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MASTER'S THESIS

SUPPLIER PERFORMANCE ASSESSMENT AND HANDLING OF SUPPLIER PERFORMANCE FAILURES

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ABSTRACT

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This master's thesis focuses on recognizing key procedures for supplier performance assessment and identifying the best practices on how buying companies handle failures and deviations that occur in their suppliers' performance and behavior, and therefore claims and complaints addressed to suppliers. The study is conducted as qualitative case study. Study is conducted for a case company for their need to learn and improve their current processes. Primary data for the study is gathered with six semi-structured theme interviews for eight individuals from 5 different companies. The purpose of the interviews was to benchmark procedures of these chosen companies and find out the best practices.

The findings of the study show that supplier performance assessment is essential part of supplier relationship management, and process of measurement includes multiple phases from identifying the measures to designing the system, to actual measurement and providing feedback. Empirical study shows that best practices to handle supplier performance failures focus on efficient information system and the role of communication to internal and external stakeholders. These enable the continuous improvement, development and learning.

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Tämä pro gradu -tutkielma keskittyy toimittajien suorituskyvyn arvioinnin keskeisten menettelyiden tunnistamiseen, sekä parhaiden käytäntöjen tunnistamiseen liittyen siihen, kuinka ostavat yritykset käsittelevät toimittajien suorituskykyyn ja käyttäytymiseen liittyviä virheitä ja poikkeamia. Tutkielma toteutettiin laadullisena tapaustutkimuksena. Tutkimus on tehty kohdeyritykselle heidän tarpeeseensa oppia aiheesta lisää ja kehittää prosessejaan. Tutkimusaineisto kerättiin kuudella puolistrukturoiduilla teemahaastatteluilla, joihin osallistui kahdeksan ihmistä viidestä eri yrityksestä. Tarkoituksena oli tutustua heidän toimintamalleihinsa ja nostaa parhaat käytänteet esille.

Tutkimuksen tulokset osoittavat toimittajien suorituskyvyn arvioinnin olevan merkittävä osa toimittajasuhteiden hallintaa ja siihen liittyvä prosessi sisältää moninaisia vaiheita mittareiden tunnistamisesta systeemin suunnitteluun, itse mittaukseen sekä palautteen jakamiseen. Empiirinen tutkimus osoittaa, että parhaat käytänteet toimittajapoikkeamien käsittelyyn keskittyvät tehokkaaseen IT-järjestelmään sekä kommunikoinnin rooliin niin yrityksen sisäisesti kuin ulkoisille sidosryhmille. Tämä mahdollistaa jatkuvan parantamisen, kehittymisen ja oppimisen.

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In Lappeenranta, the 16th of May 2019

Roosa Laakkonen

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1 INTRODUCTION

Purchasing and therefore suppliers play a remarkable role for buyer companies and their performance. Hallikas, Kähkönen, Lintukangas and Lirkki (2016) have found out in their research that purchasing costs in Finnish manufacturing industry are 54 percent of the company's turnover on average. Importance of purchases increases the role of suppliers directly. Suppliers are responsible for delivering necessary raw materials, components and services in order that buyer company can have end-items produced on time (Talluri and Sarkis 2002). Goods and services should be delivered when, where and how agreed in the negotiations. Krause, Scannell and Calantone (2000) state that supplier's performance has highly critical role in the long-term success of the buying company. Performance of a supplier has even direct effect on the financial and operational outcome of business (Croom 2001). Ragatz, Handfield and Scannell (1997) add that suppliers have direct and remarkable impact on buying company's cost, quality, speed, responsiveness and technology. Role of suppliers increases even more due to ongoing trend to outsource all other activities except core competencies and capabilities of a company (Kannan and Tan 2002). Maestrini, Luzzini, Caniato, Maccarrone and Ronchi (2018a) note that suppliers' responsibility of buyer companies' value creation has increased in today's business world. Suppliers role in achieving competitive advantage as been also acknowledged (Chen, Paulraj and Lado 2004). All these aspects increase buying companies' dependence and reliance on their suppliers. According to Kannan and Tan (2002), due to high dependence it is necessary to effectively manage suppliers. Therefore, decisions made in purchasing teams can have a great influence on the success of a company.

Purchasing function is the primary linkage and interface between suppliers and buying company is the purchasing department of focal organization. In addition, purchasing function of a company is responsible for other operations such as supplier selection, contract negotiations and supplier performance monitoring. (Talluri and Sarkis 2002) Selection and efficient evaluation of supplier is strategic and one of the most significant areas for companies to look after. (Croom 2001; Araz and Ozkarahan 2007) Overall, the purchasing process includes many phases from

screening the markets and choosing the supplier, to the stage were contract is signed and relationship is established. (Talluri and Sarkis 2002; Kannan and Tan 2002) It must be remembered that the work does not end here. One of the most relevant part of the process, especially when aiming for long-term strategic partners, is supplier relationship management (SRM) and different practices of it. (Kannan and Tan 2002) Prajogo, Chowdhury, Yeung and Cheng (2012) see that establishing good relationships and aiming towards integration with suppliers are as important as choosing the matching suppliers in first place.

Kannan and Tan (2002) divide supplier management into three dimensions. First is effective selection of suppliers and second is innovative supplier development strategies. Last but not least, they mention meaningful supplier performance assessment mechanisms. (Kannan and Tan 2002) Likewise, Maestrini et al. (2018a) highlight the importance of careful assessment and performance monitoring especially in upstream supply chain. Performance evaluation and monitoring is seen as critical area especially for managerial level to consider and execute. (Mentzer and Konrad 1991; Talluri and Sarkis 2002; Cousins, Lawson and Squire 2008). Krause et al. (2000) see supplier assessment as a development strategy to improve supplier performance. The objective of supplier assessment is to prevent weak performance and for instance poor quality of incoming materials and therefore minimize negative consequences such as the cost of defects (Prajogo et al. 2012). When supplier's delivery of good or service is lacking in some way, it more likely causes operational and financial issues for the focal company. Weak quality of material or service, insufficient amount of material, late delivery and unsustainable behavior are just few examples of poor performance of supplier. For buying company's benefit, it is essential to have an efficient process on assessing supplier and dealing with these failures that suppliers have in their performance.

1.1 Research background

In past studies and existing literature, a lot of attention has been given to the customer relationship management (CRM), whereas less attention has been given

to the opposite behavior: supplier relationship management (SRM). However, nowadays supplier relationship management has increased its popularity as a research topic. As customer relationship management has been studied for longer in the field of marketing, also customer complaint management is a relatively studied area. There can be found multiple studies about customer complaint benefits, management practices and for instance reasons why to handle claims and complaints from customers (e.g. Johnston 2001; Goodman 2006). On the other hand, studies about supplier complaints and claims are tough to find. Studies which cover how companies should internally handle their own claims and complaints addressed to their suppliers, are hard to find. It seems that buyer company perspective is not covered in existing literature. There are no studies about how the buying company efficiently manages the failures and therefore complaints they have for their suppliers. It can be crucial for companies to have information about efficient practices in order to improve the performance of own purchasing and logistics functions and therefore support overall business. It can be seen as a research gap, since literature is not providing too many studies about this particular topic. It makes this study significant and highly interesting. The empirical part this study will take a look into this aspect, while the theoretical part will focus more on overall supplier performance assessment and failure situations in existing relationships. Performance measurement itself and related themes are quite heavily researched. Literature covers internal performance measurement comprehensively, including frameworks and systems, whereas inter-organizational relationships and supplier performance measurement is slightly less studied field. (Schmitz and Platts 2004; Cousins et al. 2008) However, last decades have increasingly provided research about the topic. Supplier performance measurement is necessary to consider in this study in order to understand fully the concept behind the practical level processing of failures and claimable situations, since those are highly related to supplier assessment.

While the performance deviations and supplier claims are rarely studied and already therefore interesting and significant to explore, there is also another reason why it is reasonable to conduct. The research problem and therefore the whole study is based on case company's real-life necessity. The study is conducted for a company,

who has the desire to improve their current processes and learn about the topic. There is a need for figuring out the efficient model for managing supplier-related claims and information about performance deviations. Especially, focus is on notification level claims which are result of supplier's insufficient behavior and performance. These notification level failures don't necessarily have direct impact on the end-customer but have negative effect on buying company itself and their operations.

It is sure, that there are more companies like case company of this study, who are not aware of the best practices in this field and would find benefit out of this study. This information will add value for the managerial level, since with the knowledge of the more efficient practices, they can improve their actions and manage their suppliers better and use this information as their advantage in several ways.

1.2 Research objectives, questions and limitations

The objective of this study is to take a deep look into the supplier performance assessment and investigate different procedures of management of claims and information about failures in suppliers' performance. Exploring how to assess supplier performance efficiently in existing relationships has a central role in this study. The study aims at benchmarking best practices to efficiently collect, document and handle the information about failure situations occurred in their suppliers' behavior and performance. Focus is on existing relationship between buying company and 1st tier supplier and claims and failures that occur in material, service and information flow between these parties. One of the priorities is to search how performance information can be utilized to support supplier relationship. The practical aim of this study is to find out the best practices and identify efficient model on handling claim situations for the case company.

This study has one main research question and three sub-questions. The role of sub-questions is to support main question and help on finding a comprehensive answer to the research problem.

Main research question:

How buyer companies can assess performance of supplier and handle the information about failure situations effectively?

Sub-questions:

1. What is the process of supplier performance measurement?

2. How the data about supplier performance failures and claims should be collected, documented and handled?

3. How information about supplier failures could be used to support efficient supplier relationship management?

This study is limited to discuss about the business-to-business relationship between buyer company and its supplier in first tier. Other players of supply chain, such as distributors, retailers and for instance suppliers' suppliers have been excluded from the study. Study represents the perspective of the buyer company. Focus is on the existing relationships between buyer and its suppliers, and all activities related to supplier assessment in supplier selection phase are excluded. In addition, while this study takes a look into claims, complaints, disruptions and handling of these, the aim is not to identify the root causes of these nor study the ways to diminish or manage the risk. The management efforts and actions to protect oneself from unpleasant situations are excluded from this research. Neither the strategies to mitigate or reduce the impact of the disruption are discussed in this study. Focus is solely on supplier related claims addressed by buying company and therefore customer claims (i.e. customer of buying focal company) are narrowed down from this study.

1.3 Research methodology

This study is carried out as a qualitative research. Case study is chosen as a research strategy. To tackle the research problem, five benchmarking companies are chosen to be studied for the empirical part of the study. These companies represent different industries, types of business and size scales to guarantee the wide scope of answers. The aim is to identify the ideal practices and processes through the information gathered from these benchmarking companies. Benchmarking is an effective tool that helps individuals and organizations to look for best practices and procedures as well as new and innovative ideas. It allows seeing beyond current daily operations and settled habits, which may result in superior performance. (Bogan and Callahan 2001)

Data of the research consists of primary and secondary data. Primary data is gathered by interviews. Primary source of empirical data is semi-structured theme interviews. In total, eight interviewees from five different benchmarking companies participated to the interviews. All of the interviewees have professional background and deep understanding of the studied subject. In addition, observation and discussions with case company employees are taken into account when familiarizing to the background and current practices of case company. Observations and notes made during discussions and interviews work as a secondary data for this study. Research methodology and data collection are described in more detail on the chapter 3.

1.4 Conceptual framework

Conceptual framework of this study evolves from the research problem and objectives of the study. Focus is on upstream and supply stage of supply chain. Framework is formed on existing business-two-business relationship between first tier supplier and buying company and flows of material and services and information between these two parties. Conceptual framework of this study is described in figure 1.

Figure 1. Conceptual framework

In this study, the relationship between suppliers and buying company has the key role. All the other dimensions are evolving from this existing relationship. On top can be seen an arrow of supplier performance assessment, which describes the action where buying company evaluates how well suppliers have performed and conducted their tasks. Flows of material and service, and information as well, are important to be noted, since this study is about the situations, when this flow is disrupted in somehow or there occurs a failure. On below of the picture is two arrows. First with dashed line describes those deviations and failures that occur in supplier's performance. Second one stands for the feedback and claims from buyer to suppliers, which are consequences of those noted errors. These themes form the whole core of this study.

Focus of the theory section of the study is on supplier performance measurement and existing performance measurement systems. Since at multiple times, the performance of the suppliers is not flawless, theory will take look into the claims and disruptions and complaint management as well. In addition, other part of the theory will focus on the importance of smooth information flow, information sharing and

information systems between suppliers and buyers. With effective information sharing the performance measurement can be improved, and therefore whole supplier management can become better. Empirical part will take the research to the practical level. Main focus of the empirical part is to gain insights and benchmark how companies handle their supplier-related claims and complaint situations. Furthermore, performance evaluation is discussed with interviewees. Small review about information exchange habits is included in empirical part as well.

1.5 Key concepts of the study

Below the key concept of the research are described. These descriptions summarize how these concepts are seen in the point of view of this study. Deeper and wider explanations are presented in following theory chapters.

Supplier performance assessment (later on also performance measurement, performance evaluation etc.) refers to the measurement of performance of suppliers in existing relationships between supplier and buyer (customer). Supplier performance measurement refers to the evaluation of how well supplier have succeeded in given task. Measurement can be described as following up how well the supplier is reaching the goals and expectations set up for it (Mentzer and Konrad 1991). Measurement aims to evaluate the effectiveness and efficiency of actions (Neely, Gregory and Platts 1995). Performance assessment is a tool to improve the performance of supplier (Krause et al. 2000).

Supplier performance failure (also performance deviation, error, supply disruption) describes the situation, supplier performance does not reach the expected level. Failure illustrates the non-standard performance (Johnston 2001). Disruptions in supply chain due to performance and behavior of supplier are considered as performance failures. Disruptions are based on suppliers' actions and does not take into consideration the other environmental aspects and situations such as terrorist attacks and natural disasters which usually are counted in supply disruptions (Yu and Qi 2004, 17).

Supplier claim and complaint are the usual outcomes of poor performance or failure in the actions of supplier (Johnston 2001). Supplier claim i.e. reclamation is an official notice given by buyer to supplier. Supplier complaint is a negative feedback addressed to supplier.

1.6 Structure of the study

This research is divided in two main areas; to theoretical and empirical part. Altogether, there are five chapters in this study. First chapter is introduction that include for instance background, research questions and framework of the study. Second chapter consist of the main theory of the research. Theory focuses on supplier performance measurement, benefits and challenges. Additionally, supplier performance failures are introduced based on existing literature. In third chapter the research methodology and data collection are described in detail. Following, the fourth chapter introduces the empirical part of this study. In the beginning of this chapter, the description of the case company's current situation in the light of this research topic is presented. Moreover, empirical study focuses to benchmark the best practices and processes from chosen benchmarking companies. Last chapter is about discussion and conclusions. This chapter also includes answers to the research questions and recommendations for case company.

2 SUPPLIER PERFORMANCE ASSESSMENT

Supplier relationship management (SRM) includes all activities that companies use to manage and take care of their relationships with their suppliers (Waters 2009, 148). The strategic objective of SRM is to collaborate with suppliers which enables focusing on producing and developing products efficiently (Park, Shin, Chang and Park 2010). Park et al. (2010) include purchasing strategy, supplier selection, collaboration and supplier assessment and development as the activities of SRM system. Module of supplier assessment and development includes multiple activities from supplier relationship assessment, strategic material evaluation and supplier evaluation. Supplier evaluation itself is divided in three: relationship, capability and performance. Performance describes the comparison between utilized resources and results to the standard goal (Mentzer and Konrad 1991). As stated by Maestrini et al. (2018a), suppliers' importance in value creation of focal company is remarkable. This increases the need for thorough performance assessment and monitoring especially in upstream supply chain. (Maestrini et al. 2018a) Likewise, current business environment creates the need of increased level of effectiveness in inter-organizational relationships. Performance measurement is seen as tool to ease collaboration among the members of supply chain. (Jääskeläinen and Thitz 2018).

Suppliers and their performance are traditionally evaluated and measured in two different stages of supplier relationship. First, supplier evaluation is essential when selecting the supplier; before even establishing the relationship and signing a contract. Buyer companies need to evaluate for instance potential supplier's economical state, capabilities and skills to know if supplier is able to meet all the needed requirements. Furthermore, assessment takes also place in already existing relationships. This evaluation is about measuring and monitoring actual performance of supplier: how well suppliers are succeeding in their tasks. Prahinski and Benton (2004) see it as act of supplier development where supplier performance is tried to improve in order to reach the business needs now and in the future. Performance assessment in existing relationship is not a single time action, it is more frequent or continuous process. It must be monitored on a periodic basis

if suppliers are able to reach the goals and fulfill the expectations (Gunasekaran, Patel and McGaughey 2004) Literature agrees that supplier performance assessment as a highly important business task is especially for managers (Mentzer and Konrad 1991; Talluri and Sarkis 2002; Cousins et al. 2008; Maestrini et al. 2018a).

