

Linnæus University

Sweden

Business Administration, Business

Process and Supply Chain Management,

Degree Project in Logistics 15 hp

Supplier Development

From the Perspective of SMEs Manufacturing Industry



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Degree project in Logistics

Acknowledgment

This achievement would not have been possible to complete without contribution of several people.

We would especially offer our sincere gratitude to our examiner Dr. Helena Forslund and our tutor Mr. Roger Stokkedal for their critiques and review throughout the course of this thesis work.

We also would like to take this opportunity to express our gratefulness to VIDA Inspection Company and its management, Mr. Behrouz Tizro for providing us this opportunity.

Furthermore, we would like to express a deep sense of gratitude to Mr. Bengt, Swanström. Managing director of Willo. Mr. Peter, Grahn. Administration manager of Willo. Mr. Tom Kuhne. Managing director of Ryds. Mr. Florim Mustafa. Purchasing manager of Arcoma. Mr. Matthias Mörk. Purchasing manager of Fogmaker. Mr. Jorden Gustavsson, Purchasing manager of IV Produkt and Managing director of Alpha company for their time, efforts for giving us empirical facts of this thesis. In addition, we are grateful to Mr. Mati Marippu to his support.

Finally, we are heartfelt thanks to our families, friends and our opposition group for their support and constant encouragement.

Växjö, Sweden. 30th May 2014

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Abstract

Master Program in Business Process and Supply Chain Management

Degree Project in Logistics 15 credits, Course 4FE06E.

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Title: Supplier Development from the perspective of SMEs manufacturing industry.

Background: Current competitive environment enforces companies to decrease their costs and at the same time increase their quality as well as developing new products in short time. As a result, manufacturers have tendency towards focal point of their competencies and consequently they are becoming more dependent on their suppliers. As suppliers can have impact on companies' performance significantly thus, relationship between companies and suppliers is a vital for any organizations. Generally, supplier development aims to provide appropriate framework for improving the performance of suppliers as well as evaluating their performance.

Purpose: The purpose of this thesis is to focus on the important supplier development elements and supplier performance evaluation from the perspective of studied SMEs manufacturing companies. Therefore collected results will be used by VIDA Inspection to provide supplier development as a value added service to its potential customers.

Method: This thesis is a multiple case study and was conducted with a deductive approach. The empirical findings were gathered through qualitative interviews with semi-structured interview guide.

Conclusion: It could be concluded that the most important supplier development elements are communication, collaboration and trust, top management involvement and long term commitment. Studied SMEs manufacturing companies were utilizing structured and unstructured model for supplier performance evaluation. Quality, delivery and cost are the most important supplier performance evaluation measures. VIDA Inspection with the help of four identified phases can utilize the results of both RQ1 and RQ2 for providing value added services to their potential manufacturing customers.

Keywords: Supplier development, Supplier development elements, Supplier performance evaluation, SMEs manufacturing companies and value added services.

Abbreviations

EDI: Electronic Data Interchange

ERP: Enterprise Resource Planning

ISO: International Organization for Standardization

SD: Supplier Development

SMEs: Small Medium Size Enterprises

VIDA Inspection: VIDA

Definitions: ISO standards

ISO 9001 refers to quality management standards, which is applicable in any organization regardless of size or/and type of activity. ISO 9001 standards focus on customer and continual improvement in the processes (ISO, 2008).

ISO 14001 represents principles that companies are following to construct effective environmental management system regardless of which sector they are active in (ISO, 2008).

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1. INTRODUCTION

The introduction chapter gives an outline of the thesis subject, starting with the background section. The Problem discussion section will lead to develop research questions. Also, the Purpose, the Limitations, the Time plan, and the Disposition sections will be presented, elaborating the thesis work as the authors have intended.

1.1 Background

According to Gunasekaran (2001) technological development and competitive environment, have made organizations to respond to changes in the market. Organizations have no choice, but to consider customer's perspective, while focusing on effective resource utilization. Full in-house production can be an economical decision, but on the other hand, outsourcing has stepped in, requiring the organizations to become as logistic-sensitive as possible. This has also led to an evaluation of supply chain management practices (Gunasekaran, 2001). Due to the drastic changes in market demand, customer expectation, reduced product life-cycle, rapid developments in technology and competitive pricing schemes (Arroyo-López *et al.*, 2012; Wu *et al.*, 2011; Wagner, 2006; Handifield *et al.*, 2000; Krause *et al.*, 1998; Hartley and Choi, 1996), inter-dependency of the manufacturer and suppliers has increased (Prodhan and Routray, 2014).

