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IDENTIFICATION OF SUPPLIER EVALUATION CRITERIA FOR
IMPROVING VENDOR'S OFFERING

Master of Science Thesis

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Jääskeläinen
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ABSTRACT

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The more dynamic and connected the world becomes, the more complex markets become for companies. In today's world companies approaching new markets have to adapt their offering in order to meet the requirement of potential customers. Customers commonly have a set of criteria to evaluate suppliers in order to select the vendor that is more appealing for them. The criteria to evaluate suppliers have been studied extensively; nevertheless little research has been done in order to identify the criteria to evaluate bulk material suppliers. This thesis is intended to address such topic and it will be based on a case company who needs to improve its current offering in order to attract new customers.

The main research question of this study is how to improve bulk material suppliers' offering based on the key criteria to evaluate vendors. In this sense, this study initially identifies what is the current offering of the case company, and later on through a series of interviews and literature research it identifies what is the criteria to evaluate bulk material suppliers. Based on those aspects, a suggestion is given for the case company to improve its offering with the purpose of matching the identified criteria.

As a result, this thesis identified that quality, price, delivery time and historical performance are the key criteria to evaluate bulk material suppliers. That finding was the result of an interview held with 10 companies operating in 4 different industries. Moreover, in order to improve the existing offering it was suggested to first highlight the good quality of the products offered by the case company when approaching new customers. Secondly, a person should be assigned to oversee the delivery process and communication with the customers, as it was identified that those are issues that the case company has had in the past. Thirdly, two extra services should be added to its current offering: engineering and installation. The engineering service aims to provide support when it comes to designing and planning piping arrangements, whereas the installation service aims to provide the workforce to install the purchased items. Lastly, it was suggested to approach initially potential customer with the updated offering in the manufacture of paper and paper products industry, as respondents in this industry are more likely to be impressed by the updated offering.

PREFACE

The path in order to get to this point of my studies has been fruitful and full of positive challenges. Writing this thesis represents the tipping point of my studies as the topic was interesting and it is the last requirement to graduate. To get to this point, I received help from many people to whom I would like to give special thanks for their support.

Initially I would to thank Senior Research Fellow Aki Jääskeläinen for his valuable insight during the process of writing the thesis, and his constant support even throughout the holiday season. Moreover, his continuous support and wide knowledge on the research area were key to me in order to write the thesis in such a short period of time. In addition, I would also like to thank Professor Jussi Heikkilä for his valuable guidance and insights. Lastly, I would like to thank my tutor and other colleagues at the case company for their help in order to collect all the necessary data. Especially I am really grateful to my tutor for the time given in order to find the topic to write the thesis.

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Jesus Munoz

CONTENTS

1.	INTRODUCTION	1
1.1	Research context and the case company	2
1.2	Research problem and limitations	4
1.3	Research methods and strategy	5
1.4	Structure of the study	8
2.	CRITERIA FOR SUPPLIER OFFERING	10
2.1	Introduction	10
2.2	Criteria to evaluate suppliers.....	10
2.3	Criteria to evaluate bulk material suppliers.....	17
2.4	Customer value.....	19
3.	MARKET RESEARCH.....	23
3.1	Market research in general and its uses.....	23
3.2	Market research process	25
3.3	Utilization of Market research.....	35
4.	RESEARCH EXECUTION AND RESULTS	37
4.1	Identification of current offering.....	37
4.2	Market research execution	42
4.3	Market research results.....	48
5.	ANALYSIS OF RESULTS	63
5.1	Analysis of the current situation.....	63
5.2	Suggestion to improve offering.....	71
6.	DISCUSSION AND FUTURE INVESTIGATION	76
6.1	Summary of the research results	76
6.2	Theoretical contribution	78
6.3	Further investigation	78
	REFERENCES.....	80

APPENDIX A: Review of existing literature

APPENDIX B: Questionnaire for internal interviews

APPENDIX C: Questionnaire for external interviews

1. INTRODUCTION

The more dynamic and connected the world becomes, the more complex markets become for companies. In today's world markets have become more accessible to everybody as the Internet facilitated the means to sell or purchase to or from anywhere. As a result, for companies operating in a specific market this means that new players can potentially join the market, and at the same it poses opportunities for companies to approach new ones.

Approaching new markets can be challenging, especially if the company does not have the knowledge on how to satisfy new customers, and as stated by Koester (2010) understanding customers and markets is essential in order to succeed. As data grows and it becomes more accessible (Minelli et al., 2012) companies have different sources to increase their general knowledge of potential customers in new markets. Grönroos (2006) confirmed that the rate in which information grows has increased considerably. Even though understanding potential customer is not an easy task, those companies able to access the information and use it appropriately will gain a considerable advantage among other firms. In this sense, companies can use information to determine if their current products could satisfy new customers, and moreover such information can provide insights on how to adapt the current offering to satisfy their needs.

To achieve such purpose, market research becomes handy. As data continues to grow and it becomes more accessible, market research can be used in order to retrieve that information and turn it into market intelligence. Market research can be defined as the set of techniques to systematically collect, record, analyze and interpret data in order to support the decision making process (Parasuraman et al., 2004). According to Parasuraman et al. (2004) the characteristics of market research make it essential when it comes to developing marketing strategies, assessing the appropriateness of marketing plans and approaching new markets.

Getting to know what potential customers value and their purchase practices can be considerably valuable for companies to compete successfully. Understanding the customer needs and making plans on how to satisfy them is essential for companies to excel nowadays. Therefore, firms should be able to identify if their current offering can satisfy customers' needs, and if it does not then the firms have to modify their offering in order to cope with customer demands. Following this order of ideas, this study intends to carry out a market research in order to improve the case company's offering with the purpose of satisfying potential customers' needs.

This thesis puts special attention to the supplier evaluation criteria as the mean to identify how to satisfy customers' needs. This topic has been studied by many authors as the selection of the proper supplier is critical. As matter of fact already in 1943 Lewis (1943) acknowledged that vendor selection was among the most important tasks within procurement. Since then, the literature addressing the supplier evaluation criteria grew considerably and authors such as Ellram (1990), Roa & Kiser (1980), Dickson (1996), Huang & Keskar (2006) and so on approached this topic with the purpose of identifying the general criteria to evaluate suppliers. Nevertheless, little research has been done to identify what are the criteria used by companies when evaluating bulk material suppliers. Hence, this thesis aims to strengthen the literature addressing criteria to evaluate bulk material suppliers.

1.1 Research context and the case company

This thesis will be written for a company that operates in the wholesale industry of bulk material, specifically piping material. Despite the short period of time in the market, one year and a half, the company is forecasting that it will grow in the upcoming years due to the requirement of the parent company. The parent company is a solution provider of technological, engineering and project services for a wide range of industries such as oil and gas, biochemical and so on. The parent company has more than 40 years of experience in industrial investment projects as well as maintenance and performance improvement all around the world. In 2016 the company made more than hundred million euros in net sales, and it employed more than 1000 people.

One of the strategies of the parent company is to strengthen its supply chain and logistics, and for that purpose the case company was created. Initially the parent company experienced problems to handle all the bulk material at the construction site, since in one specific geographical location it handled several projects for the same customer and every project was responsible of purchasing, storage and usage of its own bulk material. All the materials were stored in the parent company's warehouse and then delivered to the site in which the project was constructed. Such working's scheme led every project to have issues related to what to do with the remaining bulk parts and how much they should be responsible for the warehouse's maintenance. In order to tackle those issues, the parent company decided to transform the warehouse into a single unit responsible for purchasing bulk material and later on sell it to projects, and that unit is represented nowadays as the case company.

As it was stated in the first paragraph, the case company trades bulk material. The term bulk material refers to different products depending on the industry; therefore in this context bulk material refers to piping components such as pipes, gaskets, fittings, valves, flanges and stud bolts according to the definition given by Antaki (2003). According to Nayyar (1992) a gasket is an item used to seal the junction of two surfaces in order to obtain fluid-tight joints, a fitting is a piece used to connect pipes or components

to the pipes and a flange is a flat collar used to strengthen or support the attachment of other objects.

At the moment the case company is mainly serving one customer due to the parent company's help to create the bond between them. Since the parent company offers engineering and project services to several firms, it can suggest what companies can be used as suppliers for their projects. In that sense, the parent company decided to use the case company to satisfy the need of bulk material for one specific customer. As a result, the case company is fully dependent on its owner to keep its business up and running. In addition, the parent company recently established growth targets for the case company, and such decision has put pressure on the case company to decide what type of strategy to follow in order to fulfill the requirement. In summary, Figure 1 below depicts the current situation explained earlier. In order to ease the graphic explanation, the parent company will be referred in the image as "Company A", the company in which this study is taking place will be addressed as "Company B", and lastly "Company C" will be Company A's main customer.

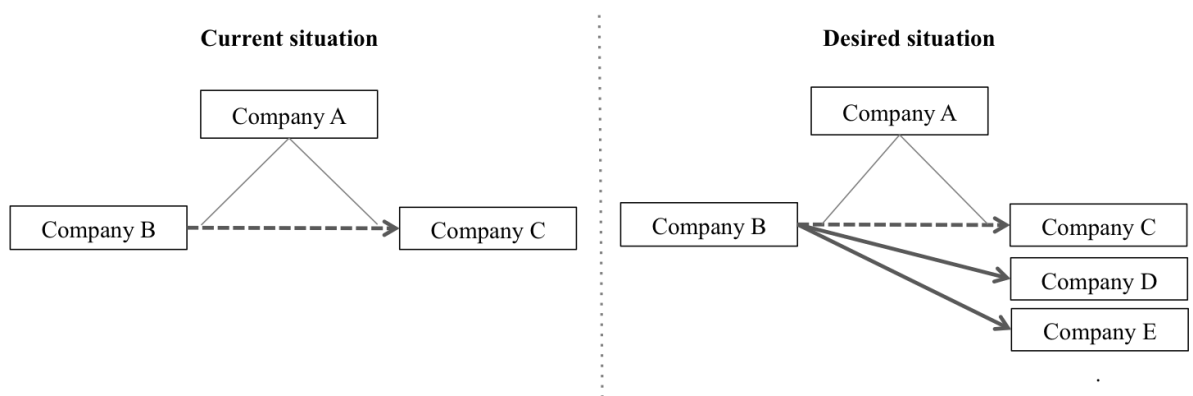


Figure 1. Current situation versus desired situation

As it can be seen in Figure 1, Company B is serving Company C mainly because Company A created the bridge between them. In a practical level this type of arrangement occurs because Company A is handling projects for company C, so whenever there is need of bulk material Company A purchases those objects on behalf of Company C from Company B. Moreover, in Figure 1 can be seen what is the desired situation in the future as well. In that scenario, Company B is still serving Company C, but at the same time it has other clients of its own that it serves without the need of Company A creating the bridge between them. At this point, the case company does not know if potential customers might value their current offering since it was mainly developed to satisfy the needs of the Company C, and moreover, without that information the case company does not know if they can indeed grow as it was requested.

1.2 Research problem and limitations

In addition to what was stated in previous section, the case company was pushed by the parent company's largest customer in order to improve the bulk material handling at construction site. Moreover, the case company is seen as well as a strategic unit to strengthen the parent company's operational performance since it would allow them to have a secure supply of bulk material. Nevertheless, the directors of the parent company decided that the case company should become a separate entity under their ownership. As a separate entity, the firm is expected to increase its sales due to the parent company's requirement; hence at this point they must identify if there are potential customers they can approach with its current offering, and if not they have to decide how to adapt their offering to approach them.

The problem stated earlier can be seen from customer's perspective as what are the key criteria when evaluating and selecting the most appropriate supplier. If the case company directors know what are the important criteria when their potential customers evaluate their suppliers, then they will be able to adapt their offering and craft a strategy in order to excel in that particular criteria. The criteria to evaluate suppliers have been studied extensively, and as a matter of fact several articles have listed what are the key supplier evaluation criteria based on a large literature review (Ho et al., 2009; Chen, 2011). Nevertheless, whether the outcome of those articles is applicable to every industry is unclear. Little research has been done in order to identify the relevant criteria when evaluating bulk material suppliers according to the definition given in this thesis. Thus, it is intended to strengthen the body of literature on this topic with this study. Appendix A will explain further how the literature addressing this topic was identified.

Based on all the information given so far, the research question to be addressed in this thesis can be stated as:

- How to improve bulk material suppliers' offering based on the key criteria to evaluate vendors in this area?

As it was stated before, the criteria to evaluate suppliers have been thoroughly studied; however it is uncertain if the findings are applicable to bulk material suppliers. Hence, proper information sources have to be identified and the pertinent information has to be extracted correctly in order to address such issue. This means that the proper methods and techniques have to be chosen in order to approach that issue. With the purpose of reducing its complexity, the research question will be divided into smaller sub problems as it follows:

- What is the case company's current offering and what are its characteristics?
- What are the criteria available to evaluate suppliers?
- What are the key criteria to evaluate bulk material suppliers?

The first question will help the researcher to identify what is the case company's current product portfolio, and what are the strengths and weaknesses of the current offering. The second question will clarify what are the common criteria to evaluate suppliers according to the literature. Lastly, the outcome of the second question will be the input to set up the instrument to identify the key criterion to evaluate bulk material suppliers. The recommendation to improve the current offering will be based on the outcome of the first and third question.

In order answer the above stated questions, it is intended to carry out an interview to utilize internal personnel's knowledge about the case company's offering, and a market research with the purpose of exploiting the knowledge held by potential customers. In this sense, the most important result of the study in an empirical level is the suggestions on how to improve the case company's offering. In the academic level, the most important result is the identification of the key criteria to evaluate bulk material suppliers.

The three questions will be answered in different sections of this study. The first and third questions will be approached in the empirical part of this thesis, whereas the second question will be answered with the literature review.

Even though the information regarding the criteria to evaluate suppliers is available in literature, one of the limitations in this study is that some of the respondents might consider it as confidential and therefore they will not disclose specific information about it. Moreover, commonly the literature regarding supplier evaluation addresses the different methods to evaluate suppliers together with the criteria; nonetheless in this study the methods to evaluate suppliers will not be fully contemplated.

1.3 Research methods and strategy

The research approaches are divided into exploratory, descriptive and explanatory (Mooi & Sarstedt, 2011; Saunders et al., 2009; McGiven, 2013). According to Robson (2002) an exploratory study is a valuable mean to approach phenomena with a new perspective and to get new insights. Moreover, it is useful when the researcher is not totally sure of the nature of the problem he or she wants to approach. Therefore, this type of study is highly flexible and adaptable as many changes take place during the research. Descriptive research is used when the researcher wants to describe things, places, people, situations and when he or she wants to measure performance (Mooi & Sarstedt, 2011). The main difference between these two types of studies is that the researcher must have a better-defined problem and objectives in a descriptive study than in an exploratory study. Lastly, explanatory studies go deeper into a specific subject. It is intended to explain things and to establish the relationship among the variables of the problem (McGiven, 2013).

This research falls into the category of descriptive study. As it was stated by Robson (2002) the object of a descriptive research is to depict an accurate profile of persons, events or situations. Moreover, Saunders et al. (2009) affirmed that in descriptive studies it is necessary to have a clear picture of the phenomena in which the researcher is going to collect the data. This research is framed as a descriptive study because many researchers have approached the supplier evaluation criteria in the past; thus a considerable body of knowledge is available already. Nevertheless, the available literature does not focus on the criteria evaluate bulk material suppliers; therefore in this context the body of literature is rather short. The descriptive study is suitable for the purpose because the researcher had a clear view on what is the problem and what are the objectives of it, and as result it is easier to describe the new phenomenon in light of the previous research done in the area.

Research methods can be categorized as well as quantitative or qualitative methods (Hague et al., 2013). Qualitative methods are usually less structured and their aim is to gain insight or major understanding of a phenomenon; therefore these types of gathering methods are mostly suitable to exploratory and descriptive studies (Hague, 2006). Parasuraman et al. (2004) stated that any study using unstructured interviews or observation techniques can be categorized as qualitative. On the other hand, quantitative methods aim to measure and quantify issues, which make them more suitable for explanatory studies. Commonly quantitative data is collected by questionnaires or surveys.

In order to achieve objective of this thesis two collecting data methods will be used: desk research and interviews. Desk research will be used to collect most of the academic data related to the selected topic and to identify as much as possible the case company's offering. Interviews will be used to approach case company's personnel and potential customers. Figure 2 below illustrates how the data gathering methods are related to the specific objectives of this thesis.

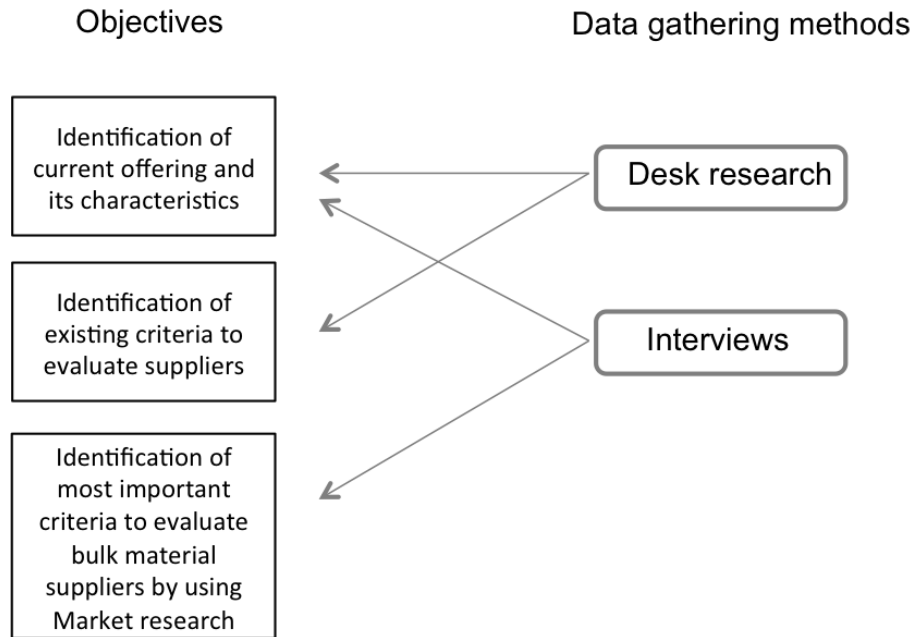


Figure 2. Data gathering methods

Interviews can be highly structured and formal, or they can be informal and unstructured conversations. Therefore, depending on the structure and level of formality they can be categorized as: structured interviews, semi-structured interviews and unstructured or in-depth interviews (Saunders et al., 2009). Semi-structured interviews are usually associated with qualitative research (King, 2004). With this type of interviews the researcher will have a list of themes that should be covered in the interview; nevertheless they can vary from interview to interview depending on the nature of the conversation and answers provided by the interviewee. In addition, the order of the questions can vary as well depending on the flow of the conversation. Lastly additional questions can emerge in order to achieve the desired target of the interview in light of the event within a particular organisation. It is intended in this thesis to use semi-structured interviews to approach potential customers. Figure 3 below illustrates the type of semi-structured interviews selected to carry out this research.

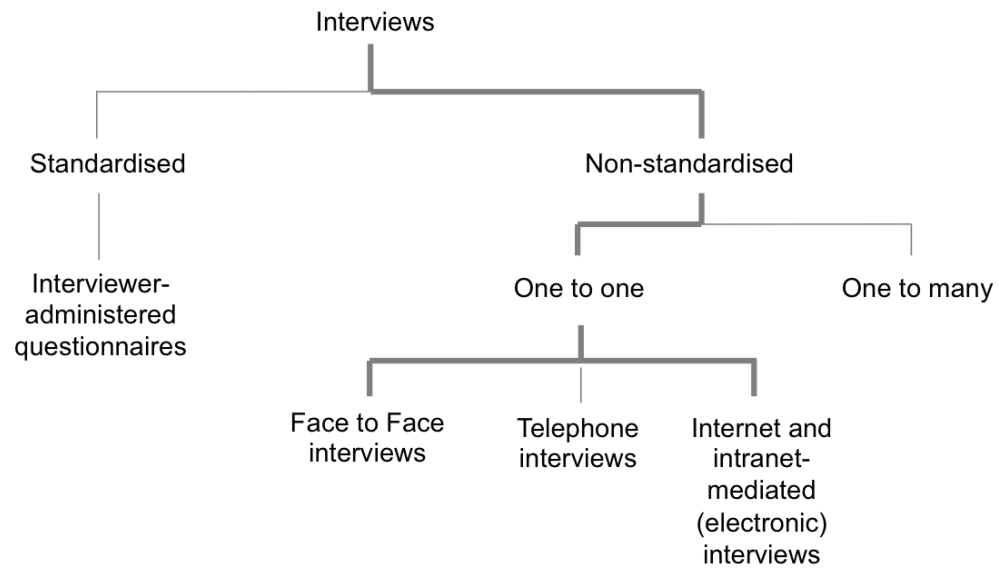


Figure 3. Types of interviews (Adapted from Sanders et al., 2009)

The semi-structured interviews will be carried out in two ways as it can be seen in Figure 3. Face to face interviews will be the main and preferred option to collect the desired information. However, for those respondents that might be geographically far from the researcher, Internet mediated interviews will be used to overcome that obstacle.

It was stated by Healey & Rawlison (1994) that an interview may have different types of questions. For example, one section of the interview might have an actual set of questions, and a different part might have a semi-structured qualitative approach. In this study, the semi-structured interviews will have one question of a structured approach. The idea of this question is to list the most popular criteria identified in literature and ask respondents which one of them are the ones they use. The rest of the interview will reassure a deep understanding of the respondent's selections and many other elements valuable for this research.

1.4 Structure of the study

It is intended to write this master's thesis in 6 chapters. The first three chapters will cover the theoretical part of the study, and the last three chapters will cover the empirical part. The theoretical parts will address the introduction to the study, the research methods and the available literature regarding supplier evaluation criteria, customer value and market research. Subsequently the empirical part will explain how the study was conducted and what were the findings. Figure 4 below will further illustrate the structure of the study.

