as through high product availability, or Outnorth creating a unique identity. One respondent also mentioned that it is always good to keep the customer in mind, without explaining any further implications. For most respondents, naming important strategic objectives were much more difficult than important supplier aspects and they often took a long time to answer. One respondent expressed how there had been no communication regarding strategy from the management earlier, but this had changed in the recent year when the new CEO had been appointed.

4.3 Order Process

To understand how Outnorth's different internal stakeholders are involved with suppliers, the order process is now described. It also gives a background, aiding understanding of the internal stakeholder priorities discussed in section 4.4. The process contains several steps which can be seen in figure 4. Information about the order process was gathered from pilot interviews and interviews.
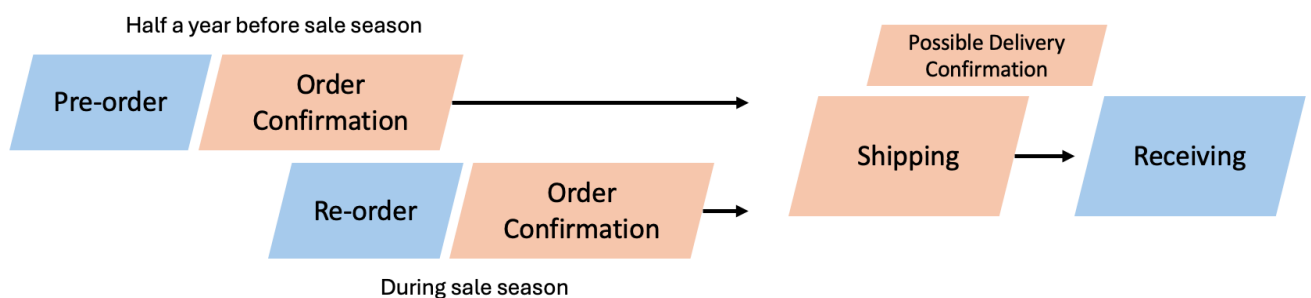
Figure 4: Outnorth's order process, shows both the pre-order flow, and the re-order flow.

4.3.1 Pre-orders

The first step in the order process is the pre-order which is the major order placed before the sale start of the product. Since clothing and outdoor products are heavily seasonal, the year is within the industry divided into a winter and summer season where the products differ greatly. The winter season contains products such as skis, winter jackets and shoes and examples of summer season items are instead hiking gear, lighter clothing and swimwear. Therefore, preorders are generally placed two times a year, ahead of each season, around a

year to half a year before sale start so the supplier can produce the ordered goods in time. The category manager at Outnorth in charge for the category initiate a conversation with a seller at the supplier and receives information about the upcoming seasonal catalogue and often also receive product samples. Then the buyer decides on the products and the quantity ordered. Since many of the products are brand new and demand is difficult to forecast, the buyer essentially must speculate on what and how much to order based on the available information from the supplier, historical data, trends within the industry and their own expertise. Moreover, the buyer often orders quantities lower than expected demand to avoid overstocking, and generally the pre-orders stand for approximately two thirds of the total order quantity. As the orders are placed product information is received from the supplier. This information is used by the commercial department, which enters creates the web-pages with product specifications before the upcoming sale season.

4.3.2 Re-orders

An order can also start through a re-order which are orders placed in-season in contrast to pre-orders. Because of uncertain demand during pre-orders, additional orders need to be placed to replenish items during the sale season. These re-orders are placed by the need-and-demand team which monitors sales and inventory data to ensure that products are ordered in the right time. There are also a classification of products that decide the inventory policy, some products are critical to always have in stock and some or less prioritized, which impacts the re-ordering process. Additionally, the need and demand team also need to coordinate with the commercial team that creates sale campaigns during the sale seasons. The commercial team creates the sales based on specific trends or based on overstocked products.

4.3.3 Inbound Shipping and Receiving

After goods are ordered, they are confirmed, shipped and then received at the Outnorth warehouse. After a placed order, an order confirmation is sent to the need and demand manager with an estimated time of arrival, ETA. The lead time of re-orders are roughly 1-10 days, and the lead time of pre-orders can be several months, although always with an ETA before the planned sale start. When goods are sent from the supplier, a confirmation in the form of a delivery note is usually sent to Outnorth's delivery inbox e-mail. This is the only delivery information that sent to Outnorth after the order confirmation and before the goods arrive, unless the purchasing department actively reaches out to the supplier. The order confirmation can be formatted in various ways and include information such as delivery number, quantities, purchase order number, tracking number and ETA, depending on the supplier. To try to increase the completeness and consistency of confirmations, Outnorth have recently created a standard for confirmations to their delivery inbox. This initiative intends to improve inbound planning and help obtain information for orders with close ETA-date or during absence of a physical delivery note. However, implementation of this standard has varied among suppliers. Furthermore, because delivery is paid for and controlled by the supplier Outnorth have low control and insight into the delivery process and are reliant on the

supplier's communication and information.

When goods arrive at the warehouse, they are initially placed in the inbound area for inspection and subsequent put-away. During inspection, goods are examined for damage and are matched to the delivery note to verify that the delivery is complete. Products are not scanned individually but each box is noted, and sample checks are conducted. If the goods pass inspection, they are recorded into the ERP system and the products are then put away for storage. For suppliers using EDI, the products already exist in the ERP system and does not require manual entry. Typically, received goods are put away on the same day or the day after delivery. However, during periods of heavy workload, pallets may remain in the inbound area for several days.

4.3.4 Relevant Stakeholders for SPMS Design

Based on the order process, internal relevant stakeholders for the SPMS can be identified. These stakeholders are then the ones that need to primarily be considered during the SPMS design. In total, three main departments can be identified as major stakeholders for the process: purchasing, commercial and operations, the core departments of Outnorth. A main stakeholder is the purchasing department which consists of category managers and need and demand managers. The department places the re-orders and pre-orders and is also in daily direct contact with suppliers, managing the communication. The operations department is also a major stakeholder. It is responsible of the supply chain, including inbound which receives the goods from suppliers. Lastly, we have the commerce team. These are not as important as the operations and purchasing team but are still a relevant stakeholder as they oversee the website and create campaigns and marketing.

4.4 Supplier-related Priorities of Internal Stakeholders

To identify the what the relevant internal stakeholders prioritize among suppliers, according to the theoretical framework, the open question, "In your opinion, what aspects characterize a good supplier?" were asked. This allowed respondents to freely suggest and discuss key supplier aspects. Additionally, the question: "In your opinion, what are the biggest issues regarding the suppliers?" was asked to examine the challenges Outnorth were facing was and how a SPMS could potentially help monitor and combat these, the interviewees where asked. After the interviews the results were coded and then different themes were identified in the form of 3 prioritized supplier aspects, which can be seen in table 6. For each interviewee's answers, the challenges and characteristics described in their responses often regarded the same areas. The aspects where Outnorth experienced issues with suppliers also were regarded as the most valuable traits in suppliers. Due to the intertwining of these concepts, the themes are discussed one by one in the coming sections.

Lastly, respondents also had to choose between different supplier aspects, see Appendix E: List of Supplier Aspects Used in Interviews, stating two most important and an additional 3 important factors. This closed question was asked to collect quantitative data regarding supplier aspects, forcing interviewees to clearly prioritize between aspects. The data from the closed question is presented in section 4.4.4.

Table 6: Identified themes which interviewees deemed important regarding suppliers. These themes are listed as well as what sub-characteristics they comprised of and how many % of respondents mentioned them.

Themes	Sub-characteristics	Frequency of Mention (%)
Correct Information	• Correct product data • Correct order information • Lives up to information	80%
Delivery Reliability	• On-time • Right products • Sorted and marked pallets	70%
Strong Relationship	• Service minded • Available • Trustable • Long term commitment • Risk sharing	50%

4.4.1 Correct information

Information was the single most mentioned area, both stated as a challenge and a key aspect. The emphasis on information sharing was a uniting factor as 8 out of 10 employees from several parts of the organization mentioned it as important. According to multiple employees, it is common that suppliers do not deliver sufficient information according to what is promised, including both false and missing information. Moreover, the main benefit of suppliers communicating correct information is increased process efficiency. When suppliers distribute correct information, it is easier to plan and optimize the physical and workflows. However, if information is incorrect or lacking, employees need to put unnecessary time into acquiring the needed information and stops the contingency of work until the information is received. Multiple respondents expressed that other issues often can be minimized if timely and correct information is received. Unexpected or unidentifiable proposed significant challenges and good information sharing could compensate for these types problems.

Although employees from operations and purchasing recognized correct information to be key, they highlighted different kinds of information. The major area that operations employees valued concerned delivery documentation. One respondent mentioned missing delivery notes to be a major problem. If both the physical delivery note is missing and no

digital one has been sent to the delivery inbox e-mail, there is no information on what has been delivered. This stops the material flow and the products cannot be received, put-away and sold until Outnorth has contacted the supplier and gotten a response. During campaigns when products often arrive a few days before sale start this can pose as a major problem. Another issue is information regarding late deliveries, as some suppliers rarely gives heads up when deliveries are delayed. This issue is discussed in the section regarding deliveries, but essentially it stops ability to efficiently plan inbound operations.

For purchasing employees, product information is instead crucial. In connection to a purchase order, suppliers must give information on product characteristics, including country of origin, product number, weight, size, color and more. The product page on the website is then based on this information. Therefore, information needs to be complete, so that the product can be published as well as accurate and detailed for an optimal customer experience. Some information such as size and weight are also important for the operations department as it is used to manage inventory and delivery to customers. A category manager expressed that many sellers at the supplier mainly are enthusiastic about outdoor products and sales, often forgetting or putting off providing sufficient information due to a lack of interest. EDI were also mentioned by an employee to improve the information distribution by automatizing it, removing much manual work.

4.4.2 Delivery Reliability

The importance of deliveries being important were communicated by multiple respondents. Primarily the operations department stressed the importance of deliveries and accentuated the large issues Outnorth are experiencing with it. Essentially all operations employees brought up deliveries as the single main aspect, although sometimes with different angles. Three respondents within purchasing also mentioned deliveries as important but did not share the same views on the severity of the delivery challenges.