2.1 Performance measurement

Suppliers' performance can be assessed through performance measurement. Performance measurement allows company to monitor performance, identify critical areas that require attention, improve motivation and communications and emphasize accountability (Waggoner, Neely and Kennerley 1999). Mentzer and Konrad (1991) see performance measurement as an action of evaluating and analyzing the effectiveness and efficiency of completing a task that is been given. Likewise, Neely et al. (1995, 80) define performance measurement as "the process of quantifying the efficiency and effectiveness of action". Efficiency is seen as a measure that describes how well the resources are used when aiming for customer satisfaction. It symbolizes the resource utilization against the derived results. Whereas, effectiveness stands for the extent to which goals are achieved and how well customer expectations are fulfilled. (Mentzer and Konrad 1991; Neely et al. 1995) *A performance measure* is a metric that is used to evaluate how well organization is able to meet business objectives and/or needs of customer (Rafele 2004). Therefore, a performance measure is to tool to quantify the efficiency and/or effectiveness of specific action. *A performance measurement system* is the set of metrics that quantifies "both the efficiency and effectiveness of actions". Performance measurement systems are formed of various performance measures. (Neely et al. 1995)

Neely et al. (1995)	**Performance measurement** "the process of quantifying the efficiency and effectiveness of action"
	A performance measure "a metric used to quantify the efficiency and/or effectiveness of an action"
	A performance measurement system "the set of metrics used to quantify both the efficiency and effectiveness of actions"

Figure 2. Definitions of performance measurement

Above in figure 2 listed definitions of Neely et al. (1995) can be applied to supplier performance measurement: efficiency and effectiveness of *suppliers'* actions are evaluated (Sundtoft Hald and Ellegaard 2011). The aim of supplier performance measurement is to help decision making through captured performance data, and influence on supplier's performance towards improvement (Neely, Richards, Mills, Platts and Bourne 1997). With the use of performance measures, decision makers are able to gain necessary information for planning, controlling and managing the activities (Cousins et al. 2008; Gunasekaran and Kobu 2007). In order to performance measurement and improvement to be effective, the measurement goals must be aligned with procurement goals, state Gunasekaran et al. (2004). Kaplan and Norton (1996a) highlight the importance of performance measurement systems (PMS) in strategy implementation. Kannan and Tan (2002) have expanded the idea to supplier performance measurement systems (SPMS) that aims to supporting of procurement strategy and mutual goals of both parties of buyer-supplier relationship. Likewise, Melnyk, Bititci, Platts, Tobias and Andersen (2014) encourage to utilize performance measurement systems regularly in order to facilitate implementation of strategy and enhance performance. Based on literature, Björklund and Forslund (2013) have summarized and categorized three main purposes for performance measurement systems which are management reasons, intent and strategy-related goals.

There are multiple different ways of assessing performance. From previous studies can be found various models, frameworks and processes. Previously, scholars are have introduced multiple models, that are designed for internal performance measurement of a company or described to be for measuring the performance of supply chain. Schmitz and Platts (2004) note that for intra-organizational performance measurement, probably most well-known framework is Balanced Scorecard, presented by Kaplan and Norton (1996b). Others to mention are the Performance measurement matrix by Keegan, Eiler and Jones (1989), and the Performance pyramid by Cross and Lynch (1992). Gunasekaran et al. (2004) have studied supply chain performance measurement and created a framework of it. Some of these models can be applied for supplier performance measurement as well. Companies can assess and measure their suppliers' performance with multiple different ways starting from frameworks and scorecards, but in this study the key focus is on the process of performance measurement as a whole. By describing the process step by step, comprehensive and useful overview of supplier performance measurement can be provided.

2.2 Process of performance measurement

Existing literature provides multiple steps to measure supplier performance. Below in the table 1 is listed some authors that have studied the performance measurement process, their perspective to the topic and phases of the process.

Table 1. Performance measurement processes by authors

Authors	Perspective	Phases of process
Bourne, Mills, Wilcox, Neely & Platts (2000) / adjusted by Sundtoft Hald & Ellegaard (2011)	Overall performance measurement / Supplier evaluation	***1.*** *Design,* ***2.*** *Implementation,* ***3****. Use*
Forslund & Jonsson (2007)	Supplier-Customer dyads	***1****. Selecting performance variables,* ***2.*** *Defining metrics,* ***3****. Setting targets,* ***4.*** *Measuring* ***5****. Analyzing*
Gordon (2005)	Supplier performance measurement	***1****. Aligning supplier performance goals with organizational goals and objectives,* ***2.*** *Choosing the evaluation approach,* ***3.*** *Developing a method to collect information about suppliers,* ***4.*** *Designing and developing a robust assessment system,* ***5.*** *Deploying the performance assessment system,* ***6.*** *Giving feedback to suppliers, and* ***7****. Producing results*
Maestrini, Luzzini, Caniato, Maccarrone & Ronchi (2018a)	Supplier performance measurement	***1.*** *Design* ***2.*** *Implementation* ***3.*** *Use* ***4.*** *Review*

Bourne, Mills, Wilcox, Neely and Platts (2000) have established a three-step process for performance measurement system. Sundtoft Hald and Ellegaard (2011) have adopted and adjusted their process with performance measurement literature towards the supplier evaluation. The phases of the process are the design, the implementation and the use of performance measures. The design phase is about choosing the key objectives which are wanted to be measured and designing the actual measures. The second, implementation phase includes the preparations of systems and procedures aiming at collecting and processing performance data. Implementation procedures allow the regular measurement to be made. Final phase is the use of performance evaluation system, where this data is actually collected.

In addition to collection, it is analyzed and reacted to. (Bourne et al. 2000) Maestrini et al. (2018a) have similar process as Bourne et al. (2000). However, Maestrini et al. (2018a) add a fourth, review phase to the process. The content and practices of other phases are mainly same, even though some procedures are namely done in different phase. For instance, while Bourne et al. (2000) proposes to collect the data in third, use phase, Maestrini et al. (2018a) does it already in second, implementation phase. Additional review phase includes updating targets and adding new performance measures. It is done in order to guarantee that changes in strategy are taken into consideration in future execution of measurement process.

Forslund and Jonsson (2007) have described the performance management process in supplier-customer dyads, and Forslund (2012) have adjusted the process to the context of logistics service providers. This process consists of five activities: selecting performance variables, defining metrics, setting targets, measuring and analyzing. Selecting performance variables is stage were company determines those essential variables, usually based on their strategy. Next phases are careful definition of metrics and describing a target for each metric. Measurement includes creation of reports and providing feedback. Analysis phase focuses on deviations from targets and reviewing used metrics. Gordon (2005) have formed a seven-step process on assessing the performance of strategic and long-term suppliers. These steps are 1. Aligning supplier performance goals with organizational goals and objectives, 2. Choosing the evaluation approach, 3. Developing a method to collect information about suppliers, 4. Designing and developing a robust assessment system, 5. Deploying the performance assessment system, 6. Giving feedback to suppliers, and 7. Producing results. First step requires determining the supplier strategy which is related to organization level goals and objectives. Second step is about making the decision about which aspects are wanted to be considered with performance assessment. Gordon (2005) lists that chosen approach can be related for instance to risk factors, financial health or business processes and practices of supplier, or focus to the operational performance metrics. The names of the following phases describe well the main actions and procedures of those five last steps of the process.

Although the processes presented above are described with relatively different steps, there can be noted that they all have similarities and after all they implicate the same phases. All start with considering the strategy and objectives, which are acting as the base for the assessment. Based on objectives, the actual measures are chosen. This is highlighted and seen as one of the most crucial steps. Following phases also go through the similar steps, for instance designing system, collecting data and sharing the results with suppliers. Based on these briefly described processes found in literature, a new process of supplier performance measurement is formed. Process is shown in the figure 3 below.

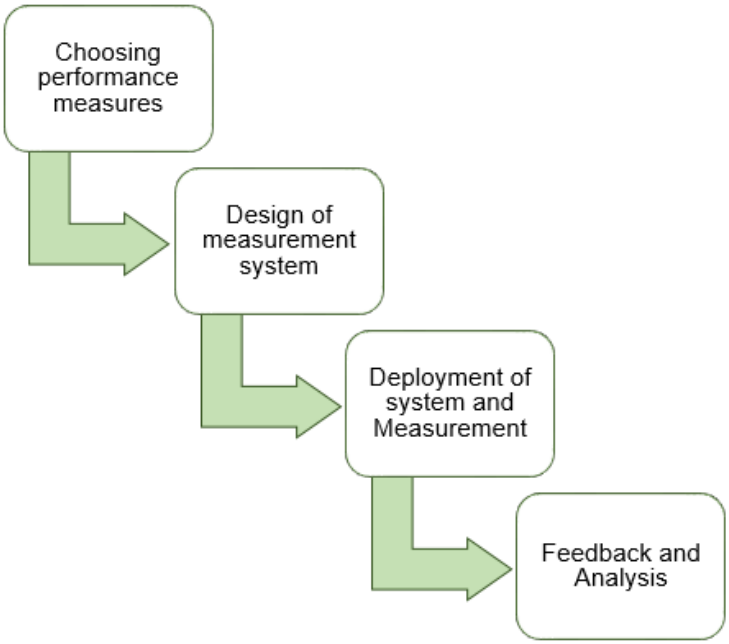

Figure 3. Supplier performance measurement process

Relevant questions to consider in cases of measurement, are *what* and *how* (White 1996). First step in this process gives the answer to the “what” will be measured. Measures are chosen based on company’s strategy. Second step answers to “how” will it be measured. Second phase of the process focuses on design of the measurement system. Third phase is about deploying the system and actual measurement. Fourth phase includes providing feedback and communicating the results to the supplier in question. It also includes the final analysis. All these phases are described in detail in chapters below. This process implicates the

implementation of supplier performance measurement from the beginning. Companies who have created and established their process, i.e. measures and system, can focus mainly on third and fourth phases of this process in their frequent assessment efforts. However, it must be taken into consideration, that not all companies measure performance of their suppliers in similar ways. Current context, organizational structure and prevailing culture have an impact on performance measurement – measures and measurement systems – and it can vary widely among companies (Schmitz and Platts 2004; Forslund and Jonsson 2007). In addition, not all suppliers of one buying company are evaluated in similar manner either.

2.2.1 Choosing performance measures

Choosing accurate and clear measures is essential part of process of supplier performance assessment. According to the literature, performance measures should be chosen based on the strategy of the company and defined objectives (e.g. Bourne et al. 2000; Neely et al. 1995; Gordon 2005; Caplice and Sheffi 1995). In case of measuring suppliers' performance, procurement strategy and goals are in center (Kannan and Tan 2002). Therefore, prior to choosing the measures, it is essential to consider the procurement strategy and define the objectives that are wanted to be reached with performance assessment. Like mentioned before, different performance measures are used to evaluate effectiveness and efficiency, and thus, performance (Neely et al. 1995). Rafele (2004) states, that in every company there are their own processes which consists of different activities, and each activity can be measured based on different indicators. Hence, every organization may have different measures and it is necessary to find the most suitable ones to describe and quantify their own actions, suppliers and areas which are wanted to be measured. The nature of the procured material or service as well as industry affects to the chosen measures or metrics. Therefore, the adequacy of metrics is highly dependent on the context. For instance, when measuring the performance of logistics service supplier, it is likely to choose for instance delivery-related lead time or on-time delivery as variables for measurement (Forslund 2007).

Gordon (2005) and Gunasekaran et al. (2004) mention that measures could be based on company's key performance indicators (KPIs).

Performance can and should be measured from multiple points of view (Beamon 1999). Talluri and Sarkis (2002) remind that it is necessary for buyers to measure and monitor their suppliers' performance based on both, tangible and intangible factors. Tangible factors refer for instance to operational performance, and intangible factors to relationship status (Cousins et al. 2008). Ittner, Larcker and Randall (2003), Gunasekaran, Patel and Tirtiroglu (2001), Gunasekaran et al. (2004), as well as Giannakis (2007) remind that in order to achieve a clear picture of performance, it requires observing both financial and non-financial performance measures. Concentrating only on either one leads to biased understanding of performance (Gunasekaran et al. 2004). Moreover, too narrow perspective may lead to ignoring critical dimensions and improving some areas at the expense of others (Ittner et al. 2003). Intangible and non-financial measures can be more challenging to evaluate than tangibles and financial measures, but their importance should not be underestimated (Gunasekaran and Kobu 2007). Measures that represent diversely different perspectives are more likely able to enhance performance (Ittner et al. 2003). Melnyk et al. (2014) summarize three central elements for accurate metric. First is that performance measure describes well what is happening. Second is that performance metric has a standard or target level that draws the line between good and bad performance. As third distinct element Melnyk et al. (2014, 175) lists the "consequences relating to being on, below or above target". Central characteristics of measures is summarized in figure 4 below.

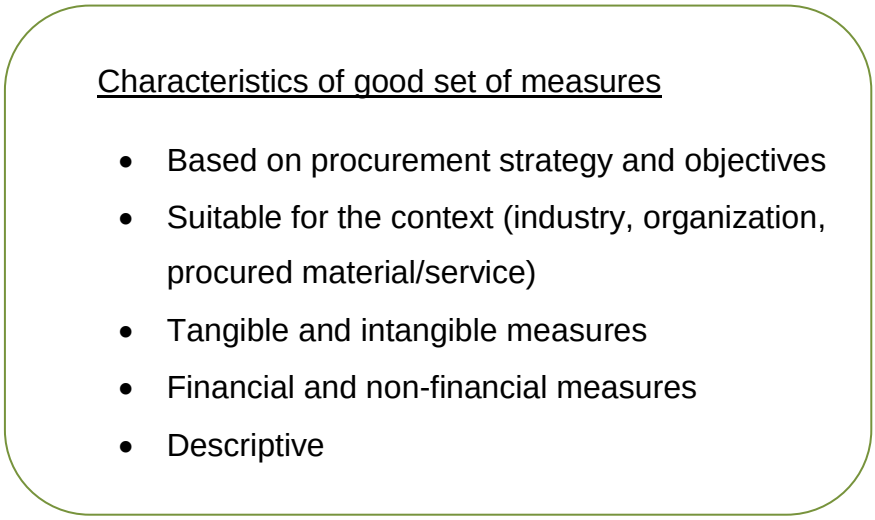

Figure 4. Characteristics of good set of measures

Neely et al. (1995) and De Toni and Tonchia (2001) divide traditional performance measures into four main categories: quality, time, flexibility and cost. In supplier performance context, studies have highlighted quality, service, delivery and price/cost as essential measures (Simpson, Siguaw and White 2002; Kannan and Tan 2002). Talluri and Sarkis (2002, 4257) state “while price has been traditionally considered as the single most important factor in evaluating suppliers, it has been agreed upon that value performance emphasis needs to include other important factors such as quality, delivery and flexibility”. Also Park et al. (2010) and Gunasekaran et al (2004) recognize cost, quality and delivery as performance criterion used for measurement. However, Araz and Ozkarahan (2007) bring up that supplier evaluation should be considered from even broader perspective, and not rely only on these traditional measures. Likewise, Simpson et al. (2002) mention that other criteria, like relationship factors and communication, have been noted in literature. In turn, Maestrini et al. (2018a) add innovation and sustainability as essential areas to be evaluated in supplier performance. As mentioned by Talluri and Narasimhan (2004), along with those operational measures, it is critical evaluate also capabilities and practices of supplier. This is essential especially in strategic evaluation which seeks for continuing long-term relationship with supplier (Talluri and Narasimhan 2004). Below table 2 summarizes central measures found from literature, by listed authors.

Table 2. Identification of certain measures by authors

Measure	References
Cost / Price	*Neely et al. 1995; De Toni and Tonchia 2001; Simpson et al. 2002; Kannan and Tan 2002; Talluri and Sarkis 2002; Park et al. 2010; Gunasekaran et al. 2004; Maestrini et al. 2018a Jääskeläinen and Thitz 2018; Elrod, Murray and Bande 2013; Prajogo et al. 2012*
Quality	*Neely et al. 1995; De Toni and Tonchia 2001; Simpson et al. 2002; Kannan and Tan 2002; Talluri and Sarkis 2002; Park et al. 2010; Gunasekaran et al. 2004; Maestrini et al. 2018a; Jääskeläinen and Thitz 2018; Elrod et al. 2013; Prajogo et al. 2012*
Delivery	*Simpson et al. 2002; Kannan and Tan 2002; Talluri and Sarkis 2002; Park et al. 2010; Gunasekaran et al. 2004; Maestrini et al. 2018a; Prajogo et al. 2012*
Time	*Neely et al. 1995; De Toni and Tonchia 2001; Elrod et al. 2013*
Flexibility	*Neely et al. 1995; De Toni and Tonchia 2001; Talluri and Sarkis 2002; Elrod et al. 2013; Prajogo et al. 2012*
Service	*Simpson et al. 2002; Kannan and Tan 2002;*
Relationship	*Simpson et al. 2002*
Communication	*Simpson et al. 2002; Jääskeläinen and Thitz 2018; Maestrini, Macarrone, Caniato and Luzzini 2018b*
Innovation	*Maestrini et al. 2018a; Elrod et al. 2013*
Sustainability	*Maestrini et al. 2018a*
Capabilities	*Talluri and Narasimhan 2004*

Above listed categories of measures can be described in more detail. According to Elrod et al. (2013, 39), “there are hundreds of measures used by different organizations in different industries”. Few specified measures for above listed categories are proposed here. First category, cost and price refer for instance to material and service costs, total distribution cost and warehousing costs (Neely et al. 1995; Kannan and Tan 2002; Elrod et al. 2013). Quality can be emphasized with quality of performance, in-bound quality, perceived quality, damages in

transportation, number of defects and overall quality of supplier (De Toni and Tonchia 2001; Maestrini et al. 2018b; Neely et al. 1995). Delivery can be described with on-time delivery, reliability of delivery, flexibility, lead time, correct quantity, delivery punctuality and number of shipment errors (Maestrini et al. 2018b; Kannan and Tan 2002; Elrod et al. 2013). Time can be measured with lead time of e.g. distribution, order or delivery and wait and response time (De Toni and Tonchia 2001; Neely et al. 1995; Kannan and Tan 2002; Elrod et al. 2013). As a metric for flexibility can be used the ability for product modifications and volume or flexibility of delivery (De Toni and Tonchia 2001; Neely et al. 1995; Elrod et al. 2013). Service can be assessed through service flexibility and availability, capacity and modification ability (Kannan and Tan 2002).