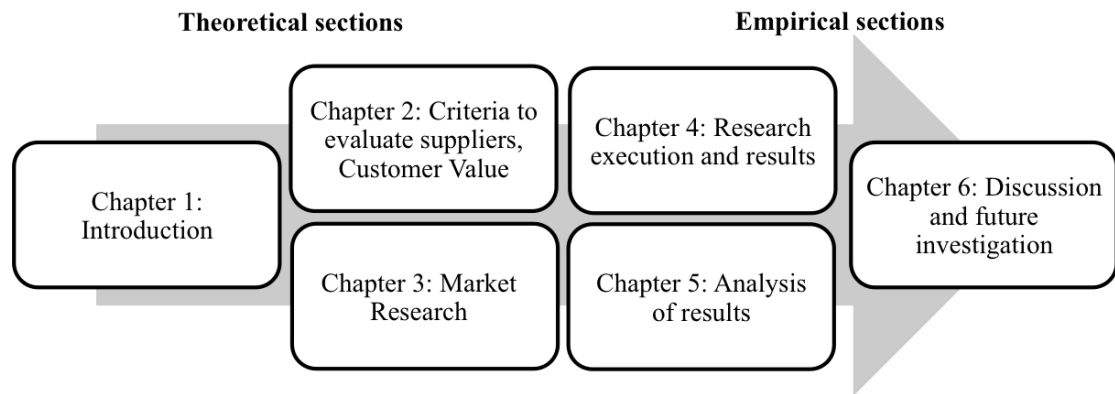


Figure 4. Structure of the study

Chapter 1, or Introduction, will provide an overview of case company, the parent company and how did the problem emerged. In addition, the research problem, objectives and research methodology will be presented.

Chapter 2 is related to Supplier Evaluation and Customer value. This chapter will firstly introduce supplier evaluation as a general topic. Secondly, it will introduce the supplier evaluation criteria and lastly it will show the key criteria to evaluate suppliers according to literature. The general intention of this chapter is to create a solid understanding of supplier evaluation, and to build the basis to construct the semi-structured interviews.

Chapter 3 is related to Market research. In this chapter the concept of market research will be introduced. The process for market research and the different market research techniques will be discussed thoroughly. The overall intention of this chapter is to provide a systematic technique on how to do market research, and specifically in this case how to select and approach potential customers.

Chapter 4 refers to research method, execution and results. This chapter will explain further the research method, how it was executed and what were the results. Moreover, the structure of the interview and the interviewees will be presented as well. Lastly, the most important findings will be presented.

Chapter 5 will discuss the analysis of results. In this chapter the results will be analyzed and evaluated. Suggestion will be given on how the case company can strengthen its offering to match the identified evaluation criteria. Lastly, chapter 6 refers to conclusions and further investigation. This chapter will evaluate the used methods, and it will provide a final recommendation for the company involved in the study. Lastly, the successfulness of the study will be discussed and possible points of further research will be presented.

2. CRITERIA FOR SUPPLIER OFFERING

2.1 Introduction

It is intended in this chapter to identify the relevant criteria to evaluate suppliers and their current offering. Supplier evaluation is considered as one of the most significant processes in purchasing and supply chain management (Kaufmann et al., 2010). Several authors have addressed this topic throughout the years, and as a matter even in the early 40s there was literature approaching this subject. Back then Lewis (1943) stated that among all the responsibilities of purchasing officers, none was more important than the selection of a proper vendor. Since then the complexity of industries and supply chains has increased considerably, and as result, there are many elements that should be taken into consideration when evaluating suppliers.

Supplier evaluation has gained substantial importance because it has a direct impact on companies' performance. For example, back in 1944 purchasing's share in the total turn around of industrial companies varied between 50 to 90% (Telgen, 1994). Thus, every activity related to purchasing obtained the similar importance accordingly. Nowadays, since companies allocate more resources to their core competences and outsourcing practices have increased dramatically, the importance of supplier evaluation has boosted noticeably.

Choosing the right supplier in order to fulfill a company's need encompasses much more than just scanning through a price list; indeed, the choice will depend on an extensive range of quantitative and qualitative factors (Ho et al., 2009). Moreover, criteria such as price and quality are not as important as "strategic fit" and "assessment of future manufacturing capabilities" when it comes to selecting strategic suppliers (Ellram, 1990). Therefore, supplier evaluation is a complex process that should be addressed thoroughly if it is to be done properly.

2.2 Criteria to evaluate suppliers

It is quite easy to obtain from procurement literature a list of 50 distinct elements (characteristics of vendor performance) that are mentioned by several authors as being important to take into consideration when selecting vendors (Dickson, 1996). Nevertheless, the increasing outsourcing practices and complexity of industries have led companies to chose carefully the set of quantitative and qualitative metrics to evaluate suppliers in order to achieve their target. Quantifiable criteria as price, delivery, quality and

service are commonly used for supplier selection (Han et al., 1990), but qualitative metrics such as supplier reputation and so on pose a major challenge to evaluate suppliers.

Even though the number of articles related to supplier evaluation is rather vast, few researchers have concentrated on developing metrics or criteria to evaluate suppliers. Despite the relative low number of article addressing this issue, the research process concerning metric to evaluate suppliers can be tracked down to 1960s (Sen et al., 2008). It is important to highlight Huang & Keskar (2006) identified that the first set of criteria to evaluate suppliers was proposed by Dickson (1996) including 23 indicators, later on Roa & Kiser (1980) broaden the number of indicators to 60, and finally Ellram (1990) and Stamm & Golhar (1993) reduced the number of criteria to 13. Huang & Keskar (2006) introduced a set of categories in order group all the criteria to evaluate suppliers. Figure 5 below illustrates the categorization made by the authors.

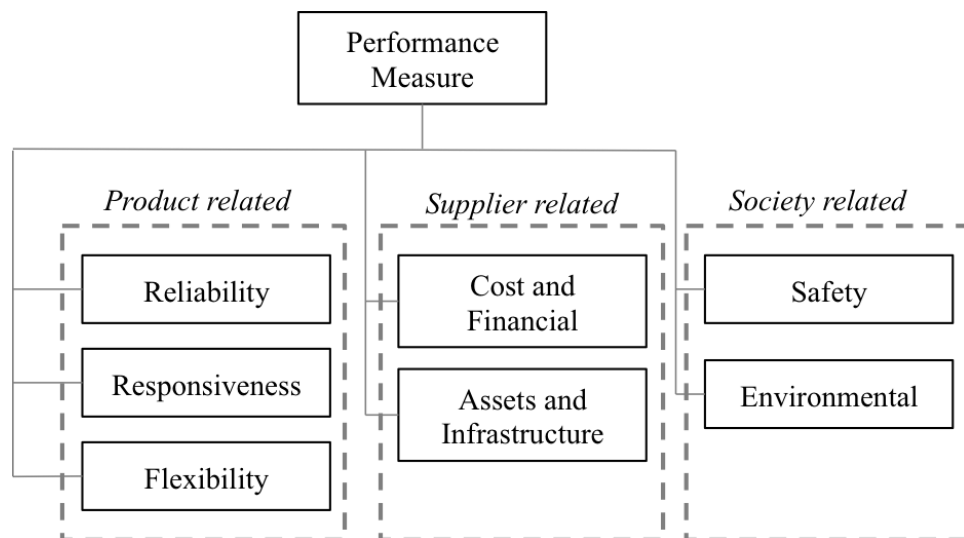


Figure 5. Classification of criteria to evaluate suppliers (Adapted from Huang & Keskar, 2006)

As it can be seen in Figure 5, the authors grouped all the criteria into 7 categories. Reliability addresses the criteria concerning the performance of the supplier in terms of delivery of ordered items at the right place, at the agreed time, with the required conditions and at the right quantity. Responsiveness refers to the criteria related to the speed at which the vendor supplies the goods to the customer. Flexibility covers the criteria regarding the agility of the supplier to react to customer's demand changes. Cost and financial address the criteria related to cost and financial features of purchasing from the supplier. Assets and Infrastructure refer to indicators related to the effectiveness of supplier's asset management to comply with customer's demands. Safety covers the criteria regarding occupational health at supplier's premises. Lastly, environmental performance

measurements refer to the criteria concerning vendor's efforts to achieve environmentally friendly production.

A 101 criteria were identified in the study carried out by Huang & Keskar (2006). The authors emphasized that the metrics are general; therefore a company should only use the ones that are important to their business. Furthermore, the first decision that a company should make is whether to include metrics from all the categories or only some of them. Table 1 below explains further the number of criteria identified per category.

Table 1. Criteria to evaluate suppliers according to Huang & Keskar (2006)

Categories	Number of criteria	Example of identified criteria
Reliability	19	% Orders received damage free, % Orders received defect free, % Orders received with correct shipping documents.
Responsiveness	13	Lead times, Return product velocity, Average release cycle of changes
Flexibility	14	Upside order flexibility, Upside production flexibility, Downside order flexibility
Cost and Financial	17	Payment terms, Packaging costs, Discount rate
Asset and Infrastructure	19	Labor stability, Company size, Legal claims
Safety	5	Recordable incident rate, Safety trainings, Safety audits
Environmental	14	Recycled content, Ambient air releases, Global warming gas releases

As it can be seen in Table 1, the number of criteria available per category is rather similar except for safety. Besides Huang & Kesar (2006), other authors have addressed this issue in their studies. Chen Y (2010) summarized what were the criteria considered important by relevant authors in this field, such as Dickson (1996); Weber et al. (1991); Weber & Current (1993) and Weber & Desai (1996), in order to evaluate suppliers. The summary can be seen in Table 2 below.

Table 2. Criteria to evaluate suppliers according to Chen Y (2010)

Evaluation criteria	Dickson importance ranking	Reference quantity
Price	6	61
Deliver on time	2	44
Quality	1	40
Equipment and capability	5	23
Geographic location	20	13
Technical capability	7	15
Management and Organization	13	10
Industrial reputation	11	8
Financial situation	8	7
Historical performance	3	7
Maintenance service	15	7
Service attitude	16	6
Packing ability	18	3
Production control ability	14	3
Training ability	22	2
Procedure legality	9	2
Employment relations	19	2

Communication system	10	2
Mutual negotiation	23	2
Previous image	17	2
Business relations	12	1
Previous sales	21	1
Guarantee and compensation	4	0

As it can be seen in Table 2 there is a disparity as regards what criteria is the most important to evaluate supplier. According to Dickson (1996), the most important criteria are quality, deliver on time and historical performance; whereas price, deliver on time and quality were the most important ones based on the quantity reference. It is important to highlight, that the reference quantity refers to the number of articles that used that criteria to evaluate suppliers; therefore it illustrates the popularity of the criteria rather than its importance.

Before the study introduced by Chen Y (2010), Ho et al. (2009) carried a literature review in order to identify the multi-criteria decision making approaches to evaluate supplier. In their study, the authors were able to recognize what are the most important criteria to evaluate supplier. The major findings of that study regarding the criteria can be seen in Table 3 below.

Table 3. Criteria to evaluate suppliers according to Ho et al. (2009)

Criteria	No. of articles
Quality	69
Delivery	64
Price / Cost	63
Manufacturing capability	39
Service	35
Management	25

Technology	25
Research and development	24
Finance	23
Flexibility	18
Reputation	15
Relationship	3
Risk	3
Safety and environment	3

As it can be seen in Table 3, a high number of articles use quality, delivery and price as indicators to evaluate suppliers. When compared to the results provided Chen Y (2010), it can be seen that these indicators were identified as well as the most commonly used in several articles. Other indicators such as service, management and so on are widely used as well, but they are not as common as the first three. Interestingly indicators related to risk, safety and environment did not place a major popularity among the articles included in this study.

Wetzstein et al. (2016) introduced the latest literature review including a thorough review of criteria to evaluate suppliers. According to the authors, the majority of the articles did not study the criteria explicitly, but instead they used the available criteria to test supplier evaluation models. In addition, after the findings made by authors Huang and Keskar (2006), no other study was carried out in order to clearly update the list of criteria to evaluate supplier (Wetzstein et al, 2016). Lastly, the authors concluded that research focus is no longer placed in studying generic criteria, as the key criteria have been defined already in literature. This conclusion was already confirmed earlier by Bharadwaj (2004). All in all, the most relevant articles related to this topic that were found in this study can be seen in Figure 6 below.

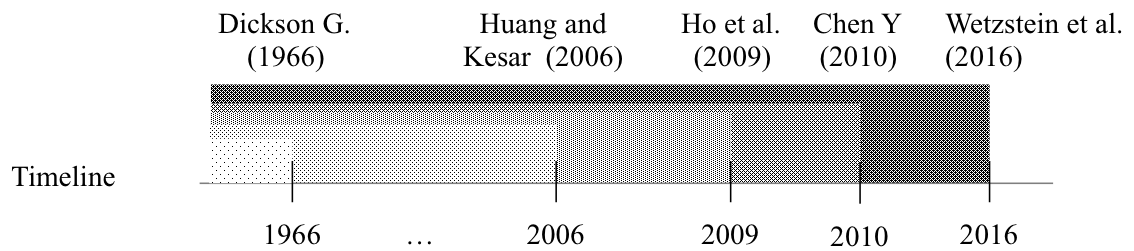


Figure 6. Literature related to supplier evaluation

As it can be seen in Figure 6, the articles included in this study cover an extensive period of time. Furthermore, it is important to highlight that some of the articles build on top of the findings of older articles, as it was the case with Huang & Keskar (2006) and Dickson (1966), and so on. Lastly, the latest article released by Wetzstein et al. (2016) includes the finding of the other authors in order to study how this topic has evolved and how it can evolve in the future. Nevertheless, as mentioned in previous paragraph, the authors found out that the number of papers in this topic decreased, meaning that this topic might have achieved a maturity stage in which no further research is needed.

The criteria presented so far have its variation, and therefore it is necessary to provide a categorization to have a more systematic approach to evaluate suppliers. Based on the set of categories introduced by Huang & Keskar (2006), all the criteria were grouped and presented in Table 4 below.

Table 4. Summary of criteria to evaluate suppliers

	Huang & Keskar (2006)	Ho et al. (2009)	Chen Y (2010)
Reliability	Quality	Quality (69), Service (35)	Quality (40), Service (18)
Responsiveness	Delivery time, Packaging time, Installation time	Delivery (64), Service (35)	Delivery time (44), Geographic location (16), Service (18)
Flexibility	Number of days to respond to an increase/decrease of orders	Flexibility (18)	
Cost and Financial	Price, Payment terms, Discount rates	Price/Cost (63), Finance (24)	Price (61), Financial situation (7), Guarantee and compensation, Previous sales (1)

Assets and Infrastructure	Manufacturing capabilities, Management outlook, Company size, Strategic fit, Cultural stability, Labor stability	Manufacturing capabilities (39), Management (25), Technology (25), Research and development (24), Reputation (15)	Equipment and capability (23), Technical capability (15), Management (10), Packing ability (3), Production control ability (3), Reputation (3), Communication systems (2),
Safety	Safety training, Safety Audits, Number of accidents	Risk (3)	
Environmental	Chemical releases, conventional pollutants released to water/air	Environment (3)	

As it can be seen in Table 4 the majority of criteria belongs to the categories assets and infrastructure, cost and financial, responsiveness and quality respectively. It is important to highlight that the number in brackets refers to the number of articles that used that criterion to evaluate suppliers. Many similarities can be seen in each category when it comes to the criteria mentioned by the authors. For example, management and manufacturing capabilities were mentioned by all the authors in the category assets and infrastructure. Furthermore, quality and delivery time are criteria that were also mentioned by all of the authors.

The results presented in Table 4 will be used in the empirical part of this study in order to design the questionnaire to be used in the interviews with potential customers. As stated before, many of the authors contemplated in Table 4 used similar criteria to evaluate suppliers; therefore, the fact that one specific criterion is mentioned by several authors gives hints to assume that such criterion can prove to be useful for customers. Hence, the following criteria will be included in the questionnaire: quality, delivery time, service, price, manufacturing capabilities, management and reputation. Lastly, it is important to note that other criteria might be included in the questionnaire provided that they appear to be important later on in this study.

2.3 Criteria to evaluate bulk material suppliers

According to Martin (2007) bulk material refers to goods that are commonly sold in large quantities, weight or even without the individual packaging. Moreover, one of its characteristics is that when it comes to quality purposes, one sample from the goods is

used to represent the lot. The term bulk material varies according to the context; for example, in the manufacture of basic metals industry bulk material refers to iron ores (Gao, 2003), whereas in the manufacture of gas industry it refers to anhydrous sodium (Gilmour, 1998). Interestingly, despite the industry bulk goods are considered to have lower price when compared to the major equipment of the projects and they are usually less complex. For instance, Yeo & Ning (2006) stated that bulk material procurement is significantly different from equipment procurement as the later has higher cost, longer lead time and there is no inventory buffer at the customer or contractor site.

As introduced in Chapter 1 the literature available concerning this topic is rather short; however some authors have identified what are the criteria to evaluate bulk material suppliers directly or indirectly. For instance, Shipley (1984) identified that price, quality, delivery accuracy, speed of delivery and after sales services were the key criteria to evaluate electronic components suppliers. The word component encompasses a wide variety of product, but it still includes bulk products such as capacitors, transistors and so on. Furthermore, in the same industry Bharadwaj (2004) identified that quality, price, delivery performance and after sales services were the key criteria to evaluate suppliers.

Other authors focused to identify directly the criteria to evaluate bulk material suppliers. Gao (2003) stated that usually bulk purchases in the manufacture of basic metal industry are evaluate in light of quality and price. Moreover, when it comes to engineering companies dealing with engineering, procurement and construction (EPC) projects, Masi et al. (2013) identified that suppliers providing goods such as tubes, valves and joints are evaluate based on conformity of specifications, price, delivery time, technical quality and reputation of the supplier.

As it can be seen so far, there are some criteria that are consistently similar despite the industry, but there are some other criteria that are relevant to every specific case. In order to summarize the major findings related to the criteria to evaluate bulk material suppliers, Table 5 shows the criteria discussed so far per author.

Table 5. Key criteria to evaluate bulk material suppliers

	Shipley (1984)	Bharadwaj (2004)	Gao. (2003)	Masi et al. (2003)
Price	x	x	x	x
Quality / Technical specification	x	x	x	x
Delivery accuracy / delivery time	x	x	x	x

After sales service	x	x		x
Supplier reputation				x
Product range	x			
Payment terms	x			x

As it can be seen in Table 5 some of the criteria are repeatedly mentioned by all the authors such as price, quality and delivery time, but there are others as product range and payment terms that are not mentioned by everybody. The first three criteria are commonly known as the key attribute to assess vendors (Evans, 1981; Wilson, 1994; Matthyssens & Faes, 1985), so that is a possible reason why it is mentioned by all the authors. Nevertheless, it is intended in the empirical part of this study to use all the identified criteria while interviewing potential customer. The results showed in Table 6 below will be used as the input when designing the questionnaire to be followed during the interviews, and the result will help to identify the criteria to evaluate bulk material supplier in the context of this thesis.

2.4 Customer value

According to Anderson (1993) customer value is defined as the difference between the total customer value and the total customer cost. Customer value is created when the perceived benefits in the transactions overpasses the cost of ownership (Christopher, 1982). Despite the previous concept, many authors have tried to provide a definition of customer value, yet there is no standard concept on how to define it. In a general sense, it can be stated that customer value is the difference between the value the customer gets when he or she purchases a product and the price paid for that product. Even though all the authors have different definitions, they all agreed that customer value encompasses two main elements: the benefits resulting from the ownership of the product and the sacrifice in order to get that product. Table 6 below illustrate how the benefit and sacrifice dimensions are categorized according to different authors, and moreover, it is also mentioned what was the nature of the study.

Table 6. Key drivers of benefit and sacrifice in customer value

Authors	Benefit Dimension	Sacrifice Dimension	Theory / Empirical
Anderson et al. (1993); Anderson & Narus (1998)	Economic benefits, technical benefits, service benefits, social benefits,	price	Theoretical
Lapierre (2000)	product-related benefits, service-related benefits, relationship-related benefits	price and relationship-related sacrifices	Empirical
Walter et al. (2003)	quality, volume, safeguard, market function, scout function, innovation function, social support	cost	Empirical
Ulaga (2003)	product quality, service support, delivery, supplier know-how, time-to-market, personal interaction, direct product cost (price), process costs	-	Empirical
Khalifa (2004)	Utility value, Psychic value	Cost of research, price	Empirical
Smith & Colgate (2007)	Functional benefits, Experiential benefits, Symbolic benefits	economic, personal investment, risk and psychological	theoretical

As it can be seen in Table 6 many of the articles share similar benefit key driver. However since they could have used a different terminology to refer to the same indicator, the benefits will be grouped into 5 groups according to Smith & Colgate (2007): Functional, Economic, Service, Psychological and Social. Functional benefits refer to the utility of the product itself. Economic benefits relates to the advantages such as price acquired from the product by the customer. Psychological benefits are related to benefits coming from availability, accessibility and ease of use of the product. Lastly, social benefits refer to the benefits that emerged from a product's image and reputation. Table 7 below shows the benefit key drives in light of the groups presented.

Table 7. Grouped benefits by author

	Anderson et al. (1993); Anderson & Narus (1995)	Lapierre (2000)	Walter et al. (2003)	Ulaga (2003)	Khalifa (2004)	Smith & Colgate (2007)
Functional	x	x	x	x	x	x
Economic	x		x	x		
Service	x	x		x		x
Psychological		x			x	x
Social	x	x	x	x	x	

Table 7 provides a solid base in order to compare all the articles in light of the benefits taken into consideration in their study. In addition, the groups presented in Table 7 provide a more systematic way to study the benefits provided by product / service. However, this information yet remains blurred when it comes to the indicators associated to each category. Therefore, in order to overcome that issue, the most common indicators were identified among the selected articles and listed in Table 8 below according to the groups defined earlier.

Table 8. Indicators to evaluate benefit dimension in customer value

Benefit	Indicator	Anderson et al. (1993); Anderson & Narus (1995)	Lapierre (2000)	Walter et al. (2003)	Ulaga (2003)	Khalifa (2004)	Smith & Colgate (2007)
Functional	Product Performance		x	x	x	x	x
Functional	Product Reliability		x	x	x		x
Economic	Annual price				x		

	decreases						
Economic	Cost reduction programs				x		
Service	Product-related services	x			x		x
Service	Accuracy of delivery				x		
Service	Customer information		x		x		x
Service	Technical competence						x
Service	Order handling			x	x		
Psychological	Stock levels		x				
Psychological	Problem solving		x				x
Social	Image		x		x		
Social	Trust		x	x			

Table 8 provides a broad overview as regards what indicators can be used to identify or measure the provided benefit to the customer. It is important to highlight that the number of indicators in literature is rather large, and not all of them are applicable to every case; therefore the researcher must decide which of them can be used to suit his or her purpose.