On-time delivery and delivery delays were one of the mentioned aspects with within the area of deliveries. According to one employee, the major issue with late delivery delays is that they are rarely communicated, either in time or at all. This makes Outnorth unable to plan inbound operations efficiently. For example, if a large quantity of wares is being delivered within a number of days, Outnorth increases staffing for the specific period. If a handful of deliveries are multiple days late, Outnorth are overstaffed for the current period, leading to increased staffing costs. If delayed deliveries contain products that are out of stock, it also causes a loss in sales, especially if there is a current campaign for the overdue products. Lastly, late deliveries also require action from employees, putting time into contacting the supplier, locating the delayed shipment.

Two employees mentioned the issue of wrong or missing products in shipments. Missing products required the inbound personnel to conduct extra inspections to ensure they had not

missed anything, which were very time consuming. Furthermore, because of not scanning individual items, missing or wrong items are not always identified before received into the warehouse. If so, the problem is often recognized when the products are loaded into the Autostore, automated storage and retrieval system, which potentially is weeks after the products are received and can require unloading of the Autostore bin. Even worse, the issue can first be identified at the customer, affecting their experience. These two employees also mentioned correct sorting and marking of pallets and boxes were important.

4.4.3 Strong Relationship

In interviews, several employees emphasized the significance of relationship focus and communication for a superior supplier. Good communication was brought up by all five purchasing employees and two within operations. The term good communication encompasses various aspects, respondents primarily highlighting availability and timely communications of issues as key components. A clear personal contact was also mentioned in regard to good communication. Moreover, trust was seen by some as core to a good relationship. Trusting suppliers with delivering on what is promised, being honest and transparent. Two respondents mentioned opportunistic sellers to be an issue for Outnorth, but that it could negatively affect the supplier as well. If a seller exaggerates product reviews, demand or quality, Outnorth might end up buying too much the upcoming season but will then the coming ones reduce their volume.

Instead of transactional based relationships, Outnorth wants to form long-term relationships and increase commitment from important suppliers. This was expressed by multiple employees as focus area for the purchasing department and was done by creating value for both parties in the relationships. Especially those suppliers that create high value for Outnorth. There were several issues described as connected to lack of partnership. Firstly, brands are in almost all cases not replaceable and there is at the same time a trend in the industry for suppliers to create their own channels to customer, limiting their number of retailers. Keeping popular brands is key for Outnorth being competitive within the industry. Secondly, excess stock at the end of season due to the unpredictable demand is an issue. This results in Outnorth resorting to heavy discounts to clear the inventory which reduces the margins and profitability. If instead the supplier and Outnorth shared the inventory risk, the parties would act in a way that supported profitability of both parties, long term. The last issue was limited availability of suppliers' product catalogues which hindered Outnorth from buying certain items, sometimes without any explanation behind why. According to the respondents, all these issues tree issues were related to the larger issue of low commitment and could be resolved with increasing commitment, but also good contract negotiation.

4.4.4 Ranking of Supplier Aspects

As mentioned earlier, the interviews included a closed question regarding key supplier characteristics and from a list with 23 aspects respondents had to select the two most important and then 3 important ones, making the respondents to prioritize between aspects. The aspects were derived from the literature review and pilot interviews, covering all categories identified in the literature review, see Appendix E: List of Supplier Aspects Used in Interviews. The aspects were originally divided into the categories identified in the literature, which can be seen in Appendix E, listing relationship and information sharing in the same category. However, this category was split into two, during compilation of the results. The answers from the open-ended questions about supplier aspects revealed that they were two different distinct issues and therefore had to be analyzed and regarded separately.
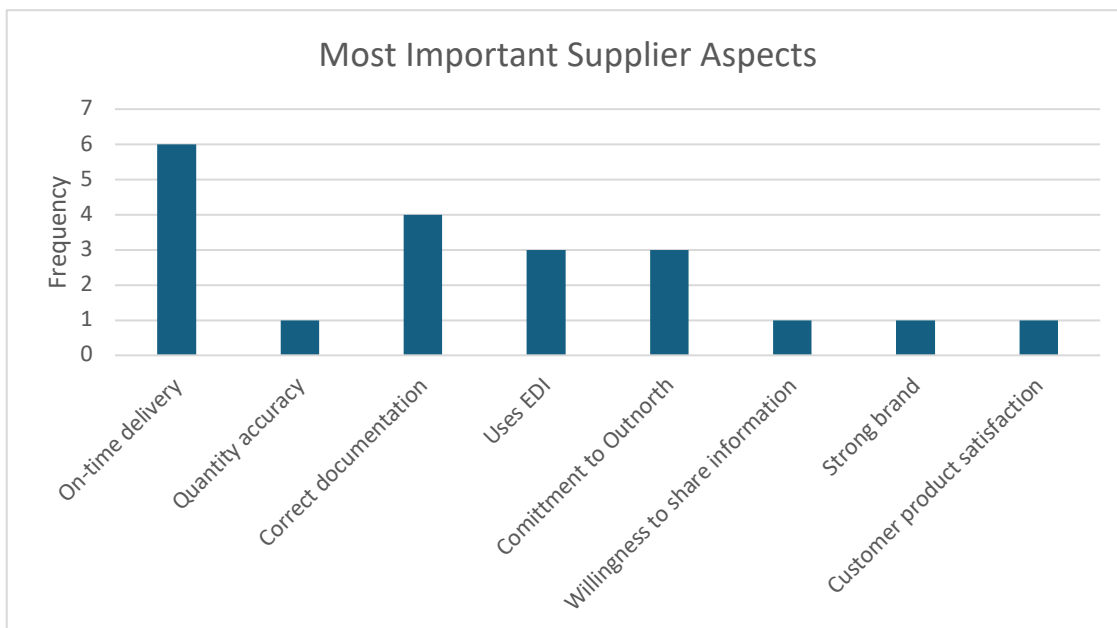
Figure 5: Most important aspects characterizing a good supplier according to Outnorth employees.

When asked for the 2 aspects that most characterizes a good supplier, 6 aspects were identified, see figure 5. On-time delivery was selected by over half of the respondents and were the most common aspect. Correct documentation were also seen as crucial, with 4 employees identifying it as a top priority, and commitment to Outnorth were selected as the third top choice. These three aspects all correspond well to the main supplier issues described in the previous sections as the employees both highly value and see challenges within the same areas. The other selected most important supplier characteristics also somewhat relates to the 3 core areas mentioned, as quantity accuracy are a delivery issue, EDI improves information sharing accuracy and willingness to share information both relates to insufficient information and commitment.
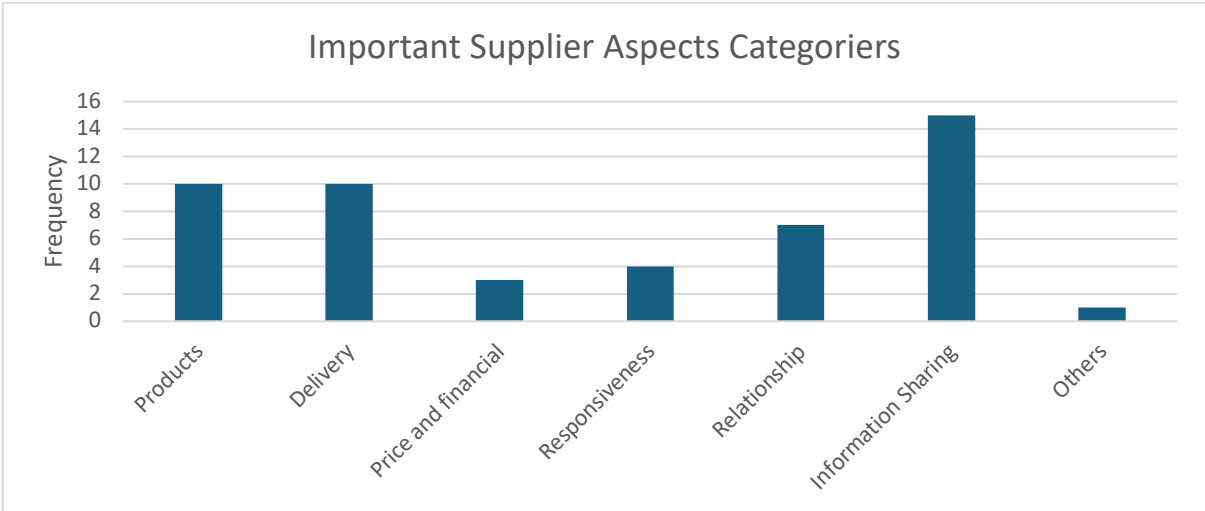
Figure 6: Important aspects characterizing a good supplier arranged by category.

When arranging all five selected aspects from each respondent into categories, a significant difference can be seen between the frequency of aspects. Information sharing is by far the most mentioned category and is very valued within Outnorth. The suppliers' products and delivery performance can also be stated as valued, accounting for around 15% of selected aspects respectively. Interesting to note is that price and financial as well as responsiveness received only one mention each, suggesting that these areas are less valued. If the selected metrics are examined for the two major departments, prioritization seems to differ between them. Operations employees selected delivery aspects significantly more than purchasing and information sharing slightly more, see figure 6. The aspects from purchasing employees were also more dispersed, selecting products, financial, responsiveness and relationship more than the operations department.
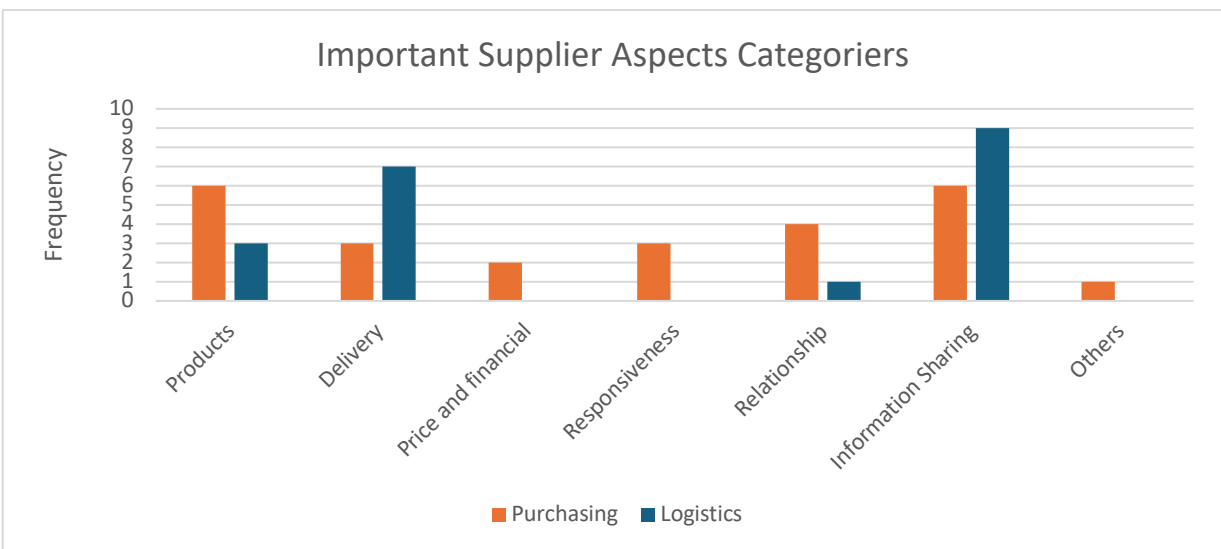
Figure 7: Important aspects characterizing a good supplier for the purchasing and operations department arranged by category.