Relationship could refer for instance to communication and level of information sharing, mutual co-operation, problem-solving efforts and level of mutual trust, integration and commitment (Gunasekaran 2001; Maestrini et al. 2018b). Likewise, also communication can be assessed with information sharing and along that for instance with level of responsiveness and interaction and communication frequency (Kannan and Tan 2002; Maestrini et al. 2018b) Cousins et al. (2008) emphasizes the importance of communication measure especially in collaborative relationships. According to Maestrini et al. (2018b) invested efforts in innovation and level of sustainability in buyer's performance can be used as variables of these categories. Capabilities and practices refer for instance to the ability to change and meet new requirements, new product development, manufacturing capability, total quality management, zero defects and continuous improvement. (Talluri and Narasimhan 2004) As can be noticed from the listing, some categories of measures can have same emphases of measures. For instance, time and delivery has multiple similar characteristics as well as relationship and communication. It is not necessary to choose for instance one from each category but to evaluate and identify the ones that are relevant and suitable for own company, business type, strategy and measurement aims. Prahinski and Benton (2004) summarize that ordinary key factors to be measured along with overall performance are product quality, delivery performance, service support, responsiveness to requests of change and price. As an example of certain supplier category measures, Forslund (2012) provides metrics

which are relevant for measuring the performance of logistics service suppliers. Suitable variables could be for instance on-time shipment and delivery, flexibility, damages happened in transportation, quality of received goods and utilization on capacity.

Gunasekaran et al. (2001; 2004) represent another way to approach the categorization of measures. They recommend choosing metrics that are possible to connect to strategic, tactical and operational levels of decision making and control. Classification to these three levels allows that the metrics are assigned to the most suitable levels of decision-making (Gunaserakan et al. 2001). When evaluating supplier performance, strategic level measures are for instance lead time against industry norm, supplier pricing against market and quality level. Tactical level measures include the efficiency of cycle time of purchase orders, procedures of booking, cash flow, quality assurance and level of capacity. Operational level measures consist of ability to avoid complaints, defect free deliveries and adherence to timetable. (Gunasekaran et al. 2004) Dealing with inventory can be classified as operational level measure as well. Gunasekaran et al. (2001) state that it is most appropriate to assess inventory from operational perspective where quotidian inventory level is possible to be measured and monitored. This describe well the ide of diving the measures to the different levels where decisions are made.

2.2.2 Design of performance measurement system

When measures have been observed carefully, it is time to design the performance assessment system. Second phase continues with choosing measures but focuses also on the data collection planning, design and development of the system. This phase of the process is critical since it has a great impact to the efficiency of the system and success of assessment process. As stated by Neely et al. (1995), performance measurement system is a set of metrics, which are used to measure how efficiently, and effectively different actions are executed. Performance measurement system is formed from multiple performance measures. Bourne, Neely, Mills and Platts (2003) describe it as a use of multi-dimensional set of

measures. Multi-dimensionality refers to the balanced used of both financial and non-financial measures and use of both internal and external measures of performance. Caplice and Sheffi (1995) state that measurement system should not only be an assortment of individual metrics but a comprehensive and complementary set of measures. System should take a look into the performance from various perspectives instead of just one (Caplice and Sheffi 1995). Before going further on the phase of designing the measurement system, it is necessary to consider that chosen measures are truly a good and complementary set of measures representing multi-dimensional perspective. Based in literature, Maestrini et al. (2018a) summarizes three points of evaluating the design phase of the process. First is the completeness of set of measures, where crucial part is that those measures represent all the significant supplier performance dimensions. Second aspect is that it is necessary to involve relevant stakeholder to the design phase in order to guarantee wide points of views and knowledge. Third essential factor is to ensure that the purchasing strategy as well as the organizational strategy are aligned together with performance measurement system. (Maestrini et al. 2018a) According to Gordon (2005), it requires a lot of thorough business knowledge, familiarity of high-performance systems and understanding of measurement methodologies to design a powerful supplier performance measurement system. Rafele (2004) also note that it is not just straightforward process, and establishment of performance measurement system can be difficult. Maestrini et al. (2018a) see supplier performance measurement systems as critical tools for managers to control suppliers, and therefore the role of a system is so significant.

Design of the system combines the chosen measures to the way how measurement is going to be done in practical level. Like mentioned in the process of Gordon (2005), it is important to plan how to collect the desired data. It can be seen as the first step of designing the assessment system after choosing the measures. Gordon (2005) lists down that information can be collected via different kinds of questionnaires (paper, or web-based), certifications, site visits or by extracting the information from current systems. Forslund and Jonsson (2007) remind that measurement requires target levels. As a target, can be used for instance average

target level, which means that all suppliers have same target levels (Forslund and Jonsson 2010). Gordon (2005) recognizes few approaches how company can assess their suppliers. Measures and data can for instance be benchmarked against leaders on the industry, compared against best practices, measured against own certification or evaluation, or scorecards or internal feedback processes can be developed (Gordon 2005). Mentzer and Konrad (1991) mention evaluation against industry standard or benchmark company. Giannakis (2007) encourages to benchmark the measures against historical standards, target performance standards, competitor performance standards or absolute performance standards. Historical standards refer to previous performance, whereas target performance stands for a level that is seen as reasonable. Absolute performance standards consider performance on theoretical level. (Giannakis 2007) In this phase of the assessment process company decides how they are going to collect the data for measurement and to what figures the performance is measured against.

2.2.3 Deployment of system and measuring

Third step combines the deployment of the designed measurement system and actual measurement. In this phase all the design is are put into action. Deployment focuses on actions that are needed to execute prior to the measuring. Forslund (2012) summarizes that in measuring phase measurement data is actually captured and measurement reports are created. Forslund and Jonsson (2007; 2010) describe that there is not only one suggested frequency for measuring. They state that measurement can be executed, and reports created for instance even daily, weekly or more sparsely, for instance monthly.

Careful deployment of the supplier measurement system is essential. Gordon (2005) describes it as a one of the greatest challenges related to assessment systems. This may include collecting and modifying data from disparate systems. Information need to be linked all together and this may require a lot of IT efforts. Instead of extracting the data out of information systems, necessary information can be collected with use of questionnaires. Questionnaires require understanding on

how to plan and choose the accurate questions to gain legit answers to measure performance. Questionnaires also require a lot of efforts to get internal participants and suppliers to give their responds. Questionnaires themselves can be hard to control. If on-site visits and audits are decided to use as a measurement system tool, a lot of detailed training for personnel is needed. Altogether, a lot of knowledge about measurement, expertise on data collection tool and understanding of IT is required for this phase of the process. (Gordon 2005) Every company should utilize tools that are convenient for their business, stakeholders and overall measurement aims and be careful with deployment.

According to Forslund and Jonsson (2007), measurement and further on also analysis rely more on information and communication technology (ICT) which enables effective collection, communication and processing the data about performance. Likewise, Maestrini, Martinez, Neely, Caniato and Maccarrone (2018c) recognize the importance of robust information system infrastructure in successful performance measurement. They also note that technological knowledge, resources and investments are needed in order to have appropriate ICT system.

Forslund and Jonsson (2007) note that reports needed for measurement can possibly be generated directly from transaction system or indirectly by taking the data from one system to another platform for creation of final report. For instance, some ERP (enterprise resource planning) systems allow direct reports to be generated, whereas indirect, more manual reports can be created for instance in Excel by taking the data there from ERP system. (Forslund and Jonsson 2007; 2010) Forslund and Jonsson (2010) state that even though performance reports are usually generated manually, the companies who can create reports automatically tend to have higher level of performance than the ones with manual report generation. Many companies are forced to collect and use the data manually since the capabilities of their ERP systems are not sufficient (Forslund and Jonsson 2007). If company has chosen to gather the performance data on other ways than with use of information systems, for instance with questionnaires, internal feedback or visiting the supplier’s sites, these also require manual work, information conversion and

more additional steps before actual measurement and reporting. Reports are used to examine the performance of supplier and to compare it to the chosen benchmark levels. With careful analysis on reports, outcomes of supplier performance are created.

2.2.4 Feedback and analysis

Krause et al. (2000) note that providing feedback to suppliers is an essential part of the assessment process. It is necessary that buyers provide feedback and information about how suppliers are fulfilling and reaching the expectations which buyers have set up for them. Furthermore, Söderlund (1998) recognizes that feedback helps suppliers to notice the areas which are in need of improvement and where the performance is already in satisfying level. If supplier is unable to meet the expectations, buyer's timely accurate feedback gives an opportunity for supplier to change the course of its actions and to improve. (Talluri and Sarkis 2002, Prahinski and Benton 2004) Krause et al. (200) see feedback as a way to clarify the expectations of buying company. It has been noted that feedback works as a learning point for suppliers. Learning will potentially result in change of behavior and therefore in improved performance. (Söderlund 1998; Krause et al. 2000). Likewise, noted by Gunasekaran and Kobu (2007), in best case open and transparent communication works as a tool for better co-operation and increased level of performance. Suppliers' improved performance and the fact that they are able to meet the expectations, lead to higher satisfaction for the buying company as a customer (Söderlund 1998). According to Prahinski and Benton (2004), it is relevant that buyer brings up any problems they observe in order to have a working relationship also in the future. Performance assessment and feedback make continuous learning and improvement possible for both parties of the relationship. Gordon (2005) argue that there must be real dialogue between company and their suppliers. Efficient flow of information on both ways is required for efficient and open communication (Gordon 2005). Providing feedback can be seen as information sharing behavior from buyers, the customers side to the suppliers.

Forslund and Jonsson (2010) suggest that communication about performance can be done in several ways. Other practices require more integration with suppliers than others. Integrated system, e.g. web portal system, could be used to share the information, or then feedback can be provided in more ordinary way via phone or by arranging a meeting. Barut, Faisst and Kanet (2002) recognize that in order to improve performance in supply chain, inter-company integration and coordination and information technology play a remarkable role. Different kinds of solutions that information technology provides enable efficient and inexpensive management and coordination of different types of information, along with the physical flow of materials. Zhang, Van Donk and van der Vaart (2016) have found out that that inter-organizational ICT has direct impact on the performance of supply chain.

The final step of the supplier performance measurement process analysis. Analysis focuses on assessing the process of performance measurement itself. Key objective for analysis stage is to assist continuous improvement and decision-making proactively. It is about monitoring past performance in order to make decisions reactively. (Forslund and Jonsson 2007) The deviation from targets in performance is essential to analyze (Mentzer and Konrad 1991). Neely et al. (1995) state that revision of goals of measurement is essential. In addition, adequacy of chosen and used metrics should be analyzed (Mentzer and Konrad 1991). It is also relevant to reflect the examined performance output with the strategy which was considered in first phase of the process – how well these are aligned eventually. This helps to choose accurate measures for future measurement. (Forslund and Jonsson 2007). According to Gordon (2005), it requires mutual collaboration between buyer and supplier to develop action plans after full assessment process. It is also recommended to continue monitoring of performance frequently after these established plans. In this manner full benefits of the assessment process can be achieved. (Gordon 2005)

2.3 Benefits of supplier performance assessment

There are various reasons why performance assessment is seen as an essential part of supplier relationship management. Efficient evaluation and monitoring practices is seen as a tool to achieve and maintain the good and working linkage between customers and suppliers (Talluri and Sarkis 2002). Even though sometimes measurement might be costly and time-consuming, prior studies have proved that it has multiple pros. Maestrini et al. (2018a) highlight the overall ability to orchestrate suppliers. Buyer company can arrange supply base to match their needs by information collection and supplier performance measurement efforts. Buyer company can identify and invest in those suppliers that are aligned with their company's strategy. Measurement systems also enables identification of those providers who can potentially increase competitive advantage and develop this potentiality with use of development efforts. (Maestrini et al. 2018a) Measurement provides valuable information to buyer company for decision-making and actions (Caplice and Sheffi 1995; Gunasekaran and Kobu 2007). Measures enable the identification of deviations from standard level of performance in order to make direct actions towards improvement. Performance measurement also helps to educate and inform both personnel and suppliers about essential areas of performance. (Cousins et al. 2008) Schmitz and Platts (2004) state that along with allowing the identification of issues and their causes, managers are able to eliminate causes of operational problems.

According to Gordon (2005), by monitoring the performance, company is able to protect itself in advance from problems but also contribute improvement. Forslund (2007) mentions the possibility of improvement towards customer's expectations as the main objective for measurement in first place. Likewise, Schmitz and Platts (2004) found out in their study that establishment of supplier evaluation leads to increased level of performance. Simpson et al. (2002, 29) state that "without careful monitoring of supplier performance, a firm is unable to accurately assess whether its current suppliers are meeting the needs of the firm, and suppliers are unable to respond to unexpressed partner needs". Keebler and Plank (2009) focus on measurement of logistics performance. Reasons why companies measure

performance of logistics function are the ability to decrease operating costs, drive towards grown revenue and enhance the value for shareholders.

Tan, Kannan and Handfield (1998) have studied supply chain management practices, supplier performance, firm performance and relationship between these. For instance, they studied if it has any value to track how well suppliers are performing. They found significant relation between tracking on-time delivery performance and improved timely accuracy of supplier deliveries. Likewise, it was noticed that tracking acceptable materials is related to improved supplier performance of delivering acceptable materials. This indicates that performance tracking encourages for improvement. When it comes to firm's own performance, Tan et al. (1998) proved that assessing suppliers' actions benefit the economic performance of focal firm. For instance, regular visits at supplier facilities, demanding certifications for supplier's products and processes, and setting up goals for suppliers are found to be positively correlated with return on assets and growth of sales and market share. Gordon (2005) also emphasizes that effective routine of assessing suppliers possibly turns out in remarkable results *a*nd has an impact on return in investment.

In closer relationships between buyers and suppliers, overall monitoring and providing feedback have been noticed as a way of strengthening partnership. (Talluri and Sarkis 2002) In fact, it has been studied that in order to have a close, highly interactive and mutually beneficial strategic buyer-supplier relationship, monitoring and working towards improved performance becomes even more crucial (Cousins et al. 2008). Ittner, Larcker, Nagar and Rajan (1999) have discovered that partnerships where proper supplier selection and monitoring systems are not used, are not able to reach to the same level of profits, product quality and long-term suppliers than the partnerships who give attention and focus on these practices. The difference is found remarkable (Ittner et al. 1999).

2.4 Challenges and obstacles in supplier performance assessment

Supplier performance assessment is not always a straightforward process. There may exist different types of challenges and obstacles. There are some issues, which are seen as a challenge for managers while considering or executing the supplier performance assessment. And after all, not all organizations see performance measurement as important task. All organizations may not even pursuit it, and some who do, may not succeed in it or find it helpful. Schmitz and Platts (2004) remind that it is not any guaranteed method for success. As mentioned by Gordon (2005), it requires high level of understanding and knowledge about business but also about measurement and high-performance systems to successfully design supplier performance measurement system. Lack of these or complications on system deployment such as insufficient expertise in data collection and IT systems and staff training can hamper the measurement and results. (Gordon 2005)

Forslund and Jonsson (2009) have divided obstacles of performance management in buyer-supplier dyads into two: supplier relationship obstacles and operational tool obstacles. Supplier relationship obstacles can be related to lack of trust, mutual goals and parallel communication. Obstacles with operational tools refer performance data management. Gathering and registering performance data, and generating reports manually require more time and diminish the efficiency. If efficient systems do not exist or they are not functioning well, performance measurement becomes a hard task. (Forslund an Jonsson 2009) Likewise, Bourne, Neely, Mills and Platts (2002) identify the required time and efforts related to processing data and reports as a challenge. In addition, they recognize data accessibility and data accuracy as a challenge, which could be eased with IT systems (Bourne et al. 2002). It can be challenging to guarantee that all necessary information is available for necessary individuals and ensure that information is communicated both inside the focal company but externally to suppliers as well. Barua, Ravindran and Whinston (1997) have recognized the importance of efficient information exchange. If it is not arranged efficiently, information gaps may evolve. Gaps can turn into very costly, if teams and especially decision-makers don’t have all necessary and relevant information. Hence, the gaps have negative impact on the profit. (Barua et al. 1997)

Information systems and tools can make performance measurement more efficient and automatic. However, information technology and its solutions alone cannot enable and guarantee full efficiency: it requires that organizations exchange the information among each other and actually use it. Technology may make information sharing easier, but it is up to individuals and teams whether they actually share the information among others or not. (Barut et al. 2002; Barua et al. 1997)

Bourne et al. (2002) have identified and gathered different contextual, processual and content issues from the literature. Performance measurement requires time, expense and leadership, and there is a need for highly developed information system. The lack of, or inability for these is seen as contextual issues. Processual issues refer to the situations where strategy is not aligned with measures and resources, or strategy itself is inoperative. Some sort of tunnel vision is also seen as processual issue, since “striving for perfection undermines success” (Bourne et al. 2002, 1289). Content issues include for instance weak definition of metrics and possibility of too large amount of measures. (Bourne et al. 2002) Mentzer and Konrad (1991) identify two types for measurement errors. First is related to data collection. There is a risk that data is gathered incorrectly due for instance to human error (Mentzer and Konrad 1991). Greater number of manual steps of gathering and processing data increase the probability of the risk. Second problem is related to assignment of contribution. It can be challenging to address which contributions are outcomes of which tasks or functions. (Mentzer and Konrad 1991)

According to Neely et al. (1997), one of the main issues with performance measurement is that traditionally the focus of the measurement is not wide enough, or it is uni-dimensional. In choosing measures and design phases of performance measurement process the multi-dimensionality of the set of metrics was highlighted (Bourne et al. 2003). Chosen metrics should represent both financial and non-financial, and tangible and intangible measures, and be a comprehensive and complementary combination (Talluri and Sarkiss 2002; Ittner et al. 2003; Gunasekaran et al. 2001; Giannakis 2007; Caplice and Sheffi 1995). If measures are not balanced and chosen carefully enough, it may turn out as a shortcoming. Forslund and Jonsson (2007) note lack of standardized metrics and definitions of

metrics as obstacles. Implementation of measures requires a great amount of effort (Bourne et al. 2002). However, it is noticed that usually the challenge on supplier performance measurement is not on designing the system but the poor implementation, utilization and review (Bourne et al. 2003). Therefore, also deployment, usage and final analysis require a lot of attention. Overall, to be successful in performance assessment, it is critical to consider all possible challenges and find ways to overcome obstacles. Whole process of performance assessment must be planned truly carefully, and it requires a lot of effort and understanding about suppliers but as well about internal aspects of the company.