The outcome of Table 8 will be used in the empirical part of this study to design the questionnaire to be used when interviewing the case company's internal personnel. The intention is to make questions related to the indicators identified in Table 8 with the purpose of having a systematic approach to identify the case company's offering. Moreover, in order to ease the analysis the questionnaire will be divided according to the grouped benefits identified in this chapter.

3. MARKET RESEARCH

3.1 Market research in general and its uses

Market research can be defined as the set of techniques to systematically collect, record, analyze and interpret data in order to support marketing decision makers (Parasuraman et al., 2008). A similar but broader definition was given by Malhotra (2008), according to the author market research is the systematic and objective identification, compilation, analysis, dissemination and use of information with the purpose of improving decision-making related to the identification and solution of marketing problems and opportunities.

If the customers are not fully understood, companies will not have business at all in the long run (Hage, 2006). This is one of the reasons why market research has gained considerable importance among companies. Its systematic set of techniques allows companies to understand customers and their behaviors, and that information is vital to run their business. Moreover, a good market research turns its findings into intelligence (Hage, 2006). This means that after the research is done, the outcome must be used to address the initial question and to act accordingly so that the company can take advantage of such process. According to Hague et al. (2013), market research has four main applications:

- Understanding markets
- Understanding customers
- Understanding and developing the offer
- Positioning the brand and communication

Without understanding the size of the market, it is quite challenging for a company to understand its position in the market and to know how many customers it can still attack (Hague et al., 2013). Market size data allow companies to understand what is the potential for expanding sales and increasing market share. Furthermore, it allows them to understand if the market is big enough to cover the investment a company must do in order to entry that specific market.

Understanding customers refers to putting customers at the very heart of the business (Hague et al., 2013). Companies have understood that understanding customers and their perception towards company's product and services are vital to succeed in today's world. Thus, this application of market research focuses on customer satisfaction specifically the elements related to customer loyalty and retention. According to the authors, 8 out of 10 customers say that they would pay up to 25 per cent for a superior customer

service; therefore an investment to understand customer deeper would be justified in this sense.

The development of new products requires a significant investment; hence this area of market research focuses on testing customer's reaction to company's products and their likely acceptance or rejection of it (Hague et al., 2013). Moreover, this application of market research can be used to establish key product benefits and to test marketing idea in order to ensure company's success. In this sense, a company can use market research to determine what are the features that customer value the most among their products or services, and then exploit them to assure their advantage from other competitors. Lastly, this application can be used as well to determine what is the optimum price of new products, the acceptance of new packaging concepts and forecast of use of products.

Market research can be used to measure the effectiveness of publicity, whether it is related to just increase brand awareness or drive for sales (Hague et al., 2013). In 2013, worldwide Internet advertisement expenditure was forecasted to increase more than 14%; whereas traditional media was forecasted to increase only by 4% (Melo & Cristovao, 2014). This kind of phenomenon has led market research to tackle questions such as where to place advertisement to approach the desired customers, and what is the right message to share in order to attract the targeted customer. This application of market research does not only focuses on the analysis, it also helps in the planning and execution of the campaigns. So as it can be seen, this application of market research is rather extensive and it gains more importance as the communication channels become more complex due to digitalization.

Other authors have argued that the application of market research can be framed in a different way than the one provided by Hague et al. (2013). Malhotra (2008) stated that market research is carried out mainly for two reasons: identify and solve problems related to marketing. Identifying marketing problems encompasses research associated to market potential and trends, brand image, sales forecast and so on. Market research to solve problems addresses issues concerning product and packaging design, pricing, distribution channels for advertisement, segmentation and so on. Despite the differences between the two frameworks to explain the different applications of market research, it can be seen that the core content is the same, but it is just presented in a different form. In general, figure 7 below depicts how both frameworks are interconnected.

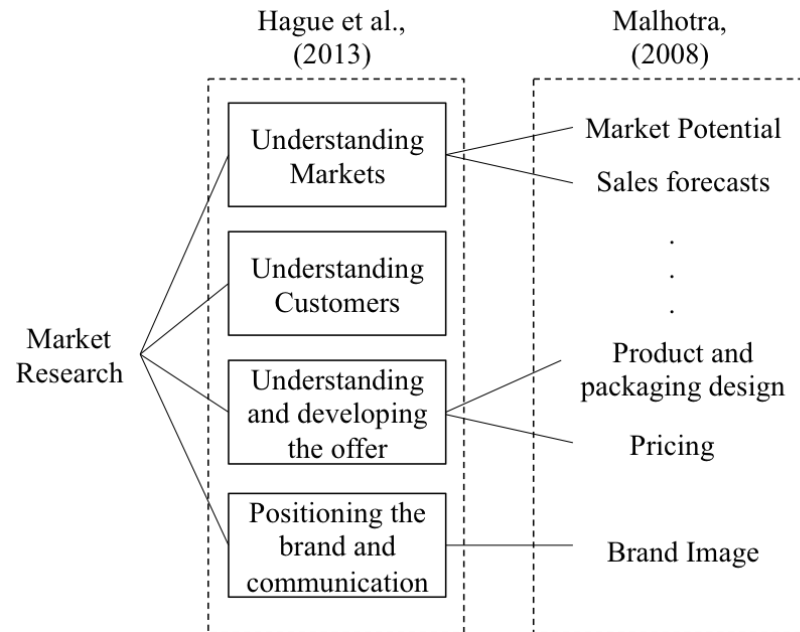


Figure 7. Application of market research

As it can be seen in Figure 7 most of the research related to the identification and solution of problems associated to marketing can be directly connected to the framework proposed by Hague et al., (2013). The number of research topics indicated by Malhotra (2008) is rather larger than the ones listed in Figure 7, but all of them can be related in the same way as it was depicted Figure above.

The discussion at this point provides a solid base to understand the different purposes of using market research, and at the same time it helps to understand why market research is suitable for this study. As discussed earlier, market research can be used to understand customers and develop the company's offering, and as it was introduced in Chapter 1 that is the case of this thesis. The case company needs to understand how potential customers evaluate their suppliers, and based on that information they will update their offering. As a result, it is justified the usage of market research to achieve the overall purpose of the study.

3.2 Market research process

Market research is the systematic search of information significant to the identification and solution of any problem associated to several areas in a company (Smith & Albaum, 2010). Moreover, market research usually focuses on understanding the customers, the company itself and its competitors. Therefore, market research encompasses a large number of variables that should be taken into consideration systematically, and the process as such needs to be planned carefully. It is intended in this section to describe thoroughly the process associated to market research, as such process will be followed in the empirical part of this study.

Market research is a topic that has been studied extensively, and therefore the process itself has become standard nowadays. Pasauraman (2004) indicated that market research process involves 10 steps that include the definition of the problem, the data gathering methods and the analysis of the results. Similarly, Malhotra (2008) stated that the process itself can be summarized into 6 steps that would cover the activities mentioned by the previous authors. Malhotra (2008) divided the process as follows:

1. Definition of the problem
2. Development of the problem approach
3. Formulation of the research design
4. Data collection
5. Preparation and data analysis
6. Present the research findings

Definition of the problem is perhaps the most important step in market research (Malhotra & Birks, 2003; Malhotra, 2008). All of the effort, money and time invested in a market research will lead to a poor result if the problem is not defined properly (Gray, 2005). Therefore, the inadequate definition of the problem is one of the main causes why market research fails to achieve its purpose. Malhotra (2008) stated that the definition of the problem should cover the following tasks:

- Understanding the context and background of the problem
- Statement of the problem
- Focus of the problem

When defining the problem, the researcher should take into consideration what is the purpose of study, what is the background of the problem, and what is the information the he or she will need to approach the problem. Furthermore, the definition of the problem requires from the researcher to talk with the decision makers and experts of the area in order to have a better overview of the topic. (Malhotra, 2008).

The second step proposed by Malhotra (2008) is development of the problem approach. According to the author, in this step the researcher formulates the theoretical framework, analytical model, research questions and hypothesis related to the problem being studied. Parasuraman et al. (2004) supported the previous statement by affirming that this step is the next step right after the definition of the problem. Moreover, in this step the researcher identifies what are the information needs and takes into consideration the pragmatic practicalities.

The third step is the formulation of the research design according to Malhotra (2008). The research design is a scheme to carry out the market research process. Such scheme discusses thoroughly what is the procedure to collect the data, the definition of the variables related to the problems and the characteristics of the sample (Malhotra, 2008). Likewise, it also includes the development of the questionnaire and the plan to analyze the data. Malhotra & Birks (2003) stated that this step can be seen as the development

of a framework to implement the market research, and it explains how the project will fulfill the research objectives.

Hague et al (2013) stated that it is essential that the research design fit the goal and objectives of the study. In this sense, if the researcher is trying to identify what is the sales volume of an item, there is no point in setting up a focus group or carrying out qualitative depth interview to achieve such purpose. Similarly, if the intention is to identify what is customer's perception towards a new brand image, it is pointless to carry out a quantitative research that measure the sales volume. Hence, the research design should be suitable to address the research problem. Figure 8 below depicts what are the main elements included in this step.

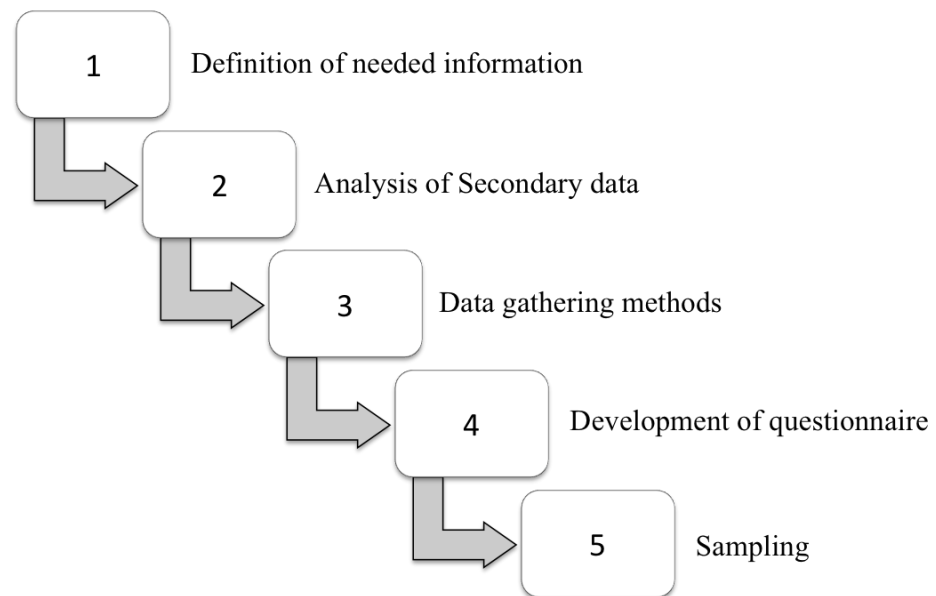


Figure 8. Steps in the formulation of research design

As it can be seen in image above, the process covers 5 steps that help to address all the important issues in this stage of the market research. The first step proposed by the Hague et al. (2013) is definition of needed information. According to the authors, once the problem and the analytical model are defined, the researcher is able to identify what information is needed in order to achieve the desired target. Parasuraman et al. (2004) supported the previous statement by affirming that once the objectives are defined, the easier it will be to identify what information is needed. It is important that during this step, the researcher takes into consideration all the elements defined in the development of the problem research, since each one of them have its own information requirements.

The second step is the analysis of secondary data. Data is the compilation of facts that can be used for analysis, and it lies in the center of market research (Mooi & Sarstedt, 2011). Furthermore, data can be defined as well as fact, opinions, and statistics that were

collected together and recorded for reference or analysis (Saunders et al., 2009; pp. 590). Data can be categorized as primary or secondary, and it can have different forms (quantitative or qualitative), and sources (internal or external) (Hannula & Pirttimäki, 2005; pp. 37). When carrying out a market research, all the characteristics mentioned before should be taken into consideration because they should match the objective of the study. Therefore, the decision concerning whether to gather data from internal or external sources, and whether it should be qualitative or quantitative will fully depend on the nature of the research.

Secondary data is often used at the beginning of the research process (Hague, 2006; Malhotra, 2008; Saunders et al., 2009). Its easy accessibility helps the researcher to define better the problem, develop a deeper focus of the study and it can even help to test the hypothesis; nevertheless, it is usually not enough to find the solution to the research problem. Moreover, the outcome of the secondary data usually serves as input to decide how to collect the primary data. Secondary data can be classified in many ways, but Saunders et al. (2009) proposed three sub groups to classify it. The sub groups and the possible sources can be seen in Figure 9 below.

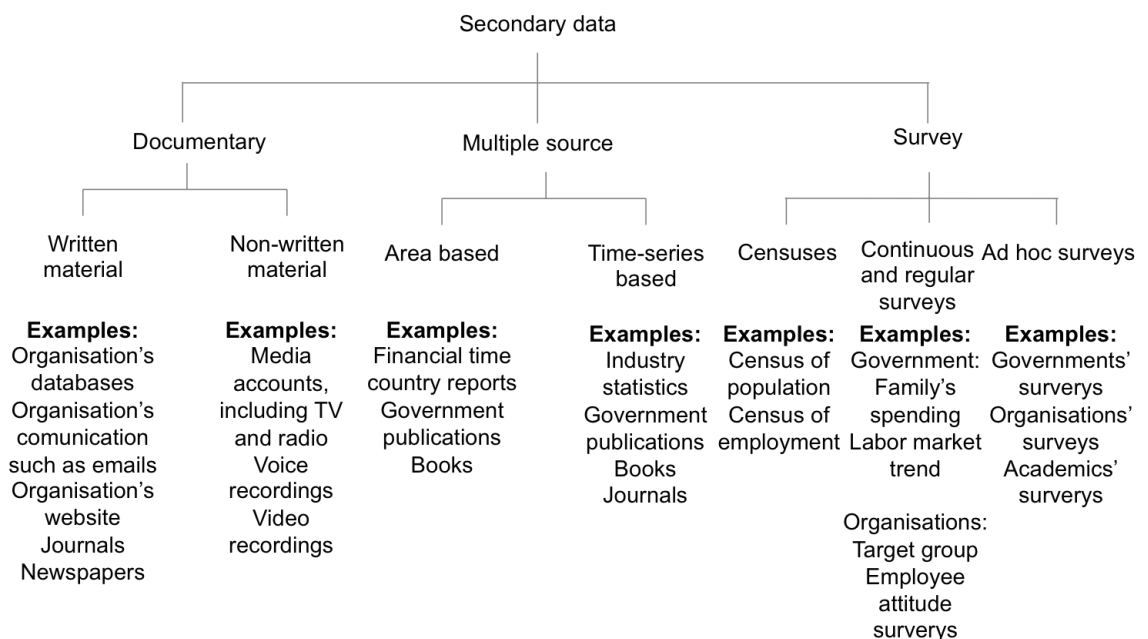


Figure 9. Categories and sources of secondary data (Adapted from Saunders et al., 2009)

As it can be seen in Figure 9 there are many sources of secondary data. Many of the information can be accessed on the Internet, and its fast accessibility represents one of the features of secondary data. In this study, it is intended to use the documentary sec-

ondary data, specifically the organization's data base as part of the desk research with the purpose of identifying what is the case company's current offering.

The third step in the formulation research design is data gathering methods. When people think of market research methods, commonly questionnaires come to their minds; nevertheless there is a range of other tools that researchers use (Hague, 2006). Data can be collected in many ways, so it is highly important that the researcher chooses the most suitable method to his or her study. Mooi & Sarstedt (2011) stated that data collection is the difficult part of market research, and thus it cannot be carried out randomly. According to Hague et al. (2013), the market research usually begins with a collection of information from secondary sources, and then it continues collecting data from primary sources.

The data gathering methods can be divided into qualitative and quantitative as well. Qualitative methods are usually less structured and their aim is to gain insight or major understanding of a phenomenon; therefore these types of gathering methods are mostly suitable to exploratory studies (Hague, 2006). On the other hand, quantitative methods aim to measure and quantify issues, which make them more suitable for descriptive and explanatory studies. Table 9 below explains the different gathering methods used in this study.

Table 9. Data gathering methods

Method	Purpose of data	Description
Interviews	Primary and secondary	Purposeful discussion between two or more people
Desk research	Secondary	Technique that does not require fieldwork

As it can be seen in Table 9 two methods were used in this study. Interviews are one of the most common methods to conduct market research (Hague et al., 2013). An interview is a dialogue between two or more people, in which a list of questions are asked and discussed further. Interviews can be either qualitative or quantitative. If the study aims to quantify and describe thoroughly a phenomenon, the interview will be highly structured with questions that were thoroughly thought beforehand. On the other hand, if a qualitative study is taking place, the interview will be rather loose and the respondent is expected to reply with his or her own words without giving them a pre-defined answers.

According to Hague et al. (2013) one of the most important elements during an interview is to be enthusiastic since it develops interviewee's interest in the topic. At the start of every interview the interviewee has a bit of anxiety; hence, it is important to break the ice as soon as possible. Interviewee's curiosity and interest on the study will offer an opening for both parties to start the conversation (Saunders et al., 2009), and most probably this initial conversation can be used as a bridge to approach the core questions of the interview. One suggestion to do so is to start with small talk or casual questions, and then the interviewer can start with the real questions. Hague et al. (2013) stated that a conventional interview usually follows the following structure:

1. Introduction
2. Warm up questions
3. Main body of the interview
4. Thank and close

In the list mentioned above, the main body of the interview refers to the questions that lead to the answers of the objective of the study. According to Saunders et al. (2009) open questions can be used, provided that an exploratory or descriptive research is taking place, in order to allow the interviewee to provide an extensive and developmental answer. Moreover, specific and closed questions can be used in structured interviews with the purpose of obtaining specific information or confirming a fact. To sum up, to above presented structured will be used in the interview with the case company's potential customers.

According to Hague (2006) desk research can be defined as secondary data or that which can be collected without fieldwork. Desk research is usually used by researchers in order to obtain data regarding market size, trends, products, company profile, price, distribution and so on. In addition, desk research might mean to many people just checking reports and statistics on the Internet and libraries, but it can also include carrying our interviews with experts (Hague, 2006).

The following step in the formulation of research design is the development of the questionnaire. In this sense a questionnaire is a structured technique to collect data that consists of a set of questions, written or verbal, that should be answered by respondents (Malhotra, 2003). The development of the questionnaire is highly important because if the questions are poorly phrased or placed in the wrong order, the answers obtained by the researcher might be misleading and pointless (Brace, 2008). According to Malhotra (2003) the type of interview is also an important factor when it comes to the design of the questionnaire. If a face to face interview is taking place, the researcher is able to ask long and complex questions due to the type of interaction with the respondent; nonetheless, if a phone interview is taking place, the interviewee is not able to see the questionnaire and therefore only short questions can be asked by the interviewer.

The questions in a questionnaire can be either structured or non-structured (Malhotra, 2003). Structured questions define the set of response alternatives and their format, so such questions are usually multiple choice, dichotomous or scale. One of the advantages of structured questions is that they reduce the interviewer's bias and they are faster to process. Nevertheless, one of the disadvantages is that they require a lot of effort to formulate. On the other hand, non-structured questions are open questions that the respondents answer with their own words. Open questions are highly recommended during the warm up session and they are mostly suitable for exploratory and descriptive studies. One of the advantages of open questions is that respondents are free to express any point of view, and their explanations can provide useful insight for the researcher, but one of their disadvantages is that the codification of answers is costly and time-consuming (Luyens, 1995).

As stated by Brace (2008) the wrong order of questions might cause the researcher to obtain misleading and poor results. Initial questions can be framed to gain interviewee's trust and cooperation. Sometimes the researcher can ask questions that are not tightly related to the market research even though the answers do not provide any relevance to the study (Glassman & Glassman, 1998). After the introduction phase, the questions should follow a logical order (Malhotra, 2003). It is highly advised that the researcher develops a flow diagram with all the logic answers that respondents can give, and then based on this develop the following questions so that they would lead to the answers that the researcher is looking for. Malhotra (2003) developed a flow diagram as an example related to a study to evaluate the use of credit cards in department stores; such diagram can be seen in Figure 10 below.

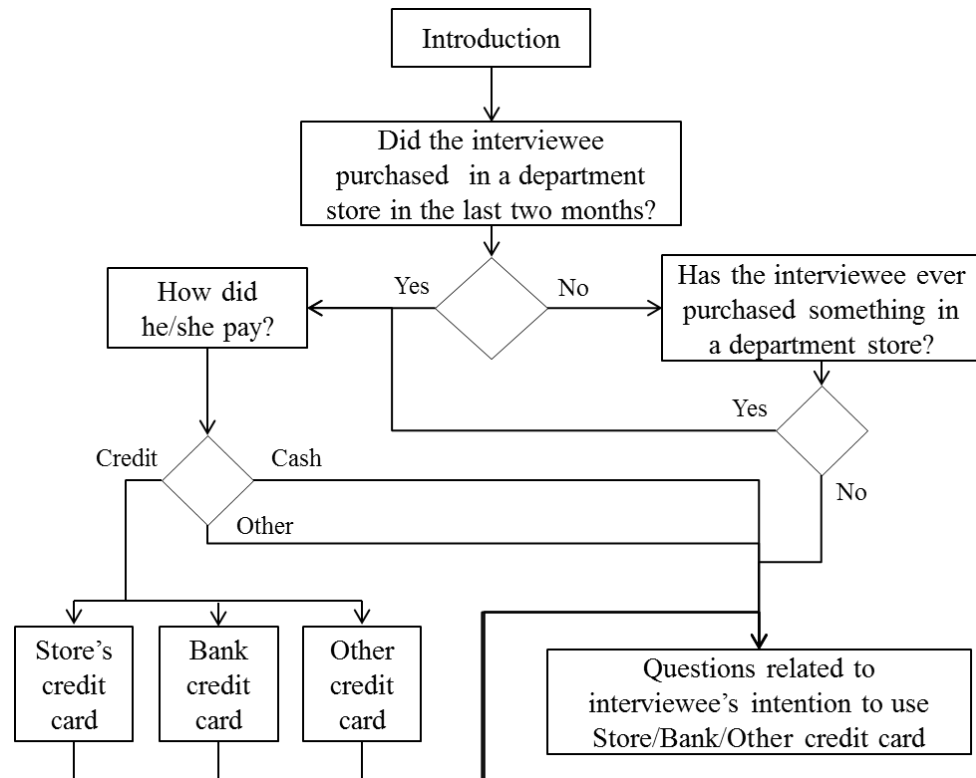


Figure 10. Flow diagram related to a questionnaire design (Adapted from Malhotra 2003)

As it can be seen in Figure 10 the diagram covers all the logical options an interviewee can give related to the usage of credit cards in department stores. This diagram allows the researcher to decide how to order his or her questions in order to cover all the relevant aspects of the study. Moreover, it also gives confidence to the researcher when performing the interview because it allows him or her to have a pre-set of questions related to every logical answer that the interviewee provides.