Riis *et al* (2007) stated that significance of manufacturing has increased dramatically due to global operations of market and supply. This has also changed the manufacturing environment and now manufacturing faces severe challenges, mainly the complexity and uncertainty. Leachman *et al* (2005) insisted on achieving the manufacturing excellence and categorizes the excellence path in two steps. First, companies need to identify what competitive priorities are and where they stand in comparison to their competitors. Second, they need to improve the manufacturing excellence (Leachman *et al.*, 2005). According to Reed and Walsh (2002) manufacturing companies are now more focused on core competencies and dependence of supplier base has increased.

In the view of Leachman *et al* (2005) outsourcing in manufacturing industry plays a vital part this is due to changes in manufacturing practices such as frequent up gradation of product features, new product development and reduced batch size. Supplier's significance increases meaningfully when they play a part in manufacturing value creation process (Leachman *et al.*, 2005). According to Suarez (2013) Small and medium enterprises (SMEs) have significant

importance for contribution in country's economy. SMEs are representing the largest sector in economic units and are providing employment opportunities. So performance of SMEs has an impact on country's economy. According to Singh *et al* (2010) SMEs possess unique attributes which contribute for their development like; less capital required, fast returns, flexible structure and ability to respond quickly to market dynamics.

The role of supplier and their relationship with their customers is becoming more important than ever when it comes to buying companies competitiveness. Thus, efficient management of suppliers and the relationship with them plays a crucial role to achieve this competitiveness (Krause and Ellram, 1997). As a matter of fact, companies have initiated supplier development (SD) programs in order to enhance their suppliers' performance, managing them efficiently and on a long-term basis (Krause and Ellram, 1997; Hahn., *et al.*, 1990).

Supplier development (SD) is an integral part of many relationships between manufacturing companies and their suppliers. Supplier development practices can be considered as an important component of supply chain management, playing a crucial role in improving the performance of buyer-supplier relations (Krause and Ellram, 1997). SD is generally appreciated from the buying firms' perspective, as an enhancing force for the capabilities and performance of suppliers, to meet their requirements (Krause and Ellram, 1997; Rodríguez *et al.*, 2005; Li *et al.*, 2007).

Supplier development program based on different elements such as introduction of competition to the supply base; supplier evaluation for further development; supplier certification; elevation of performance expectations/goals; recognition and rewards; promise of future benefits; training of suppliers; investment by the buying companies to suppliers; personnel exchange between companies; supplier plant visits; intensive information exchange with suppliers; collaboration with suppliers in the improvement of materials and development of new materials; and involvement of suppliers in the buyer's new product development process (Krause and Ellram, 1997; Rodríguez *et al.*, 2005; Li *et al.*, 2007).

According to Wagner (2006a) highlights different problems which the companies can across with lack of supplier's ability to meet buyer's demand or low level of supplier performance. Companies can choose to switch suppliers, do vertical integration (in-house production) or to work with supplier development. Switching supplier can require high cost or lack of potential supplier existence in market. Vertical integration will require investments while companies are focusing on core competencies. The more appropriate option for companies is to work

with supplier development in order to improve supplier performance and capabilities (Wagner, 2006a).

According to Gunasekaran (2001) organizations have understood the importance of contributions of supply chain management, however still companies need to develop performance metrics for supply chain integration. Chen *et al* (2003) argued that performance measurement contributes to improve supply chain performance. It also improves the understanding and integration among different players of the supply chain. According to Cormican and Cunningham (2007) tools and methods developed for supplier's performance are needed to be applicable in the environment and are derived from best practices of the organization.

According to Simpson *et al* (2002) purchasing company has certain expectations from their suppliers in terms of product quality, promotion, distribution and services. In the similar way the supplier wants to meet the expectation of their purchaser. In the absence of established standards between supplier and buyers will be unable to meet the expectation of their partners (Simpson *et al.*, 2002). According to Humphreys *et al* (2004) supplier performance impacts on competitive advantage of manufacturing companies. This has made to work with supplier development programs and its impact on buyer-supplier performance.