2.5 Supplier performance failures

Even though buyers demand and wish for impeccable performance from their suppliers and make efforts in assessing the supplier performance, it is sure that sometimes there comes up situations where full satisfaction cannot be reached. If the standard level of performance is not achieved, there occurs a performance failure (Johnston 2001). Supplier performance failures are deviations from standard and expected performance of supplier. If there appear any inaccuracies arising from the behavior or on the behalf of supplier, it can be seen as supplier failure or disruption. These failures can be those negative factors, regarding quality, service, delivery and other measures, that companies observe in supplier performance assessment. Handling the disruptions and failure situations effectively is essential on the perspective of supplier performance assessment, because negative performance deviation is one mark of supplier's weakness. It is a tool to utilize in measurement of supplier's performance. Therefore, it is relevant for buying companies to know how to collect, store, handle and use the information, because also the amount of these failures has an impact on suppliers' overall performance and therefore the whole interaction between buyer company and supplier. Performance deviations usually lead buying company to claim supplier or share a complaint (Johnston 2001).

2.5.1 Disruptions in performance

Bode, Wagner, Petersen and Ellram (2011) see supply chain disruption as interorganizational phenomenon that require at least two companies which are in relationship with each other. Disruptions are unexpected situations, where ordinary flow of goods or materials is disrupted in supply chain (Craighead, Blackhurst, Rungtusanatham and Handfield 2007). Bode and Wagner (2015, 216) define supply chain disruption "as the combination of an unintended and unexpected triggering event that occurs somewhere in the upstream supply chain (the supply network), the inbound logistics network, or the purchasing (sourcing) environment, and a consequential situation which presents a serious threat to the normal course of business operations of the focal firm." This definition includes wide range of different types of disruptions; for instance, supplier quality issues, delivery problems, supplier defaults and plant fires.

These disruptive events in supply chain cause financial and operational risks and may have direct and indirect negative effects resulting even major losses for the accompanied firms (Bode and Wagner 2015; Bode et al. 2011; Craighead et al. 2007). Losses can be pervasive. For instance, according to Hendricks and Singhal (2003), disruptions can even be so extreme that they have an effect on focal company's sales and market share as a loss. For instance, if supplier fails to deliver products on time, it may cause lack of inventory for manufacturing company as a buyer. This may turn out as a loss of sales if buying company doesn't have what to produce or sell for their own customers. Also, both severe as well as smaller errors can have an influence on the relationship between supplier and customer, the buying company (Sherri and Rice Jr. 2005). Failure may cause the disconnection of a relationship and result in notable switching costs (Primo, Dooley and Rungtusanatham 2007). Failures in products or services may lead to problems with downstream supply chain parties as well, which may hurt the image, credibility and reputation of focal buying company (Hendricks and Singhal 2003; Primo et al. 2007). According to Primo et al. (2007), those supplier failures that affect all the way in supply chain till end-customers, are seen most critical ones. In addition, serious

failures may end the relationship with supplier which may lead to further problems in supply.

At some level, it is impossible to avoid disruptions in supply chain (Craighead et al. 2007; Bode & Wagner 2015). Probability of disruptions increases easily, if flows of funds, goods and information among firms are highly complex (Craighead et al. 2007; Chopra and Sodhi 2004). In addition, Bode and Wagner (2015) recognize that probability of supply chain disruptions increases due to vulnerabilities in the inter-connected flows of materials, information and funds. Disruptions may arise from various sources, by internal or external factors, and disruption characteristics may vary majorly from one to another (Yu and Qi 2004, 16; Hendricks and Singhal 2003) Zhu and Zolkiewski (2015) mention that service failures may arise from service providers aberrations in invoicing, delivery schedule or issues in their internal communication.

All situation faulty situations in supplier performance are necessarily not as significant as supply chain disruptions tend to be. Some failures might not affect drastically on ongoing activities of buying company or cause serious threat for their ongoing operations. However, there have occurred some sort of deviation from the standard and expected performance. These performance deviations and errors can be for instance lack of quality of a product of service, incorrect number of goods delivered or delays and inaccuracy on timetables. These represents the situations where supplier is unable to meet the requirements agreed in contracts or for instance service level agreements. Whereas supply chain disruptions tend to have more long-lasting impact and they usually affect all the way to the customers of buying company, some failures only are seen by the buying company.

2.5.2 Role of complaints and claims

As highlighted already in supplier performance assessment, communication in supplier performance failure situations is essential. According to Primo et al. (2007), reacting to supplier failures is important for manufacturing firms, because their

dissatisfaction as buyers may cause switching costs or costs related to development. Johnston (2001) notes that performance failures lead to complaints. Complaints aims to identifying problems and making sure that failures would not occur again (Johnston 2001). In their study, Primo et al. (2007) found out that supplier's correcting actions to recover from a failure situation emphasize supplier's commitment to the relationship and thus, decrease the level of dissatisfaction of a buying party. According to Gruber, Henneberg, Ashnai, Naudé and Reppel (2010), complaint behavior and complaint management have an essential role in ensuring the continuation of relationship. They see given complaints as a second chance for suppliers. From the supplier's point of view, efficient handling of customer claims in supplier's end gives suppliers a chance to do it right and correct the occurred failure. With this they are able to minimize the disbenefits like costs of losing the customer and poor reputation. Therefore, it is important that buyer i.e. customer actually claims and submits complaints. Relationship between buyer and supplier is noted to be essential, because good relationship contributes to information sharing, more efficient communication and trust. These aspects help for instance to plan, coordinate, solve problems. (Fynes, Voss and de Burca 2005)

3 METHODOLOGY

This chapter focuses on providing information about chosen research methodology, research strategy and data collection. Furthermore, reliability and validity of the study are briefly evaluated.

3.1 Research methodology

This study is carried out as a qualitative research. Eriksson and Kovalainen (2008, 3) state that qualitative research enables focusing "on complexity of business-related phenomena in their contexts". Qualitative research is able to introduce new information about cases in real-life contexts (Eriksson and Kovalainen 2008, 3). Qualitative research does not aim at testing hypotheses or theory but viewing and examining on the data (Hirsjärvi et al. 2009, 164). As a comparison to other popular research method, quantitative analysis, qualitative research provides new, descriptive and complementary information which cannot be revealed easily and only with quantitative approach (Eisenhardt and Graebner 2007; Eriksson and Kovalainen 2008, 5). Since the idea of this study is to describe, explore and learn about the topic of performance assessment and claims, qualitative approach is most suitable research method.

Case study is used as a research strategy. Literature have studied case study strategy in supply management, supply chains, logistics and for instance business networks (Kähkönen 2011; Ellram 1996; Halinen and Törnroos 2005; Dubois and Araujo 2007), and it has been noticed to be an efficient research strategy for studying the topics related to these themes (Seuring 2008). Likewise, Voss, Tsikriktsis and Frohlich (2002) describe it as a one of the most powerful methods in operations management and particularly in developing a new theory. Eriksson and Kovalainen (2008, 115), describe case study as a research in which focus is on constructing, understanding and solving on particular case or cases. According to Seuring (2008) case study makes direct observation possible, which is seen convenient when for instance examining stages of supply chain. Case study allows describing of complex and challenging business issues in understandable and

detailed way (Eriksson and Kovalainen 2008, 116). Ellram (1996) note that case study is highly useful research strategy for building theory and providing explanations of “best practices” and building understanding about gathered data. For these reasons, case study matches well to the aims and objectives of this study.

Case studies also enable thorough analysis of contemporary phenomena if process of the research well structured and documented. Case selection, data collection and validity and reliability are seen as important criterion for elaborate case study (Seuring 2008). Seuring (2008) emphasizes the five-step process by Stuart, McCutcheon, Handfield, McLachlin and Samson (2002) for case study research. Those steps are defining the research question, development of instrument, gathering data, analysis of data and finally dissemination (Stuart et al. 2002). Seuring (2008) states that this process with mentioned criterion allows creation of beneficial case study research. Likewise, Kähkönen (2011) describes the research process of a case study. The phases of the process are literature review, defining research question, selecting methodology for research, selecting cases, choosing method for data collection, actual data collection, data analysis and conclusion. This study follows these phases of case study process.

Benchmarking has an essential role in empirical part of this study. Main idea of benchmarking is to identify best practices of performance in order to learn and achieve improvements and superior performance level (Bogan and Callahan 2001; Choy, Chow, Lee and Chan 2007). Benchmarking in supply chain context allows gaining information how other players perform the same task or process. It provides an opportunity to learn and improve performance by comparing company’s operations against other organizations. (Choy et al. 2007) In this empirical study benchmarking is used as a tool to reveal how other companies are executing their supplier performance assessment process and claim handling procedures. Identified practices of benchmarking companies are compared to each other and to the case company’s current procedures.

3.2 Data collection and analysis

Primary data for the empirical part of this study is gathered by interviews. Interviews are carried out as semi-structured theme interviews. Kallio, Pietilä, Johnson and Kangasniemi (2016) state that semi-structured interviews are versatile and flexible at the same time, and therefore it is highly used data collection method especially in the field of qualitative research. Semi-structured interview is type of interview between fully open interview and interview with entirely premeditated form. In semi-structured theme interview themes and preliminary questions are formed in advance, and they are same for all the interviewees. Predetermined questions are open-ended, because the idea is to gain open answers with interviewee's own words. Semi-structured interview allows the dialogue and gives an opportunity to additional questions emerging during the interview. (DiCicco-Bloom and Crabtree; Hirsjärvi and Hurme 2001, 48; Metsämuuronen 2011, 117) The interview is divided in two main themes which are supplier performance assessment and claim handling. Third, minor theme of the interview is the role of information flow. Interview questions can be found from Appendix 1.

In total six interviews were held for eight individuals from five external companies. Therefore, four of them were done individually, but two of them had two participants in same interview. Benchmarking companies were chosen from different kinds of industries and company sizes representing different types of businesses in order to gain a wide scope of perspectives to this study. Number of employees in chosen companies varies between 600 to almost 8000 in Finland, and in corporation level the number raises up even till almost 40 000 employees. The range of revenues in these companies is from 110 million to over 16 billion. Few of the companies are listed in stock market. Some companies are working in manufacturing, while some are in service industry. Benchmarking companies represented both process- and project-oriented businesses. Many of them have operations in various countries. Companies or interviewees are not described in more detail in order to ensure the full anonymity for everyone. Therefore, exact key figures and industries of the companies, or titles of interviewees are not specified more closely.

All interviewees are working closely with supply or supplier management or have strong understanding about practices and processes related to the theme. Departments that interviewees represented are listed in table 3. Even though the departments are slightly different among interviewees, all participants had strong knowledge and guaranteed topic-related expertise to share. Most of the interviewees are working in manager level or higher in their companies. The aim of the interviews is to gain information and insights of the ways of working of benchmarking companies. Idea is to benchmark their procedures and practices in supplier performance assessment and especially in claim management. In this study interviewed companies are called as Benchmarking company A – E.

Table 3. Summarization of conducted interviews

Benchmarking companies	Number of interviewees	Department of interviewee(s)	Duration of interview (min)
Benchmark A	1	Sales	59
	2	Sourcing / Development	55
Benchmark B	1	Top management	32
Benchmark C	1	Sales (formerly Sourcing)	46
Benchmark D	1	Development and Quality	68
Benchmark E	2	Sourcing / Compliance	79
In total: 5	8		339 (5h 39min)

Table 3 above summarizes the interviews. All interviews were conducted in skype and the duration of them in total was 5 hours and 39 minutes. All interviews were audio-recorded and transcribed for further analysis. In total of 76 pages of empirical interview data was created through transcription. Transcription allows comprehensive interpretation, examination and analysis of interview data. For analyzing the gathered data, the transcribed text was coded manually by grouping answers and categorizing the answers under same topics. By analytically benchmarking the interview data, the clear interpretations could be formed.

In addition to the interviews, data collection included observation and meetings and discussions with case company's personnel. This was relevant, so enough background information and understanding could be guaranteed. For instance, their current claim process was discussed with two different individuals from sourcing and logistics departments. Meetings and discussions included making notes and observations.

3.3 Reliability and validity

Reliability and validity are essential areas to evaluate in case study research (Kähkönen 2011; Voss et al. 2002). Seuring (2008) state that aiming for validity and reliability guarantees the quality of case. Reliability is related to the repeatability of the research and the fact if same results could be achieved (Yin 2003; Ellram 1996). Validity has several dimensions such as construct validity, internal validity and external validity (Yin 2003, 34; Voss et al. 2002). Construct validity refers to the fact if research describes the phenomena it should (Stuart et al. 2002). External validity is related to accuracy and possible generalization of results (Ellram 1996). According to Ellram (1996), internal validity is only required in case studies that aim for explaining relation between an outcome and some variable, and therefore it is not relevant for this study.

This study aims for reliability and validity. Few of the approaches emphasized in this study to guarantee quality are described here. Seuring (2008) note that clearly structured research process ensures the reliability and validity. Stuart et al. (2002) emphasize that by following a case study protocol, especially the reliability increases. This study follows carefully all phases of case study process: reviewing literature, defining research questions, selecting methodology for research, selecting cases, choosing method for data collection, collecting and analyzing data and conclusion. This particular process followed is represented by Kähkönen (2011). This ensures the good level of reliability of this study, since by following the same phases the research can be remade by some other researcher. Describing the data collection precisely increases construct validity (Stuart et al. 2002). Having

multiple sources of evidence in empirical part of the study, improves the level of constructive validity as well (Ellram 1996). This study emphasizes data triangulation and includes multiple sources to guarantee the scope of findings. However, if even greater number of interviewed benchmarking companies would have included to the study, validity would have reached even higher level. Ellram (1996) and Stuart et al. (2002) notice draft reviewing by key informants as a tool to increase construct validity, and this study is reviewed by case company's representatives.

4 RESULTS FROM THE EMPIRICAL STUDY

Empirical study focuses on case company's and benchmarking companies' practices. First, the current situation of the case company is discussed and analyzed and then, the situations in the benchmarking companies are described comprehensively.

4.1 Description of current situation of the case company

Case company of this study is a large manufacturing company. Under observation is procurement organization, i.e. purchasing and logistics department's practices on how disruptions and claim situations are and should be managed. Overall, case company has hundreds and hundreds of suppliers and specifically mentioned around 100 logistics service suppliers such as truck firms, shipping companies and terminal operators.

Currently, the purchasing department has an established process for handling disruptions and claims related to supplier. When the claimable situation is observed by any member of staff (for instance sales, warehouse, manufacturing etc. worker) or other stakeholder, it is necessary to give direct feedback to the supplier immediately, but also inform the purchasing team about this inconvenience. There is an internal form called reclamation notice for this. In the form, the observant describes what has happened, what is required and other relevant information. When receiving this form from the employee, purchasing team registers information from reclamation notice to the to the reclamation database excel. In addition, purchasing team will check the purchase contract and see if there is mentioned further procedures in case of lack of performance. Contract may include different kinds of clauses and pre-agreed sanctions. For instance, if delivery of product of service is late, contract may have a note of a penalty. If the person who originally observed the issue have not contacted the supplier yet, the purchasing team will do so at this point. Supplier is requested to reply to the reclamation within two weeks. Purchasing team has the primary responsibility to monitor that the claim situation is handled to the end.

Once a month the information from the excel is gathered by a member of purchasing team and sent to different cost units of the company. Individual who is responsible for the cost unit will check the information to see which claims are still open. They will inform to the purchasing team about current situation and further actions for the case. They also have weekly meetings where some individuals from sales departments of business units can see the excel and comment on cases. To manage the cases on higher organizational level, they have meetings with executives. Idea of the occasion is to go through the monetary value of claims; how much is financial compensation is demanded, how much is received from suppliers and how many claims particular supplier have gained within certain time period. If some supplier has had too much claims, the continuation of the supplier relationship is considered. They do have a black list of suppliers that are on hold.

Claim database excel is maintained only by purchasing team. Information to document on the columns of the excel are for instance the description of situation, topic of claim, order number, supplier, business department and information about demands such as monetary value. Also, the dates of original notification and informing supplier, and names of the individuals who observed the issue and created the claim are included. Topics registered to this excel are for instance delays, inaccuracy in invoice, quality issue, lack of products or service, broken matters, behavior of supplier or other inconvenience in the performance of supplier. With this excel it can be seen which cases are closed and which are still open. Open cases are marked with red color in the system. This claim database is also a tool to check if any particular supplier has had problems in the past etc. In 2018, there were about 150 claims and notifications registered in the excel. However, overall the system requires a lot on manual efforts, close updating and monitoring of the excel. All information input and amendments to the excel are done manually and for instance when some case is agreed with supplier and eventually closed, purchasing team member must change the color manually. All necessary reports and charts about the data are not created automatically by the system either. Moreover, this excel database is secured and it is not visible for everyone. If there occurs a failure and it is not informed to the purchasing team or on the other hand noticed by a customer of a case company, it is not registered and information about the case is

nowhere. Therefore, even though process and clear guidelines how claims should be managed exists, there are few obstacles that decrease the efficiency of the current system.

Case company have noticed that it could be useful to make this process more fluent, timely accurate, visible and practical. They also recognize the need to improve on receiving the notifications on time from the personnel and stakeholders and avoid delays in the process in that sense. Feedback and communication play a role in the claim handling as well. It is noted that it is "*matters that are arguing, not people"* and therefore there should be ability to inform supplier about lack of performance. All notifications and claims should be able to be done openly and easily. It is recognized that it will only improve the operations. Hardest cases are random cases and the ones with differences in perceptions between company and supplier.