The fifth step in the formulation of research design is sampling. The objective of every market research is to obtain information concerning the characteristics of a certain population (Malhotra, 2003). In this sense, a population can consist of the number of companies in one sector, the total number of cattle in one area and so on. In this topic, a sample is defined as sub group of a certain population. One of its characteristics is that the sample does not contain the total number of entities that represent a population; as a matter of fact, the number of entities in a simple is considerable lower than in the population. A sample is used to determine the desired characteristics of the study, and then make inferences about the whole population (Malhotra, 2003). Samples are commonly used in market research because they involve less cost and they are faster when compared to studies that include the whole population (Hague, 2006). Lastly, when it comes to the size of the sample, Hague (2006) stated that even a smaller percentage than 10% is more than enough to have a good idea of the general patterns. Interestingly, the author

suggested that a good sign to stop sampling is when the results start following the same pattern.

Once the formulation of the research design is over then the researcher is able to start collecting the data. This is the fourth step proposed by Malhotra (2003) in the market research process. Data collection implies having the personnel or team who will go out to the field to gather the data in activities such as interviewing people house by house, at a shopping center, making phone calls, sending emails and so on (Malhotra, 2003). Moreover, in a general sense data gathering implies selecting, training and supervising the people who collect data in the field (Gubrium & Holstein, 2002). When the researcher is not able to collect all the desired data on its own, it is highly important that this step is carried out carefully in order to minimize the errors associated with the data gathering.

The fifth step in the market research process is the preparation and analysis of data. In this step, data preparation means the revision, codification, transcription and verification of the data (Malhotra, 2003). Moreover, the preparation of data also includes checking every questionnaire or survey, and if necessary correcting them. Analysis of data is the process of aggregating the individual responses. Data is analyzed in order to obtain the information related to the elements of the problem in the market research, and then with these results the entity that owned the problem can take a decision as regards how to approach it. There are several ways to analyze data, but Hague (2006) suggested that the analysis could be divided into analysis of qualitative data and quantitative data.

Quantitative data in raw form is almost useless to everybody, and therefore it needs to be processed so that it can become useful information (Saunders et al., 2009). Quantitative analysis techniques support the researcher on this matter by providing tools such as graphs, statistics and charts that help to present and describe the data. It is important to highlight that the data analysis method chosen to present the information should go hand in hand with the objectives of the study defined in the earlier steps of the market research (Malhotra & Birks, 2003). The techniques to analyze quantitative data can vary from simple ones such as tables and diagrams to complex statistical models to establish the relationship between variables.

The analysis of qualitative data follows a different set of rules than the analysis of quantitative data. Normally the sample in qualitative research is smaller, and the data collected is more complex because it was gathered by open-ended questions (Hague, 2006). Qualitative data can vary from a short list of responses to complex data as transcript of in-depth interviews or full policy documents (Saunders et al., 2009). Moreover, the authors stated that techniques associated to this type of analysis fluctuated from simple categorisation of responses to process for identifying relationships between categories.

The transcription of qualitative data is one of the most important steps during the analysis step (Saunders et al., 2009). As it was described before, interviews are usually recorded, and therefore they need to be transcribed. This task is most probably time consuming because the researcher does not only write what was said, but also indications of the tone and the interviewee's non-verbal communication (Saunders et al., 2009). The later one is highly important because that information can only be collected in face to face interviews; thus when they take place it would be disadvantageous if the researcher does not write them down. Hague (2006) stated that the transcription of the data should be done as fast as possible so that the interviewer still remembers all the important issues that were discussed during the interview. Once this is done it is the researcher's duty to organize and structure the data (Malhotra & Birks, 2003). In other words, the researcher has to decide what information is relevant to the study, and then he or she needs to break down the information into smaller segments that can be managed later on in the analysis.

Once the information is fragmented, the researcher can use a spreadsheet in order to display the data (Malhotra & Birks, 2003). With the purpose of improving the visualisation of data, the researcher can summarize in boxes the main findings and issues per interview. The summary will compress the long statements into shorter statements that will encompass the main sense of what was said (Kvale, 1996). Hague et al (2013) proposed that the answers of the interview should be categorised so that it is easier for an outsider to understand it. Following this order of ideas, the researcher can define categories that are tightly related to the objectives of the study, and then the boxes with the summary of information can be arranged per category. This framework allows the researcher to connect the results with the objectives of the study, and therefore determine the answer to the research question.

The last step in the market research process is to present the research findings. According to Mooi & Sarstedt (2011) presenting the results of the market research is an essential part of the process. This step means that the researcher has to clearly present the answer to the initial research questions, and propose some suggestions as regards what can be done after the study. Malhotra (2003) stated that presenting the research findings is important because of the following reasons: it is a tangible outcome of the effort put into the study, managerial decisions are made based on the outcome of the study, managers will evaluate the quality of the research process on the report, and because further market research can be affected by the high or poor quality of the outcome of the current study.

Bartram (1985) argued that the communication of the results have to fulfill at least several points in order to satisfy the audience who will see the results of the market research. According to the author, the researcher has to be aware of the practical implications of the results of the market research; therefore in the final report it must be emphasized how the result impacts the company's performance. Moreover, the author stated as

well that charts should be used whenever possible as they are useful to convey powerful messages. Hence, it is intended in this study to follow the set of recommendations in order to present the major findings to the case company.

Reporting has two different purposes according to Hague et al., (2013): to give a clear presentation and a long-term document that could be used in the future. These two purposes can sometimes clash with each other, but it is commonly the researcher's responsibility to find a middle point to satisfy both purposes. Moreover, Mooi & Sarstedt (2011) added that the researcher has to address as well two types of audiences: academics and practitioners. In this sense, academics focus mostly in the statistical and methodological validity of the study; whereas practitioners are more concerned with the specific solution of the problem.

Another important matter to take into consideration when presenting the research findings is the quality of the text. Mooi & Sarstedt (2011) stated that the report should include all the relevant information to the study, it should be accurate in terms of the grammar and objectivity, it should be clear in terms of the language, and lastly it should be concise. It is important that the researcher takes into consideration the elements mentioned before, because they will improve the quality of the report and its readability. Furthermore, when writing the report or presenting it to the stakeholders, the researcher should communicate the main points rapidly and clearly as it was stated by Hague et al. (2013). All the recommendations given at this point will be taken into consideration when writing the main findings of the study.

3.3 Utilization of Market research

As stated by Hague (2006), a good market research turns its findings into intelligence. Moreover, Raphaelis & Parket (1991) argued that in order to ensure the maximum benefit of market research, the upper management should be included in the whole process with the purpose of enhancing the utilization of the results. At this point, it has been presented what is the process of market research; nevertheless little information has been given on how it can be used to achieve specific purposes. This section will present the theoretical knowledge that will be used in the empirical part on how to use the outcome of market research.

Raphaelis & Parket (1991) emphasized that the outcome of the market research should be shown as early as possible in the decision process of the company and it should have a direct line to upper management. When a company is about to launch a new product or it is even considering doing it, that is the time that market research should present the findings. Too often, market research is consulted too late in the process and that undermines the value it can provide. In addition, in regular companies when top executives make a decision, the information travels through middle level managers until eventually it reaches the bottom, and the opposite happens when the message goes upwards. This

communication procedure in firms can slow down the flow of information to senior managers and therefore limit its effectiveness; thus it is advised that once the results of the market research are available they should have a direct line to upper managers with the purpose of enhancing the executives' decision making.

It is imperative that market research focuses on what do customers really want and how a company's offering can be changed to deliver it (Cowan, 1993). The author argued that one of the common mistakes by market research practitioners is that they only focus on the phenomena they are investigating, and commonly they forget how important it is to understand what are the reasons behind the respondents' answers. Moreover, once those reasons are understood, the practitioner should be able to suggest how to how to adapt the offering to deliver exactly what the customer really want. Furthermore, the author stated that in order to suggest how to adapt the offering the practitioner has to include the upper management in the process, as they are the ones who know the background of the firm and how it can be restructured. If upper management is not included, the practitioner is at risk that his proposal is not fully feasible for the company.

Adapting the offering to meet the customers' demand is crucial in market research and customer relationship management (Rajshekhhar et al., 2006). According to the authors, it is necessary that when a company adapts its offering to meet customer's need, they do it in a way that can be perceived by the customer. In other words, the new offering has to be visible when customers use their selection criteria; therefore if the offering is not described in terms of the criteria that customers consider important then the customers will not be able to perceive all the benefits.

In summary, all the information provided so far highlight specific issues to be addressed when doing market research in order to obtain fruitful results. In this study, all the suggestions given will be taken into consideration when presenting the major findings to the case company. Moreover, as described by the authors earlier the upper managers of the case company will be involved when considering the alternatives to update the case company's current offering.

4. RESEARCH EXECUTION AND RESULTS

4.1 Identification of current offering

In this study, the needed information regarding company's offering was defined according to the customer value framework introduced in Chapter 2. The reason behind such decision is that customer value links strongly a company's offering with those attributes that customers value. Therefore, majority of the studies define a company's offering in terms of the benefits it add to the customer, and such classification was used in this research. The different classifications and indicators were discussed in Chapter 2; therefore its application to the current case can be seen in Figure 11 below.

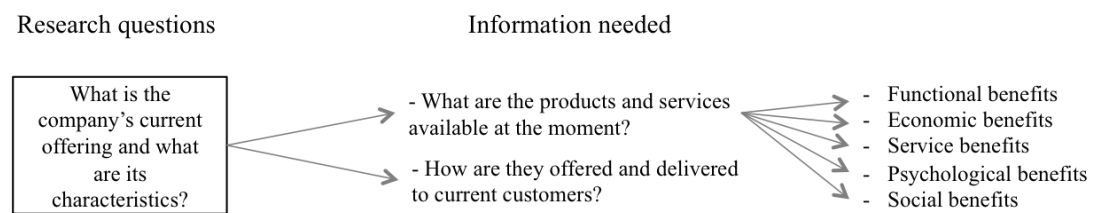


Figure 11. Information needed according to customer value framework

As it can be seen in Figure 11, the definition of the products and services available at the moment can be described in terms of the five types of benefits they provide to the customer. Such classification helps in this research to make a proper definition of the current offering. It is imperative to mention that how the products and services are offered to the customer play a crucial role in this study as well. A company offering should be defined in terms of what is being offered and how, and such approach is used in this study.

In order to identify the current offering, a short interview was carried out with the members of the case company. At the moment, the company has 3 white-collar workers that are in charge of the entire managerial tasks; thus short interviews were held with each one of them. Table 10 explains further the profile of the people to be interviewed.

Table 10. Company's personnel to be interviewed

	Position	Time in the company
Person A	Supply chain manager	1,5 years
Person B	Business controller	1,5 years
Person C	Procurement and supply chain specialist	2 weeks

As it can be seen in Table 10, two of the employees have worked with the company since it was founded, and the other person joined the team recently. The questions to be used in the interview were defined according to the information provided in the previous section and in Chapter 3. The questionnaire itself can be seen in Appendix B. The interviews were made within couple of weeks, and the description of the current offering can be seen in Table below.

Table 11. Company's current offering

Offering	Items	Description:	Size range:
Product	Bolts	Stud bolts with two hexagonal nuts A193 Gr. B7	From 12X70 [mm] to 68X580[mm]
Product	Fittings		From 1" to 4"
Product	Flanges	Includes blind flanges and slip-on flanges class 150RF, 300RF and 600RF	From 1" to 36"
Product	Gaskets	Graphite spiral wound gaskets	From 3/8" to 32"
Product	Pipes	A106-B Pipes SCH40-SCH160	From 1" to 36"
Product	Hand Valves	Globe, check and gate valves class 150RF, 300RF and 600RF.	From 1/2" to 18"
Service	Quality Check	Authentication of material certificates	-
Service	Valve testing	Valves are tested to detect leakages and performance with pressurized liquids.	-

Service	Delivery online tracking	Online platform to check the geographical location of shipped goods	-
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The offering was divided in terms of the products and services offered to the company's current customer. The description of the products is rather simple, yet the variation comes in the size and material of each one of the products. The company does not manufacture any of those products, but instead they purchase them in bigger quantities and then they sell it. It is important to highlight that the outcome of the interviews was strengthened with the information available in company's intranet. When it comes to the products and the quality itself, the supply chain manager stated:

“Quality in these products means that the items should not have deformities and that the heat number should be marked in the peace, so that the chemical composition can be tracked down in the material certificate”

“Each of our products is checked individually and then compared with its material certificate, and at this point we have not had any quality issues so far with our client”

According to the statement above, it can be seen that the company controls thoroughly the quality of its product. The remaining answers concerning the quality of the products were aligned with the answer provided by the supply chain manager. It is important to highlight that this aspect was mentioned when discussing the functional benefits of the offering. The quality of the products is reassured due to some of the services that the company provides. In fact, the valve testing and certificate authentication is done before the products are put in stock; thus when the customer receives the goods the products are already checked. When it comes to the services, the supply chain manager stated:

“Our customer operates in the oil and gas industry; therefore the products we supply to them have to be thoroughly checked. Based on this requirement, we had to put in place the material certificate authentication and the valve checking. These quality check makes us quite unique because no other company has such strict regulations as regards these products”

In addition to the services provided, the company recently signed an agreement with a forwarding agency in order to increase the traceability of its shipments. This means that when a product is shipped to the client, the forwarding agency provides a tracking code that can be checked on their website in order to identify the current location of the package. The service benefit section of the interview covered other topics as well. When it comes to the product deliveries and communication with the customers, the company

has not performed so well in the past. Concerning this topic, the procurement and supply chain specialist stated:

“In the past the company had several problems with its deliveries to the customer. Sometimes the packages were sent and there was no evidence to proof that the package was indeed delivered to the customer. The other problem was that the company was not able to stick to the promised delivery time, and because there was no constant communication with the customer they were unaware of this until the exact delivery date”

The comment provided was reinforced by the remaining personnel who also stated that the company was not able to fulfill the promised delivery times. According to the supply chain manager actions have been taken in order to tackle this issue. The answer was given during the discussion of the psychological benefits of the offering. In this section of the interview the stock levels were discussed, and the business controller stated:

“At the moment we sell 2000 types of products, and we raised our stock levels so that now we have stock for 700 of them. This means that we have in stock 1/3 of the products we are currently offering. The stock level varies on a daily basis, but at the moment we are unable to increase the volume of it.”

“We have not shared information regarding our stock level with the current customer, but now that the procurement and supply chain specialist has joined the team we hope to do it”.

The increased stock volume is expected to help to reduce the problems related to the delivery time. In addition, the person who recently joined the team will be responsible as well of making sure that the orders are delivered according to the requirements to the clients. When it comes to the social benefits, the three respondents mentioned that the company does not have a brand of its own and that they do not have a marketing campaign or anything alike; hence its products do not add any social benefits to the customer. Lastly, when it comes to the economical benefits, the business controller stated:

“We do not have neither a cost reduction program nor discounts. The company is rather new so we have fixed prices. I do not think that our products help directly to our customer to increase their sales or reduce their cost, due to the nature of the product themselves. So I am quite sure that there must be a way to measure it but it might not add any value to the parties involved”

As it can be seen the current offering does not add much value in terms of economical or social benefits to the client. The information presented so far provides a good overview of what are the main elements in the company's offering. Moreover, it also covers what are the company's strengths and weaknesses. In order to summarize all the infor-

mation provided so far, Figure 12 below depicts the identified strengths and weaknesses:

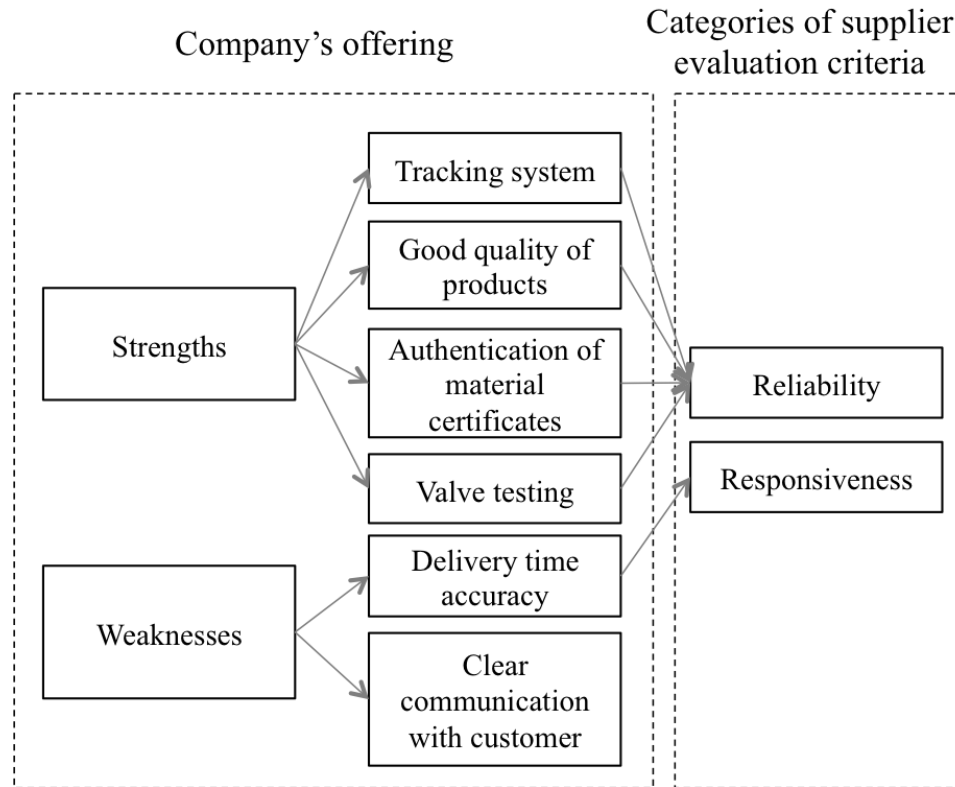


Figure 12. Strengths and weaknesses of company's offering

As it can be seen in Figure 12, company's strengths are based on four elements. The tracking system is a recent addition to the firm's offering, and it is intended to provide more accurate information regarding the delivery of the products. Such system will bring more clarity to both parties, company and client, as regards the deliveries. The second strength is the good quality of the products. Since every item is checked upon its arrival, the likelihood of delivering a defective item to a client is rather low. The third strength is the authentication of material certificates. As the stated by the supply chain manager few companies operating in this industry provide such service according to his experience. Moreover, the advantage of having a client with such strict safety regulations is that the quality and functionality of their products have to be remarkable. Lastly, the valve testing is the last strength in company's offering. By making sure that every valve has no leakages and that it complies with all the safety requirements requested by the client, the company can guarantee the performance of each of its valve. At this point, it is important to mention that the tracking system, authentication of material certificates and valve testing are services are already included in company's offer. Therefore, when they submit a quotation the company does not charge extra fees for those services, on the contrary, they are already included in the price of the goods.

In Figure 12 it can also be seen that the company has weaknesses when it comes to their current offering. One of the major challenges the firm is facing is the accuracy of delivery. In the past the company was not able to deliver the goods as promised to the client, and this inevitably causes troubles to the customer. In addition, the company has faced difficulties to communicate clearly and effectively with the customer, and as a consequence the client remained unaware of the problem with its order until it was too late. Customer satisfaction is highly important because the higher their satisfaction the greater the chance to retain them (Anderson & Sullivan, 1993). All these issues have led to a reduced customer's satisfaction in the past, and if the company is to retain the client they must tackle these problems.

The relationship between company's offering and the criteria to evaluate suppliers can be seen in Figure 12 as well. As it was described in Chapter 2, the criteria to evaluate suppliers according to the existence literature can be framed in seven categories. Since company's strengths are related to quality and services, all of them can be directly linked to the reliability category. As it was stated by Huang & Keskar (2006), the indicators related to reliability address the performance of the supplier in terms of delivery of ordered items at the right place and with the required conditions. When it comes to the delivery time, the category responsiveness covers all the indicators related to the speed at which the vendor supplies the goods to the customer.

4.2 Market research execution

As it was stated by Malhotra & Birks (2003) the definition of the problem is perhaps the most important step in market research, and therefore that was the initial point in this study. Hence the first step of the market research process was already covered in Chapter 1 when the research question was formulated. Furthermore the second step, development of the problem approach, was already covered in first three chapters as in those chapter it was discussed the analytical models, theoretical frameworks and research questions associated to this study.

The third step in the market research process is the formulation of the research design. In this step 5 sub-steps were defined in Chapter 3; therefore the following paragraphs will address briefly how those steps were covered in this study. The first sub-step is the definition of needed information. In Chapter 1 it was described that one of the questions to be addressed with the market research was to define the key criteria to evaluate bulk material suppliers; hence the needed information to answer that question can be stated as shown in Figure 13 below.

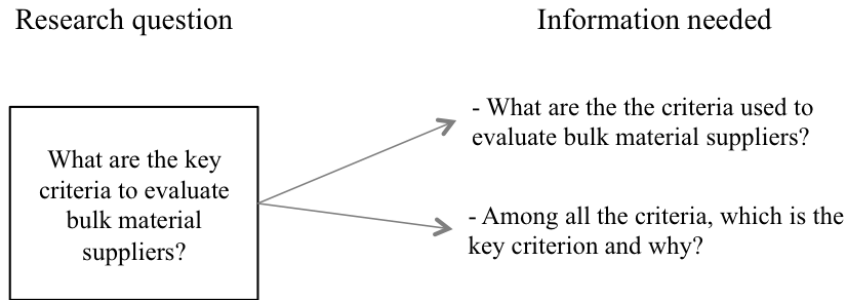


Figure 13. Needed information to be addressed by market research

As seen in Figure 13, the information to be obtained with the market research is the criteria to evaluate bulk material suppliers, and among them which one is the most important. The second sub-step is the analysis of secondary data. In this study, desk research was used to identify the literature relevant to the case, and its outcome was the theoretical part of the thesis. The third sub-step is the data gathering methods. All the information related to this topic was already discussed in section 1.2, but in summary it can be stated that face-to-face interview was the main data gathering method used in this study.