4.5 Metric Suggestions

To understand interviewees metric preferences for a SPMS, the question "Name three to five metrics that you think should be included when evaluating suppliers" were asked. Table 7 below shows the suggestions and their frequency. Most respondents answered similarly and often without clear definition of the metrics, even when prompted. Some suggestions could not even be classified as metrics, only stating a wide area to measure such as relationship. These kinds of suggestions are not shown in the table below.

Table 7: Selection of metrics suggested by employee and the frequency of mentions.

Metric suggestion	Frequency
Customer Product Claims (% of total products)	6
On-time delivery (a timeframe of 1 and 5 days were suggested by one interviewee each)	5
Quantity Accuracy	4
Delivery precision (on-time and correct quantity)	3
Revenue from supplier products	3
Margin from supplier products	2
Communication response time	1
% of delivery packaging damaged	1
Supplier advertisement contribution (measure of commitment)	1
Frequency of backlog listed products	1
Right product information	1
Sends delivery note via email	1
EDI integration	1

Of all suggested metrics, customer product claims were mentioned the most amount of times, by 6 out of 10 interviewees. A clear emphasis is also placed on delivery-related metrics, with on-time delivery, delivery precision and quantity accuracy being the among most frequently mentioned. Some employees also proposed metrics related to financial performance, such as "revenue from supplier products" and "margin from supplier products.". There were several other metrics proposed by one interviewee each and these can be seen in table 10. One was to measure advertisement contributions from suppliers to evaluate commitment and another was to measure EDI integration among suppliers.

4.6 Supplier communication

As part of the theoretical framework presented, supplier communication is examined. This information can then be used to help SPMS design support communication and give recommendations for use of the system. To uncover how supplier performance and issues are communicated to suppliers, 4 questions were asked regarding it during interviews which can be found in Appendix D: Interview Guide.

4.6.1 Communication of Supplier Issues

The communication chain between Outnorth and their suppliers is long and can start at the operations department. If an issue is identified, either during the receiving process or in the warehouse, the warehouse team does an additional check to confirm it originated at the supplier. If that is the case the exception is entered into a digital platform, the exception file, where type of issue, priority and description is documented with appended pictures. The responsible need-and-demand manager for the supplier is also tagged in the platform and made aware of the issue. Employees in operations also have weekly meetings with need and demand managers where they discuss issues. The need-and-demand managers then contact the supplier, initially via e-mail, forwarding the information from the inbound team and discuss possible compensation. If there are repeated or larger issues, the category manager often calls the supplier's salesperson. For very severe issues, the category manager and head of purchasing can conduct meetings with the supplier, although this very rarely is the case for delivery exceptions but rather issues regarding contracts or assortment. This whole process of handling exceptions is linear, and information only travels from the customer to the warehouse to purchasing to the supplier, not the other way around.

4.6.2 Relationship Building

Outnorth are in constant dialogue with suppliers and does not only communicate with suppliers during issues. Need and Demand managers often have contact regarding administrative tasks regularly, but Category managers have a deeper level of relationships with suppliers. For them it is standard to have phone conversations at least once a week with larger suppliers' sellers and often have physical meetings about strategy ahead of every season. As many category managers and sellers often work multiple years at the same companies, they also develop personal relationships which facilitates cooperation. One interviewee stated that category managers had more respect and authority when it came to suppliers, compared to employees from other functions.

Multiple employees within purchasing expressed that being friendly, and service minded were very important for relationship building, and two purchasers stressed being keen to suppliers' suggestions and not being overly demanding. Mutual commitment was also mentioned by several interviewees as key for a BSR. A category manager stated that if Outnorth committed to buying a certain volume, suppliers would often agree to increase commitment to Outnorth, with benefits such as increasing risk sharing or lower prices. Essentially, that suppliers found the relationship valuable was important. There was a trend in the industry for suppliers to reduce the number of retailers, increasing sales via own channels. By generating value for the supplier, Outnorth could reduce the risk of being dropped.

Purchasing employees generally expressed that suppliers were susceptible to feedback and that relationships were good, expressing that most suppliers were keen to help Outnorth. One stated that weekly sales reports were sent out to suppliers every week and that feedback also

often were backed by data which contributed to change. However, friendly relations and mutual respect were standard within the industry and Outnorth a big buyer, making interviewees not entirely sure if the good relations and the following benefits depended on superior relationship management or not. According to the purchasing employees good BSR were key to high performing suppliers and gained Outnorth benefits in widely different areas as suppliers were favorable to them.

Unlike purchasing, no operations employees had insight about and could not answer the question on how Outnorth cooperated with their suppliers long term. Similarly, operations employees did not know if suppliers were prone to feedback or not. However, all responded that they did not notice any large improvements from suppliers, or at least, that improvements did not last long-term. This was also expressed by one within the purchasing team who said that suppliers listened to feedback but sometimes without lasting change. Ultimately, the majority of operations personnel were somewhat frustrated over supplier issues not being improved despite the severity. They felt that they had communicated the issues to purchasing but had not gotten a response on if anything had been done to improve the situation and the issues were still present.

4.6.3 Internal Communication

Four out of ten interviewees articulated that improved internal information sharing and conversation regarding suppliers would be beneficial to Outnorth. One brought up that every department have different views and that the Geographical distance between the two offices made forming connections with the different departments more difficult. Another interviewee responded that there are too few routines for internal information sharing which leads to important information not always being received. Lastly, one interviewee shared that employees at Outnorth does understand how their actions affect other parts of the organization. Additionally, the interviewee stated that everyone should base their decision on the same data, facilitating a common view of things.

5 Discussion

This chapter is dedicated to analyzing and discussing the results from the empirical study, using the theoretical framework as a guide. It aims to answer the research questions and design a SPMS for Outnorth, including creation of metrics.

5.1 Strategy

To create a successful SPMS, a sound strategy needs to exist, and metrics need to be aligned with it. If they are, the SPMS can help implement the strategy as well as verifying its validity. This chapter is therefore dedicated to discussing the strategy and comparing the official corporate strategy at Outnorth to the employees' views of it.

Firstly, Outnorth management have recently created their strategy and are just now starting to implement it. This is a good initiative as gives Outnorth a clear path forward and aims to help prioritize actions within the company to further strengthen its position. The strategy is also valuable for SPMS design as the metrics can be made in alignment with it. The strategy highlights some key objectives, for example: basing decisions on data; automizing processes; strengthening relationships with suppliers; and increase risk sharing with suppliers. However, as explained in the literature review, a strategic objective should come with tradeoffs and contribute to the strategic positioning. In Outnorth's case it is not always clear what tradeoffs and positioning the strategic areas strive toward. For example, the name "customer experience and satisfaction" does not in itself signal any tradeoff and customer satisfaction can be reached in several different ways. However, the initiative to "create personalized customer experience using data analytics technology" are clearly more strategic in nature, suggesting course of action is needed to achieve customer satisfaction. Similarly, when asked about important strategic objectives, most employees answered stating a goal Outnorth should aim toward, not necessarily a strategic objective. This could perhaps be explained by the difficulty to interpret the meaning of strategic objectives. However, multiple respondents had varying interpretations of the same strategic goal, suggesting a lack of clarity in Outnorth's strategy. If the strategy fails to provide a clear direction, employees may develop differing interpretations, leading to misaligned actions.

In Outnorth there also seem to be limited awareness of the strategy. Firstly, even if the majority of high-level strategic areas were represented in the employees mentions of important strategy objectives, several employees mentioned only a single or very few strategic areas, often related to their line of work. Some interviewees expressed uncertainty regarded their opinion of important strategic objectives and were hesitant to answer the question. That all employees will deem all strategic areas to be of high importance is not realistic and it is expected that employees within a department highlight strategic initiatives

regarding it. However, Outnorth's management have not managed to create a common view of strategy so employees understand and value strategic areas outside their own scopes.

5.2 Supplier-related Priorities of Internal Stakeholders

In Outnorth, certain supplier characteristics are valued higher than others by the internal stakeholders. This can be seen through analysis of both the qualitative and quantitative data collected as most employees emphasizes the same supplier aspects. However, product aspects were only highlighted in the closed question. In the following sections the supplier aspects are discussed.

5.2.1 Correct information

Information is clearly the most prioritized characteristic for Outnorth regarding their suppliers. Almost all respondents expressed the need for information unprompted, either as an issue, characteristic of a good supplier or both. The critical nature of information is further backed by the quantitative data, stating its importance for both operations and purchasing. Lack of information hinder processes across the whole organization, both material flow, workflow and information flow. These problems are a normal occurrence in Outnorth and multiple suppliers does not deliver promised information, neither in time or correct. Interestingly, receiving correct information is much less pronounced in literature than for Outnorth. This suggests a gap in literature and indicates that the existing theory may not fully capture the full significance and role of accurate information in supplier performance measurement. Since most literature regards the manufacturing industry, this discrepancy could be because too little research has involved companies like Outnorth.