If examining just the logistics department of the case company, the situation with claims is slightly different. They classify claims in two. There are the ones that are coming from their own customers. The claims that are refunded to the customer are documented to their ERP system by creating a complaint report. Therefore, information about them can somehow be extracted from the system and used. Also, some cases are documented in above introduced claim database excel. However, these are also observed by customers for instance in situations where subcontractors are responsible for logistics directly to the customers of case company. The other class is the claims that currently does not leave any trace. If the complaint report is not created, the information is not documented anywhere. These typically refer to the notifications that occur before the goods are delivered to their customers. Performance deviations to be noticed in logistics are for instance delays, being too early, less trucks than needed and damages during transportation. Case company mentions that few important factors in logistics are accurate delivery times, condition of equipment and vehicles, validity of transportation bookings and supplier's communication and reacting to bookings. There are no harmonized practices and systems established for company to handle claims or give feedback to their suppliers about inconveniences in their performance. All information is dispersed and therefore currently there is not any clear process. Some suppliers

such as operators in port may monitor their own failures and send reports on excel, but others do not share the information. While case company do not document the information themselves either, there is no data available about these situations. Majority of observations and information about failures and therefore dissatisfaction to supplier's performance stay as silent information within personnel. Sometimes, usually remarkably after the situations, the overall dissatisfaction is revealed as internal communication. However, at this stage it is too late to tackle the situations effectively and confront the supplier about the case. It would worthwhile to be able to handle supplier dissatisfaction and unregistered failures in preemptive manner.

Case company have the desire to learn about best practices for these supplier claims. It could be beneficial to have a clear system where information is gathered in one place efficiently. It would be ideal to have a system where both internal participants as well as external stakeholders, suppliers could register observed performance deviations. Current situation of not having a distinct procedures and system lead to the situation where there is hardly evidence to share with suppliers for instance when supplier audits or meetings are arranged. At worst, it leads to imbalanced situation where suppliers themselves know that they have actually performed under the level they notice case company itself to know and be aware of. Information asymmetry decreases the case company's ability to negotiate. Case company cannot use the performance information as leverage because it is not available. Case company mentions that it is hard to do efficiently anything related to the theme due to the lack of gathered performance information.

4.2 Supplier performance measurement in benchmarking companies

Supplier performance assessment is noticed as highly important task to execute. Almost all benchmarking companies have clear practices and procedures to evaluate performance of their existing suppliers. One of the main reasons why benchmarking companies are putting effort into this task is continuous development. For instance, Benchmarking company A notes that if they don't evaluate the performance and communicate those observations to the suppliers, either the

company or the supplier cannot learn and become better for the future. Development don't only look for internal operations, but also whole supply chain. According to Benchmarking company C, the aim of evaluations is on supplier management; what is the added value of supplier relationship and how to improve it. Three quotes below, from Benchmarking companies C and E, describe the significance of performance measurement and the improvement objective of this action.

"When you are able to identify something, then you are also able to do something about it." - Benchmarking company C

"You will get what you measure." - Benchmarking company C

"What you don't measure, you cannot improve." - Benchmarking company E

However, one of the benchmarking companies, B, has not taken actions towards clear supplier performance evaluation yet. One reason for why they do not see it as crucial task to execute, is their type of business. Sourcing and purchases do not play as crucial role for this business division that interviewee represented. Therefore, they have not established clear procedures or tools for the assessment. They have experienced remarkable growth in their business during recent years, and the idea is that sourcing activities and processes are harmonized in the future. This includes supplier performance monitoring and claim management as well.

4.2.1 Evaluation procedures and systems

Benchmarking companies have different ways of assessing their suppliers' performance. Almost all benchmarking companies recognized gathering information about performance deviations and claims as a tool for assessment. Most of them have an information system for registering the claims. Whether the system is specific for claims, or it is a part of ERP or procurement system. Some benchmarking companies focuses on evaluation once a year whereas for some it is

more ongoing, continuous process. Investments on assessment process depends on how critical the role of supplier is.

Benchmarking company A assess their suppliers based on information gathered about supplier performance. For instance, they systematically collect and manage information about claims. Deviations and issues in quality are measured through the claiming system and feedback process. Delivery reliability is measured from the data from ERP system. Performance is discussed widely in meetings with suppliers. Open orders, expected delivery dates and overall reliability of delivery are considered in meetings. Company A mention to have a calculation model and target levels to analyze the documented information.

Benchmarking company C uses a form of questions to evaluate their suppliers. This supplier survey is executed once a year to chosen suppliers. Comprehended questions depend on the category of supplied goods and services. For instance, questions vary between direct sourcing, indirect sourcing and services. Usually the individual in charge of the category is responsible for this task and content of the form. Evaluated matters can be related for instance to quality, logistics and deliveries but also to communication, product development and organization's ways of working in general level. About quality they check for example how often supplier have been out of specified product specs. They do evaluation in monetary level as well and monitor how many claims one certain supplier has caused and have those claims been compensated or not. Other fields of evaluation are corporate social responsibility, safety and ongoing projects. Internally, supplier's value creation is examined and compared to other suppliers in same category. It is important to see how well competitive suppliers have performed against each other. Suppliers' performance is not only compared to other suppliers, but also to their own previous performance. It gives information to the focal company about in which direction this supplier is going; have they taken steps back or further or has the performance stayed in same level. Category-specific measures are usually related to key performance indicators (KPIs). For instance, delivery time from day of order, working capital and delivery accuracy can be assessed. Findings are discussed with

supplier. Company creates business plans and development plans for next year based on this evaluation.

Benchmarking company E has clear assessment process. Essential and distinct way to evaluate the performance of their suppliers is their supplier feedback system. This system is an integrated function, so-called supplier register, on their procurement system. Through this feedback system, the “users”, personnel of the company will give evaluation and even numeric rating about supplier’s performance after every delivery or service. Feedback form has standard questions and a chance to give open feedback. It also includes a question whether supplier is recommended to use again or not. All given feedback information is accumulated in supplier’s data and based on every suppliers’ information; performance register is formulated. Basically, after the order is finished off, meaning that the job is done or materials have been delivered, the person in charge of the project will receive a reminder about evaluation. It can be done right away or all at once after project by an individual or a small team who have been a part of the project and cooperation with supplier. However, there is always a chance to give feedback and it is not tied only to a particular moment. Although, it is valued that feedback is given when it is still on fresh memory. Standard questions for everyone, and numeric values enable efficient monitoring and analyzing of performance. It makes the comparing easier since every evaluation is done in same form. Timely they assess their suppliers continuously, but in project sense it is usually done once. Through the system they hold performance information about particular supplier from several years. In benchmarking company E, suppliers’ performance is compared to high class supplier, who has been acknowledged as a superior level supplier for the company. In addition, performance is assessed against the average performance of all suppliers. Along with the feedback system, they have started to implement another system which supports the information gained through given feedback. It is tool on mobile, which focuses on safety. Supplier data related to safety is registered though this mobile system. Procurement organization do not gather this information themselves, but they use it and combine it to the supplier feedback data.

Benchmarking company D does daily performance assessment more based on the assessment of their intra-organizational performance. Failures on supplier performance are observed through the obstacles in their own operations. For instance, if they themselves are not able to keep the schedule on time, it may be caused by performance of supplier or sub-contractor. They do not have exact measures for assessment, but observations are typically related to delivery accuracy and quality. These observations are not clearly documented, but they consider having clear feeling about performance and responsiveness of particular supplier, based on daily operations. The failures that cause customer to claim the benchmarking company, are documented. However, they have annual meetings and evaluations with their largest subcontractors, where overall performance and processes are discussed. Claims and followed actions of past year are also taken into consideration. This assessment includes also on-site visits and observations, for instance about usage of safety gear. Theme of the assessment may emphasize different topics on different years, but discussion may include for instance how subcontractor is managing risks. Currently meetings are arranged with only few of the largest subcontractors but in the future the aim is to expand it to cover wider scope of the subcontractors and other suppliers.

4.2.2 Measures used for assessment

First measure to mention by almost all benchmarking companies is quality. It is seen as truly essential area to measure. Quality was noted as most important measure for benchmarking company A's project business due to major cost effects if goods and services are lacking in quality. Another measure is about accuracy and reliability of deliveries: if services and goods are delivered on time. Dependency on suppliers is high, since work cannot be continued and done if delivery is late. Quality and delivery accuracy were the most highlighted measures of Benchmarking company A. While Benchmarking company D does not have clear established measures, but the assessment is based on daily observations, they mention that those are often related to delivery and quality.

As mentioned in their assessment process description, Benchmarking company C uses quality, delivery, communication, responsibility, safety and number of claims as measures. Claims are analyzed also from monetary perspective. Other measured topics are related to supply capability, innovation and cost. Also, suppliers' success in ongoing projects and performance in general level are evaluated. Measures vary between supply categories and can be attached to the KPIs of the category. For instance, delivery time from day of order and delivery accuracy are measures related to KPIs.

Benchmarking company E mentioned that their supplier feedback form includes questions related to schedules, responsibility themes and fluency of cooperation. Measures are about work safety, environment, quality, reliability of timetable, number of claims and overall compliance with the contract. Some of the questions and measures evolve from values and strategy of organization. However, those have not been chosen directly from the organization strategy and politics. But clearly, the topics which are close to the whole company in strategic level, are important in sourcing and therefore highlighted in assessment as well.

4.2.3 Supplier categorization for performance assessment

Different types of suppliers are evaluated in different ways. Since company A has about 10 000 suppliers in over 50 different countries, there is no time or even need to assess all suppliers equally. Either, it would not be cost-effective. The assessment process is more active and important with suppliers on key role. There are about 100 suppliers with key status. If purchases are done with low monetary value once a year, there is no point to assess them actively or invest on them similarly as on more important suppliers. They use four-step supplier categorization. Categories are key suppliers, partner suppliers, main suppliers and suppliers. Majority of the suppliers are in the "lowest" supplier category. With these suppliers, transactions are simply made, and communication is kept in minimum level. Liaison increases with main suppliers compared to routine suppliers. Also, some acts of development and support is provided for main suppliers. The level integration and

investments on relationship are higher with partner and key suppliers. With these suppliers, the focus is on innovativeness and close collaboration aiming to provide added value to the customers. It includes deeper relationship and integration in multiple levels.

Benchmarking company D has also some differences on assessment of different types of suppliers. The categorization is done in multiple levels. For instance, suppliers are divided also based on their importance and some suppliers are identified as more crucial than others. More seldomly used service providers are not evaluated as often as more crucial players. In categorization, they consider the turnover that supplier holds for their business. Additionally, supplier categorization it is based on the status, and the permissions and possibilities the supplier has to the internal information and systems of the focal company. They also consider suppliers based on if they are producing the end-service from the point of view of customer of Benchmarking company D or not. Overall, importance of assessment and invested efforts increase by the role of suppliers and subcontractors.

Benchmarking company C also utilizes categorization in assessing their suppliers. Thus, all suppliers are not evaluated in similar way. Categorization varies a little bit and as a tool they can use for instance Kraljic matrix. It gives guidelines to suppliers' importance and strategic position in their supplier base. In addition, suppliers are divided as primary supplier, secondary supplier etc. All suppliers in same category are assessed in same way. It enables the comparison.

Benchmarking company E has this standard questionnaire about their suppliers' performance in their feedback system. Per se the evaluation form is same for all, but as a pilot project they have designed different questionnaire for some specific type of suppliers. They recognize some certain challenges related to their standard feedback form due to the wide variety of different types of suppliers. It depends if supplier in question is material provider or for example sub-contractor. Since this issue is identified, they have added an answer "not able to be assessed" to the form. Some questions, such as quality related aspects, fits to both types of suppliers. The aim is that as great amount as possible is providing feedback about suppliers with

the same questionnaire. Even though they have clear guidelines and form for assessment, it won't always cover all suppliers. They have prioritized larger suppliers and suppliers who have greater yearly spend. Nation-wide and some important regional suppliers are being assessed also. In addition, some of who they don't have previous experience, but they see the potential in may be taken under evaluation. There is always a possibility to give feedback about all suppliers, but these groups have been given extra effort and resources.

4.2.4 Assessment outcomes and benefits

According to benchmarking company E, assessment information is used both internally and externally. Internally they consider continuous usage for the information and it has an impact for example for supplier selection in future. Externally, evaluation information is often forwarded to the suppliers and used in meetings between suppliers and procurement organization. As examples they mention situations such as supplier audits and follow-up meetings with certain periodic suppliers. Further on subsequent meeting it is monitored how performance is evolved after first meeting. They gather new feedback after meeting and see what kind of rating the supplier receives. This encourages suppliers to make changes and develop especially on areas that require improvement. This process includes action plans and objectives. It is agreed together with supplier how current situation is developed into better direction. This process has been proven to be highly successful and higher performance have been reached in several cases. Thus, multiple suppliers appreciate that buying company is able to provide this sort of information to them. Suppliers find it very useful to receive clear and accumulated feedback from their customer. Company E see this process as a tool to build the supplier cooperation. It is seen as an easy way to open up the conversation with suppliers. In addition to action plans and meetings, overall assessment can lead to a nation-wide reformations and product development.

The reason why benchmarking company E values performance assessment high is the possibility to learn more effectively from experiences. Information about previous experience is crucial to spread out to the geographically diffused organization. This enables that the exact same thoughts and notices are not faced in every project again and again. Because the information and performance knowledge already exist, new projects can be carried out in preventive way and with fewer distractions. Another valuable aspect of performance assessment that it is a channel to identify performance deviations and failures as well as success in performance. They do not only pay attention to the errors and negative deviations, but also well succeeded suppliers can be even rewarded. For instance, suppliers with high ratings in safety and quality have been acknowledged. As key benefits, company E identifies internal learning and improvement in communication. Furthermore, the possibility to get involved with deviations and act against them is seen as an essential gain. In order to get better in future, it is important to be aware of current level of performance not only on one project but also in regional and national level. Overall this aims towards improving the productivity, responsibility and safety together in cooperation with suppliers. Clear performance assessment also increases the transparency and visibility of supplier's performance especially inside the focal company.

As added value of assessment, Benchmarking company C recognizes the identification and elimination of aspects that take too much energy and resources. Likewise, Benchmarking company A recognizes the benefits on lean thinking in this theme. Also, identification of cost drivers in supply chain is essential – as company C say; "*when you are able to identify something, then you are also able to do something about it*." They also aim towards higher service level. Overall, transparent supplier-buyer relationship is seen to bring value. Benchmarking company D mention that assessment provides proof that supplier's performance and service level can be trusted. It also is seen as a tool for continuous improvement.

Benchmarking company A considers that suppliers are aware about assessment and the measures used to evaluate their performance. These topics are discussed in supplier meetings, so suppliers have knowledge about them being assessed. In addition, most active suppliers have access to the information system, where they

have information e.g. about their late deliveries and how well they have performed. Based on this information, they are able to do their own analysis and improve their performance actively and automatically on their own initiative. Benchmarking company E considers that prioritized suppliers are aware that they are assessed, but not all members of their supplier base. Although internal feedback is given about supplier, it is not always forwarded to the supplier. These suppliers might not know about assessment process. They add that through process of competitive tendering and other occasions the information about assessment is reaching suppliers.

Benchmarking company C and company D told that evaluations may trigger an additional auditing process. It is seen as a remarkable procedure. In supplier audit, they would go to a supplier's premises, for example to production plant. Audit process includes corrective actions. Other actions taken by company C after an assessment are development projects with supplier or simply notifications to supplier. In multiple cases there might not be straightforward solutions, but often the situation is tried to solve and improve together with supplier. They invest in supplier development in this kind of situations.

As an outcome, for instance Benchmarking company A mentions that in worst cases the supplier is blocked. Relationship ends if performance deviations that are too large or it happens continuously. If any changes in poor performance is not seen, or overall it is seen as too challenging, relationship might be terminated. Benchmarking company A mentions that the aim of the assessment is not to use it in contract negotiations as a leverage for price discounts. Likewise, Benchmarking company C mentions that if supplier for instance have too many claims and failures in their performance, the result may be that supplier cannot continue as a part of their supply base.

4.2.5 Challenges of performance assessment

Measurement requires a lot of work. Benchmarking company A recognizes that measuring, for example through claims, requires internal work to register the claim

into the system and fill up every column. It is seen as an internal challenge to encourage the employees to bother do it between other tasks and busy days. Benchmarking company D recognizes the same kind of challenge. Assessment is seen as a task that no one is eager to do, and it is challenging to find time for it that suits for all. Similarly, Benchmarking company E identifies that it is challenging to get all experiences and feedback to be documented to the system. New processes and systems may create some resistance amongst the company personnel. Some individuals may see it as a waste of time and do not necessarily recognize the benefits of this action, especially when it is not directly related to their own daily tasks. Therefore, it is crucial but also challenging to raise the awareness about the benefits of the given feedback. To tackle this challenge, they have tried to increase the communication about long-term benefits and positive experiences especially on internal training occasions. They have invested a lot of resources for this for instance with the help of summer interns. This helps every user to understand better the bigger picture of the feedback process. In case there is a technical difficulties or lack of knowledge with the system, they always try to provide help and support. In addition, feedback should be input carefully to the system. Feedback implicates subjective perceptions of an individual or a team, and this poses a challenge. feedback will not give full overview of the situation, if it is given in a hurry and without a thought.

One central challenge that was recognized by company C is choosing the measures. There arises a question how to choose correct measures and whether the chosen ones will function well or not. If measures are chosen unsuccessfully, it won’t bring any valuable information. Along with finding suitable measures, both parties’ obligation to chosen measures was noted as main challenge. In addition, when company operates in various countries, it brings up the issue of un-harmonization of procedures. Different habits of working increase the obstacles of measurement. In addition, benchmarking company A mentions a psychological approach that it is not always that pleasant to bring up the challenges and discuss about them with different stakeholders.