The fourth sub-step is the development of the questionnaire. As introduced in Chapter 3 a questionnaire is a structured technique to collect data that consists of a set of questions, written or verbal, that should be answered by respondents (Malhotra, 2003). Since the main data gathering method is interviews, the questionnaire will serve as a guide for the researcher when performing the interviews. In this study, the semi structured interviews will have a brief section of a structured questions followed up by open-ended questions. The idea of the structured section is to list the key criteria identified in Chapter 2 and ask respondents to arrange them by the priority. The remaining questions of the interview will reassure a deep understanding of respondent's selections and many other elements valuable for this research.

Malhotra (2003) stated that the questions in the questionnaire should follow a logical order with the purpose of having a systematic approach in the interview. Following that idea, a flow diagram was developed with all the possible logic answers that respondents can give. The diagram can be seen in Figure 14 below. After the introduction, the interviewee will be asked if the company has purchased bulk material in the past, and if the answer is no and they are not planning to buy it in the future the interview will be discarded. The reason behind such decision is that the information gathered to this study should be based on companies who have experience with this type of products. If the company that the interviewee is representing has purchased bulk material, or if it is their intention to do it in the future, then questions related to the criteria to evaluate suppliers will be asked. Once the criteria is identified according to the categories defined in Chapter 2, questions will follow in order to understand how they use it in order to evaluate suppliers.

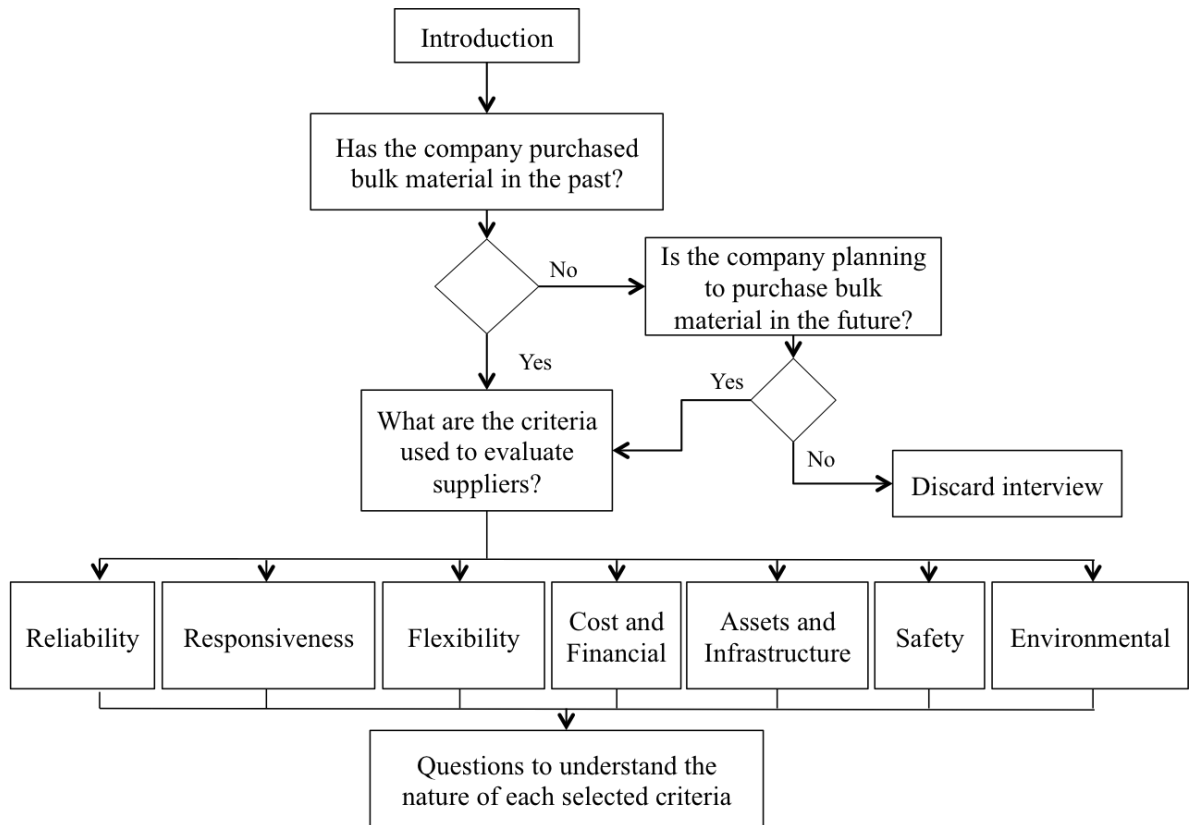


Figure 14. Flow diagram for questionnaire design

As it can be seen in Figure above, the first part of the interview is rather fixed meaning that it will follow a structured form. Nevertheless, once the respondent has identified the criteria to evaluate suppliers the following part of the interview is rather unstructured. It is important to mention that the flow diagram follows as well the conventional structure of interviews as proposed by Hague et al (2013). In this sense, the interviews will be carried out according to the following structure:

1. Introduction
2. Warm up questions
3. Main body of the interview
4. Thank and close

The first two steps in the interview structure will help the researcher to create a confidence bond with the interviewee, and this is represented in the flow diagram as the Introduction blocks. The third step is the main body of the interview and this is represented in Figure 14 with the remaining blocks.

At this point it is important to highlight that the questionnaire will have specific questions related to the offering of the company involved in this study. As it can be seen in Figure 16, company's strengths and weaknesses are related to criteria in the reliability and responsiveness categories, so if the interviewee does not select any criteria in any of those categories there will be a specific set of questions to address this matter. The in-

interview with other companies sets a good opportunity to evaluate if the products and services currently offered add any value to them. If the interviewee selects indicators in the categories mentioned before, then the questions related to the company's offering will be asked during the discussion of those categories. Based on all the elements discussed so far, the questionnaire was developed and it can be seen in Appendix C.

The fifth sub-step is sampling. The target of every market research is to obtain information concerning the characteristics of a population. In this topic, a sample is defined as sub group of a certain population. One of its characteristics is that the sample does not contain the total number of entities that represent a population; as a matter of fact, the number of entities in a sample is considerable lower than in the population. In this study, the sample was defined according to the expertise of those involved at a company level, and the process can be seen in Figure 15 below. Two meetings were held in order to approach this step. The first meeting was held with the supply chain manager of the company involved in this study, and two consultants from the parent company. In that meeting, companies with a similar background and needs than the current customer were identified based on the experience of those involved in the meeting. The outcome of that meeting was a list with 11 potential companies to include in the study. Those companies were categorized according to the industry in which they operate, and then the top 10 companies arranged by turnover were selected by industry.

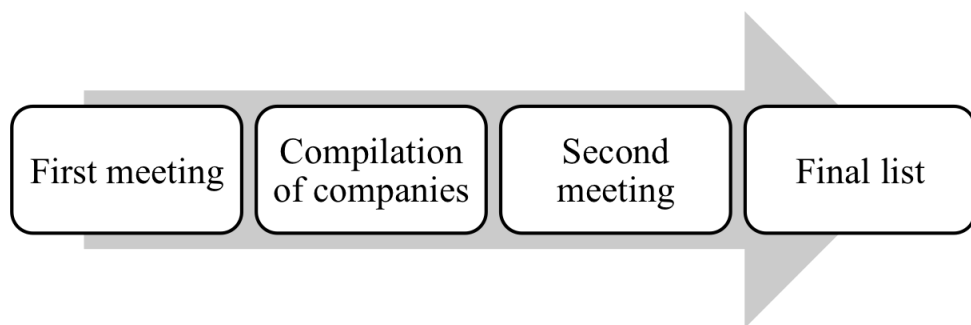


Figure 15. Process to select the sample

The companies were categorized according to the standard industrial classification TOL 2008 established by the public institution Statistics Finland. In this standard every industry is defined with a 5-digit code, and a letter at the beginning of the code to identify the category. The code is read from left to right, and the more numbers are specified then the more specific the industry is. For example, the code C10000 refers to manufacture of food products; whereas the code C10520 refers to manufacture of dairy products specifically ice creams. The Finnish standard is based on the second revision of the statistical classification of economic activities in the European community.

The criterion to expand the list was defined as it follows: companies have to belong to the industries identified in the first meeting, and they should have manufacturing facilities in Finland. In this sense, the researcher was limited to the industries selected in the

first meeting. Moreover, it was emphasized that only companies with manufacturing facilities in Finland should be included in this study. The main reason is that if the company indeed wants to move forward with the plan to increase its number of customers, it is easier for them to approach local companies.

The second meeting was arranged to review the final list of companies to be interviewed in this study. The list gathered by the researcher was examined by the same group as in the first meeting. After the meeting, the final list included 36 firms. Table 12 below shows the number of companies to be included in this study per industry.

Table 12. Number of companies per industry

Number of companies	Industry
7	[C17000] Manufacture of paper and paper products
10	[C20000] Manufacture of chemicals and chemical products
9	[C24000] Manufacture of basic metals
10	[D35000] Electricity, gas, steam and air conditioning supply

As it can be seen in Table 12 only 4 industries were selected to this study. The code in the front of the name of every industry represents the code assigned by the standard TOL 2008. Moreover, it can be seen that in order to have more general results broader industries were selected, rather than really specific ones as it can be seen in the codes. Lastly, it is important to highlight that a high number of companies were selected because the researcher and the company in this study are aware of the difficulties to get respondents to this purpose. As a result, it was agreed to have several options so that even if the majority of companies do not participate, at least 2 to 3 companies per industry could be interviewed.

During the second meeting it was also discussed what departments should be approached in every company. It was agreed that the people to be interviewed should belong to the procurement or sourcing department. Furthermore they should be tightly related to purchasing activities. The main reason is that purchasers and sourcing specialists are the ones that evaluate suppliers and place the orders to them; therefore they are the most suitable professionals to provide insights on this topic

The fourth step in the market research process is the data collection. In this study all the data was collected by the researcher according to the data gathering method presented earlier. Figure 16 below illustrates the timeframe to collect the data.

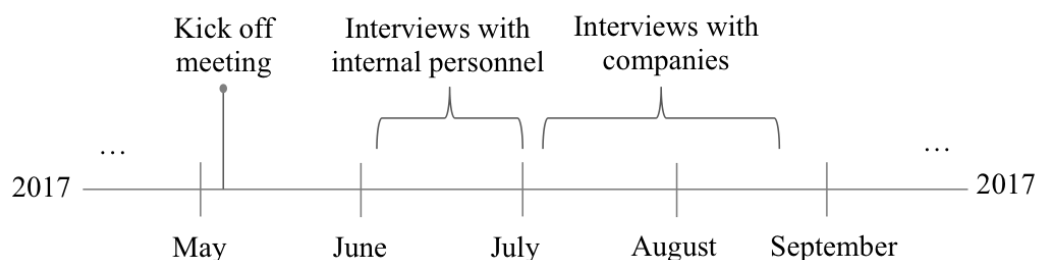


Figure 16. Time frame to collect the data

As it can be seen in Figure 16 the theoretical section of this study took place during the first week of May. At this point, the researcher held an internal meeting with the company involved in this study to clarify the problem, and then to define what was the desired outcome the thesis. It is important to mention that even before May the researcher was in touch with the company evaluating the feasibility of the current topic as a master's thesis topic. During the month of June the internal interviews were carried out. Even though the number of interviewees was rather low, 3 people, it was rather challenging to book an appointment with them due to the holiday season.

Once the internal interviews were carried out, the researcher proceeded to carry out the interviews with the companies included in the sample. The whole process took almost two months due to the difficulties to contact the right person on every company because of the holiday season. Nevertheless, once the person was identified it was rather straightforward to set up the meeting to carry out the interview. The researcher was able to contact six to seven companies per week, and that rate allowed him to cover all the companies included in the sample.

It should be noted that Figure 16 only depicts the activities associated with the data collection. During the period of time shown in Figure 16, the researcher carried out many other activities such as the development of the manuscript, meetings with academic tutor, literature review and so on. Furthermore, it should be highlighted that during the months May and June the researcher held the meetings concerning the companies to be included in the sample.

At this point the first four steps of market research were covered. The remaining two steps are intended to analyze the data collected and to present the research findings. In this case, the outcome of the market research and its analysis will be presented in the following section.

4.3 Market research results

As stated earlier this section will cover the remaining steps in market research, data preparation and analysis. As suggested by Malhotra (2003), the researcher compiled all the recordings and they were all transcribed. The interviews were transcribed in order to have a better source of references to report in the study, and as it was argued by Saunders et al. (2009) the transcription of qualitative data is one of the most important steps during the analysis step (Saunders et al., 2009). During this step, all the interviews were transcribed into word documents, and then the major points were written in an excel sheet in order to have shorter statements related to all the questions.

Furthermore, the preparation of the data followed the guidelines introduced in Chapter 3. In this sense, all the qualitative data abstracted from the interviews was analyzed using qualitative methods, as the transcription of the interviews and fragmentation, but the quantitative part of the interview was analyzed with quantitative methods. In the later one, the data was mainly organized using tables, and then several graphs were generated in order to have a better visibility of the results.

As it was shown in Table 12, the target was to interview at least three companies from every industry, and in that sense the target was almost achieved. In general, 10 companies were interviewed and all of them belong to different industries. Moreover, the researcher was able to successfully communicate with 20 enterprises, but not all of them were interested in participating in the current study. The remaining companies in the sample were contacted as well, but it was not possible for the researcher to identify the right person to interview or even established a proper communication with the companies. In summary, the following figure illustrates the general status of the respondents in this thesis.

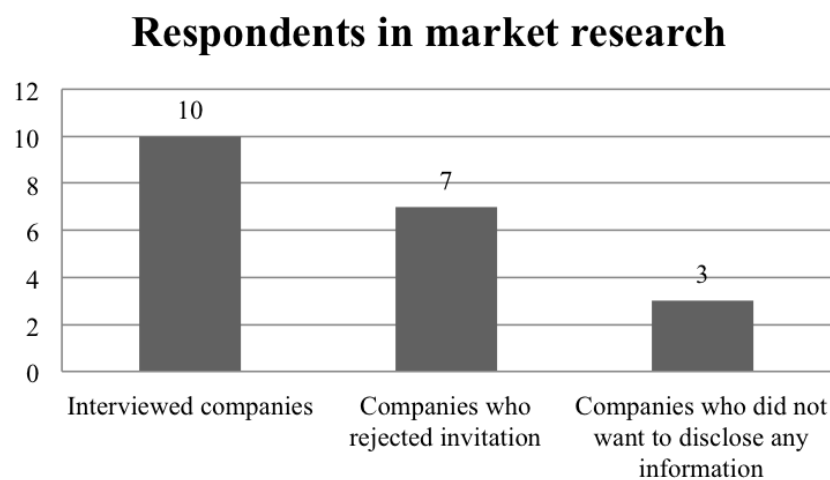


Figure 17. Respondents in the current market research

As it can be seen in Figure 17, 10 companies accepted to be interviewed; whereas 10 other companies rejected the invitation. Interestingly, 3 companies were not willing to participate in the study because they consider the topic to be quite confidential, so they were not willing to share any information as it can undermine their performance against their competitors. In addition, the remaining companies who did not participate in the study did not express any specific reason why they were not interested in participating. Lastly, the companies who did participate in the interview were quite open and were considerably interested on the topic. Table below will further illustrate to which industries the interviewed companies belong.

Table 13. Respondents per industry

Number of respondents	Industry
3	[C17000] Manufacture of paper and paper products
2	[C20000] Manufacture of chemicals and chemical products
3	[C24000] Manufacture of basic metals
2	[D35000] Electricity, gas, steam and air conditioning supply

As shown in Table 13, only in 2 industries the researcher was able to get the desired number of respondents. When it comes to the interviews as such, the first questions aim to break the ice between the interviewer and the interviewee as it was explained in previous section, but in addition it also helps to validate the background of the interviewees as it was requested during the formulation of the research design. In the first place, all the respondents belonged to the sourcing or purchasing department as requested. The titles vary from company to company, but the most common titles were: purchaser, sourcing manager and procurement manager. Secondly, all the interviewees had more than 1 year of experience in their current company, and most of them had more than 5 years of experience in procurement. Even though this was not a requirement as such, it helps to increase the credibility of the sources. Lastly, all the respondents stated that their companies have purchased bulk material in the past, and some of them even stated that they are planning to keep doing it in the future.

The results stated in previous paragraph help to validate the appropriateness of the main data sources. The fact that all the respondents had experience in procurement, and especially in the purchase of bulk material, helped the researcher to get fruitful insights to answer the research question. Furthermore, the expertise of the respondents helped to

address the main points of the interviews, as they all were familiar with the topics and the questions as such.

One of the first questions of the interview was related to how companies purchase these types of items. In terms of the research question of this study, this question does not add much value; nevertheless this information is quite critical for the case company as it tells them how important it is for companies to have tight relationships with their bulk material suppliers. Figure 18 below illustrates the results concerning this question.

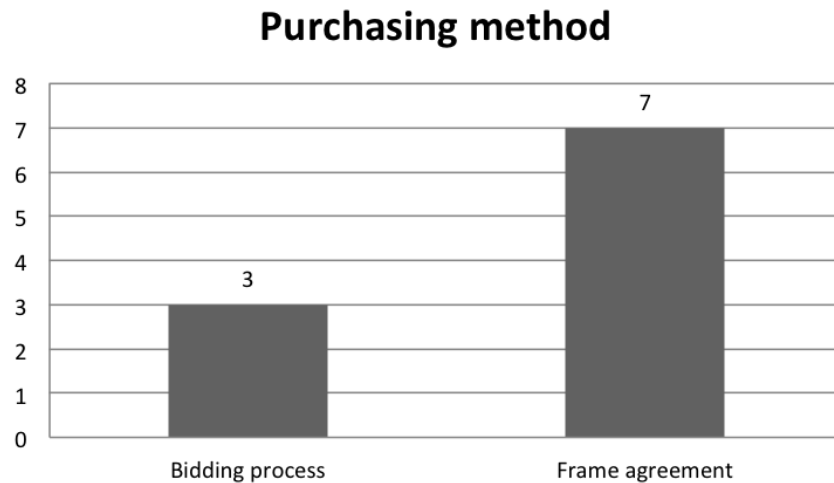


Figure 18. Purchasing methods

It can be seen in Figure 18, that the majority of the respondents purchase these items through frame agreements. A frame agreement, or framework agreement, is an agreement that defines the terms in which individual contracts will be made during the period of time established in the agreement. Such agreement usually includes sections regarding price, quality and quantity of the items to be exchange between both parties during the length of the contract. On the other hand, the bidding process is the regular purchasing process in which a company request for quotations from several suppliers and then selects the most appropriate one in order to fulfill a specific need. Under a frame agreement, the purchaser does not have to necessarily request quotations from other suppliers, as they can purchase the required items directly from the company they signed the contract with.

When it comes to the indicators to evaluate suppliers, most of the respondents were able to identify the most important ones without major difficulties. When the interviewer presented the indicators to the interviewees, the majority of them were already familiar with the indicators, and the selection of the ones they use was rather natural. The outcome of this question can be seen in table below.

Table 14. Most important criteria to evaluate suppliers by industry

Indicator	Total mentions	Mentions in industry C17000	Mentions in industry C20000	Mentions in industry C24000	Mentions in industry C35000
Price	10	3	2	3	2
Quality	10	3	2	3	2
Delivery Time	8	3	1	3	1
Historical performance	5	1	1	1	2
Industrial reputation	3			2	1
Guarantee and compensation	2		1	1	
Supplier's financial situation	1			1	

As it can be seen in table 14, 3 criteria were the most popular ones among all the respondents, and the remaining ones posed some degree of importance for some of the industries. It is important to highlight that the number in every field represents the number of companies who selected that criterion as important when evaluating suppliers. For example, when it comes to price the 10 interviewed companies considered it as an important indicator to evaluate suppliers, whereas industrial reputation was important only for 3 companies.

Even though the previous information provides insight as regards what are the most important criteria to evaluate supplier, it was also important for the researcher to identify the most popular criterion. The interviewees were asked to arrange the indicators according to the importance they have for them. In this sense, once they selected the important indicators they had to choose from their selection what was the most important or what were the most important ones. The outcome of that question can be seen in Figure 19 below.

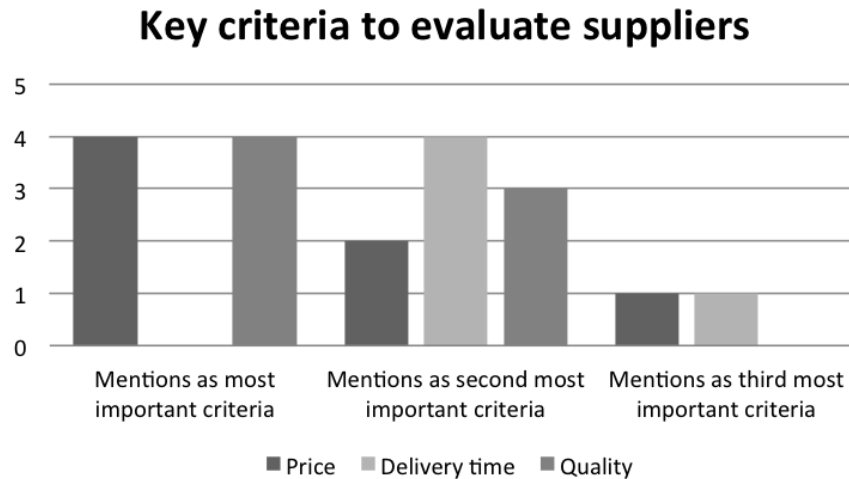


Figure 19. Most important criteria to evaluate suppliers

As it can be seen in Figure 19, price and quality were mentioned by 4 companies as the most important indicators to evaluate suppliers. It is important to note that not all the companies who mentioned price as the most important indicator mentioned quality as the most important as well. The figure illustrates the summary of all the answers. In addition, it can be seen that price has the tendency to be the most important one as it is less mentioned than quality as the second most important criteria. Lastly, it can be seen that delivery time was highly mentioned as the second most important criteria, so if quality and price come in first and second place, then delivery time will be the third most important criteria.