5.2.2 Delivery Reliability

Deliveries as a priority is both expressed within Outnorth and literature as both state its importance for coordination capabilities and end customer service level. However, the operations department believes purchasing does not understand the importance of delivery performance. This perspective contrasts somewhat with responses from the purchasing department, who's employees often mentioned deliveries. Still, there might be several underlying reasons for the operations department's opinion regarding purchasers. Firstly, although four of five purchasers mentioned deliveries in some point of their interview, they do not share the same view of the severity of the issues. Secondly, purchasing department employees mostly state the importance of on-time delivery. This is probably because it is a primary determinant of customer satisfaction, according to literature, which purchasers value. Still, purchasing does not mention quantity accuracy, pallet sorting or product damage to be important, which operations value.

5.2.3 Relationship

Relationships and communication emerged as critical for the purchasing department during data collection but were only briefly mentioned by the operations department. Purchasers have personal contact with suppliers and first-hand experience of the effect of good communication, making them value it highly. The operations department on the other hand, has no insight into what benefits comes from it. Good relationships help resolve issues faster, gives Outnorth better access to assortment and better deals. However, to what extent buyers communication skills have positively affected relationships is difficult to establish as good BSR can be the result of the industry-specific culture or Outnorth being an important customer to suppliers. The importance of relationship on performance described in Outnorth is backed by theory as good BSR facilitates problem solving, trust and leads to high performance. This is currently not measured within Outnorth which is no exception from other practitioners as relationships are difficult and subjective to measure.

Relationship building is complex and involves multiple factors beyond communicating with the suppliers. Still, long term relationships are key and creating partnerships is a priority, both according to literature and Category managers within Outnorth. Friendly and good relations is not enough, suppliers need to increase commitment towards Outnorth, allowing integration, risk and benefit sharing more information sharing. Outnorth should also create value for the supplier by providing profits, help promote their brand and listening to suppliers' suggestions so that both parties gain from investing in the relationship.

5.2.4 Products

When it comes to supplier's products, the quantitative and qualitative data does not suggest the same conclusions. When asked to elaborate on important supplier characteristics, only two respondents brought up the importance of brands for attracting customers. However, when respondents ranked supplier characteristics, product aspects, such as low number of product defects, brand and consumer product satisfaction, it ranked the second highest of all categories. One potential explanation could be that interviewees viewed products so fundamental to the business so that it was not mentioned, and that in order to get contracted as a supplier, their products needed to be popular. Another explanation could be that the question was interpreted through the challenges they were facing, and that brand and product satisfaction were potentially not among of them. However, without further data collection, it is difficult to establish why product related aspects was not mentioned unprompted.

Compared to existing research, product quality takes on a unique dimension for Outnorth. Most SPMS literature take the perspective of a producing company where suppliers products are processed to make the final product, making supplier product quality directly affect the company's product quality. For Outnorth, that sells more than 90% of products under other brands, the whole brand ecosystems, its products and reputation also become important for attracting customers, in addition to product quality.

5.2.5 Less Prioritized Supplier Aspects

Some supplier aspects were rarely or never mentioned during the interviews. This does not necessarily mean that the aspects are insignificant, rather that other ones are prioritized higher.

Flexibility is one of these areas that were only mentioned twice but and did not receive much attention. For example, lead times were never mentioned to be important, and this could be explained through that it is a not top priority in their strategy. Outnorth receives two thirds of the total volume in large orders before seasons and relies on large stock and safety stock rather than shorter lead times.

Price were also rarely mentioned and are not seen as a top priority. Even though Outnorth strives to have good margins on products, both purchasing and selling price are often dictated by the suppliers within the industry. This makes the buying price less relevant as profit have to be earned by other means than incurring a lower purchasing price.

5.3 Supplier Performance Communication

Based on the interviews, the two major departments value supplier characteristics differently and have different views. Operations employees highlights operational aspects and see present delivery issues as the most significant. Purchasing employees value supplier relationships and product-related aspects more. This is not unexpected in an organization divided by functions but it can become an issue when communication with suppliers is shaped by the internal structures and does not represent the entire organizations priorities.

Currently as described in the empirics chapter, if issues arise in the operations department, feedback is first communicated to need and demand managers who contact the supplier to sort out the issue. However, the interactions between need and demand managers and suppliers are often limited to administrative issues. While their feedback might address immediate problems, it rarely leads to a solution of the root causes or contributes to long-term supplier performance improvement. Category managers who have frequent contact, personal relationships and more respect with suppliers are only involved in the supplier performance communication if the issue is deemed to be large or is re-occurring. Yet, there are no guidelines on what counts as large or re-occurring problem and no routines for communication regarding supplier performance issues. And due to the different views among departments, what is deemed as important for the category manager may differ largely from what is important for the logistics coordinator. This makes individual perceptions the major deciding factor, instead of collective decision, in what issues are clearly communicated to suppliers, in order to improve supplier performance.

In Outnorth, performance information travels from the operations department, to need and demand, to category managers, to sellers and then to the department of the supplier that it regards, see figure 7. This is a long and ineffective communication chain as information is slightly changed along the way altering the conveyed message to suppliers. This phenomenon, representation, is mentioned in the literature review, and makes the performance communication unaligned with the organization and the strategy. (Hald & Ellegaard, 2011) For instance, the operations department might emphasize the issue of poorly sorted pallets but as the information passes through different departments, the emphasis might shift towards other priorities, making the communication skewed.
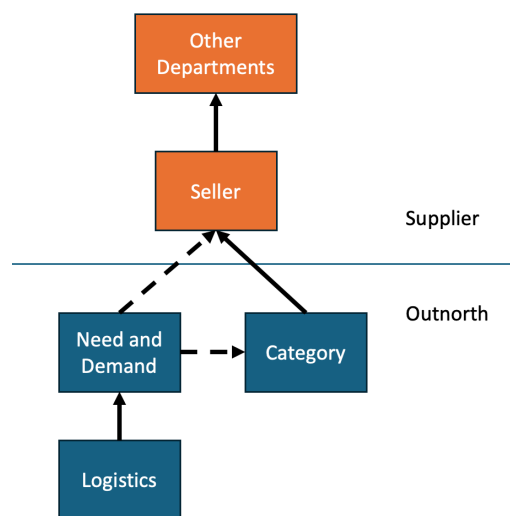
Figure 8: Figure over how supplier performance communication travels to the supplier

This issue is not only connected to performance communication but is rooted in silo-thinking. As mentioned in the literature review, this happens when departments create boundaries between each other, hindering cooperation, information sharing and end-to end processes which affects the customer experience. In Outnorth multiple pieces of evidence suggests that silo-thinking is an issue. There are different priorities between the departments, a lack of regular communication and some lack of system perspective within Outnorth. These organizational silos hinder collaboration, impede information sharing, and create barriers to achieving strategic goals. If, for example, category managers fail to consider supply chain issues and operations employees only have a narrow operational focus, this leads to sub-optimization and conflicts within the organization. Departments need to integrate and align and with each other, not only with the strategy, to strengthen Outnorth's processes. However, employees expressed a need for increased cross-functional involvement, discussions and understanding between departments. This suggests that employees are aware of the issues within the organization and may more easily accept initiatives promoting cross-functional communication or a process orientation.

Currently Outnorth seem to have good BSRs and are respected within the industry, according to interviewees. However, as established by the data collection, large issues caused by low supplier performance exist in Outnorth, making it key for them to address the issues and communicate them to suppliers. Furthermore, purchasing employees expressed that they were keen on being service minded and friendly toward suppliers. This may lead to a tendency to downplay the severity of supplier-related problems or avoid addressing them altogether which could stem from a fear of jeopardizing existing relationships. Being service minded is beneficial for a relationship, but it should not be put in contrast to communicating a clear message. As expressed in literature, different communication strategies should be used in a relationship for increased supplier performance. This includes clear communication of issues, not toning down the severity of issues, or exaggerating them, and using data to back statements. This could otherwise confuse suppliers, not understanding the extent of performance issues caused at Outnorth.

5.4 SPMS Role Definition

In this section, the SPMS roles will be defined to clearly state what the SPMS is supposed to facilitate, as the theoretical framework outlines. This will help users of the system understand the reasoning behind the design and what they can expect to use the system for. The roles are defined below based on literature as well as Outnorth's needs and are explained in the following paragraphs:

- Measure Supplier Performance
- Provide a rational basis for negotiation and discussion with suppliers.
- Facilitate internal communication and awareness of supplier related issues.

The first role of the SPMS is measure supplier performance. This is a given role of the system and according to Franco-Santos et al. (2007), also the only essential role of a PMS. However, it is still included to show, without a doubt, that the system is made to measure supplier performance.

The second defined role of the SPMS is to provide a rational basis for negotiation and discussion with suppliers. Currently, Outnorth have good relationships but are experiencing supplier issues which are key to improvement. If the SPMS is used for rational discussions and negotiations, suppliers will understand their performance issues which can lead to a performance increase. It can also strengthen the relationship through frequent dialog between the parties, as backed by literature. Moreover, one of Outnorth's strategic objectives is base decisions on rational information rather than intuition. The SPMS should hence be designed should support data-based decisions in regard to suppliers and promote negotiations and discussions based on actual data. In order to fulfill the role of providing a rational basis for negotiation and discussion with suppliers, the SPMS need to include metrics that are easily communicated and understood by suppliers, making them accept the SPMS as a valid tool in discussions.

The third role is to facilitate internal communication and awareness of supplier related issues. There is tendency of silo-thinking at Outnorth where the departments have different perspectives and employees indicate a need for more internal communication. Furthermore, evidence within literature also suggests that a SPMS can facilitate communication between departments and promote integration. By creating metrics that are deeply rooted in actual problems of the organization, the SPMS can more easily take its intended role, as departments are made aware of supplier performance outside their immediate scope.

5.5 Critical Supplier Aspects Definition

As the theoretical framework states, critical supplier aspects should be defined for the SPMS. This is done to aid metric creation and is carried out by analyzing and comparing the supplier-related priorities of internal stakeholders with the strategy. The analysis revealed a high degree of correspondence between these two factors, which will be explored for each critical supplier aspect in the following paragraphs. Taking these defined critical supplier aspects into account during SPMS design will make the system both be connected to strategy and account for the stakeholder view. In total 3 critical supplier aspects were identified:

- Correct Information
- Strong Relationship
- Delivery Accuracy
- Strong Brand and Popular Products

Correct information is the main consideration of supplier performance according to interviewees and is connected to the strategic goal of data driven organization and automatized processes. With either no or incorrect information from suppliers, decisions supported by data are either impossible to make or risk of being non-optimal. Incorrect or no information also makes processes difficult to plan and automate and can cause customer experience issues through lacking website product information or low product availability. That the significance of correct information has support by both strategy as well as by employees, signifies the importance of this aspect and suggests that is an aspect Outnorth should be concerned with. The issues prevalent with insufficient information suggests that the company should act and prioritize correct information from suppliers if they want to succeed in their business.