4.3 Handling of supplier failures and claims in benchmarking companies

Importance of monitoring and gathering information about failure situations is recognized in benchmarking companies. Almost all companies collect and monitor this information actively. It is seen as a tool to assess supplier performance. Claims and lighter errors are documented in different kinds of information systems. Three out of five benchmarking companies have a particular information system or electronic tool for registering and managing claims. Number of actual claims varies among the companies due to their type of business and processes, but supplier claims are noticed to occur from few in month to thousand in a year. In some companies the activity of following occurred disruptions and claims plays a greater role than in others.

Homogeneous approach among the companies is that failure situations to recognize are majorly related either on quality or reliability of delivery. These topics were highlighted by almost all benchmarking companies. Quality problems were referred as situations were actual quality is poor or the amount of goods is insufficient for instance. Quality errors refer also to situations where product or quality is out of specs or there occur a timing error or faulty packaging. Transportation equipment, such as condition of a vehicle may also lack in quality. Safety is also a central theme in error monitoring for many benchmarking companies. As an error in safety, is seen for instance the lack of safety gear, such as safety vest, in mill areas or production sites, where safety equipment is absolutely required. All kinds of disruptions do not cause financial issues. Benchmarking companies follow up also minor errors.

Benchmarking company A clearly divides *supplier claims* and *feedback* as two different topics. Same approach applied to the Benchmarking company E. They see that more official performance deviations are categorized as claims. Examples of situations that turn out as actual claims are remarkable delays in delivery which cause delays for the focal company or clear quality errors for instance. Claims often include aspect of money. In most cases, smaller failures which are not that remarkable do not result in as claims. Often, those do not require any further procedures, but they are always noted. These minor situations do not always have

direct impact on timetables or financial aspects. They are more about the fluency of supply and work tasks, and the happened performance in comparison to what is agreed. Example of minor, feedback-level error could be for instance the lack of safety gear. Benchmarking company E collects also information about positive performance and provides this feedback to suppliers as well. Deviations are often recognized though the earlier referred supplier feedback process. Quite similarly, Benchmarking company C divides deviations in supplier performance as *claims* and *complaints*. Complaints are similar to feedback as in other two companies. That is more like notification-level act, whereas actual claims usually include monetary demands. Claims are always documented in the system, but complaints are not in every case. Registering complaints require a little bit more consideration – tiniest notifications are left out. It must be in some way relevant complaint so the rationality in the system is maintained. Resources are eventually limited and there is no time or place for every tiny notification. Benchmarking company C mentions that complaints that are related to safety are always considered as significant. In addition, frequently happening failures that do not include clear damage or financial compensation, for instance errors in delivery or invoicing, are registered as complaints. Benchmarking companies emphasized the failures which have impact not only on them, but also on end-customers, as the most critical ones. These failures are most visible ones and it often leads to the situation where end-customer also claims the focal company

4.3.1 Reasons to register and document information about failures

Registration and tracking the performance deviations is highly related to supplier performance assessment. Moreover, it is one remarkable part of it. Companies utilize the collected information to evaluate their suppliers and continuously aim for better performance – theirs and their suppliers'. Benefits of overall performance assessment described in chapter 4.2.4 apply to collecting information about failures as well.

Benchmarking company C sees low-performance documentation as a part of supplier assessment, which is part of their supplier relationship management. They have different supplier programs for different supplier categories. All the information is gathered to one place. Data files include supplier evaluations, how suppliers have performed and how many claims they have had. It is also a tool to see which direction the performance is going and what should be done. Systematic collection of information makes it convenient to find and utilize. Main objective of, not only supplier relationship management, but also registration of claims and feedback, is performance improvement. It also works as a guideline for suppliers and take both parties of the relationship further. For Benchmarking company E, primary aim of documentation of information about performance deviations is that company is able to react to the poor performance and correct the situation.

Harmonized and integrated system within company allows wide accessibility for the information, according to Benchmarking company C. Even though accessibility is a clear benefit of an information system, the access to the claim information is limited. Not everyone has a permit to this performance data. It is limited to relevant personnel. Access is limited due to the additional, even sensitive information and prices which are documented. Harmonization, accessibility and visibility is also something Benchmarking is aiming at with their future changes with systems described below.

4.3.2 Claiming process

Benchmarking company A has quite clear process on claiming suppliers about performance failures. Procedures might vary a little bit among the business divisions and countries in global level. In fact, soon they are going through a change and the aim is to harmonize the process and update systems and tools to match in all units over the world. In this particular unit the interviewees represent, the current process goes as follows. When failure or performance deviation is recognized, the responsibility to create the actual claim is on procurement organization. The person (e.g. buyer or category manager) who is responsible for the supplier in question,

creates the claim in the claiming system. Creating the claim includes variety of information, such as description of failure and information about demands. At first, claim appears with Draft status. After this, the claim is sent to the supplier. Suppliers who are using extranet page, will receive the claim through it. Otherwise it is sent via email. At this point the status is under reporting; it waits for supplier's actions. Some business units monitor the time of reporting very closely. It has even set as a key performance indicator (KPI) for some units. Then, supplier enrolls their counterwords, such as their own perception, pictures and possible remedial actions for short- and long-term. Then it is returned to the company and status is changed as reported. If there has been demanded monetary compensation, status will wait until money is received. When the claim is accepted by both parties, it is removed to archive.

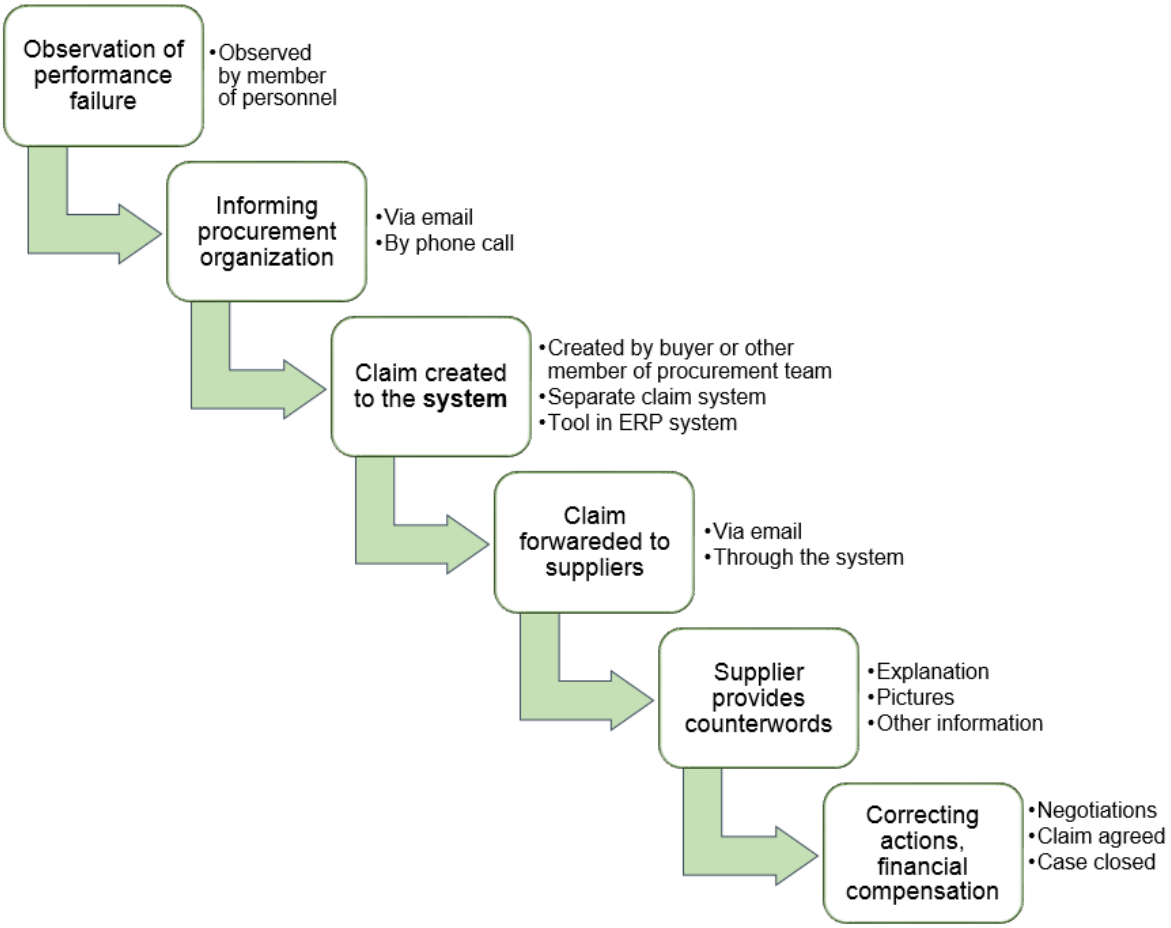

Figure 5. Typical claim process of Benchmarking companies A and C

The claiming process of Benchmarking company C is mainly same as process above of company A. Process is described in Figure 5. A “user” in some part of the company comes across with an issue and takes the initiative about the claim or complaint. Topic is forwarded to the buyer, who is responsible from the category of supplied product or service. The buyer creates and finalizes the claim and sends it to the supplier. Their ERP system has a function for creating and managing claims. Notifications and claims are sent via email to the suppliers. Supplier receives and analyzes the claim and gives their feedback to the topic. It can take a while to finish up the case because it may include negotiations, verification of different related matters and change of opinions and perspectives. Case is eventually solved and agreed. Finally, the topic is taken back to the user who originally observed the error to see if it is ok now. Process includes corrective actions from supplier. When supplier have performed those and it is once more checked by the buyer that everything is like it should, the claim is closed. The buyer is responsible for the claim, process and closing.

Benchmarking company B has wide variety of practices for failure and claim management. They don’t have one particular process. It seen as a challenge since every division in the company has little bit different background and organization culture. Their remarkable growth in recent years has also an impact on the yet quite unharmonized model. They mention that claims are not very frequent matter for them. Those ones they have are considered as quite fast to solve. Main rule is that once the issue is recognized, they contact supplier directly. Person in charge of the department or unit will inform supplier by call. In their own words, many of the cases are “*ad hoc matters which require quick reacting”.* Email is used in cases that are not that urgent. The scope of the issue is examined. They have two main questions and demands for suppliers; which the correcting actions are and how they ensure that this incident does not occur again. They do not have any system to register these claims. They have a system for internal processes (production machines and capabilities of those etc.) and supplier performance deviations e.g. in quality may appear in it, but that is not the core purpose for this particular system. They have morning meetings where occurred failure situations are discussed internally

together. They note that their good, close and long relationships with suppliers help on solving the situations.

Due to the type of business, in Benchmarking company D they do not clearly notice suppliers' failures by themselves either, but they notice them through their customer claims. Claims are noticed in downstream of supply chain by customers or even by customer's customers. Typically, when customer claim is received, investigation about where the mistake has happened takes place. They have a lot of suppliers and also sub-contractors, and therefore it can sometimes be a hard task to identify the exact situation and moment of time when error has first occurred. When the party in charge of the failure is identified, the error is discussed with them usually via emails. Also, correcting actions are required and monitored. Some situations, for instance clear damages include also money. Finally, feedback about the case is sent to the customer who observed the failure in first place. They have recently employed a person for new position to control risks and claims. The customer claims and analyses about them are centralized for this person to manage. They have a system which is principally focused on areas of health, safety, quality and environment, but it has a dimension to manage customer claims as well. Claims are not registered to this system by customers directly but the controller documents them in there based on received customer claims and further investigation. Since they do not typically identify disruptions of suppliers by themselves, they do not have special system for only supplier-related claims. Daily observations related to suppliers' performance and behavior are not yet documented in this system where customer claims are nowadays recorded. If their own personnel recognize the non-performance, it is most likely fixed in scene. That often includes revising and clarifying the instructions are guidelines. Other errors that are noticed during own operations daily, are handled with direct feedback by calls or emails. Information about failures is only on individuals' email folders or in their thoughts. Therefore, supplier performance deviations are not clearly documented at this point. However, some information may be registered to their ERP system due to other tasks, but not as a primary purpose.

Benchmarking company E do not hold clear separate process to handle claims, but they receive a lot of claimable information through their supplier feedback system. As mentioned on the description of this feedback system, personnel provide feedback into the system after every delivery or project. It is encouraged to give the feedback directly after, but there may occur even quite remarkable delay until the issue is turned out as actual claim. Thus, the information about significant error should be forwarded to the sourcing unit in another, additional way as well. That is also a demand in order to avoid the delays in the process. Nevertheless, they trust that in severe cases the information finds a way to the correct people. Technically they have an actual tool to register claims in their sourcing system, but that is not effectively used always. Personnel informs sourcing unit about errors and failures through other paths than claim system as well. Personnel may call or send email to the sourcing unit or handle the situation directly with suppliers. Sourcing team see that the most important aspect is that the observations and errors are forwarded to them in one way or another. After all, Benchmarking company E have recognized the need for clearly described claim process, and they have had discussions about establishment of one.

4.3.3 Systems for claim handling

In the benchmarking company A, the current system where reclamations are handled, is used especially for claiming. In future, the plan is to manage these in ERP system. Not all failures are documented in the system. Most typically the situations which are registered as claims, are so called hard claims. These claims often include monetary demands or at least clear change for performance of supplier. Smaller failures are not always registered to this specific claiming system, but benchmarking company A also has a tool to register and handle internal feedback. Feedback from company personnel may be related also to the acts of supplier, so it can be seen as tool to support the claiming system as well. In addition, Benchmarking company A has other information systems that include supplier data. Claim information is taken from current claiming system to the data warehouse where all supplier related data is combined. It includes information from ERP

system, supplier relationship management (SRM) system and claiming system. They have different types of reporting tools to analyze all this information. They view the overall situation with suppliers, delivery reliability and open claims. These topics are discussed in key supplier meetings. In addition, quality department of the company focuses on reasons and locations of claims and the number of them. This examination is done in order to identify problem areas.

Like mentioned, benchmarking company A is going through a change with their claiming system. This implicates the importance of the topic for their business. With this change they are trying to reach more harmonized system and overall transparency. In addition, they are seeking for synergies about their suppliers and different businesses of the company. They have had some difficulties that more than one business unit is using the same supplier without knowing about other's actions. They are trying to increase the level of transparency between the business units. Therefore, it is important to know if another unit has faced some obstacles or errors with this particular supplier. It increases the overall knowledge about the supplier and its capabilities and lack of competence as well. It is important to be aware of these even though it would not have an effect on own business at that very moment. Benchmarking company C already registers and handles their supplier claims in their ERP system. Functionality in ERP system is designed for this action.

Benchmarking company E handles performance deviations based on the information gained through their internal supplier feedback system. The system enables efficient identification of errors and deviations in performance. If supplier has repeatedly received weak assessment, it will appear on a report. Currently, report if formed manually in Excel from supplier data. Automatization would be ideal, but it is not currently possible. Also, it would be desired that all deviations would emerge more clearly from all the data, but current system do not allow it yet. Deviations are analyzed from certain period. Report includes information about causes of the error and all other relevant information. Then, the issue is forwarded to a person who is responsible for the certain supplier. This report guarantees that the situation is handled with supplier in one way or another by the person in charge of the case. This individual will potentially meet up with the supplier. In the meeting

the issue is discussed thoroughly, and correction plans may be made together. Agreed correcting actions, or the fact that those are not needed, are documented in the report. Overall this process allows meetings also with suppliers with whom meetings would not be necessarily normally arranged. In lightest cases performance deviations are handled with emails, but extremity is a meeting with executive board.

Deviations noted by the use of supplier feedback system of can work as a basis for actual claim. Benchmarking company E have a tool to register claims in their sourcing system, but currently the usage of this system is varying. Idea is that with the use of this tool, the information about errors is visible for others in the company as well. Some cases are not registered in the system, even though it exists. It is encouraged to manage claims through the system but still some are handled with emails only. If system is used, the claims are recorded in supplier's files, but clearly the emails are not. Benchmarking company E is aware of current lack of coverage of the system.

Table 4. Summary of claim handling in companies of this study

	Monitors supplier failures	Has clear practices	Has an IT system	
Case company	L	L	N	
Benchmark A	Y	Y	Y	
Benchmark B	N	N	N	
Benchmark C	Y	Y	Y	Y = Yes
Benchmark D	N	N	N	L = Limited
Benchmark E	Y	L	Y	N = No

Table 4 above summarizes performance failure and claim monitoring in case company as well as in benchmarking companies. Table includes only the monitoring and systems of self-identified supplier failures – not disruptions noticed via customer claims. Having clear practices refers to established practices related to claims. Marking "Yes" to the table requires also that practices are being followed within

company. Having IT system means that company has an information system to handle failures. As a summary can be noticed that two of the companies are not clearly pursuing information gathering about supplier failures, whereas three companies have invested more efforts to it.

4.3.4 Communication about failures

Interviewee of company C mentioned that "*all problems in a company are management level's problems, and 90 % of them are because of communication".* Therefore, communication is seen as a highly important factor for business. Benchmarking companies noted the cruciality of communication and highlighted the need of open communication and transparency with suppliers. Communication is seen as necessity but also a challenge. Challenges occur due to different kinds and sizes of failures, in different geographical areas and time zones. If communication is not working in proper way, neither party of the relationship will learn.