The numbers of companies who provided an answer concerning the previous question does not add to 10 because not everybody was able to prioritize the criteria. Three companies considered that all the criteria were equally important generally. Moreover, two of them stated that the importance of the indicators varied according to the specific situation of every case. For example, one of the companies in the industry of manufacture of basic metals stated:

“I don’t think you can say what is the most important one and I don’t think it is wise to do it. Because sometimes we are in a rush, and in that case delivery time is the most important indicator, but some other times we have plenty of time but we are more concerned with whether the supplier can meet the specific technical requirements we are looking for or not”

The statement above helps to understand why some of the companies were not able to decide what were the most important criteria to evaluate suppliers. Interestingly, two companies provided an answer that was totally different from what other companies stated. The first comment was provided by one of the companies in the manufacture of paper and paper products industry, and the second one by a company in the electricity, gas, steam and air conditioning supply industry:

“Even before we can take a company’s quotation into consideration, we must make sure they comply with our code of conduct. In that way we have the certainty that the company respect its employees, and that it complies with the environmental laws and so on. After this, we check if vendor’s proposal fulfill the minimum requirement which is the technical requirement, and after this we look at different indicators”.

“If it comes down to the selection of new suppliers to fulfill a need, the first thing we do is look at the industrial reputation and historical performance. Initially we ask for references from companies in the similar industry, and depending on the case we can ask what kind of machines and resources they have. That is the first step. The second step is the quality, in that case we check if the offer fulfills the technical requirements, and the third step is to check the price”

The two statements shown above are totally different from what other firms mentioned. The company who operates in the manufacture of paper and paper products industry was the only one who checked if the vendor complies with their code of conduct. Furthermore, it was the only company who stated that they check it even before considering the vendor’s tender. It is important to highlight that other companies did mention the code of conduct; however they did not emphasize how important it was, and they did not mention it as one of the most important criteria to evaluate suppliers. The second company, who operates in the in the electricity; gas; steam and air conditioning supply industry, was the only one who stated that in the first place they check the industrial reputation and historical performance of the supplier. The firm stated that the references play a crucial role for them because based on that they can trust the supplier’s offer. Other companies in this study did talk about the importance of industrial reputation and historical performance, but they did not hold them in so high regard to mention them among the most important indicators.

At this point of the interview there were no more quantitative questions; therefore the remaining answers were totally qualitative. When it comes to the first important criterion, price, most of the companies had the same opinion of it. The majority of companies stated that they look at the price of the whole package needed, and not the single price of the item they need. For example, if they need 10 meters of a 3 inches pipe and its certificates, they do not only look at the price of the pipe, but instead they look at the price of the whole package that includes documentation, transportation, administrative costs and so on. One of the companies operating in the manufacture of chemicals and chemical products industry, explained this idea as follows:

“In terms of price we take into consideration the whole package including transportation to our location, and documents. So what really count for us is the final price and not the individual price of the product we need “

Interestingly two companies operating in two different industries, referred to the price in terms of total cost of ownership. Instead of mentioning that they look at the price of the whole package, both companies emphasized that they assess the price criteria in terms of total cost of ownership. One of those companies, who operates in the manufacture of basic metals industry, provided the following statement:

“We consider the total cost of ownership in most cases. It is not widely used in the company but we are progressing all the time towards that ideology. The benefit of it is that all the hidden cost are included such as freight, administrative cost, etc.”

The next question regarding the price was concerned to what are the characteristics that make price attractive as such. In this case, the answers were similar as it was in the previous question. In this case most of the companies stated that lowest price is attractive provided the quality and delivery terms can be guaranteed. It was mentioned by 3 companies that if the price was too low it would raise concerns and it would not be seen with good eyes. For example, one of the respondents in the manufacture of chemicals and chemical products industry stated:

“If the quotation is technically accepted and the delivery time is ok, then the lowest price wins, but if the price is much lower than the others it raises concerns if the vendor is offering the same thing than the other ones. If there are more or less on the same level then the cheapest is interesting”

Only one of the companies had a different way to express its thoughts regarding what makes a price attractive. The main idea is similar but the company referred to it in terms of life cycle cost. The firm operates in the manufacturing of paper and paper products industry, and it stated:

“If quality wise and performance wise all quotations are similar, then of course we use the most cost efficient. Since we carry out a life cycle cost analysis, we rather refer to it as a cost efficient instead of low price, because there can be a good price but then in the long run there can be hidden costs such as administration, transportation or maintenance. So if we use the life cycle cost analysis we are able to take into consideration all of those elements”

The firm tried to emphasize several times that the lowest price is not always the best choice in the long run. Lastly, when it comes to the last question regarding price, payment terms, most of the companies stated that it was not critical for them. Only two of the respondents stated that their company has specific requirements when it comes to the payment terms, and therefore they have to look at it in the quotation before they can place the purchase order.

At this point all the answers concerning the price criteria were covered; therefore the following paragraphs will address the answers concerning quality. The first question

regarding the quality criterion aimed to define what was quality in terms of customer perspective. In this question almost all the respondents provided different answers; however there were several elements that were consistently similar in some of the answers. The following statements belong to three different companies operating in three different industries:

“We check the quality of the products through the material certificates and the manufacturing certificates. Products need to have the heat number, but of course it depends on every case”

“The quality level is seen from the documentation we ask from supplier. Maintenance department check the items when they arrive, and then they check that they are exactly what we ordered”

“The products cannot have deformities and they have to meet the technical requirements. Every product needs to have its heat number and its certificates to check the quality”

As it can be seen in statements above, one of the main characteristics in terms of quality is that the products have to meet the technical requirements requested by the company. In that sense, every company said that an internal department was the responsible of checking the goods upon their arrival. The second characteristic mentioned related to quality was the material certificates associated to every item. Most of the respondents stated that they check the material certificates in order to validate if the products were manufactured with the requested materials. Moreover that certificate also provides information about the mechanical and chemical properties of the item; therefore it proves to be useful when evaluating safety standards. Lastly, the third characteristic mentioned was that every product must have its heat number visible. The heat number is usually carved into the product itself or it is written somewhere in the piece. The heat number allows the user to identify the item in the material certificates, so that is why it is considered important that the product is marked with it. In summary, those three characteristics were the ones that define the quality of a product.

The following questions regarding quality are related to the current offering of the case company. The next question aim to define if potential customer would value the service concerning the authentication of material certificates. When it comes to the companies operating in the manufacture of paper and paper products industry, the three respondents stated that such service would not add value to them, as they have not had any issues with the reliability of the certificates. For example, one of the companies stated:

“It wouldn’t add value. Most of the suppliers have all the certificates for the materials, and we have not had problems with them. Quality of material has always been in good level”.

On the other hand, the firms in the remaining two industries showed an opposite opinion when it comes to this type of service. Most of the companies argued that it would add value due to the conditions in which they operate. The statements below belong to two companies who operate in these industries:

“It adds value because nowadays we have had issues with materials. Earlier we bought only bulk material from Finland because we did not trust other suppliers, with Finnish supplier we knew we could trust the material was correct”

“It would add value in specific cases such as if the product is going to be in contact with acids or if it goes to special manufacturing lines. But maybe it does not add value in regular items. I think it is a case by case thing”

It is important to highlight that among all the companies who stated that this service would add value, the majority argued that it would be useful in products that will be in contact with hazardous liquids or in critical manufacturing lines. Furthermore, they pointed out that for regular products made out of steel or iron, it would not add much value. Lastly, when the companies were asked if they have had issues with the reliability of material certificates in the past, surprisingly most of them said no. The reason why they thought that this service adds value is because it helps them to increase the safety level of their production line.

When it comes to the other service provided by the case company, valve testing, the answers varied widely. Respondents in the manufacture of basic metals industry stated that such service would indeed add value for them. Statements below will further explain the opinion of two of the companies operating in this industry:

“It would add value of course in special cases. I believe such testing could increase the price, but in high quality standard products it could be beneficial to avoid costly reclamations later”

“Yes, it would add value because the certificates would give us the guarantee that the product is safe to use”

As it can be seen in statement above, the companies in this industry do consider that such service can be valuable for them. On the other hand, firms operating in the manufacture of paper and paper products industry did not fully share that view. Two of the interviewees stated that it would not add value, whereas the remaining one argued that it would add value provided that the manufacturer is not well known. The statement of the three companies can be seen below:

“It does not add value for us in the environment of our factory, because we expect that the vales are hundred percent in good conditions and fully operative”

“Typically it would not add value. If the valves are needed in the steam line or any other critical line, then maybe it could be useful”

“It adds value if the manufacturer is not well-known, but usually we use well-known manufacturers for the valves as that is our requirement”

The reason why it does not add value differs from company to company; nevertheless the argument provided by the company who values the service is not entirely valid. The company stated that they only work with well-known manufacturers because that is their requirement, which means that in real life they would not buy from another company often; hence their view on the service is not fully applicable to case company. The enterprises operating in the manufacture of chemicals and chemical products shared the same though as the majority of companies in the manufacture of paper and paper products industry:

“We are fully satisfied with our current supplier so we don’t see the need to have this type of extra service”

Lastly, the respondents in the electricity, gas, steam and air conditioning supply industry were not able provide a solid answer for this question. Both companies stated that it was hard for them to give an answer as they do not purchase hand valves often; therefore they do not know what type of services can be useful. At this point, all the questions concerning the quality criteria were answered, so the researcher moved on to the next indicator: delivery time.

The first question concerning the delivery time was related to what makes a vendor attractive in terms of this indicator. Surprisingly most of the enterprises across all the industries stated that the shortest delivery time was not always the most attractive option, but in some specific cases it can be the most valuable. Companies operating in the manufacture of paper and paper products supported the previous statement as it follows:

“Normally we are not in a hurry, so usually we have enough time. We do not value if vendor ship the goods too early. The best scenario is to receive the goods exactly when we need them or at least one week before”

“If we are in a rush, the shortest delivery time is the most important among all the elements. Sometimes we have to stop the mill for one day for maintenance purposes, in that case delivery time is really important”

As it can be seen in statements above, shortest delivery time is not always the most appreciated characteristic when it comes to delivery time. One of the companies in the manufacture of basic metals industry provided a more accurate statement when it comes to this matter:

“In the long term exact delivery time is more important and critical than shortest delivery time. Especially in projects we must know when we get the goods so promises are not so important, what really matters is that vendor delivers when we need them”

The fact that the company wants to receive the goods exactly when they need them was frequently mentioned by all the respondents. As a matter of fact, such issue was mentioned by eight of the respondents. When it comes to the conditions in which shortest delivery time is highly appreciated, one of the firms operating in the electricity, gas, steam and air conditioning supply industry stated:

“If we have a critical repair then of course shortest deliver time is the most important. For example, we do not have big stock of spare parts in district heating so if there is an emergency shortest delivery time is the main indicator for us”

Just as the company who provided the statement above many others related to the same situation. All the companies mentioned that under emergency cases or critical cases the shortest delivery time is the main criterion they look at. Indeed, one of the firms emphasized that under such circumstances not even the price matters, as what it is important for them is to keep their facilities running.

The following question concerning the delivery time was related to one of the strengths of the case company: tracking system. On this matter, all the companies in every industry had opposite opinions. For example, the enterprises operating in the electricity, gas, steam and air conditioning supply industry stated:

“It is important to have, especially if you have important projects and audit projects”

“This feature already exists, carriers usually do. There is no novelty here, so I cannot see the need of it because the carrier can give me that information in the international business. Inside Finland deliveries usually take one to two days so there is no need to have such feature.

As it can be seen in statements above, the two companies had opposite views when it comes to this topic. The same pattern can be seen in the companies operating in the manufacture of basic metals industry where two of the respondents supported the idea. Interestingly, two companies operating in different industries provided specific reasons as why this feature would not add value for them. One of the companies belongs to the manufacture of paper and paper products industry, and the other to the manufacture of chemicals and chemicals products industry. Their statements can be seen below accordingly:

“It does not add any value. We do not have resources who can check from computers where is the order, so once we agree with the supplier the delivery time we expect them to deliver as promised, and if there is a major problem or changes we expect the supplier will inform us”

“It is a good thing to have but it would not affect my selection of suppliers as I am not in the team who does the follow up for the orders”

The company who provided the second statement later on in the interview explained that the team who does the follow up is in a different country, so as the respondent is only in charge of purchasing following up the orders is not in his or her responsibilities. In a general sense, four of the interviewees stated that such service would add value, whereas five respondents stated it would not. Lastly only one of the companies, who operates in the manufacture of chemicals and chemicals products industry, had no clear opinion on this feature because they have not used it before, so the interviewee was unable to issue a proper opinion.

The fourth criterion to evaluate suppliers mentioned by interviewees was the historical performance. As it was stated earlier, five of the interviewed companies stated that such indicator was important for them. Most of the respondents stated that if the supplier is new, then they have to submit a reference letter to provide information such information. For example, one of the enterprises operating in the electricity, gas, steam and air conditioning supply industry stated:

“For us it is important that the new supplier shows that they have work with a similar type of industry earlier and that they have done successful projects. Mostly a reference letter is ok”

As it can be seen in statement above, if the supplier is new then a reference letter is needed in order to prove their reliability in terms of performance. Furthermore, the interviewed company added later on in the interview that if the reference letter is issued by well known companies then it is even better for them. When the supplier has already worked with the companies, then the evaluation of the historical performance follows a different pattern. All the companies had different methods on how to do this; nevertheless none of them were fully structured. For instance, statements below addressing such issue belong to two companies operating in different industries (manufacture of chemical and chemical products, and manufacture of basic metals):

“We don’t check the historical performance as well as we should do it. Usually I do it based on what I can remember from other cases and what I have done with the same supplier, and maybe the stakeholders has some info for me if the supplier has not performed well at site. Unfortunately we don’t have anything on paper now”

“Normally I ask within our purchasing team how has the supplier performed in the past”

In previous statements it can be seen that none of the companies had in place a systematic approach on how to retrieve that information; therefore it depends highly on their team’s capability to remember supplier’s performance. The comments provided by the remaining companies followed the same ideas when it comes to this matter.

The fifth criterion that companies take into consideration when evaluating suppliers was industrial reputation. In this case, the answers were significantly alike and there was almost no deviation between all of them. The only difference lied on how important this criterion was for one company when compared to the others. One of the companies in the electricity, gas, steam and air conditioning supply industry stated:

“The first thing we do is to check the vendor’s industrial reputation. We request them to submit a reference letter issued by other companies they have worked with, so that we have a guarantee of their reputation. Depending on the case we can request to visit their factory to check their resources and machines”

The statement presented above was different from the rest because this was the only company who mentioned that this is the first criterion they look at when evaluating suppliers. On the other hand, the other companies did not consider the industrial reputation as the most important indicator. As a matter of fact, they did consider it important but not as important as to be evaluated at the very beginning in the evaluation process. One of the companies in the manufacture of basic metals industry stated:

“Normally we ask references from other companies they have work with and for how long they have been in business. This is our fourth or fifth step when check the quotations”

The other company who stated that this criterion was important issued a similar statement as the one presented above. At this point, the remaining indicators to evaluate suppliers were mentioned only by two companies. As a matter of fact, only one of the companies in the manufacture of chemicals and chemicals product industry stated that supplier’s financial situation and guarantee and compensation were important to them. It is important to highlight that the company referred to both indicators at the same time, as they thought they go hand in hand. The statement provided can be seen below:

“Of course the financial situation of the supplier is important for us, if we see somewhere that a vendor has financial problems I am more careful if I chose them as supplier. But even if I do, we have a clause in our purchase order regarding guarantee and compensation. So before we place the purchase order they must accept it, and in that way we can protect ourselves”

In addition to the statement above, the other company who rated the guarantee and compensation criterion as important explained that for them this is a must from their supplier's side. In other words, all their suppliers must acknowledge that if they fail to deliver according to the agreed terms, then they would have to compensate them according to the claim issued by the firm. The company who provided that explanation belongs to the manufacture of basic metal industry, but even though this was important for them they were unable to provide further information because they considered it as confidential.

The remaining question in this interview was related to what elements or attributes would make a bulk material supplier stand out from other suppliers. This was an open question, and not all the respondents were able to address it. Among the ten interviewed companies, only four of them were able to answer. Firstly one of the companies who answer the questions belongs to the manufacture of paper and paper products industry, and its answer was the most explicative. The statement provided by the company can be seen below:

“First of all the company must have a good product range. With that sentence I mean different types of products, in different sizes and with different materials. Secondly it should have good quality products. Third it should provide the following extra services: engineering and installation work. Engineering service means that the company is able to provide us with the design and plan arrangement for the pipes, as we mainly outsource that service, and by installation work I mean that the supplier should be able to provide the workforce to install all the elements at site and supervise the work”.

The company emphasized that even if the supplier does not have such services, it could have strategic alliances with other companies so that they can coordinate the whole process themselves. Moreover, the firm explained that if a supplier has all the features mentioned above, it is likely that their purchase decision would be influenced by those factors. Another company operating in a different industry mentioned the same services as well as one of the most important characteristics a supplier should have. The firm belongs to the electricity, gas, steam and air conditioning supply industry and their statement can be seen below.

“When we purchase this type of items, we need somebody who can design the piping system, and normally engineers do those design. The supplier should offer then engineering services to do all the designs and if they can do the installation then it is better for us”

The similarity between the previous statement and the one provided by the firm in the manufacture of paper and paper products industry is high. Interestingly, during both interviews the respondents were able to mention such services as if they were on top of

their minds. It should be noted that the second company did not offer any explanation as regards how such services could influence their purchase decision-making. The third company to provide an answer regarding this question belongs to the manufacture of paper and paper products industry. In this case, the company had a different opinion when compared to the previous two companies:

“The vendor should have good prices when compared to other suppliers without compromising the quality. They should also have a local storage nearby our factory so that they can supply the items during the night or weekends in case there is an emergency. The third important element is that the supplier must have the know-how of the items that it sells. With that sentence I mean that if there is a problem with one product then they should be able to offer a similar one because they know that the characteristics of the new one are the same than the one we had the problem with.

As it can be seen in statement above, this company had a different opinion when compared to the first two companies. Interestingly, the firm emphasized that the supplier’s know-how is really important for them, because if there is an emergency then the vendor should be able to understand their needs and try to fulfill it with the items they have available at their storage, and that can be only achieved if they have the technical knowledge of their products.

Lastly, the other company who addressed this question belongs to the manufacture of basic metals industry. For this company, it was not so easy to come up with an answer; nevertheless after several minutes of discussion and thinking, the respondent was able to provide the following statement:

“If all the quotations would have the same price and same everything, we will go with the most familiar one, meaning the vendor we have used before. If it comes down to only new companies, then the salesman is important. He should have a good knowledge of technical things, and he should be able to reply fast to our needs”

The last company emphasized that ability of the salesman to answer technical questions was important for them. In addition, it is also important that the salesman is able to provide answers as soon as possible. The reason why the last phrase was important for the interviewee is because if they happen to have an emergency, they need somebody who can answer to them straight away without any delays.

5. ANALYSIS OF RESULTS

5.1 Analysis of the current situation

As it was stated by Hague (2006) the analysis of data refers to process of aggregating all the responses and turning them into information to support the decision making process. In the previous chapter, the results of the interviews were shown without making any comparisons or highlighting tendencies. Therefore, it is intended in this chapter to look at the major findings of the interviews and then use the outcome to suggest how to improve the case company's offering.

The first point to look at is the most popular criterion to evaluate suppliers. Based on the interviews, it can be seen that price and quality were the most popular among all the companies; as a matter of fact they were mentioned by the 10 interviewees. Interestingly, majority of the respondents considered price and quality as the main criteria to evaluate suppliers as it can be seen in Figure 19. Even though fewer companies considered price as the second most important criteria when compared to quality, there is no clear evidence to prove that price is more important than quality in a general level. As a result, price and quality will be treated as equally important in this study.

If price and quality are the most popular criteria, then delivery time follows as the second most popular criteria. Among the 10 interviewees, 8 of them mentioned delivery time as important criterion to evaluate suppliers. Furthermore, it was clear in Figure 19 that the majority of the respondents thought of this criterion as the most important one right after price and quality. Lastly, historical performance was mentioned by 5 of the companies interviewed, and even though respondents did not mention it among the most important ones, it is given the third place in this study due to number of companies who mentioned it.

Each of the companies had different views on the meaning of each criterion; nevertheless there is general tendency that can be highlighted. When it comes to price, the majority of respondents considered that if quality and delivery time are not compromised, then the lowest price is attractive. Moreover, majority of the enterprises looked at the price of the whole package including transportation; documentation; administrative costs and so on, rather than the price of the single item. In addition, it was also clear that payment terms did not play a major role when evaluating suppliers. Lastly, one of the most important characteristics of price is that it cannot be too low when compared to other companies, because it might imply that the vendor is not offering the same product than the other companies.

The views concerning quality were bit different from company to company, but there were some characteristics that were similar among all the respondents. When it comes to bulk material, quality means that the products should fulfill the technical requirements set by the customers. Those requirements can be stated in terms of materials or size, and such characteristics are checked upon the arrival of the goods at customer's facility. In addition, quality is tightly related to the material certificates. A large number of companies in this study mentioned that they check the material certificates in order to validate if the products were manufactured with the requested materials. Lastly, quality also requires that the products do not have deformities and that they have the heat number carved or marked on it. The heat number allows the user to identify the item in the material certificates, so that is why it is considered important that the product is marked with it. In summary, those three characteristics were the ones that define the quality of a product.

The thoughts related to delivery time were similar among all the respondents. Surprisingly the majority of the interviewees did not consider shortest delivery time as the most attractive factor; indeed they emphasized that they would like to receive the goods exactly when they need them. As a matter of fact, eight of the companies mentioned explicitly that they expect their suppliers to delivery according to the agreed delivery time, so modifications to that principle such as early or late deliveries are not appreciated. It was quite obvious among all the respondents that late deliveries are not acceptable, and the statement fully shows the respondents' views on late deliveries:

“It is not good if they (supplier) deliver too early, and obviously too late as well. Late deliveries have a high impact on us and also how we see the supplier in the future”

Shortest delivery time is hold in high regards only when the customer is going through an emergency. All the respondents mentioned that when they have an emergency or when they need to stop the factory due to maintenance, shortest delivery time is the most important criteria to evaluate suppliers. Only under those circumstances price is left aside, and delivery time takes its place as the most important criteria together with quality.

The third most popular criterion to evaluate suppliers mentioned by respondents was historical performance. In this sense, the five companies who mentioned it shared the views on it. The five interviewees mentioned that if the supplier is new, then they have to submit a reference letter issued by other companies stating how they have performed in the past. The better well known is the company that issues the reference letter; the more reliable it is for customers. But if the supplier is not new, then the evaluation of the historical performance follows a different pattern. All the companies had different methods on how to do this; nevertheless none of them were fully structured. For example, one of the respondents checks with its purchasing team how has the vendor per-

formed, whereas other respondent relies on his ability to remember how has the supplier performed.