A strong relationship was emphasized by employees as it gives benefits such as faster issue resolving, risk sharing and better access to assortment. The strategic area outdoor category expert also supports strengthening relationships with partner brands. Moreover, the strategic area sustainable and profitable growth state that Outnorth should peruse risk sharing, which were one of the mentioned benefits of a strong BSR. All in all, it is clear to say that the importance of BSR and good brands are confirmed by both the conducted interviews and the strategy.

Delivery accuracy is identified as the third critical supplier aspect. This mainly includes on-time delivery and quantity accuracy. Among employees, good delivery accuracy is highly important as it stated to have an impact on staffing planning, and product availability for end customers. Operational excellence is also stated as a goal in the strategy, although with no more explanation what strategic actions is required for it. It could be also reasoned that an efficient supply chain is not necessarily a strategic choice, requiring tradeoffs, but crucial aspect of supplier performance as it directly affects efficiency. Worth to note is also that delivery accuracy, on-time delivery, and quantity accuracy together most suggested area of metrics by interviewees, which indicates its importance.

Lastly, although not explicitly mentioned as a primary concern during interviews, the quantitative data reveals that product-related aspects, such as brand strength and perceived quality, are highly valued by Outnorth employees from multiple functions. It was the next most selected category, tied with delivery. The emphasis on strong brands and popular products aligns with Outnorth's strategic goal of becoming outdoor product expert. As an e-commerce retailer, Outnorth's success relies on its ability to attract and retain customers by offering a curated selection of sought-after brands and products. Strong brands not only draw customers to the website but also contribute to Outnorth's reputation as a reliable source for quality outdoor gear.

5.6 Metric Creation

In this section, the metrics for the SPMS are created as stated in the theoretical framework. They are primarily based on the four prioritized supplier aspects defined in the previous section: correct information; strong relationship, delivery accuracy; and strong brand and products. The prioritized supplier aspects were in turn based on the strategic goals, and stakeholder supplier priorities identified in the empirical study. Furthermore, the metric categories and their respective metric examples from the literature review were used as an aid, however, the prioritized supplier aspects were mainly considered. After an initial metric creation, the suggestions were discussed in a workshop where Outnorth employees from different departments participated. This workshop generated some feedback which led to the final version of metrics displayed in table 9. The initial suggestion of metrics and feedback from the workshop is instead shown in Appendix F: Workshop.

The metrics are designed to be strategically aligned, be balanced and tailored to Outnorth's specific context. In the table below, the entire set of metrics can be seen. In the coming sections the metric categories are discussed and each metric is presented with its definition and explanation, providing a clear and actionable framework for evaluating supplier performance.

Table 9: The SPMS created in this study for Outnorth including its metrics' categories, name and definition.

Category	Metric	Definition
	On-time Delivery	% of orders received within the same week as estimated time of arrival
Delivery	Delivery Quantity Accuracy	% of orders that contain the correct products and quantities ordered
	EDI Integration	Uses EDI for information sharing, Yes or no
Information	Missing Delivery Documentation	% of orders with missing physical and digital delivery documentation
	Insufficient Product Information	Insufficient product information for the previous pre-order, Yes or No
	Communication	Rating 1-10 of communication based on response time; clarity and accuracy; and proactivity
Relationship	Supplier Commitment	Marketing contribution as % of order value for the supplier
Brand and Products	Customer Product Claims	Customer product claims as % of sold products

5.6.1 Metric categories

The critical supplier aspects defined can be used as a basis for creating the metric categories. Each critical supplier aspect regards a broader area of characteristics and performance that are important to Outnorth. Moreover, when compared, it can be noticed that each critical supplier aspect corresponds well to several identified metric categories in the literature review. Delivery reliability corresponds with delivery and strong brand and popular products corresponds with product quality. Both correct information and strong relationship relates to the category relationship and information sharing. This makes the critical supplier aspects for Outnorth cover three of the five areas identified from literature. However, the supplier aspects do not touch upon flexibility or financials. Even though it could be argued that these two categories are important to include in a SPMS, several articles state that the specific organization should mainly be taken into account. Therefore, the categories used in the designed SPMS for Outnorth are delivery; information; relationship; and brand and products. These areas are certain to be key for Outnorth as they are supported by the internal stakeholders and will contribute to Outnorth achieving its strategic objectives. However, Outnorth could in the future add flexibility and financial as categories to the SPMS if the strategy and stakeholders evolves to highlight these areas.

5.6.2 On-time Delivery

The metric on-time delivery evaluates to what extent a supplier delivers on the same week as estimated time of arrival, not earlier or later.

Definition: % of orders received within the same week as estimated time of arrival

On-time delivery is a given metric to include in the SPMS as it is widely mentioned in literature and regarded as very important to employees in Outnorth. Even though timely deliveries is not mentioned in the strategy, on-time delivery is still key for organizational efficiency. Here, on-time is defined as in the same week as ETA which is a large timespan. However, as the inbound planning period is one week and staffing is set on a weekly level, delivering within that planned week should currently be good enough. Since deliveries are largely inaccurate, a window of, for example, one day would yield a metric to sensitive to be valuable. Outnorth should although in the future strive to improve suppliers' on-time delivery and potentially lower both the allowed delivery window and inbound planning period to increase efficiency further. Lastly, on-time delivery is also evaluated on suppliers initial ETA even if the ETA is pushed forward at a later time.

5.6.3 Delivery Quantity Accuracy

Delivery accuracy measures the ratio of deliveries containing the right products ordered, meaning no missing, extra or wrong products. The shipment should hence contain the exact products of the corresponding order.

Definition: % of orders that contain the correct products and quantities ordered

To complement on-time delivery quantity accuracy is included in the SPMS, adding another dimension to delivery reliability. Instead of only including a metric such as perfect delivery in the SPMS, it is broken down it two to separate metrics. Quantity accuracy and timely delivery are two different aspects and measuring both will further pinpoint delivery issues and help improve them. The importance of this metric is supported by the empirical data, where multiple interviewees mentioned quantity accuracy as a significant issue. The metric itself was also suggested by almost half of interviewees and is frequently mentioned within literature.

5.6.4 EDI Integration

This metric simply measures if the suppliers and Outnorth's enterprise resource planning system are connected via EDI and uses it for data transmission during orders and deliveries.

Definition: Uses EDI for information sharing (yes or no)

The importance of EDI integration is evident in the empirical data, where employees across different departments recognized its value. It helps automate information sharing and reducing manual work which aligns with Outnorth's strategic area of Data Driven Organization and Automatized Processes. This metric is also mentioned in literature, although only by some sources. Including this metric can incentivize EDI adoption among suppliers. Although different suppliers can utilize EDI better or worse, being connected via EDI is the most important, making the metric have a binary evaluation of yes or no.

5.6.5 Missing Delivery Documentation

How often delivery documentation is missing is measured through this metric. The delivery documentation is counted as missing if no delivery note have been received along with the goods. This means that both the physical and an adequate digital delivery need to be non-existent for the missing status.

Definition: % of orders with missing physical and digital delivery documentation

Since having correct delivery information is crucial for operations and currently is a challenge, this metric is included in the SPMS. This makes Outnorth be able to identify suppliers who consistently fail to provide adequate documentation. The metric will also support the strategy of becoming a data driven organization and having automatized processes. Although this specific metric have not been found in any literature, information sharing metrics is still recognized to be important by scholars.

5.6.6 Insufficient Product Information

This measures if the product information were missing or faulty for the latest pre-order. The information is counted as missing if not all requested information has arrived before the pre-order is placed and is counted as faulty if at least one field of information is incorrect at that point in time.

Definition: Insufficient product information for the previous pre-order (yes or no)

Along with delivery information, product information is also key to Outnorth as faulty or missing information can worsen the customer experience and cause issues for supply chain planning. Like the other information sharing metrics, this also supports the strategy to base decisions on data and automizing processes. Since product information only are sent before pre-orders twice a year, only information for the latest pre-order is measured as a binary. Measuring multiple pre-orders and calculating a ratio would make supplier improvement difficult to identify as the period becomes several years.

5.6.7 Communication

This metric measures communication based on a subjective rating of employees in contact with the supplier. The supplier are rated on a scale from 1-10, with 1 being extremely poor communication proficiency, 5 being average communication proficiency and 10 outstanding proficiency. The rating should consider three areas: response time, clarity and proactivity.

Definition: Rating of communication based on response time; clarity and accuracy; and proactivity (rating 1-10)

Relationships and communication are important to measure according to literature and is valued by Outnorth's employees and strategy. This metric is subjective, but as mentioned in the literature review, subjective metrics are still valuable in a SPMS. In general, relationships are very difficult to measure objectively since they are dependent on personal relationships and subjective interpretations. And although this not an objective measure, it still can create discussions internally and externally regarding relationships and communication. Moreover, it is important that the rating is based on the three areas mentioned, as those were highlighted during the interviews. Response time is related to how fast the supplier responds to emails, calls and requests. Clarity regards the easiness to understand and the accuracy of the message. Proactivity judges how proactive the supplier are contacting Outnorth when they have problems or new information.

5.6.8 Supplier Commitment

The aim of the metric is to evaluate how supplier commitment by measuring the marketing contribution suppliers pay relative to Outnorth's yearly order value from the supplier

Definition: Marketing contribution as % of order value for the supplier

According to employees, supplier commitment is crucial as it gives multiple benefits and risk sharing can is positive affect of committed suppliers. The strategy also stresses increasing commitment with suppliers. Although commitment is very difficult to accurately measure, marketing contribution can act as an indicator of it. Marketing contribution refers to the funds provided by a supplier to support the marketing and promotion of their products by the retailer. By measuring marketing contribution, Outnorth can gain insights into the supplier's level of engagement and willingness to invest in the relationship. This metric was suggested by one interviewee who clearly explained the concept behind it. However, it is important to note that this metric alone cannot fully capture the complexity of supplier commitment, as other factors also play a significant role.