Important aspect on handling all kinds of situations with suppliers is that company A meets up regularly with their key suppliers, approximately in every quarter of the year. On these meetings all disruptions, deviations and claims are discussed through along with other topics, such as development of operations and relationship. It is a clear way of giving both positive and negative feedback and consider the performance of both parties of the relationship. Main reason for these meetings and the fact that failures are discussed together is the aspiration to develop the operations and actions. The way of communication and feedback about faulty situations and performance deviations depend on the criticality and complexity of the error, and the situation overall. According to benchmarking company A, some situations require instant communication, and in "lighter" cases it might wait until the meeting. In many cases the error is so urgent that remedial actions are needed right away. For instance, the industry and the project type business of the benchmarking company A requires extreme accuracy of delivery timetable, so failures might cause tremendous problems on operations and in financial level as well. Failures in performance may mess up timetable of the project, stop all the work and can cause

even a million euros of costs. Sometimes suppliers share information about possible negative occurrences in advance, and that is highly valued. Also, sometimes performance deviations can be a result of predictions and situation where supplier haven't understood the case correctly. Here, the importance of open communication increases.

Benchmarking companies B and D mainly focus on calls and emails on informing the supplier about errors. Similarly, failures in supplier performance are communicated firstly by taking a contact by a phone or quickly arranged meeting, tells Benchmarking company E. In a meeting company E informs the supplier that their lack of performance has appeared in their reports. The situation is discussed in comprehensive way to tackle the issue. Responsibility about informing suppliers about performance errors is on buyer, according to Benchmarking company C. Principally all claims go through buyers. They communicate the observations to the suppliers via email. Infrastructure of information systems help and ensure the communication internally in company. When claim or feedback is registered into the system, it sends a remainder to the email about the open complaint. Overall, situations should be reacted and tackled as soon as possible. In not so urgent cases the failures are brought up in meetings. Supplier base of the company is very wide, and therefore many of their key and critical customers have assigned suppliers. With these suppliers, meetings between the business leaders and leaders of the supplier company are held typically once a year. Along with strategy and other topics, the feedback and errors are discussed. Some feedback is received from customers, and in operative level buyer meets up the key account manager of the customer company once in quarter. All aspects of business relationship are discussed including e.g. feedback about quality.

When Benchmarking company C is preparing for a meeting with supplier, they look for internal feedback about experienced performance from their "users". They want to ask about experiences, and this is a chance for the personnel to open up how cooperation with supplier have been. This usually reveals smaller errors and obstacles in performance. Generally smaller scale deviations in performance may be challenging to uncover. Bigger failures will come to sourcing department's

knowledge as claims. It is almost sure that claims are informed to the buyers if they include demands related to money. Motivating employees to forward recognized errors in performance can be difficult. Company C says that if a round around the mill is made, there always comes up more and more information than through any system. Therefore, it is highly necessary that sourcing department has personal and open relationship to internal stakeholders along with the external parties. Better relationship leads to better communication and transparency.

The aim of communication is to guide the actions, mentions Benchmarking company C. In buyer-supplier relationship, the situation is critical if you are not aware of where the parties of the relationship are going together and how the current performance is. There should always be some sort of perception at least with the larger, critical suppliers. Communication has even larger role if supplier has remarkable impact on focal company or if the number of suppliers available in the market is limited. More communication and monitoring efforts are invested in these suppliers.

Benchmarking company C sees providing feedback to their supplier and commenting on performance errors as a quite simple task. More struggle is related to the investigation about what happened and gathering all necessary information. It requires a lot of work, but *"it is only work".* They realize that everyone would preferably do something else, but it has to be done anyway. "*Matters as matters"* – this implicates that it is just seen as an ordinary, routine and necessary work task. It is not seen as hard to contact suppliers concerning performance failures. Likewise, Benchmarking company B does not see it as challenge. The reason for smooth communication lies behind the good collaboration relationship with suppliers. Benchmarking company A considers that the easiness of giving the feedback varies between cases. It depends on the exact situation and the background; some cases are harder than the others. Benchmarking company E sees that their systematic way to collect performance information about their suppliers is valued high among suppliers and therefore it is relatively easy to contact suppliers about these matters, even if the performance feedback is negative.

4.3.5 Consequences of performance deviations

Consequences of large number of claims and disruptions are same as the outcomes of performance assessment. This is because registration of claims is used as a tool for evaluation of performance. Like mentioned in outcomes of performance assessment, large number of performance failures may lead to starting an auditing process and blocking the suppliers. In worst cases the relationship with supplier is terminated.

If some supplier tends to have multiple deviations in their performance, the situation will be discussed and negotiated closely with them. At the end, in severe situations, discussion is about continuation of relationship because reliability and trust between the parties are essential. This is the perspective of Benchmarking company A. The approach is very similar in Benchmarking company C and E. If performance is not on required level and supplier is having multiple negative cases, they can be put to the “black list”. Supplier can receive prohibition to purchase -status in system and contract can be annulled. Along with frequent poor performance, this can be the outcome if supplier perpetrate to even only one major enough failure. Benchmarking company E mentioned that supplier’s position in market can have an impact on outcome. If particular supplier does not have any competition and is the single supplier of product or service available, the relationship cannot be terminated. In these cases, there is no other option than to use the supplier despite the lack of performance. Benchmarking company A added that poor performance of supplier is not used as a leverage to decrease the prices of supplied goods and services but to develop the overall performance.

4.4 Role of information exchange and tools

Importance of efficient information flow and communication is noted as highly critical. Therefore, empirical part of the study takes a deeper look and benchmarks more carefully how benchmarking companies handle not only inter-organizational but also intra-organizational information flow and what kinds of information systems

they utilize in addition to the ones presented earlier in this study. Overall, the factor that drives towards better communication is qualitative improvement.

4.4.1 Inter-organizational information flow

Inter-organizational information flow is critical. Effective two-way communication must be ensured in order to maintain working relationship, as stated by Benchmarking company A. In many benchmarking companies it is essential to have open communication, since production planning, manufacturing and projects require accuracy in many areas. Benchmarking company B summarized it well: "*it is better to have bad information than no information at all".*

According to Benchmarking company A, communication is only way to ensure the transparency, bilateral interaction and learning. They have outsourced big amount of their activities, so the intelligence and ability to improve is largely on suppliers' shoulders in that sense. Therefore, it is essential to listen and follow suppliers. In addition, open communication is necessary because company has to provide information about their end-customers' needs in order to serve them well. However, the level of communication is higher and more intense with key suppliers than with regular suppliers. Again, not all suppliers can be "treated" the same way since the number of suppliers is so high. They see that the ability to reform and develop with their strategic suppliers, and communication plays a key role in here.

Transparency and communication are needed in order to have trust, according to benchmarking company A. As in any relationship, lack of communication increases mistrust, suspicion and false perceptions. When communication is open and active, challenging situations are easier to solve compared to situations where communication is low. Challenge might become two times harder and the consequences might be longer-lasting. Close relationships are seen to have an essential role in information exchange. Good relationships have contribution on level and efficiency of communication. In some cases, suppliers may for instance inform proactively about different matters. Collaboration meetings are arranged also to

cherish the relationship with critical suppliers in multiple benchmarking companies. According to Benchmarking company D, the level of communication from supplier's side to them, implicates the willingness to overall collaboration with them. Benchmarking company B shares that they value high the communication even in advance if there lies a possibility for obstacles in the horizon. This increases the trust to the supplier. Lack of information about essential matters may cause even tremendous problems for the business. However, they consider that they relationships with suppliers are strong and open. Also Benchmarking company D mentions that poor level of information exchange brings struggle for planning the own operations. Mostly, the information sharing with suppliers is handled via calls and emails. Some suppliers have access on their ERP system, but along with that, they don't have any integrated system to share information.

Benchmarking company A has systems which they call collaboration tools. Current systems hold basic information about transactions, such as purchase orders and related documents. These are available for suppliers through this system. However, in their company they are reforming their set of information tools and implementing new system. New system has multiple dimensions. Along with transactions, it will enable for instance two-way documentation sharing and contains chat function where discussions with suppliers can be held in directly. In addition, suppliers are able to see data how they are assessed in real time. They have asked and taken into consideration the opinions of their suppliers about desired functions for the new system.

The main communication channel for Benchmarking company E is meetings with suppliers. They consider their current practices to be on good level, but they also note that with higher amount of resources they could meet up more also smaller suppliers. Currently, they do not have separate integrated information systems, tools or portals for information exchange with their suppliers in national level. Some separate projects can have information shared through SharePoint with their suppliers, but that is not widely used in the company. However, they have piloted some solutions to share for instance performance information on both ways, from them to suppliers and vice versa. With this system the supplier could do self-

evaluations as well. This topic is widely discussed in Benchmarking company E and in future they may establish systems to improve the information exchange.

Benchmarking company E notes that one cause to block the efficient communication and information exchange is the lack of systems and documentation. If the data does not exist anywhere else than on individuals' minds and thoughts, it is highly challenging to forward and use effectively. If the information system exists, the challenge can be that notes and information are not documented carefully enough. Lack of overall resources pose a risk. In addition, it was noted that systems must be well designed. If there is no system or if there is multiple unharmonized systems, it might be blocking information sharing. Benchmarking company A shared a concern about emails. Even though a lot is shared and handled through email, there might occur a risk. Then, the information is only on one person's mail box. It is dependent on this one individual if the topic is discussed in wider perspective or not taken further. In addition, if some sensitive information is shares, there occurs an information security risk, if email never arrives or gets lost. An electronic tool makes the communication safer and more trustworthy, according to Benchmarking company A.

Benchmarking company C mentions that if information flow is not smooth, mutual efforts towards improvement cannot be achieved. If communication is not open, they as a buying company cannot be aware what kinds of obstacles the supplier is facing. Overall, mutual operations become harder. The aspects that are blocking the information flow are related to the lack of structure. If meetings are not arranged frequently according to the plans, there is no opportunities to discuss about strategies and future desires of both parties of the relationship. For instance, if supplier is going to narrow down their provided services or product categories, it can be crucial to buyer company to not be aware of this. Establishment of clear interfaces is important. They have keeping record of meetings and overall data about supplier in a business plan created to Microsoft office platform. That is used especially with important suppliers.

4.4.2 Intra-organizational information flow

Benchmarking company A has systems for intra-organizational communication as well. For instance, already mentioned internal feedback systems provides information for internal stakeholders. In addition to this, they have for instance supplier management system. It contains information about suppliers and noted and memos about arranged meetings. These ensure the transparency among business units, for instance if some other is considering collaboration with this supplier; what kinds of performance history the particular supplier has with other units, what experiences and plans for future the other unit has with them and so on. In addition, they organize intra-organizational meetings, where a manager responsible for key suppliers calls together internal stakeholders from technology, development, product categories and sales. Idea of these meetings is to discuss about the needs and experiences of different departments to ensure wide perspective for feedback given to supplier.

Benchmarking company A makes a statement that the employees who are working in supplier interface should be active not only on suppliers' side, but also to many internal functions as well. It guarantees that all needs and visions of the focal company are communicated to the purchasers and further to suppliers. Internal meetings work as occasions for information exchange in Benchmarking company B as well. Benchmarking company C also shared the role of vertical information flow inside the company. They note that external stakeholders are not the only ones which require focus on information sharing but efforts must be invested in internal information sharing as well. The business plan platform they use to collect information about suppliers works as a tool for internal information sharing along with the operations enabled by their ERP system.

Benchmarking company E trust on their internal supplier feedback system and different sourcing related platforms on communicating internally, since systems are visible for the personnel. Likewise, Benchmarking company D relies on already described system and intranet on intra-organizational communication. Currently, internal communication happens via email in Benchmarking company B. They

mentioned that they are considering implementation of MS Office Teams – tool for internal communication channel. Benchmarking company E notes that amount of emails can be so excessive that individual emails are lost. For instance, there is an opportunity to follow up some information or documents in system. When someone does some amendments to the document, the system automatically sends a reminder via email. This is seen as an efficient tool, but also a challenge due to the amount of internal emails. If alert system is attached to hundreds of suppliers, the load of emails can be too much, and relevant emails are not found. They mention that internal communication is all about balancing between efficient communication and too excessive information sharing.

5 DISCUSSION AND CONCLUSIONS

Last chapter of this study is about discussion and conclusions. Discussion focuses on looking for similarities on empirical findings with theoretical background. In addition to thorough discussion, summarized answers are given to research questions and recommendations for case company are provided. Finally, thoughts about limitations and directions for future research are shared.

5.1 Discussion

Supplier performance assessment is seen as an essential part of supplier relationship management. Importance of this action grows when importance of the supplier for the company increases. It is noted that the type of business the company operates has a great influence in assessment.

Theoretical part provided a process to measure supplier performance, which is formed based on processes of Bourne et al. (2000), Sundtoft Hald and Ellegaard (2011), Forslund and Jonsson (2007), Gordon (2005) and Maestrini et al. (2018a). Process steps are choosing performance measures, design assessment system, deploy the system and measure and final phase of measurement is providing feedback to the supplier and final analysis. Benchmarking companies who practice performance assessment, have gone through these phases in one way or another. Reconstructed process implicates especially the implementation of the performance measurement. Benchmarking companies have clear practices and established measures, so currently they are executing the third and fourth phase of the process. It is important that companies continuously evaluate their own assessment practices and measures and make modifications if needed.

Measures to assess supplier performance were found similar in theoretical and empirical analysis. Theoretical perspective emphasizes cost, quality, delivery and flexibility as the most recognized performance measures (e.g. Neely et al. 1995; De Toni and Tonchia 2001; Talluri and Sarkis 2002; Kannan and Tan 2002; Prajogo et al. 2012). Other, less identified measures are time, service, relationship,

communication, innovation, sustainability and capabilities (e.g. Simpson et al. 2002; Maestrini et al. 2018a; Jääskeläinen and Thitz 2018; Talluri and Narasimhan 2004). Empirical part revealed that all benchmarking companies consider quality and delivery as primary measures. Cost was not eagerly highlighted as first aspect to measure, but monetary level assessment still taken into consideration by many of the benchmarking companies. Communication, innovation and capabilities as well as responsibility of actions were brought up as important areas to assess by some of the companies. Safety was one aspect noticed by many of the benchmarking companies but not by theoretical overview. In addition, number of claims has identified as an individual measure by some of the benchmarking companies. According to empirical analysis, measures are not clearly created based on organizational strategy and objectives as suggested in theory (e.g. Bourne et al. 2000; Kannan and Tan 2002). However, they do have a connection since companies measure factors that are anyhow important to them. Therefore, chosen measures have some sort of alignment to the strategy and aspects that companies value high. Also, use of specific KPI's as measures is noticed in theory (e.g. Gordon 2005) and some of the benchmarking companies. Like mentioned on theoretical background, it is important that companies form a good set of measures to reflect those areas they want to assess (Rafele 2004). That is something most of the benchmarking companies have done. They have identified and chosen relevant areas for their business to measure and created set of measures that work for them and their intentions.

Next steps in the process of performance measuring identified through theoretical review is design and deployment of measurement system, and actual measuring. Gordon (2005) introduced various ways to collect the performance data, such as questionnaires, visits and extracting the information from existing information systems. Empirical study revealed that companies have various different methods and tools for gathering information and assessing supplier performance. One company utilizes an internal supplier feedback questionnaire system which provides information about every supplier and every delivery. Whereas another company uses an annual questionnaire for suppliers. One company seemed to assess the

performance of suppliers mainly through the collected performance and claim information. Information is gathered to the separate information system.

In theory as well as in empirical study it was noticed that deployment and enabling the usage of performance measurement systems require a great amount of efforts. Gordon (2005) mentioned that the collection, extraction and modification of data require knowledge of IT. Furthermore, deciding the accurate questions for questionnaires is essential task to put effort in. In order to gain full benefit from the system, personnel must be engaged for it. Motivating and informing personnel to participate to the task is seen as a challenge. For instance, benchmarking company E uses internal feedback form to gather performance information about their suppliers. Standard questions are same for all. This poses a challenge to design questions to describe all kinds of situations and types of suppliers accurately enough. Whereas, Benchmarking company C who evaluate suppliers with use of annual questionnaire form has different set of questions for different sourcing categories and items. The person in charge of the category is responsible for designing accurate questions. A lot of knowledge and effort must be invested in creating questionnaire. Benchmarking companies mentioned the obstacles of getting personnel to share their observations and inform procurement unit about failures they notice. Furthermore, assessing suppliers based on claims they have caused, requires a lot of efforts and moving data manually from system to excel, according to Benchmarking company E. That is related also to the report generation that was also noticed in theory. Forslund and Jonsson (2007; 2010) discuss about creating reports either manually or automatically from information system, for example ERP system. Currently, Benchmarking company E creates reports manually, but they desire to have more efficient system for that in the future.

Gordon (2005) and Giannakis (2007) described the comparison of gained performance information. They suggest benchmarking and comparing the performance data for instance to target performance standards, previous performance or competitors and industry leaders. Empirical study supports this while for instance company C compares supplier’s performance data to the other suppliers in same category, and also to past performance of the examined supplier.

Likewise, benchmarking company E shared that they compare the supplier performance data to the supplier with “best supplier” status as well as average performance of all suppliers in same category.

Even though every benchmarking company has own processes and tools for performance assessment, also some similarities were found in supplier management. It is noted that companies note and register claims and errors, and gather feedback more on daily basis and, but a wider assessment process is carried out more sparsely, typically once a year. Likewise, Forslund and Jonsson (2007) stated that there is not only one best frequency for measurement. Meetings with suppliers are essential part of the measurement for many companies. Some companies have meetings especially with their key suppliers frequently, but meetings are also arranged when current situation, for instance due to lack of performance, demands for it. Significant to understand is that companies do not assess all suppliers in same ways. All companies use some sort of categorization and greatest assessment efforts are invested in strategic and key suppliers. Resources are not used efficiently if also smaller and routine suppliers are assessed with full energy, especially if company has thousands of suppliers.