At this point the criteria to evaluate suppliers was discussed in terms of how they are used to evaluate bulk material suppliers, but as it was stated at the beginning of this study the intention is to use that information to improve the case company's offering. In previous section, the company's offering was described and classified according to its strengths and weaknesses as it was shown in Figure 12. Now that the researcher is aware of what potential customers value in their suppliers, it is possible to connect the company's offering with the answers obtained in the interview. In order to do so, the arrangement presented in Figure 12 was updated based on the result of the interviews. Figure 20 below illustrates how the current offering is connected to customer's criteria to evaluate suppliers

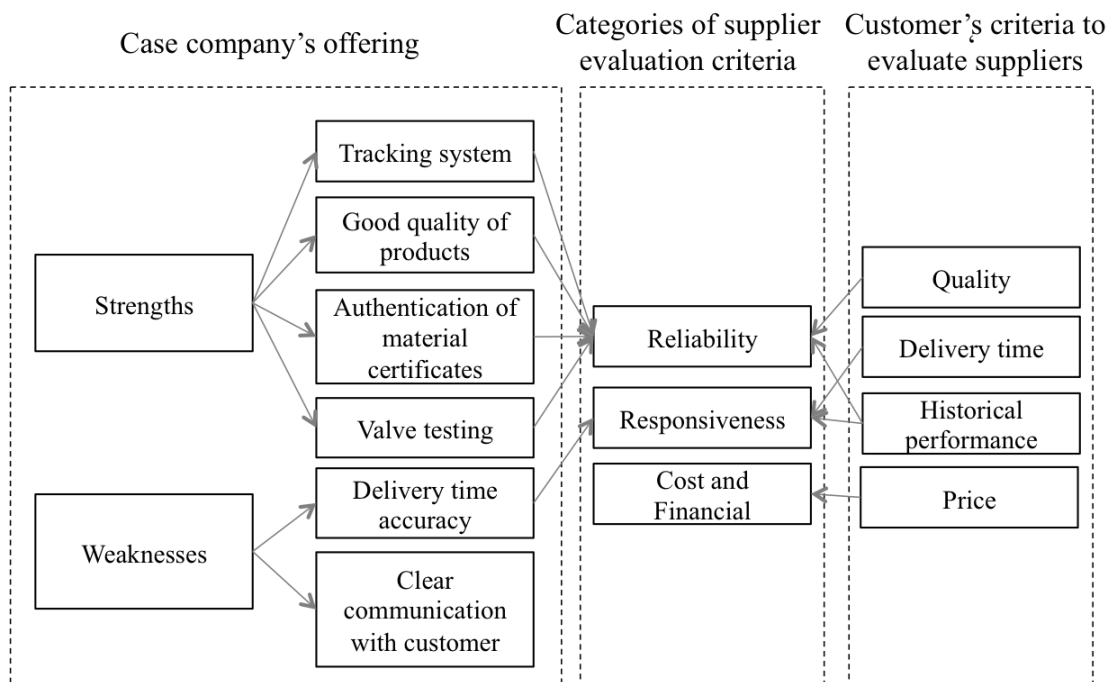


Figure 20. Case company's offering linked to customer's criteria to evaluate suppliers

As it can be seen in Figure 20 the categories of supplier evaluation criteria serve as a base to link the company's offering with the customer's criteria to evaluate suppliers. Moreover, three important issues can be highlighted in figure presented above. The first issue to notice is that all the company's strengths are contemplated within the reliability category, and at the same time the majority of the criteria to evaluate suppliers are included in the same category; therefore there is a clear connection between company's strengths and what potential customers use to evaluate suppliers.

The second issue to notice in Figure 20 is that price, one of the most popular criteria, is not clearly linked to the company's current offering. During the interviews with the personnel of the case company none of the respondents stated explicitly if the price of their

goods can be seen as their strength or weakness. Therefore, there was no clear evidence to categorize price as a strength or weakness. Nevertheless, one of the respondents did mention as a comment that they have overhead costs of two digits percentage when compared to other suppliers. The comment gains relevance at this point due to the respondents' nature to look for the best price.

The third important issue to highlight in Figure 20 is that one of the case company's weaknesses is included in the category responsiveness, and at the same time that category incorporates one of the customer's criteria to evaluate suppliers. As it was stated earlier, delivery time is among the key criteria to evaluate suppliers; therefore it is not a good signal that it is connected with one of the case company's weaknesses. When the case company's offering was defined, it was stated that the case company has not performed well in terms of delivery accuracy as the majority of the problems were related to late deliveries. Such issue is not well seen in the eyes of potential customers; hence it comes without saying that the case company has to tackle that problem as fast as possible.

It is clear at this point that there is indeed a connection between the case company's offering and the customer's criteria to evaluate supplier; nevertheless whether such connection is favorable or unfavorable is yet to be seen. In specific cases, just as the one with the delivery time, it is rather clear that such connection is unfavorable, but in some other cases it is not so straightforward. For example, the link created through the category reliability needs to be analyzed more thoroughly, as it is not so intuitive if it is favorable or not. In addition, the discussion provided so far did not include customer's views concerning the case company's services. Hence in order to tackle those issues, customer's criteria to evaluate suppliers and their evaluation of the case company's services were connected to the case company's offering in figure below.

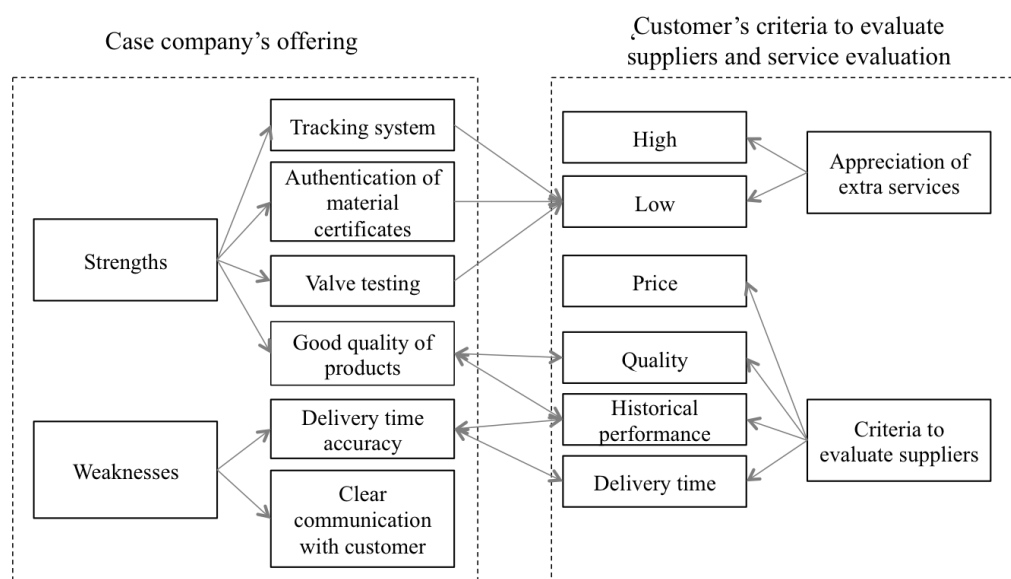


Figure 21. Current offering linked to customer's criteria and evaluation of services

Figure 21 provides a better understanding on how potential customers perceive the services provided by the case company, and how the evaluation criteria is connected to the case company's offering. At this point, each of the elements of the case company's offering will be analyzed in light of the comments provided by the interviewed companies. The result of such analysis will serve the purpose of improving the current offering. The main target will be to enhance company's strengths provided that they are valued by potential customers, and to improve the weaknesses if they have a direct impact on customer's desires.

It can be seen in Figure 21 that all the extra services provided by the case company were not hold in high regards on the eyes of potential customers. In order to ease the analysis, the appreciation of the extra services were divided into high and low based on the number of companies who stated whether the service adds value or not. If the number of companies stating that the service adds value is higher than 5, then the service was considered as highly appreciated. On the other hand, if 4 or fewer companies considered that the service adds value then it was categorized as lowly appreciated.

The number of companies who considered that the tracking system adds value was rather low, indeed only 4 of the respondents thought that such service would add value. In addition, the companies who supported such service mentioned that it would add value in specific circumstances. For example, two of them mentioned that only in big projects that type of service would add value; nevertheless under regular conditions it would not. Moreover, among the companies who did not see that service as important, one of them stated that within Finland transportation takes top two days, and if the products come from abroad the forwarding agency already provides the service, so there is no major novelty in such service. As a result, such service was categorized as lowly appreciated.

The authentication of material certificates was not highly appreciated among the respondents as well. As a matter of fact only two respondents mentioned that it would add value in a general sense, whereas the remaining companies had an opposite view. Two of the interviewed companies mentioned that it would only add value if the products are requested to be manufactured with specific materials, but otherwise it would not add value. Furthermore, it is important to highlight that many of the respondents argued that they have not had issues with the material certificates in the past, and that is one of the reasons why they do not see such service as valuable. Based on the provided explanation, this service was categorized as lowly appreciated.

The service related to the valve testing shared similar views as the previous service. Among all the interviewed companies only 2 of them highlighted that such service would add value to them under normal circumstances. As it was presented in the previous chapter, some of the interviewees mentioned that if the valves go to critical manufacturing lines then that service proves to be valuable, but otherwise it was not. In addition, majority of the respondents highlighted that they are satisfied with the performance

of their current supplier; therefore there is no real need to have that service. As a result, this service was rated as well as lowly appreciated.

On the contrary, good quality of products is a characteristic that potential customers value. During the interviews it was stated that customers expect vendors to meet the technical requirements and to deliver the products with no deformities and with the marked heat number. In this sense, the case company has defined its quality level in those terms, which means that nowadays they are already covering those requirements. The fact that this is one of the strengths of the case company means that such characteristic should be highlighted when approaching new customer; moreover, if the case company's current customer can issue a reference letter to support this statement, then the case company can use it to prove its historical performance in terms of quality. It can be seen in Figure 21 how the good quality of products is linked to two of the indicators that potential customers value.

The link between the accuracy of delivery time, and the criteria delivery time and historical performance is unfavorable at the moment for the case company. During the interviews with the internal personnel of the case company, it was stated that they have had issues with deliveries in the past. The fact that potential customers value accurate deliveries already indicates that the case company has to improve on this matter as fast as possible. In addition, if the case company is to ask its current customer for a reference letter to validate its performance in terms of delivery, it has to show first that this matter has been already covered, and that late deliveries will not occur any more. Only under those circumstances, the current customer can issue the reference letter. Interestingly, none of the respondents mentioned that clear communication was vital when evaluating suppliers. Nevertheless, even though it seems at first hand that it is not so important for potential customers, the case company has to improve it if it wants to have long standing commercial relationship with its customers.

Once more it can be seen that price is not fully linked to the case company's offering. As it was stated earlier, one of the respondents mentioned as a comment that the case company has over head costs in the order of two digits percentage, and since the company is in the last links of the supply chain it can be assumed that price is not their major strength. The assumption regarding the place in the supply chain comes from the fact that the case company purchases its item from bigger companies that are well known in the industry; nevertheless many other companies can buy the same items from those companies even if they purchase lower number of items. So for example, the case company's customer can purchase directly from those companies; however because the customer values the extra services provided by the case company, it is ok for them to purchase the items with higher prices. The same cannot be said concerning potential customer, because as it was shown earlier they do not value the extra services that much. Following this order of ideas, it can be deducted that price is indeed not within the case

company's strengths, but on the contrary, it can actually play against them. Hence, it will be categorized as unfavorable.

In summary, it can be said that the extra services provided by the case company are not fully appreciated by potential customers; nonetheless its good quality of products is a characteristic that potential customers desire. At this point there is a clear panorama as regards what links are favorable or unfavorable for the case company. The whole idea is that those links that are favorable should be highlighted when approaching new customers, whereas the unfavorable links have to be developed further in order to meet the requirements of potential customers. The discussion provided so far sets a common ground in order to improve the case company's offering, and the focus point to improve the offering can be seen in Figure 22 below.

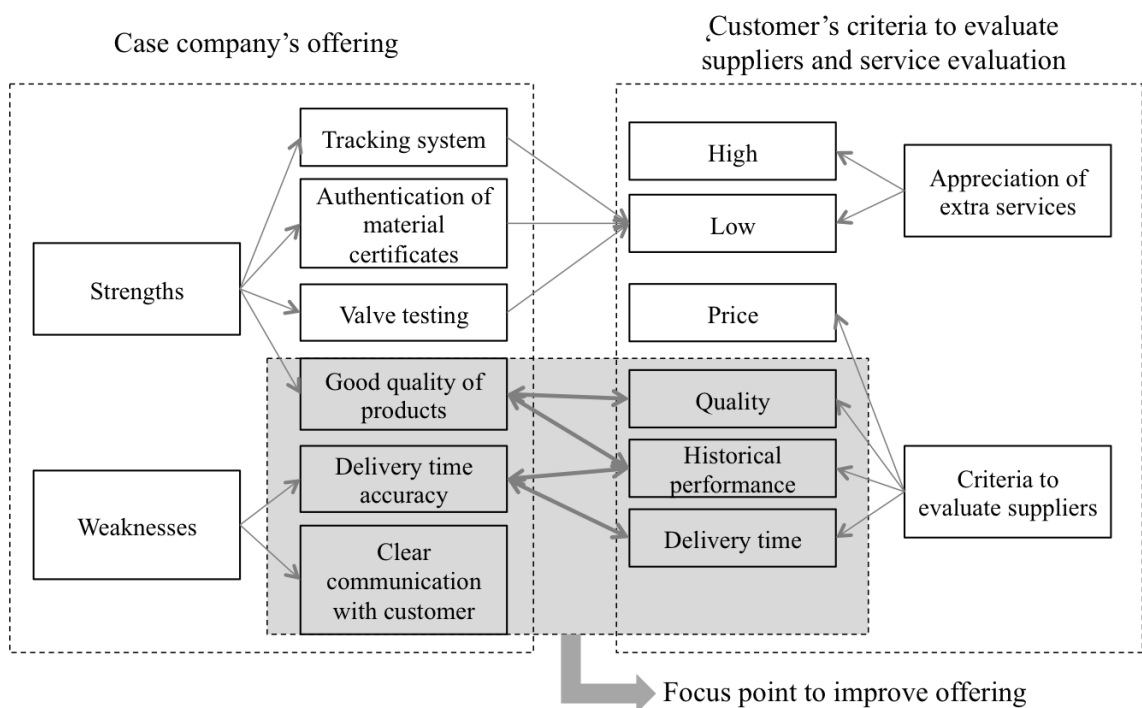


Figure 22. Focus point to improve case company's offering

The area marked with grey in Figure 22 represents the focal point to improve the case company's offering. It can be seen that the focal point includes both favorable and unfavorable links. As it was stated before, depending on whether the link is favorable or unfavorable, the case company has to either highlight its current performance or improve it when approaching new customers. The analysis at this point has provided a solid base to generate alternatives on how to improve the offering; nevertheless there is still one more issue that should be analyzed, and that issue is related to the characteristics that would make a vendor stand out from others based on interviewee's answers.

The last question in the interviews was related to what characteristics would make a bulk material supplier stand out from other suppliers. Even though only 4 respondents

were able to address the question, it was surprising how two companies mentioned the same characteristics in terms of extra services. One of the similar characteristics was the fact that both companies wanted the supplier to provide engineering services in order to design the pipe systems. In that sense, the supplier should be able to provide design services, and then the materials to build what was designed. Furthermore, the other similar characteristic goes hand in hand with what was stated previously. The companies wanted as well the supplier to provide installation and supervision services. With that phrase the respondents meant that the supplier should be able to provide the workforce to install the pipes according to the design, and the personnel to supervise such work. Interestingly, one of the respondents mentioned that such characteristics would influence their purchase decision-making. Lastly, a different respondent mentioned such issue but just as a comment when discussing about quality, the interviewee belongs to the manufacture of paper and paper products and its statement can be seen below:

“Quality of the materials has been always in a very good level, so we are pleased with our current supplier. They even do the installation of the items themselves”

According to the statement presented above and the previous discussion, it can be seen that are hints to believe that such service can be indeed valuable to some extent. Since two of the companies who mentioned that characteristic belong to the manufacture of paper and paper products industry, it makes sense to assume that such service is valuable within that industry.

Among all the companies who addressed this question, there was one characteristic that was shared almost by all the firms. Many of the respondents highlighted that lower price when compared to other suppliers was indeed a must if a company wants to stand out from the rest. Nevertheless, it should be noted that the lower price cannot compromise the quality or the delivery time of the order. The other characteristics mentioned by the companies were isolated cases. For example, one of the companies stated that it would add value if the supplier had its facilities nearby theirs so that they can deliver the goods fast provided that there is an emergency, and other company stated that accuracy of delivery time would be the characteristic that will set a supplier apart from others.

Based on all the information analyzed in this chapter, the case company has enough input in order to generate ideas on how to improve its current offering. The suggestion to improve the offering will be presented in the next section, and it will be based on the focus point mentioned in Figure 22 and the suggestions given by the respondents.

5.2 Suggestion to improve offering

As it was introduced in the previous section, the analysis already provides a solid base to improve the current offering of the company. Moreover, the answers given by the respondents on how to make a vendor stand out from others will be considered as well. The latter proves to be a valuable input for the case company because it already gives hints on what extra elements can be used to win the evaluation process. The focus points to improve the current offering can be seen in Figure 23 below.

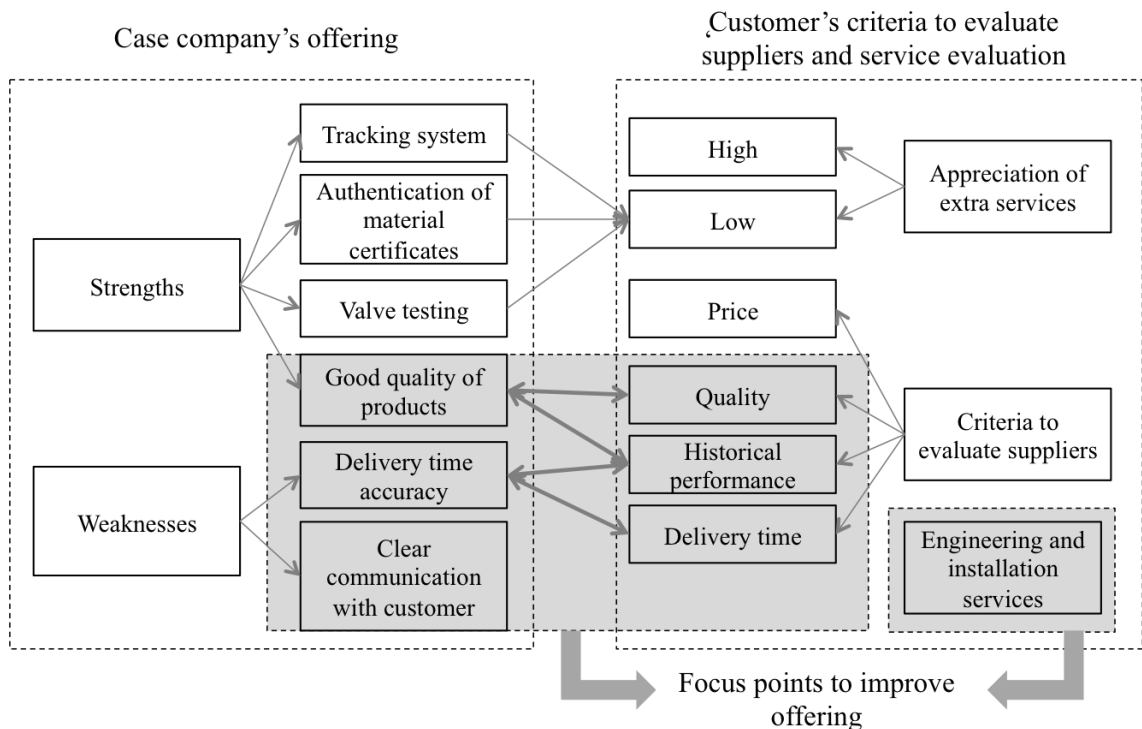


Figure 23. Focus points to improve offering

As it can be seen in Figure 23, the case company has two focus points to improve the offering. One of them is to highlight the quality of its products and improve its delivery time accuracy together with customer's communication, and the other one is to include new services to its offering. The suggestion to improve the offering will be based on these elements, and later on a time line on how to implement the suggestion will be given.

The first point is to highlight the good quality of its products. Quality is one of the most important criteria to evaluate suppliers, and since the case company has performed well in terms of quality it must show that characteristic to potential customers. Whenever the case company approaches new customers, they must ensure that the potential customers know that they are trust worthy in this sense. Such impression can be achieved if the case company provides a reference letter from its current customer to prove how reliable they are. In this sense, two of the most important criteria to evaluate supplier will be

covered already. In addition, the case company can use its current extra services to support the good quality of its products. This can be done because the authentication of material certificates and valve checking are carried out anyway, and they cannot be removed because they are highly appreciated by the case company's current customer. So if the case company cannot impress potential customers with those services, then they might as well use them to enhance the good quality of its products.

The second point to improve the current offering would be to reduce the impact of the company's weaknesses. The case company needs to improve their performance in terms of delivery and communication with clients. Coincidentally, during the early stage of this study the case company hired a person to tackle those issues. The new person will be in charge of overseeing the delivery process and improving the communication with the customer. It is important to highlight that even if the person is asked to focus on other activities, the case company still needs somebody to address those issues. So part of the suggestion on how to improve the current offering includes hiring person to take care of those issues.

The third point to improve the offering is to add extra services to it. As it was stated earlier, three of the respondents mentioned that installation services would be fully appreciated. Moreover, engineering services would be valuable as well. So the case company can add those services to its current offering in order to satisfy those needs. In this case, it is not advised that the company hires personnel to provide those services, but instead it can create alliances with other companies and outsource such activities. For example the parent company already provides engineering services; thus the case company could come to an agreement with them and they can do all the designs requested by potential customers. When it comes to the installation services, the case company has the same alternative. The parent company already has agreements with contractors in order to get the workforce during the construction phase of the projects; hence the case company could contact those contractors in order for them to do the installation on their behalf. By adding those services, the case company would not only cover the main criteria, but it would also take its offer one step beyond other suppliers.