5.6.9 Customer Product Claims

The metric aims to measure the quality of a supplier's products, by tracking customer claims, essentially reports of product defects.

Definition: Customer product claims as % of sold products for the supplier

In literature, there are numerous metrics for measuring product quality. For Outnorth however, the metric customer product claims is arguably the best indicator for it. This metric was the most suggested during interviewees and it helps Outnorth evaluate product quality. A high rate of product claims could indicate issues with the quality of products sourced from a particular supplier, which could negatively impact Outnorth's reputation. Furthermore, this metric aligns with Outnorth's focus on Customer experience and satisfaction and the strategy to be reputable seller of high-quality outdoor products.

6 Recommendations for Outnorth

As described in the literature review, only measuring performance will not necessarily increase it. Therefore, as the theoretical framework states, recommendations for use are given. To help Outnorth manage its performance and fully utilize the SPMS, it is recommended that Outnorth implements three proposed improvements along with the metrics themselves which can be seen in section 5.6. The recommendations are made to improve strategic clarity; increase cross functional communication; and employ transparent supplier dialogue. Firstly, the individual improvement proposals are presented, followed by a unified discussion on integrating the SPMS with the recommendations.

6.1 Improve Strategic Clarity

Outnorth's management should prioritize enhancing strategic clarity. While the existing strategy is a good starting point, its effectiveness hinges on clear communication and understanding throughout the organization. Outnorth management should first ensure that the strategy is clearly defined with a uniform interpretation. This includes better defining and clarifying objectives such as "improve customer experience" to highlight how the objectives should be reached. Then the strategy should be actively communicated to employees, explaining the rationale behind it and highlighting Outnorth's unique position in the market. Workshops or training sessions is proposed to facilitate this process. By emphasizing the activities and tradeoffs that reinforce the strategy, employees will have a clearer direction and purpose. This shared understanding will guide daily decision-making, ensuring that actions align with the overall strategic goals, including those related to supplier management and communication.

6.2 Increase Cross-functional Communication

To break down functional silos and foster collaboration, Outnorth needs to prioritize cross-functional communication. Establishing forums for regular communication and implementing cross-functional initiatives can help bridge the gap between departments. One proposal is that category managers are integrated into the weekly supply meetings. This platform will foster open dialogue and shared decision-making regarding suppliers, enabling a comprehensive discussion of supplier issues from the diverse viewpoints of different departments, ultimately leading to more informed and holistic solutions. It will also empower category managers to correctly represent the entire organization of Outnorth in supplier communications. Moreover, it is crucial to ensure that performance information flows both to and from suppliers, allowing all departments to be informed of suppliers' responses to feedback and their actions, see figure 9. This will make all departments understand how purchasers communicate with suppliers and suppliers are doing to improve supplier performance. Therefore, it is proposed that purchasers report suppliers' responses during the weekly meeting.

The transparency and cross-functional communication will foster a shared understanding of supplier performance making all relevant departments actively involved in the supplier communication. Additionally, process activity mapping can be used to identify the origin if non-transparent communication dynamics, as suggested by Hald and Ellegaard (2011). This can be incorporated into the existing strategic initiative to identify main processes in order to pinpoint areas where information flow may be hindered.
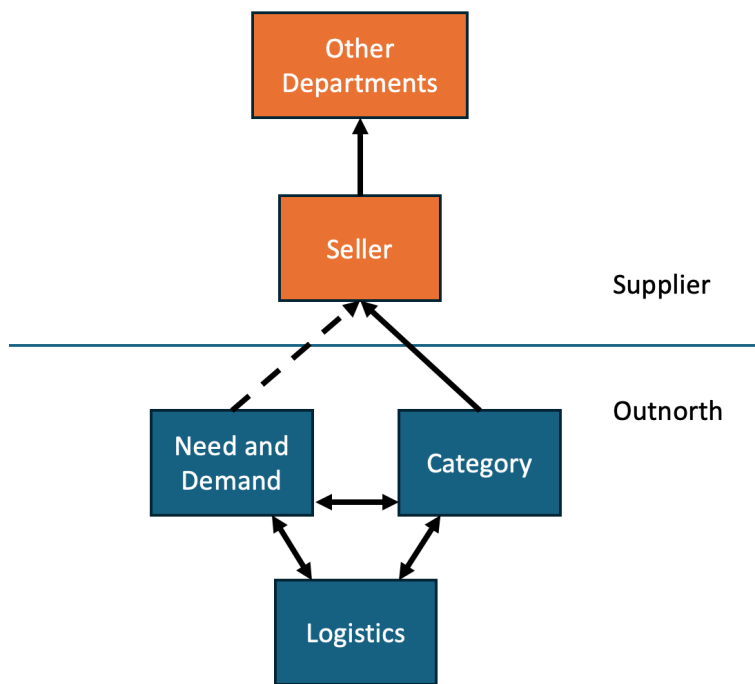
Figure 9: Scheme over the proposed cross-functional and bi-directional communication about supplier performance.

6.3 Employ Transparent Supplier Dialogue

Transparent and ongoing dialogue with suppliers is key to improving supplier performance. To make the supplier communication transparent and clear, category managers should incorporate feedback from all departments into their communication with suppliers. By prioritizing improvement efforts based on strategic goals instead of specific perceptions, Outnorth can focus communication with suppliers on areas that directly contribute to the overall success of the company. This includes focusing on the critical supplier aspects defined in this study, and the metrics connected to them. Outnorth should leverage its positive relationships with suppliers to address performance issues openly and constructively. This includes clear communication by purchasers of Outnorth's expectations and priorities that have collectively been decided on. To make the dialog clear and rationally grounded, the communication should also be backed by transparent data from the SPMS.

Outnorth should not tone down issues to seem friendly or amplify issues to invoke a larger reaction from suppliers. If issues instead are objectively described, desired outcomes are

clearly communicated and collaboration is sought, suppliers will maintain trust toward Outnorth and increase their performance. It is proposed that meetings, workshops and visits are conducted frequently to foster a collaborative environment, joint problem solving and understanding of issues. Moreover, it is also proposed that Outnorth share performance metrics with their suppliers on a regular basis, incorporating it into the already existing sales report. Additionally, Outnorth should be open to supplier feedback as well as suggestions and try to create value for the supplier. This can strengthen the relationships and drive performance improvements. If dialogue fails to address the priorities and increase performance, Outnorth should also consider including them in contracts and negotiating about them.

6.3.1 Integrating the Recommendations and SPMS

The SPMS and the proposed recommendations for Outnorth are designed to work in tandem to facilitate an increase in supplier performance. If the recommendations are implemented and integrated with the constant use of the SPMS, Outnorth will significantly increase their chances of increased performance. All the proposed improvements given and the SPMS aims to create an environment with consensus and process orientation as well as aligning and increasing supplier performance, which can be seen in figure 10. The use of SPMS also supports the implementation of all given recommendations and can be used as a tool to improve strategic clarity, increase cross-functional communication and employ transparent supplier dialog.
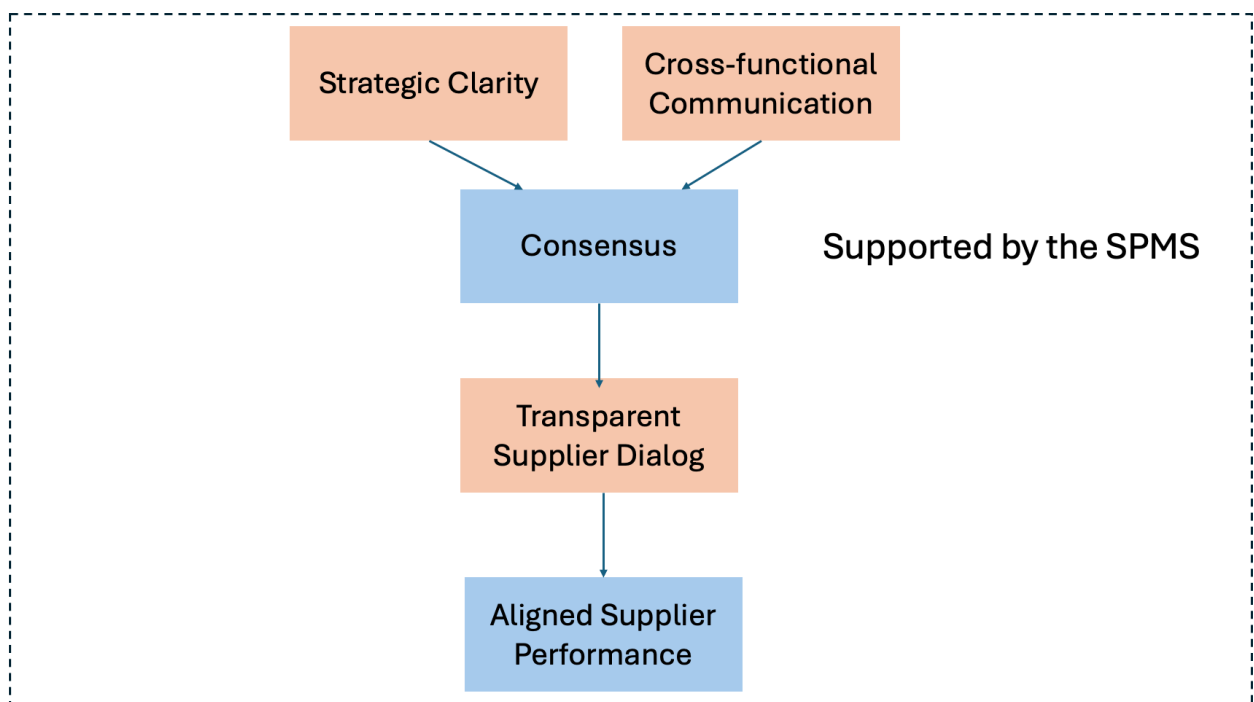

Figure 10: The recommendations proposed to Outnorth and how those can lead to aligned supplier performance.

The SPMS supports the recommendation of increasing strategic clarity by highlighting areas that are important for strategy fulfillment. As the metrics of the SPMS are created based on the strategy, they clarify what actions fulfill Outnorth's strategic objectives. The strategically aligned metrics serves as a compass, guiding both internal stakeholders and suppliers toward a shared understanding of the strategy and what constitutes successful performance. For example, the inclusion of the metric supplier commitment highlights the importance strategic importance of increasing suppliers' commitment toward Outnorth.