VIDA Inspection GmbH (VIDA) is a third party inspection, verification, certification and consulting services company. The company based in Switzerland, it mainly focuses on the inspection services, and however audit and consulting services are the second priority of company. It has aim to improve its core competencies in growing dynamic competitive marketplace (VIDA Inspection, 2014). VIDA is planning to provide supplier development (SD) services as a new value added service to its potential customers (Tizro, Managing Director, 2014a).

1.2 Problem Discussion

Awareness of manufacturing and purchasing companies related to impact of suppliers in company performance and competitiveness have been increased (Li *et al.*, 2007; Krause *et al.*, 1998). Thus, supplier development (SD) practices from buyer's perspective take into consideration to enhance the deficient performance of the suppliers (Rajput and Bakar, 2012). SD program is providing opportunity to create sustainable partnership to meet buying firms'

investment in the suppliers' activities (Krause *et al.*, 1998).

1.2.1 Supplier development

In order to face with globalization and increase the competitive edge, manufacturing companies are becoming more horizontal integrated. Therefore, manufacturing companies focus on its core competencies and outsource other supplies. In this regards, performing well from suppliers is an important issue to meet the manufacturers' expectation (Routray and Pradhan, 2014). Having a network of capable suppliers is necessary for the buying companies in the competitive marketplace. Such a network can be maintained by set up a supplier development to boost up the performance and capabilities of the respective suppliers in ever-increasing demand environment (Hahn *et al.*, 1990).

A supplier development is playing crucial role in the supply chain, therefore it is difficult to disregard its importance (Krause and Ellram, 1998). Supplier development contributes the companies in terms of “*creation and maintenance of appropriate suppliers, quality, technicality, cost capability and delivery with continues improvement*” (Rajput and Bakar, 2012 p.11186). According to Krause *et al.*, (1998); Hartley and Choi (1996) main purpose of supplier development is long-term contract in mutual benefit along with enhancing insufficient supplier's performance. Talluri *et al* (2010) refer to supplier development as a strategic asset, in order to achieve higher efficiency. The requirement of long-term mutual commitment between buyers and suppliers is also necessary in this regards. Thus, companies have understood the benefit of the supplier development and focus to improve the supplier's performance through supplier development program (Krause and Ellram, 1997; Wagner, 2010).

Reducing cost is one of the reason companies are involved in supplier development (Chidambaranathan *et al.*, 2009). Therefore, buying companies to keep the current suppliers in efficient manner must be involved in supplier development (Rhodes *et al.*, 2006).

1.2.2 Supplier performance evaluation

Talluri *et al* (2010) illustrated supplier development is an economic activity and it requires commitment from manufacturers and suppliers. Purchasing firms face problems for effective utilization of limited resources for developing relationship with their suppliers (Talluri *et al.*, 2010). Supplier development practices can be considered as an important component of supply chain management, playing a crucial role in improving the performance in buyer-supplier relations (Krause and Ellram, 1997).

Schmitz and Platts (2004) highlighted the need of investigations in the area inter organizational performance while focusing on suppliers and their relationships with buyers. The researcher have studied performance measurement within the organization, however area of inter organizational performance could be studied more to make the relationship stronger with the suppliers in order to improved supplier performance (Schmitz and Platts, 2004).

In the view of Gunasekaran (2001) performance measures and metrics lacks in balance between financial and non-financial aspects. These measures and metrics also require dictations between different levels of organizations like strategic, tactical and operational level (Gunasekaran, 2001). The study of Forslund and Jonsson (2009) identified that especially trust, aligned goals and priorities are needed to overcome for making performance management effective between customers and suppliers.

Handfield *et al* (2009) insisted on measuring the supplier's performance as in the absence of appropriate supplier performance measures, it will be difficult for organizations to evaluate supplier's contractual obligations fulfillment. Organization need to decide what is important for them to measure and how they will allocate the weight to measurement criteria. The quantitative and the qualitative part of measurement also required to be clarified. Mainly three categories are used for measuring quantitative performance; delivery performance, quality performance and cost reduction. Different subjective criterias could be used for measuring qualitative supplier performance (Handfield *et al.*, 2009).