Based on all the suggestions given so far, the case company can update its current offering as it can be seen in Figure 24. It is important to note that the weaknesses are no longer there, because as it was suggested earlier the new person will take care of those problems. Nevertheless, it would be unreal to state that the case company does not have any other weaknesses, but in terms of this study the initial weaknesses will be considerably reduced. Furthermore, such disadvantages can be turned into strengths according to the suggestion given before. The new person can indeed increase the performance of the deliveries, and that is one of the desired characteristics of potential customers. Therefore, since it would fulfill one of the main criteria to evaluate suppliers it can be considered as a new strength.

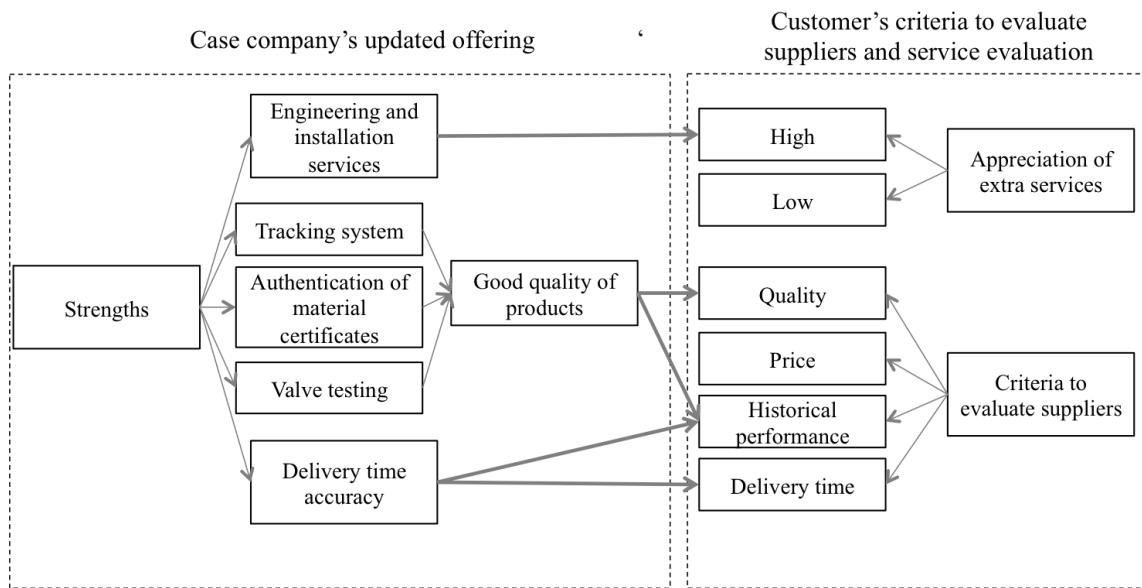


Figure 24. Suggestion on how to improve the current offering

As it can be seen in figure above, the current extra services provided by the company will be used just to enhance the good quality of the products. Moreover, the new services added would act as strengths because the case company already knows that potential customers value them. At this point, it is important to highlight that the updated offering covers almost all the criteria to evaluate suppliers, but the price. It is within the scope of the study to adapt the offering in order to match the identified criteria; however in order for the case company to become competitive in terms of price it has to evaluate its supply chain and its operation. Competitive price can be achieved through specific operational set up and privileged location within the supply chain; thus a more thorough and deep analysis has to be made in order to suggest how to lower the price. Moreover, since in this industry most of the potential customers purchase the items through frame agreements, discounts and cost reduction programs are not an option because once the agreement has been signed then the company has to sell the products at the agreed price. As a result, the only suggestion concerning this criterion is to study the feasibility of moving upwards in the supply chain in order to purchase the items with a lower price.

The suggestion on how to improve the current offering is more likely to succeed if the case company focuses in the manufacture of paper and paper products industry. Most of the respondents who mentioned the engineering and installation services belong to such industry, thus they would be the ones who would value those services the most. In addition, two of the companies in this industry mentioned that they would also value the tracking system service, so this is another feature that could make the case company more attractive to them. The main idea is that the case company can focus on this indus-

try initially to increase its sales and number of clients, and once it has done it the company can create new capabilities to approach other industries.

Most of the suggestions given at this point cannot be implemented immediately as they require time. For that reason, the case company must prioritize the tasks and decide which ones are to be done in the short term, and what has to be planned for the future. In order to have a better understanding on how the suggestion can be implemented, Figure 25 below will further illustrate what is the proposed time line. It must be noted that the phrase short term refers to a period of time from 0 to 6 months, whereas mid term varies from 6 months to 1,5 years, and lastly long term from 1,5 years to 4 years.

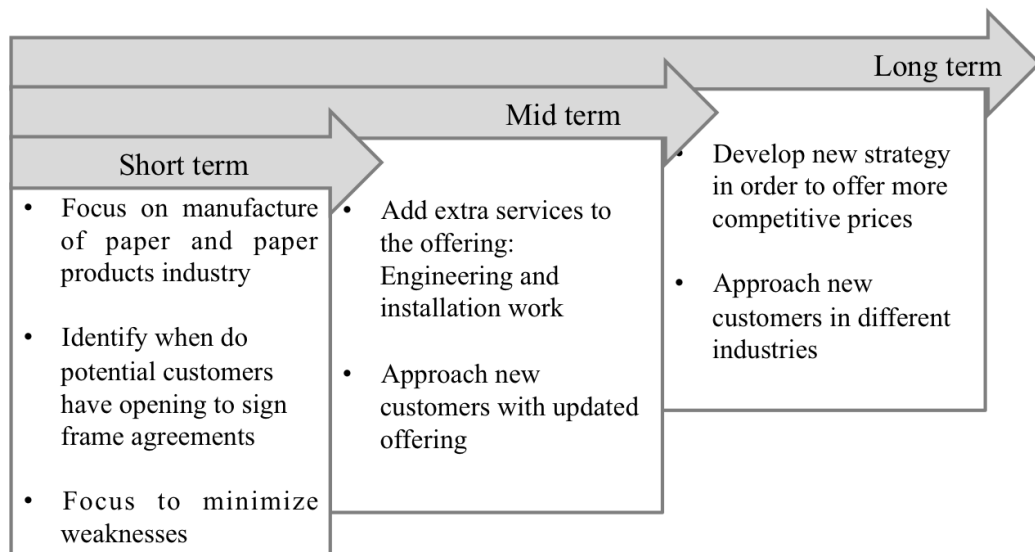


Figure 25. Time line to implement suggestions

As it can be seen in Figure 25, in the upcoming period the company has to concentrate its effort on three tasks. The first task is to focus on the manufacture of paper and paper products industry. In this sense, the case company has to identify who are the potential customers in that industry and who is the right person to approach. The second task is to identify when do potential customers have the opening to sign frame agreements. That information is not always available to the public in general, thus the case company must find out a way on how to obtain that information. This task is highly important because once the customer signs the agreement it is likely that the major volume of its purchases will be made through the frame agreement. Lastly, the third task is to minimize the weaknesses. The company should monitor if indeed the hired person helps to reduce the problems with the delivery time and transparency with customers. It is vital that such weaknesses are reduced as much as possible, because if the case company has those problems while working with a new customer, it is likely that such mistakes will impact seriously the commercial relationship with the customer.

Once the case company has covered all the tasks in the short term, then it needs to add the extra services to its current offering. The case company has to decide with which

companies it wants to partner in order to offer the new services to the customers. As it was suggested earlier, it can approach the parent company as a starting point to add the engineering services to its offering. The contractors can be selected as well based on the previous experience the parent company has had with them. In addition, once those services have been added the current offering, then the case company can start approaching new customer in the selected industry. At this point, the firm should have almost all the elements in its offering that are highly appreciated by potential customers; thus it has the potential to attract them.

Lastly, in the long term the company has to develop a new strategy in order to become more competitive in terms of price. This task is written as the long term because the development of a new strategy and its implementation can take more than four years, depending on the case. If the case company is indeed able to offer lower prices, it will satisfy all the criteria used by potential customers to evaluate suppliers. Lastly, with a new strategy in place and an updated offering, the case company can approach other customers in different industries.

6. DISCUSSION AND FUTURE INVESTIGATION

6.1 Summary of the research results

The ultimate goal of this thesis was to suggest recommendations to strengthen the case company's offering to match the identified supplier evaluation criteria. As it was stated in the introduction, the main research question was divided into three smaller questions in order to reach goal of this study. From a theoretical perspective this thesis was intended to identify what are the key criteria to evaluate bulk material suppliers, as such information was not fully discussed in literature. In a practical level, the aim was to suggest how the case company could improve its current offering.

The main research question was divided into smaller sub questions in order to reduce its complexity. The sub questions were defined as it follows:

- What is the case company's current offering and what are its characteristics?
- What are the criteria available to evaluate suppliers?
- What are the most important criteria to evaluate bulk material suppliers?

The first question aimed to identify what is the case company's current product portfolio, and what are the strengths and weaknesses of the current offering. The second question helped to clarify what are the most common criteria to evaluate suppliers according to the literature. Lastly, the third question aimed to identify the most important criteria to evaluate bulk material suppliers. The recommendation to improve the current offering was based on the outcome of the first and third question.

When it comes to the first question, the answer was provided in the Chapter 4. In that section, the outcome of the interview with the internal personnel of the case company was analyzed. The current offering was defined and categorized based on whether the service or product was considered a strength or weakness of the company. When it comes to the strengths, four elements were identified. First, the case company has in place a tracking system to provide more accurate information regarding the delivery of the products to the clients. The second strength is the good quality of products. The case company checks and inspect every product before the put it in stock; thus the likelihood of delivering a defective item to a client is low. The third strength is the authentication of material certificates. When products arrive to the case company's premise, the inspector checks if the material certificate indeed reflects the chemical composition of the product by carrying out positive material identification. Lastly, the fourth strength is the valve testing. The company tests every valve in order to make sure that it has no leak-

ages and that it operates wells with pressurized fluids. Regarding the weaknesses, only two were identified. The first is related to the accuracy of delivery time. In the past the case company has delivered the items as agreed, and sometimes it had problems to proof that the items were indeed delivered. The second weakness was the company lacked good communication and transparency with its current customer.

Regarding the second question, the answer was provided in chapter 2.3. In that chapter, the literature available regarding supplier evaluation was analyzed, and the key criteria to evaluate suppliers were identified. Four main articles addressing such topic were identified; altogether the articles covered the research done in this area from 1960 to 2016. Among the articles, price was the most mentioned criterion with 124 articles using it to evaluate suppliers. Quality was the second most popular criterion with 109 mentions as criterion to evaluate suppliers. Delivery time is in the third place with 108 mentions, and manufacturing capability follows in the fourth place with 62 mentions. When it comes to bulk material suppliers, it was identified that price, quality, delivery time and after-sales services were they key criteria. The identified criteria represent a general panorama on this topic as the articles used in this thesis took the data from articles addressing issues in different industries.

Regarding the third question, the answer was provided in Chapter 4.4. In order to answer the question, 10 companies were interviewed and asked what were the criteria used by them to evaluate bulk material suppliers. The companies belong to the following industries: Manufacture of paper and paper products, manufacture of basic metals, manufacture of chemical and chemicals products, and electricity; gas; steam and air conditioning supply. Price and quality were the most popular criteria used by the respondents. Delivery time was the second most popular criteria with 8 companies using it to evaluate suppliers, and lastly historical performance was in the third place with 5 mentions.

It was stated by Hague (2006) that a good market research turns its findings into intelligence, and that was the case in this study. The outcome of the first and third questions was used to improve the case company's offering. The first suggestion was to highlight the good quality of its products when approaching new customers. The case company can use its services (valve testing and material certificate authentication) to guarantee the good quality of its products. The second suggestion was to assign a person to oversee the delivery process and communication with customers in order to improve the performance on both areas. The third suggestion was to add two extra services to its current offering: engineering and installation services. The aim of the engineering service is to offer the customer assistance when it comes to the design of the piping systems, whereas the installation service aims to provide the workforce to install the purchased items. Lastly, the last suggestion was to focus on the manufacture of paper and paper products industry as the updated offering was highly appreciated by companies in that industry.

Lastly, the outcome of this study was discussed with the managers of the case company. Based on the results presented hereby, the managers decided first to focus on their current performance with the purpose of improving the delivery accuracy. Moreover, the proposal given in this thesis was held in high regards, and it will be used in the upcoming strategic meeting to decide how will the company move forward from now on.

6.2 Theoretical contribution

As introduced in the first chapter, the criteria to evaluate suppliers have been studied extensively. Many authors such as Dickson (1996), Ho et al. (2009), and Chen (2011) compiled a list of what were the more popular criteria to evaluate vendors; nevertheless their work was not tightly related to a specific industry. Since little research has been done to identify what are the criteria to evaluate bulk material suppliers, this study aimed to strengthen the body of literature on that topic.

When evaluating bulk material suppliers, this study shows that quality and price are the most popular criteria. Delivery time was the second most popular criteria, followed in the third place by historical performance. The first three criteria are the same as identified by Ho et al. (2009) and Chen (2011); although when it comes to the priority of the criteria the results are slightly different. Interestingly in this study it was identified that historical performance was the third most popular criteria, whereas in other studies manufacturing capability (Ho et al., 2009) and equipment and capability (Chen 2011) were in the third place. In terms of relevance, the authors mentioned earlier stated that delivery time had higher priority than price; however the opposite occurred in this study. Quality and price had the highest priority among the criteria, and then they were followed by delivery time.

The outcome of this study is partially aligned with the results obtained by the authors addressing the criteria to evaluate bulk material suppliers. The first three criteria is the same as the one identified by the previous authors, and as a matter of fact this result supports the results of other authors stating that those criteria are commonly know as key attribute to assess vendors. Interestingly, historical performance turned out to be important in this study, and such criterion was not mentioned by the authors addressing the criteria to evaluate bulk material suppliers. Moreover, after sales service was an important criterion mentioned by several authors; however none of the respondents in this study considered it as vital when evaluating suppliers.

6.3 Further investigation

In this study only 10 companies were interviewed, and even though the results are similar to the ones published by other authors, it will prove useful to increase the number of respondents. If more companies can be interviewed regarding this topic, there will be

more evidence to prove if the key criteria identified in this thesis is applicable in the whole industry of bulk material.

Moreover, Bharadwaj (2004) stated that the research focus is no longer placed in generic criteria to evaluate suppliers, but instead it is placed in the importance of the criteria in different contexts. In this thesis it was identified that the third key criterion was historical performance, and that result is totally different from what other authors detected. Such difference can be studied further in order to identify what are the relevant criteria to evaluate suppliers without taking into consideration the generic criteria. At this point, it seems evident that price, quality and delivery time are the popular criteria, but when those are left aside it would be interesting to identify what other criteria are taken into consideration in different contexts.

Lastly, the relevance among the common criteria is yet another topic worth of investigating further. In this study, it was mentioned that price was more relevant than delivery time to evaluate suppliers, but that is not always the case. For example, Ho et al. (2009) stated that price was the third most popular criterion, whereas delivery time was the second most popular one. The researcher has the presumption that the relevance varies according to the context and industry; therefore a structured research of this topic can help companies to set proper criteria to evaluate suppliers depending on the case.

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Appendix A: Review of existing literature

A literature review was carried out in order to identify if the research question has been answered already. Two scientific portals were used: Emerald Insight and Science direct. Table below shows the search words used, and the outcome in each of the portals. The criterion to select the articles was defined as follows: If the number of articles available is higher than 500, then the search words must be adjusted. If the number of articles was lower than 500, then the abstract was read. If the abstract included the search words and it referred to supplier evaluation and selection, then the article was fully read. It is important to highlight that the context that the abstract referred to was important as well when selecting the articles.

Search words:	Emerald Insight		Science direct	
	Number of articles available	Number of articles selected	Number of articles available	Number of articles selected
Supplier evaluation	56,727		85,956	
"Supplier evaluation"	390	4	870	
Supplier evaluation criteria	25,394		39,067	
"Supplier evaluation criteria"	36	2	71	4
supplier evaluation criteria + bulk material	1,675		5,093	
supplier evaluation criteria +" bulk material"	15	0	258	0
supplier evaluation criteria + piping material	855		3,504	
supplier evaluation criteria + "piping material"	1	0	27	0
Bulk material	12673		966575	
"bulk material"	257	9	75274	
Bulk components	10148		662831	
"bulk components"	6	9	2549	
bulk	19509		1281005	
"bulk"	17944	0	1281005	
"bulk" + supplier selection	7014		12945	
"bulk" + "supplier selection"	95	2	198	0

The selected articles were evaluated in light of the key questions relevant to this thesis. The outcome of such evaluation can be seen in the following tables.

Emerald Insight

Search words	Article	Does it define a list of factors to evaluate suppliers?	Are those factors used to identify the most important criterion to evaluate suppliers?	What industries does it take into consideration?	Is it related to bulk material / piping material?
"Supplier evaluation"	Supplier evaluation processes: the shaping and reshaping of supplier performance	N	-	-	N
"Supplier evaluation"	Performance measurement and evaluation of suppliers in supply chain: an evolutionary fuzzy-based approach	N	-	-	N
"Supplier evaluation"	A multiple perspectives approach to supplier selection	N	-	.	N
"Supplier evaluation"	Development of a supplier selection model using fuzzy logic	N	-	-	N
"Supplier evaluation" & "Supplier evaluation criteria"	Development of questionnaire to assess the supplier evaluation criteria and supplier selection benefits	Y	Y	Indian Automobile	N
"Supplier evaluation" & "Supplier evaluation criteria"	Exploring the importance of different supplier selection criteria	Y	Y	Indian manufacturing industries (Iron and steel, Automobile, Consumer goods, Pharmaceutical, Cement, Petrochemicals, Other chemicals, Electrical machinery, Non-electrical machinery, Other engineering firms)	N
"bulk" + "supplier selection"	Supplier selection criteria for different industrial of goods	Y	N	Manufactured material, components and machinery	Y
"bulk" + "supplier selection"	Procedural rationality in supplier selection	N	N	-	N

Science Direct

Search words	Article's name	Does it define a list of factors to evaluate suppliers?	Are those factors used to identify the most important criterion to evaluate suppliers?	What industries does it take into consideration?	Is it related to bulk material / piping material?
"Supplier evaluation criteria"	A combined methodology for supplier selection and performance evaluation	N	-	-	N
"Supplier evaluation criteria"	Structured methodology for supplier selection and evaluation in a supply chain	Y	Y	Taiwanese textile industry	N
"Supplier evaluation criteria"	Multi-criteria decision making approaches for supplier evaluation and selection: A literature review	Y	N	N	N
"Supplier evaluation criteria"	Comparative analysis of multiple criteria evaluations of suppliers in different industries	N	-	-	N

Appendix B: Questionnaire for internal interviews

1. Warming up questions:
 - a. What is your name and what is your current position at the company?
 - b. For how long have you worked with the company?
 - c. What are the current products / services offered by the company?
 - d. What are the strengths of the company?

2. Questions related to Functional benefits
 - a. What is quality in terms of the products/services offered by the company and how can it be seen?
 - b. Are there any records regarding product/services performance?

3. Questions related to Economical benefits
 - a. Does the company have a cost reduction program or similar programs?

4. Questions related to Service benefits
 - a. What are the current services provided by the company and how are they provided to the customer?
 - b. How has the company performed in terms of product/services deliveries?
 - c. Does the company contact its customer in order to communicate the status of their orders or any possible related issue? How?

5. Questions related to Psychological benefits
 - a. Does the company have stock levels of its products? If so, are those shared with customers?
 - b. How open is the company to contact customers in order to discuss possible problems on both sides (company's side or customer's side)?

6. Questions related to Social benefits
 - a. Does the company have its own brand of products?
 - b. Is there any marketing campaign?

Appendix C: Questionnaire for external Interviews

1. Warm up and exclusion questions
 - a. What is your name and what is your current position within the company?
 - b. For how long have you worked with the company?
 - c. Has your company ever purchased bulk material and does it have plans to purchase in the future?
 - d. When there is a need of bulk material, does your company go through a bidding process to select a vendor? Or does it purchase it through frame agreements?

2. Criteria to evaluate suppliers
 - a. When evaluating bulk material suppliers in order to satisfy a need, what are the main attributes taken into consideration?

Please rate the attribute in list below according to the importance they have for your company. 1 = “Most important”, 7 = “Least important”.

Indicators	1	2	3	4	5	6	7
Price							
Delivery time							
Quality*							
Supplier’s geographic location							
Supplier’s stock levels							
Industrial reputation							
Supplier’s financial situation							
Historical performance							
Packing ability							
Employment relations							
Business relationships							
Guarantee and compensation							
Manufacturing capacity utilization							
Customer service							
Flexibility							

*Quality in this case refers to whether the supplier's offer complies the technical requirements to satisfy the need or not. For example, the material used to manufacture the items.

- b. In case there was an important attribute missing in table above, please indicate what is the attribute missing and how important it is for your company

3. Questions related to Quality

- a. How do you define quality in terms of these products, and how can it be observed?
- b. Would it add value if a supplier could provide a PMI test in addition to the material certificates to authenticate the material of the products being offered?
- c. Would it add value if a supplier had strong standards to check the valves before they are delivered? Standards in this sense refers to leakage tests and PED Certificates

4. Questions related to Price

- a. Do you take into consideration only the price of the product being offered? Or do you take into consideration other costs e.g. freight, documentation, final disposal?
- b. In terms of price, what makes a vendor attractive? Lowest price?
- c. Do you take into consideration payment terms?

5. Questions related to Delivery time

- a. When evaluating the delivery time, what is the most important factor? Shortest delivery time? Delivery time as requested?
- b. Would it add any value if a supplier could provide a tracking system to follow up the location of the goods once they are shipped?

6. Questions related to Suppliers geographic location

- a. How do you decide when a supplier's geographic location is favorable or unfavorable? And are those practices standards in your company?

7. Questions related to Supplier's stock levels

- a. How do you decide when a supplier's stock level is favorable or unfavorable? And are those practices standards in your company?
- b. Would it add value if a supplier adds to its quotation the number of elements available on its stock?

8. Importance of case company's strengths according to customer

- a. If a vendor provides a shipment tracking system when it comes to bulk material, does it value when your company is evaluating bulk material suppliers?
- b. If a supplier could guarantee the reliability of the material certificates and performance of its products (e.g. Valve tests), would it add any difference when evaluating bulk material suppliers?

9. What are the attributes that a bulk material supplier should have in order to stand out from other similar companies?