Internally, the can SPMS acts as a unifying force, facilitating cross-functional communication, awareness of supplier related issues and collaboration. And as defined in section 5.4, the SPMS was created with this role in mind. The metrics provide a common language for different departments to discuss supplier performance. This promotes a holistic view of suppliers' impact on the organization. The SPMS can be used and dicussed during the regular supply meetings, creating a platform for open dialogue and shared decision-making, ensuring that all relevant stakeholders have an impact on the supplier management process. If Outnorth improves strategic clarity and increases cross-functional communication, the organization will break down functional barriers and more easily reach consensus on issues regarding suppliers. This will help the company prioritize the key aspects of supplier performance and act as a unit when dealing with suppliers.

Externally, the SPMS serves as a transparent communication tool with suppliers. Regular performance feedback through shared metrics enables suppliers to understand Outnorth's expectations and improve bottleneck areas. Transparent feedback with the SPMS creates trust and encourages suppliers to take ownership of their performance. By using the SPMS for one of its intended roles, as a basis for rational argumentation during negotiations and dialog, Outnorth can engage in data-based discussions with suppliers and facilitate joint problem solving and the development of improvement plans. If Outnorth utilize transparent dialog with their supplier and communicate a message derived from consensus, suppliers will align supplier performance with their strategy and improve it. In essence, the SPMS acts as a catalyst for change, driving both internal alignment and external collaboration

7 Conclusion

This chapter concludes the study by revisiting the purpose and research questions, summarizing the key findings, and highlighting the study's contributions. It also acknowledges the limitations of the research and suggests potential future research in the field of supplier performance measurement.

7.1 Purpose and Research Questions

7.1.1 Fulfillment of Purpose

The purpose of this study was to design a supplier performance measurement system for Outnorth.

In this study, a supplier performance measurement system, SPMS, was designed to evaluate Outnorth's suppliers. The metrics of the system are presented in section 5.6. This marks the fulfilment of the purpose of this study. The SPMS was designed by creating a theoretical framework based on the literature review which was then followed in order to design the SPMS. This included first understanding the environment through identifying strategic objectives, identifying internal stakeholder priorities, and examining supplier communication. Afterward, a SPMS could be designed by defining the roles of the SPMS, defining key supplier aspects and subsequently creating the metrics. This made the system align with strategy and consider the relevant stakeholders, which were established to be critical for a successful SPMS. Lastly, recommendations regarding the use of the system were made to facilitate performance management. To conclude, the designed SPMS can contribute to Outnorth improving supplier performance and achieving its strategic objectives.

7.1.2 RQ1: What Factors Contribute to a Successful Implementation of a Supplier Performance Measurement System?

To answer the first research question, literature on SPMS was retrieved, resulting in 17 articles that were read and scanned to identify success factors for the implementation of an SPMS. This resulted in 8 identified success factors: strategically aligned metrics; balanced metrics; include relationship metric; involvement of all relevant departments; involvement of suppliers in design or review; communication and relationship building; transparent performance sharing; and supplier commitment. In particular, two of these were identified as critical success factors: Strategically aligned metrics as well as communication and relationship building. These had the most mentions and other factors appeared to be related or subordinate to them.

The first critical success factor, strategic aligned metrics, involves clearly defining strategic objectives and then designing the metrics to reflect these strategies. This ensures that supplier performance is evaluated based on factors that are directly linked to the strategy and

facilitates supplier alignment to it. To promote strategically aligned metrics, multiple departments can also be involved, which was one of the success factors identified. Because different departments have different perspectives, more aspects of a company's strategic goals will be captured in the SPMS. The second critical success factor, communication and relationship building is also key for a successful implementation. A SPMS is essentially a communication tool that can promote dialogue and meetings which in turn facilitates joint-problem solving and integration. Actively involving suppliers in the evaluation process increases their commitment which all in all results in higher performance.

7.1.3 RQ2: What Supplier Aspects are Critical for Outnorth?

In the study, critical supplier aspects for Outnorth were defined to aid metric creation, as stated by the theoretical framework. To establish the critical supplier aspects, the strategy and the different internal stakeholder priorities were analyzed to form priorities for Outnorth as a whole. This resulted in four main critical supplier aspects: correct information; delivery reliability; strong relationships; and strong brand and products. All these aspects were supported, both by the internal stakeholders' view and strategy.

It is crucial for Outnorth that suppliers exchange accurate and timely information. This includes correct product data, sufficient order information, and adherence to agreed information. The significance of correct information is underscored by its negative impact on operational efficiency and customer experience in many different forms which were stated by a vast majority of interviewed employees from different functions. Outnorth's strategic focus on data-based decisions and process automation also support this aspect, as without sufficient information this becomes difficult. Furthermore, delivery reliability is key for Outnorth. This aspect encompasses on-time delivery as well as delivering the right products in the correct quantities. Delivery reliability is crucial for preventing stockouts, and meeting customer expectations. Delays or inaccuracies can lead to increased costs, lost sales, and dissatisfied customers. This concern was especially brought forward by the operations department but still recognized by other functions.

Building and maintaining strong relationships with suppliers is a strategic priority for Outnorth. Partnering with suppliers should give Outnorth better access to suppliers' assortment and gain risk sharing benefits, which both the strategy and relevant stakeholders state as key. Suppliers Outnorth have good relationships with also resolves issues faster. Having suppliers with strong brands and products is the last critical supplier aspect defined and it is supported by the strategy and data collection. As an e-commerce retailer, Outnorth's success hinges on attracting and retaining customers by offering a curated selection of sought-after brands and products. Strong brands not only draw customers to the platform but also contribute to Outnorth's reputation as a reliable source for quality outdoor gear.

7.1.4 RQ3: How can a Supplier Performance Measurement System be Designed for Outnorth?

To design a SPMS for Outnorth a theoretical framework was created based on literature. As the framework suggests, the business environment first needed to be understood in order to create a SPMS as a performance management tool. This included identifying the company's strategic objectives, identifying internal stakeholder supplier priorities regarding suppliers, and examining supplier communication within Outnorth. Furthermore, to design the SPMS three steps were carried out according to the theoretical framework: definition of roles; definition of critical supplier aspects; and design of metrics. These definitions were made based on the environment previously examined. The defined roles: measure supplier performance; facilitate internal communication and awareness of supplier related issues; and provide a rational basis for negotiation and discussion with suppliers, made it clear what the SPMS was supposed to accomplish. The critical supplier aspects guided what areas the SPMS should measure and included: correct information; delivery reliability; strong relationships; and strong brand and products. Lastly metrics could be designed with the guidance of the defined critical supplier aspects, defined roles, literature and specific issues discovered during the data collection.

This resulted in 8 metrics: on-time delivery; delivery quantity accuracy; EDI integration; missing delivery documentation; insufficient product information; supplier communication; supplier commitment; and customer product claims. These metrics span over multiple categories, are aligned with strategy and created specifically for Outnorth's environment. Three proposed recommendations were also made for Outnorth to facilitate performance management and improved supplier performance. These were: improve strategic clarity; increase cross-functional communication; and employ transparent supplier dialogue, which combined with the implementation of the SPMS would lead to increased performance from suppliers.

7.2 Contribution

The contribution from this study is two-fold and can be dived into both theoretical and practical contributions.

7.2.1 Theoretical Contributions

The theoretical contributions of this study lie primarily in addressing a gap in existing research on Supplier Performance Measurement Systems. The current literature predominantly focuses on SPMS within the manufacturing industry, leaving a void in understanding how such a system can be designed and implemented in the e-commerce sector. This study aims to bridge this gap by exploring how a SPMS can be designed for a company, Outnorth, within e-commerce. Also, by acknowledging this gap, this issue can gain more attention among scholars, potentially leading to more studies within the area.

As theory suggests, adopting a predefined set of metrics or only using metrics suggestions mentioned in literature is not suitable for a specific company, in this case Outnorth, as the SPMS then is not able capture all intricate aspects of a company's situation. When the strategy and stakeholder supplier priorities were examined at Outnorth, specific areas were identified to be key for the company which some overlapped with current literature and some differed from it. Both delivery reliability and strong relationships were in literature stated to be crucial to supplier performance, which this study also supports. However, for Outnorth, product quality considerations differed from the literature and extended beyond the physical attributes of the goods to encompass strong brands and products. Moreover, correct information was of higher priority for Outnorth than typically highlighted in research. This suggest a gap in literature as there are currently limited research explaining it or discussing the importance of information accuracy. This study contributes to theory by highlighting this gap and exploring why correct information from suppliers can be important to a company.

7.2.2 Practical Contributions

This study also provides multiple practical contributions, especially for the case company Outnorth. The largest contribution is the development of a customized SPMS, with a set of metrics specifically tailored to Outnorth. In itself the SPMS will help measure and evaluate suppliers which can help Outnorth identify bottlenecks among suppliers actions. The SPMS also helps improve the internal communication and awareness of supplier related issues in Outnorth. Because the SPMS is based on different internal stakeholder perspectives, the SPMS will help facilitate information sharing of a balanced view as employees can be made aware of how suppliers perform across different areas. Moreover, the SPMS can spark and facilitate cross-functional communication. This promotes integration between functions and helps Outnorth collaborate and reach consensus reagrding supplier issues and priorities.

The SPMS contributes to better supplier communication within Outnorth. The metrics can be used to give suppliers feedback and provide a rational basis for argumentation and discussions. That the metrics are used to back statements with facts create a more objective and transparent communication process. This can help to build trust and improve the relationship between Outnorth and its suppliers. Furthermore, the SPMS can facilitate a proactive approach to supplier management, where potential issues are identified and addressed before they escalate into major problems. By using the SPMS as a communication tool, Outnorth can foster a more collaborative and productive relationship with its suppliers, ultimately leading to improved supplier performance and increased customer satisfaction.

Lastly, the SPMS and its metrics can also be used by other companies for guidance when creating such a system. The theoretical framework will aid organizations with concrete steps to carry out in order to create a SPMS. The designed metrics can also be used, either directly

or as an inspiration for metric creation, especially if the company in question are similar to Outnorth.