As a result of studied papers in supplier development area, most of the research papers accepted that supplier development practice not only improves the supply chain efficiency but also contributes manufacturing firms to create competitive edge by developing appropriate suppliers.

1.2.3 VIDA- Inspection's problem description

VIDA Inspection has aimed to improve competitive edge in its business scope and deploy the range of services. In this regards, company is planning to add a supplier development (SD) as a value adding service to the company's business line. Therefore VIDA Inspection (VIDA) would be conducted SD service to contribute company's customers especially manufacturing companies which are dealing with supplier development program. For providing SD service to potential customers VIDA Inspection wants to have deeper investigation of supplier development from the perspective of manufacturing industries. As SD will be new value added service and VIDA Inspection do not have experience of SD. VIDA Inspection wants to

know about important elements of SD as it will help to work effectively with SD. Supplier performance improvement is one of the important outcome while working with SD. VIDA Inspection also need to know about supplier evaluation process (Tizro, Managing director, 2014a).

1.2.4 Study object

The study object for the study is the Small and medium enterprises (SMEs) Manufacturing industry in Sweden. The figure below shows four different players; a supplier, SMEs manufactures customers and VIDA Inspection. We studied the SMEs manufacturers and their perspective of supplier development. On the basis of these findings a generalization for VIDA will be made. It will make possible for VIDA to provide their potential customer with supplier development services as value added services.

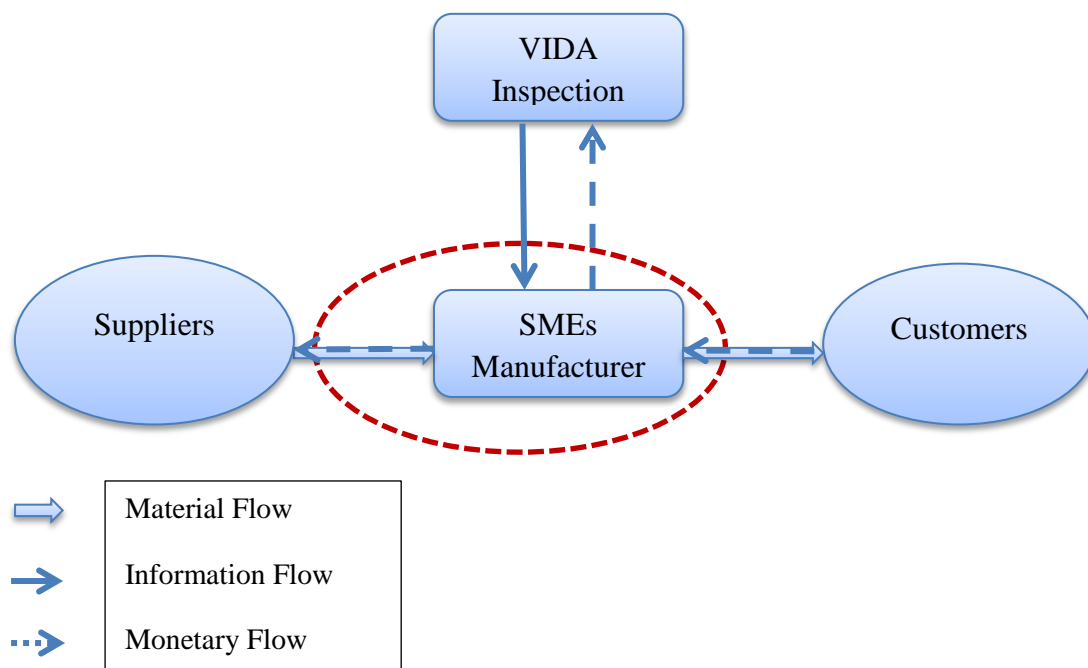


Figure 1: Study object

(Source: Composed by authors)

1.3 Research Question

To provide its customers with better service, VIDA needs investigation of the following research questions.

- *RQ1*: What are the important supplier development elements for SMEs manufacturing companies?
- *RQ2*: How SMEs manufacturing companies evaluate their supplier performance?
- *RQ3*: How can VIDA utilize the results of *RQ1* and *RQ2* for supplier development as a value added services to its potential manufacturing customers?