Communication and providing feedback are seen as an essential phase of the assessment process by both, theoretical (e.g. Gordon 2005, Gunasekaran and Kobu 2007) and empirical study. Provided feedback allows learning and correcting actions for suppliers in order to achieve the expectations of buying company (Talluri and Sarkis 2002, Prahinski and Benton 2004, Söderlund 1998). Thoughts of benchmarking companies are strongly aligned with theory. Ways to contact supplier and communicate were also found similar in both parts of the study. Communication may rely on information systems or more traditional ways, e.g. calls and mails. Gordon (2005) emphasized the importance of continuation of monitoring after correcting actions and plans. Alike, it was noticed by benchmarking companies that following up the further performance is beneficial for both parties.

Both theoretical and empirical findings invest the assessment efforts especially on important suppliers and close partnerships. Benchmarking companies highlighted

having the great number of suppliers which lead to categorization of suppliers. There are not enough resources to assess all suppliers in similar ways. Assessment is also noted to not be necessary when it comes to routine suppliers and the ones who deliver goods and services unfrequently. Greatest assessment efforts are allocated to critical and key suppliers. Talluri and Sarkis (2002) noticed that assessment and given feedback to the suppliers strengthens the relationship. As Benchmarking companies mentioned, the aim of assessment is improvement and learning. This is noted to be highly essential especially in strategic buyer-supplier relationships (Cousins et al. 2008).

Benchmarking companies mentioned similar benefits and challenges of assessment as found in theoretical overview. Main benefit on both is the ability to improve performance and learn continuously. For instance, Schmitz and Platts (2004) stated that establishment of assessment practices contributes to the increased level of performance. Benchmarking companies shared wise thoughts, such as *"when you are able to identify an issue, then you are also able to do something about it"* by company C, and *"what you don't measure, you cannot improve"* by company E. These are aligned with Simpson et al. (2002), who noted that if company is not monitoring the performance of supplier, they do not have comprehensive understanding if suppliers are meeting the needs or not. Moreover, then the company is not able to communicate this to the suppliers either. This leads to the situation where neither party of the relationship is learning or improving their performance. With careful assessment, companies can identify poor performance systematically and make actions to become better. Also Tan et al. (1998) had recognized that performance monitoring encourages for improvement. Benchmarking company E have had experiences where they have given feedback to their supplier about poor performance and agreed on correcting actions together on a meeting. Later, when performance has been evaluated again in follow up meeting, it has been noticed that performance has increased remarkably. They shared that they have had multiple positive cases like this. Challenge of choosing correct measures was identified by one of the benchmarking companies while it was emphasized in literature as well (Bourne et al. 2002; Forslund and Jonsson 2007). Obstacles related to lack of efficient tools and systems was also described (Forslund

and Jonsson 2009; Gordon 2005; Bourne et al. 2002). Efficient flow of both internal and external information is seen as a challenge as well (Barua et al. 1997). All these challenging aspects emerged from interviews as well.

Handling of failures in supplier performance

Theoretical study recognizes different kinds of failures and disruptions, such as quality issues and delivery problems (e.g. Craighead et al. 2007; Bode and Wagner 2015). Similarly, empirical study identifies various different types of errors in supplier performance, for instance related to quality and delivery reliability, which were especially highlighted by benchmarking companies as well as case company. Performance deviations effects on relationship between supplier and buying customer company (Sheffi and Rice Jr. 2005). As shared by benchmarking companies, also theoretical part (Primo et al. 2007) notices that failures may end up even to terminate of relationship and removing supplier from case company's supplier base. "Black list" of suppliers was noticed also by case company. Primo et al. (2007) and similarly benchmarking companies state that performance deviations and failures that reach the end-customers are most critical ones. It causes harm to the focal company since their customers, or even customers' customers claim them as well. Therefore, it is essential to note the error as early as possible. In addition, proactive work and efforts to diminish the number of failures has a key role. This was also considered by case company.

Handling of supplier performance failures relies on empirical study. Theoretical part of the study did not focus on the whole process and systems of handling performance measures due to the research gap on this field. Key takeaway from the empirical study is that efficient documentation and handling of information about disruptions and claims is essential for assessing suppliers effectively. Collecting this information systematically is remarkable part of performance assessment. Observing and gathering information allows systematical identification of failures. Main aim for the complaints and claims is to drive for change and improved performance in the future. Objective of evaluating and collecting information about claims and minor failures is the ability to contribute to the performance and develop.

Through the interviews it is clear that bottom line aim is to assess performance and monitor disruptions in performance is improvement and development.

Current claiming process of case company is mainly aligned with claim processes of benchmarking companies. Person who identifies the error, informs procurement department about the issue. Interesting observation is that while case company has a clear claim notification form that should be utilized in informing purchasing department about the failures, benchmarking companies did not necessarily seem to have such form. They have wide variety of ways to contact members of purchasing team. When failure information is received, procurement team takes the topic further with supplier. In many benchmarking companies, buyer or person who is responsible for the supplier, is therefore responsible for whole claiming process and communication with supplier. Claims is created to the system. Majority of benchmarking companies utilizes information systems, and case company handles claims currently in excel. This is the main difference in claiming processes between case company and benchmarking companies. However, some tasks were performed in excel or in other Microsoft office tool in benchmarking companies as well. And to be noted, some benchmarking companies did not even monitor claims at all. However, remarkable to mention is that the companies that do handle and monitor performance failures systematically, are closer to the case company in their type of business. The ones who do not follow failures as carefully than the others, are more project-based businesses where role of purchases is slightly lower than in manufacturing companies.

Benchmarking companies have different systems to gather the information about supplier failures. Observations, claims and feedback are managed in tools of ERP systems or sourcing systems, but also there are used separate information systems of claim management. In addition, benchmarking companies have additional systems to support the claim handling, such as internal feedback systems. Systems make the process more clear, efficient, transparent and fast. It decreases the amount of manual labor and collects the information in one place. To summarize the findings related to claims and systems from empirical study, the practices of benchmarking companies on handling of claims are presented in table 5 below.

Table includes short summary of practices of supplier performance assessment also since these are strongly aligned together in benchmarking companies. Based on this information benchmarking companies shared, the best practices can be identified.

Table 5. Summary of benchmarking companies' practices

	Practices of benchmarking companies
Benchmark A	*Assesses and tracks performance and deviations. Currently have separate system to manage claims but are going to change to handle them in ERP system in future. Has intra-organizational feedback system. Divides supplier claims and feedback in two.*
Benchmark B	*Does not assess suppliers. Does not have separate system to register and monitor performance failures. Errors in supplier performance are tackled right away and not documented.*
Benchmark C	*Supplier survey questionnaire once a year to assess performance. Feedback and claims documented and managed in ERP system. Divides actual claims and complaints in two.*
Benchmark D	*Some information received through ERP system. Has system to manage customer claims, but performance deviations and claims related to suppliers' performance are not documented separately on purpose. Self-identified supplier disruptions are solved right away and not documented yet.*
Benchmark E	*Divides claims and supplier feedback in two. Has internal supplier feedback input system. Feedback given after every delivery and/or project by team members. Information used to follow up performance and to notice errors. Noticed errors may turn out as claims. Claims are observed in other ways as well. Sourcing system has a tool to document and manage claims, but it is not always used. Even though it is encouraged to use the system, multiple claims are handled via email and therefore information is not automatically saved to supplier data.*

Open and smooth information flow in intra-organizational as well as inter-organizational level was noticed. Benchmarking companies valued high the meetings with suppliers. This works as a tool to discuss about past performance and ongoing processes. Especially, meetings were focused to arrange with key suppliers. Meetings and communication aim to improve performance. More critical errors tend to require faster solution, and in these cases calls and emails were used as a channel to contact supplier. Mainly, the contacting supplier about recognize failures was seen as a usual work task. Smooth intra-organizational information flow was noticed as important as communication to suppliers. Open relationship with purchasing department and internal stakeholders of the company was noticed as essential. This is seen to increase the easiness to contact purchasing team about observations. It is important that information flows within the company and all necessary parties are aware of aspects related to suppliers and their performance.

5.2 Answers for research questions

Answers to the research questions are summarized in here. Whole study and especially above-presented discussion provide comprehensive responses to the research questions and therefore here only brief, summarized answers are given. The answer to the main research question "***How buyer companies can assess performance of supplier and handle the information about failure situations effectively?"*** is achieved though the answers to the sub-questions, and therefore answers to the sub-questions are provided first.

1. What is the process of supplier performance measurement?

Supplier performance measurement process includes four phases. Process steps are choosing performance measures, design assessment system, deploy the system and measure and final phase of measurement is providing feedback to the supplier and final analysis. All the phases include sub-processes and certain characteristics that should be taken into consideration while implementing and using the measurement process. Essential is to define correct measures, design the

system and plan how to collect necessary data and above all share the findings of measurement with suppliers. Every company must consider best measures and systems that are relevant for them exactly, since overall measurement is highly dependent on the context. Supplier performance measurement is seen as more frequent task to execute than doing it only once. Supplier performance measurement should include also the collecting and monitoring supplier performance failures.

2. How the data about supplier performance failures and claims should be collected, documented and handled?

There are multiple different practical level ways to collect information about supplier performance failures. Data can be collected for instance with use of information systems or internal feedback system. Despite the actual tool, more important is to ensure that all observations are taken into account and forwarded to the purchasing department who is often ultimately responsible for handling the situation. All necessary stakeholders should be motivated and informed about the importance of this task. In order to achieve full advantages, data about supplier performance failures should be collected carefully and documented to the information system. Information systems allow the effectiveness, transparency and wide visibility for the documentation. Efficient system also decreases the amount of manual work. Failure situations should be handled with respect and care. Investing efforts on sharing feedback to the suppliers is crucial part of the handling of failures. This is the only way to ensure the improvement and other benefits of the whole process to own company but also to supplier. General, simplified claim process begins from observing the failure and informing relevant staff member about it. Then, situation is considered, and claim is created to the system. Next, supplier is contacted, and the case is discussed with them. Possible financial compensation and corrective actions are monitored. Eventually case is agreed with supplier and closed. Overall, it is essential to establish clear guidelines and practices to managing performance deviations and put effort on ensuring the following of the practices.

3. How information about supplier failures could be used to support efficient supplier relationship management?

Managing and monitoring the information about supplier failures is an essential part of efficient supplier relationship management. Monitoring performance failures allows identification of problem areas. Gathered information can be used as a tool to provide feedback. Sharing valuable feedback to suppliers enables that suppliers themselves recognize the bottlenecks and areas to improve. This makes continuous learning and development possible. Assessing performance and gathering information about failures aim to add value to the relationship through improvement. All this is strengthening the relationship, especially in deeper relationships between supplier and buyer company. Mutual efforts and improvement allow both parties to become better and achieve various benefits.

With the use of these answers to sub-questions, answer to the main research question can be formed and concluded.

How buyer companies can assess performance of supplier and handle the information about failure situations effectively?

With thorough supplier performance assessment and by taking into consideration all phases of the measurement process, companies can evaluate the efficiency and effectiveness of suppliers' actions. It helps companies to gain valuable information about performance of suppliers. This gathered information can be used to decision-making and improvement approaches. Handling of supplier performance failures is strongly linked to overall assessment and therefore supplier relationship management. Gathering information about failure allows identification of problem areas and enables using this information as a tool in meetings and discussions. Effective handling of performance failures demands for clear processes and efficient information system. Role of communication and forwarding of performance information cannot be underlined enough. However, eventually it must be considered which are the best practices for own business since it is highly dependent on context that which are suitable processes for who.

5.3 Recommendations for case company

In case company, as it is already recognized as an important topic to tackle, it would be beneficial to improve the systems. It is encouraged that case company considers acquiring an information system or a tool to manage claims, if managing them in their ERP system is not an option and possibility. Efficient system was seen as a vital part of the process for benchmarking companies. Desired benefits are that it would make the process more efficient, simple, transparent, visible and take down the amount of manual work tasks. Harmonized system could also enable that observants and in some cases also suppliers could register failures directly to the system. Clear responsibilities are required: it must be clear who is responsible and what tasks are appointed to who. As emphasized in benchmarking companies, the suggestion could be to share the responsibilities according to who is the person responsible for particular suppliers. For instance, logistics team members would be responsible for logistics service suppliers whereas purchasing team focuses on their own categories and suppliers.

One area to consider is to evaluate if all failures are efficient and necessary to document. Especially timewise that might be too consuming compared to the benefit. Line must be drawn. Some benchmarking companies stated that not all failures are documented, and careful consideration is also suggested for case company. As a guideline could be used that if failure if relevant, frequent and/or requires change of actions, it should be registered to the system. It is clear that situations where financial compensation is required and needed, must be documented as well. Though, new system and the possibility for all stakeholders to input observations to the system would take down the required time and little part of the burden from purchasing members who are handling the claims. Therefore, it should be considered if all observations are allowed anyway.

Benchmarking company C’s habit of collecting internal feedback about supplier’s performance before meetings could work for case company as well. However, this would require a lot of resources, time and manual tasks to execute. It could be considered as an additional tool along with information inquired through systems,

when meetings with important key suppliers are arranged and planned. This could bring additional information and push personnel to share their thoughts. For instance, when important logistics service suppliers are going to be assessed and met, case company could send an internal feedback form to personnel who work with this particular logistics supplier. Feedback questionnaire could include assessment criteria such as service availability, communication (easiness and responsiveness to communicate), schedule accuracy (how well estimated time of shipment, delivery and arrival have turned out), quality of service (damages, quality of equipment etc.) and overall performance and behavior of supplier. Of course, there lies an option to broaden this practice into frequent procedure – gathering feedback for instance monthly. However, this is not encouraged to use as a primary tool for assessment due to the time-consuming behavior and manual tasks of colleting, documenting and managing feedback data. In comparison, acquired information system could provide information more efficiently. Gordon (2005) also recognized internal feedback systems as a tool to gather information for supplier performance assessment.

In addition, it is remarkably important that the importance of internal feedback about suppliers and significance of forwarding performance observations are communicated to the internal stakeholders and personnel. Bottom line reason to claim documentation and monitoring must be made known among personnel so they can understand the meaning. These people are the individuals who are more likely the ones to recognize the disruptions in first place. Even though the error would not affect on their daily tasks, it is crucial that the information reaches the procurement team. Observations and information about non-performances should not be held, it should be forwarded. Awareness about the topic could be increased through internal training or other events. With or without a separate information system to document claims, this is one theme to focus on. Some benchmarking companies also highlighted the importance of internal relationship between procurement team and other departments of the company.

If case company desires to take initiative towards wider supplier performance assessment along with claim and complaint management, the measurement

process described in theoretical part could be used as a guideline. Again, it requires internal and inter-organizational communication. Especially with critical and key suppliers, it is beneficial to let the supplier know that they are under evaluation. This could contribute to the performance improvement in first place.

5.4 Conclusion

This study contributes to the literature of supplier relationship management, and more particularly to supplier performance assessment. Furthermore, while existing literature do not provide clear guidelines for handling of supplier performance failures, this study contributes to the topic as well. The objective of this qualitative case study was to investigate practices and processes companies have to assessment of supplier performance and handling of failures and claims that occur in performance of supplier. Empirical study provides practical level examples and guidelines, and therefore summarized “best practices” to tackle these business tasks. Overall, this study provides valuable information and possibility to benchmark own current practices against the operations other companies are pursuing, also for external companies of this study.

Assessing supplier performance is a part of supplier relationship management practices. It is essential to be aware of the performance of suppliers and monitor it. It is beneficial for focal company to systematically document the observations about performance failures to the system. Efficient system enables information harmonization, accessibility to the data and database about actual performance. Essential part is communication between stakeholders and sharing the performance information further. These are only ways to ensure learning and continuous improvement.

5.5 Limitations and directions for future research

Conducting this study in this way as it was, creates some limitations that should be acknowledged. By benchmarking these exact chosen companies who shared their

own practices, processes and viewpoints to the studied topic, the study is limited to them. If chosen companies would have been different, their practices would have inevitably been different as well or at least not exactly the same as in companies participated to this study. In addition, if the number of included benchmarking companies would have been higher, it could have led to different conclusions. These are the largest limitations for this study.

Even though benchmarking companies were chosen from various industries and representing different business types on purpose to provide wide viewpoints, it would be interesting to expand this study to focus only on companies in the same industry. This would allow even more precise comparison between companies. In addition, while this study has taken into consideration only the buying company's perspective, it could be interesting and beneficial to expand the study to discuss also about the supplier's perspective on these studied matters. More dyadic perspective to study the same failures and situations could provide additional valuable information.

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APPENDICES

Appendix 1: Interview questions

Background questions:

What is your name and position?
Please briefly introduce the company in your own words.

Supplier performance assessment

- How the performance of suppliers is evaluated / measured in your company?
    - What is the process?
- What are the evaluated aspects and used measures?
- How often / frequently suppliers are being assessed?
- Are all suppliers assessed in similar ways?
- What consequence of assessment – what have been done?
- To what the assessment is aiming at?
- Why suppliers are being assessed?
- What are the benefits supplier performance assessment?
- What are the challenges related to it?

Performance deviations and failures

- How do you claim your suppliers – what is the process?
- Do you collect and monitor information about performance deviations?
- What kinds of failures and claimable situations are observed?
- How the information is collected and documented?
- What is the process of handling supplier performance failures?
- Where these are handled in – do you have a system for that?
- How this information is utilized?
- What are the consequences?
- How you communicate and give feedback to the suppliers about these failures?

- How important is to give feedback to suppliers?
- How providing feedback and making complaints is seen – is it easy or hard for instance?
- How important overall the collecting and utilizing this information is?

Role of information sharing

- How important is the open communication with suppliers?
- What are the disadvantages if communication does not flow smoothly?
- What factors are blocking the information flow?
- What kinds of systems you utilize in communication with your suppliers?
- What are the benefits of possible system?
- What things are handled through the system?
- What kinds of systems you use for intra-organizational information sharing?