7.3 Limitations

This study has several limitations. Firstly, more stakeholder groups could have been interviewed and thus been involved in SPMS design. In the literature review, involving suppliers in creation were stated as a success factor because it incorporates more perspectives into SPMS design and makes suppliers more positive toward SPMS use. This was a major limitation of the study, as involving suppliers could not fit into the limited timeframe. Moreover, employees from the commercial department could also have been involved in interviews, as they are a core function directly affected by suppliers and therefore relevant to SPMS design. However, this was not possible due to the major reorganizations within the department. Still, it was deemed that category managers had very good insight into sales and the commercial department's perspective, thus contributing with it in the interviews. Additionally, only the order process and its major stakeholders were investigated in this study. While this is a major way suppliers impact Outnorth, a comprehensive understanding of their influence on all stakeholders would require examining additional, less direct processes.

Secondly, this study mainly used interviews as the main source of data collection. Although it provided very in-depth understanding of the issues at hand, answers are always subjective. Documents were also used but only in regard to the strategy, no other relevant documents regarding supplier aspects existed. To counteract this, the study could have incorporated another form of data collection such as observations or made a quantitative analysis of the supplier aspects and issues mentioned by interviewees. Although the limited study timeframe prevented a more comprehensive validation, the diverse functional backgrounds of interviewees and a dedicated metrics validation workshop ensured information was gathered from multiple perspectives, enhancing the construct validity of the findings.

Lastly, the generalizability of the findings could be seen as a limitation. This is an inherent limitation of single case studies, as they provide insights into a specific context but may not be directly applicable to other organizations or industries. While efforts were made to connect the findings to existing literature and provide a theoretical framework, the unique characteristics of Outnorth may limit the applicability of the results to the e-commerce sector in general.

7.4 Future research

As mentioned, this study identifies a gap in the literature, as there is very limited research on SPMS within e-commerce. The study makes a first step to bridge it, however to fully explore SPMS in a e-commerce setting, further research is needed. This study found Outnorth's priorities to differ somewhat from those emphasized in existing SPMS literature. This could

be done, for example, with a multiple case study, either implementing new SPMS or studying already existing ones at different e-commerce retailers. Researchers should also investigate the importance of correct information from suppliers by incorporating information-related metrics into existing SPMS and exploring the impact of information accuracy on various aspects of supplier performance. Additionally, more case studies in e-commerce should be conducted to determine if correct information from suppliers are especially significant within the sector.

Regarding Outnorth and this SPMS specifically, it needs to be implemented in the organization to have its intended effect. Although it is outside of this study's scope, the system and recommendations were created with the intention of being implemented. Apart from the recommendation, implementation also requires actions such as establishing data collection routines which Outnorth need to carry out. After implementation of the SPMS, suppliers could also be involved in review of the system in order to increase suppliers' acceptance of the system. Outnorth could then examine how suppliers should be involved, create routines for involvement and update the SPMS based on supplier's feedback. Furthermore, it could be investigated how the commercial department could be involved in the SPMS and supplier performance communication, after the department's current reorganization. This would include identifying the department's prioritizations and if those differ from other departments. If so, the SPMS can then be updated accordingly, and the department could also potentially be involved in the cross-functional forum.

Lastly, Outnorth should thoroughly examine the extent of silo-thinking within the organization and its negative effects on process efficiency. The evidence presented in this thesis strongly suggests that silo-thinking is a significant issue at Outnorth, contributing to misaligned priorities, communication barriers, and suboptimal decision-making. To address this, Outnorth should proactively investigate the underlying causes of silo-thinking, such as power dynamics, communication barriers, and a lack of shared understanding of the company's processes. By identifying and addressing these root causes, Outnorth can foster a more collaborative and integrated work environment, promoting cross-functional communication, shared goals, and a process-oriented approach.

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Appendix A: Literature Review

Collection Method	Source	Topic	Citations	Used for Success Factor identification
"Supplier Performance" AND "Performance Measurement" Topic search on Web of Science	Cousins et al. (2008)	SPMS impact on relationship	129	X
	Hald and Ellegaard (2011)	SPMS communication	54	X
	Huang and Keskar (2007)	Metrics for an OEM	242	X
	Jääskeläinen et al. (2023)	SPMS and BSR	2	X
	Luzzini et al. (2014)	SPMS design	34	X
	Maestrini, Luzzini, et al. (2018)	SPMS lifecycle	18	X
	Maestrini, Maccarrone, et al. (2018)	SPMS communication	9	X
	Maestrini, Martinez, et al. (2018)	SPMS framework	17	X
	Maestrini et al. (2021)	SPMS use	5	X
	Morgan and Dewhurst (2007)	SPMS in supermarket chain	9	X
	Patrucco et al. (2021)	SPMS and commitment	18	X
	Romule et al. (2020)	SPMS metric categories	5	X
	Schmitz and Platts (2004)	SPMS functions	105	X
Backwards citation from searched articles	Simpson et al. (2002)	SPMS metrics	337	X
	Kannan and Tan (2002)	SPMS metric categories	757	X
	Gunasekaran et al. (2004)	SCPMS framework	1067	X
	Prahinski and Benton (2004)	SPMS communication	389	X

	Neely et al. (1995)	PMS definition	1255	
"Supplier Performance Measurement System" Topic Search Web of Science	Franco-Santos et al. (2007)	PMS roles	303	
	(Bourne et al., 2000)	PMS stages and strategy connection	566	
	(Bititci et al., 1997)	PMS and performance management	312	
"Organizational Silos" Topic search on Web of Science	de Waal et al. (2019)	Organizational silos	33	
Strategy Google scholar search	Porter (1996)	Strategy characteristics	19636	
Performance Measurement System Benefits Google scholar search	Micheli and Manzoni (2010)	PMS Benefits	350	
Backwards citation	Gunasekaran and Kobu (2007)	SPMS review	1315	

Appendix B: Success Factors

Article	Strategically aligned metrics	Balanced metrics	Include relationship metrics	Involve all relevant stakeholders in design	Involve supplier in SPMS creation and review	Communication and relationship building	Transparent information sharing	Supplier commitment
Cousins et al. (2008)	X					X		
Gunasekaran et al. (2004)				X	X			
Hald and Ellegaard (2011)	X			X	X	X	X	
Huang and Keskar (2007)	X	X						
Jääskeläinen et al. (2023)			X			X		X
Kannan and Tan (2002)	X		X			X		X
Luzzini et al. (2014)	X	X		X		X		
Maestrini, Luzzini, et al. (2018)	X					X	X	
Maestrini, Maccarrone, et al. (2018)					X	X	X	
Maestrini, Martinez, et al. (2018)	X	X				X		
Maestrini et al. (2021)					X	X	X	
Morgan and Dewhurst (2007)						X	X	
Patrucco et al. (2021)						X		
Prahinski and Benton (2004)						X		X
Romule et al. (2020)		X	X		X			
Schmitz and Platts (2004)				X				
Simpson et al. (2002)	X	X	X			X		
Total mentions	**8**	**5**	**4**	**4**	**6**	**12**	**5**	**3**

Appendix C: Interviewees

Title	Function
Need and Demand Manager	Purchasing – Need and Demand
Need and Demand Manager	Purchasing – Need and Demand
Substitute Category manager	Purchasing – Category / Need and Demand
Category Manager	Purchasing – Category
Category Manager	Purchasing - Category
Supply Chain Coordinator	Operations – Inbound Logistics
Inbound Team Leader	Operations - Warehouse
Logistics Developer	Operations - Warehouse
Chief Operating Officer	Operations
Business controller	Finance

Appendix D: Interview guide

Introduction

- Greetings.
- Brief introduction about the thesis topic.
- Explain the purpose of the interview and how the data will be used.

- What is your name?
- What department do you work in and what is your role?
- How long have you worked at the company and how long have you worked in your current role?
- Briefly explain what do you do in your role?

Goals and Activities

- What do you think are the most important strategic objectives for Outnorth as a whole?
- What do you think are the most important strategic objectives for your department?

Supplier Aspects

- In your opinion, what aspects characterize a good supplier?
- In your opinion, what are the biggest issues related to suppliers?
- From a list, select the 2 most important aspects, and 3 important aspects that characterize a good supplier.
- Name 3-5 metrics that you think should be included in supplier evaluations.

Communication

- If there are issues caused by the supplier, how is this communicated internally?
- If there are issues caused by the supplier, how is this communicated to the supplier?
- How do you collaborate with your suppliers in the long term?
- Are suppliers open to your feedback?

Closing Remarks

- Is there anything you would like to add to your answers or anything else you would like to say?
- Thank you for the interview.

Appendix E: List of Supplier Aspects Used in Interviews

Product Quality

- End customers satisfied with product
- Low product defects

Deliveries

- On-time delivery accuracy
- Quantity accuracy

Financial

- Stable and transparent pricing
- Low price, compared to selling price
- Financial stability
- Good Payment terms

Responsiveness

- Flexible order quantities
- Flexible delivery times
- Resolves issues and disruptions fast
- Short lead time

Relationship & Information sharing

- Similar culture and objectives
- Commitment to Outnorth
- Honest and frequent communication
- Willingness to share information
- Uses EDI
- Correct documentation
- Tracking progress of orders

Others

- Ethical standards and CSR
- Geographic location
- Broad supplier assortment
- Strong brand

Appendix F: Workshop

In order to validate the metrics suggestions and receive suggestions, a workshop were conducted. Down below the first draft of metrics can be seen together with the feedback received during the session.

Category	Metric	Definition
Product quality	Customer Product Returns	% of customer returns of sold products
Delivery	On-time delivery	% of orders received within the same week as estimated time of arrival
	Delivery Quantity Accuracy	% of orders that containing the correct products and quantities ordered
Information	Uses EDI	Uses EDI for information sharing, Yes or no
	Missing Delivery Documentation	% of orders with missing physical and digital delivery documentation
	Insufficient product information	Insufficient product information for the previous pre-order, Yes or No
Relationship	Communication	Rating 1-10 of proficient communication based on response time; clarity and accuracy; and proactivity
	Financial commitment	order value as % of supplier revenue

Feedback:

- It is better to use customer product claims instead of customer product returns for measuring product quality. This is because product returns are not necessarily related to the quality of the product and differ heavily between categories of products.
- ETA for On-time delivery should not be allowed to be changed after initial agreement.
- Insufficient product information should be counted from when the pre-order is placed.
- Marketing contribution is a better measure of commitment, especially because it is impossible to measure the revenue of all suppliers.