1.4 Purpose of the Study

The purpose of the study is to investigate important supplier development elements for SMEs manufacturing industry. The study also looks for SMEs supplier performance evaluation practices.

The Practices of SMEs manufacturers with respect to supplier development and supplier performance evaluation will help VIDA to provide supplier development as value added services to their potential customers.

1.5 Limitations

This thesis was focused only on supplier development elements and supplier performance evaluation within SMEs manufacturing industry. Thus, Service companies were not be considered in this research. This thesis is based on study of collected data of limited number of SMEs manufacturing companies in Sweden. Semi structured interviews were conducted during the visits of SMEs manufacturing companies however these interviews were mainly conducted with one representative of company.

1.6 Time Plan

The thesis work was carried out in compliance with the scheduled time frame.

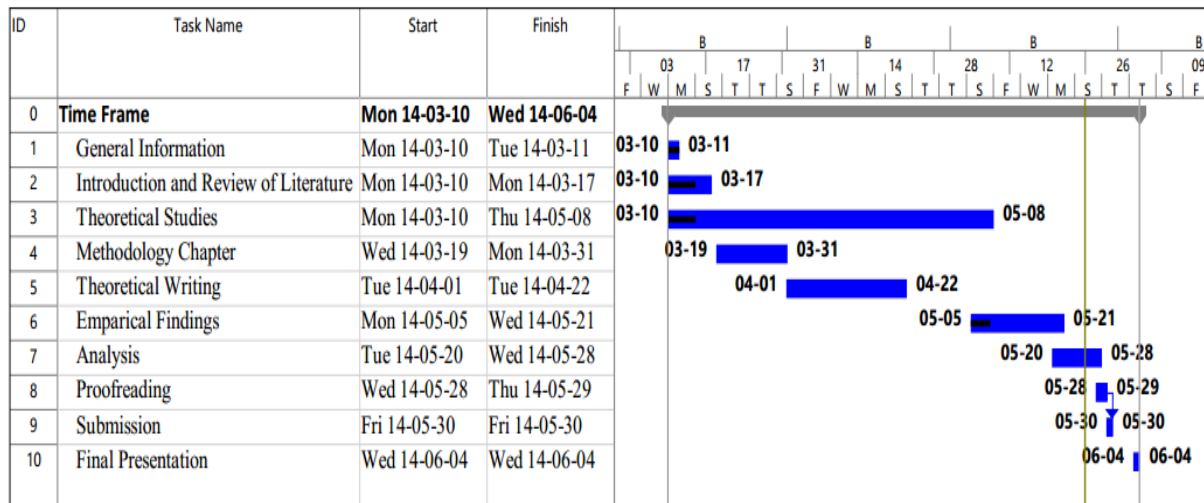


Figure 2: Time plan
(Source: Composed by authors)

1.7 Disposition of the Research

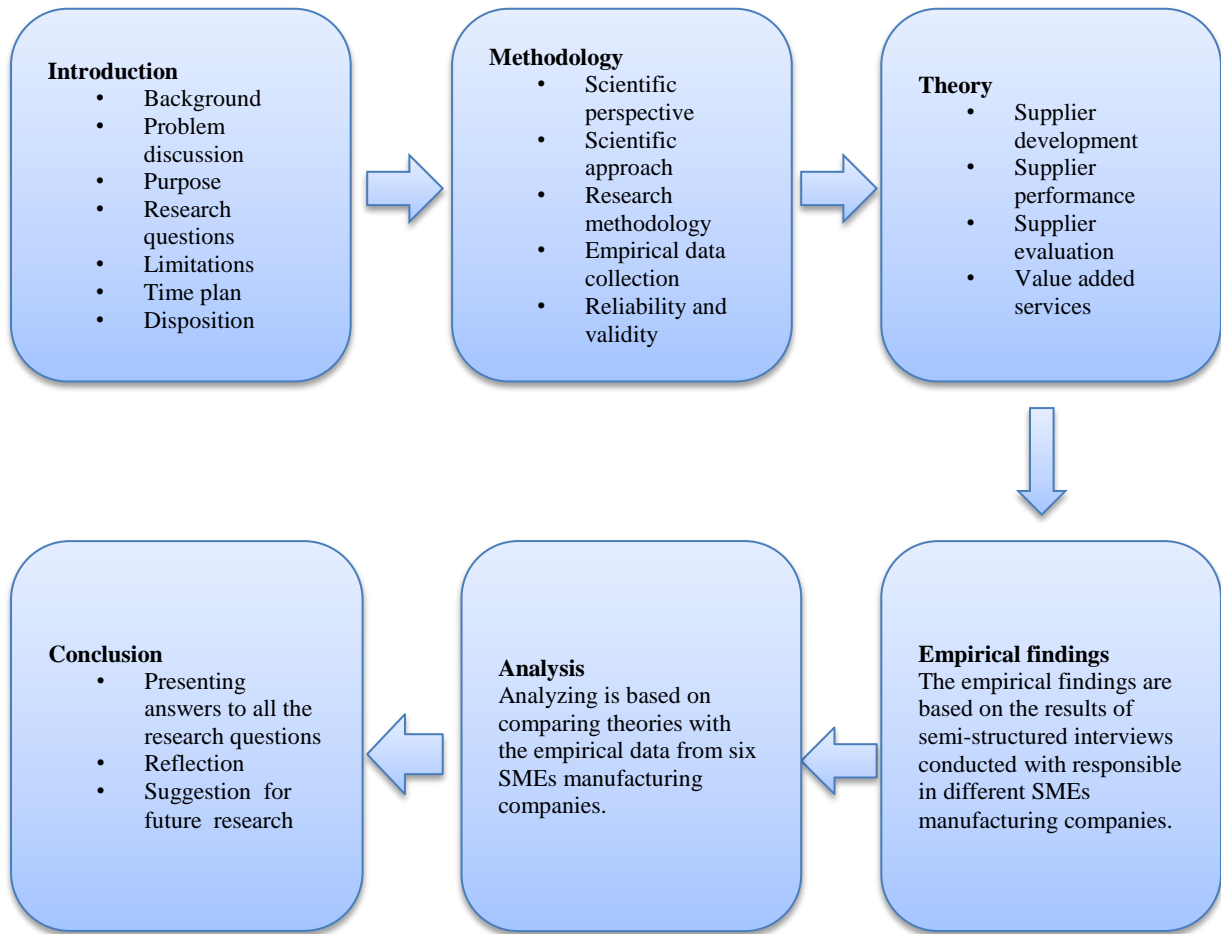


Figure 3: Disposition

(Source: Composed by authors)

2. METHODOLOGY

The methodology chapter has aimed to conduct the research in a scientific way. The chapter motivates the selection of choices made for the methodology, which are suitable for carrying out the study. The chapter includes the major heading as; scientific perspective, scientific approach, research methods, research design, data analysis, scientific credibility and finally it ends with the description of ethical considerations.

2.1 Scientific Perspective

Generally research can be defined as a “parlance” for searching knowledge. Research can be regarded as a systematic and scientific tool to focus on a specific topic (Dhawan, 2010). Meanwhile, research is defined as a discovering systematic approaches initiated by people to increase the knowledge concerning specific issue or considered issues (Saunders *et al.* 2009). According to Dhawan (2010) the main aim of research is answering the question through an existing scientific literature to facilitate the decision making. Considering scientific methodology with respect to epistemology there are two different research philosophies positivism and hermeneutics, in the following paragraph have been provided the explanation farther in detail (Bryman and Bell, 2011).

2.1.1 Positivism and hermeneutic

Positivism can be described as the empirical study of the universe through controlled experimentation or similar mechanisms, where a researcher can derive scientific laws from naturally occurring instances. In this fashion, researchers' senses become their first and foremost tool and experiments will be designed to appeal to these senses. Interestingly enough, not all sciences are of an observatory nature. Often enough, mathematics, reasoning and pure logic will lead to scientific facts. The very restricting effort for the way scientific studies has to be conducted is the Achilles heel of positivism (Bryman and Bell, 2007).

Greener (2008) argues the only phenomena that provide knowledge through the intuition is positivism. Moreover, Bryman and Bell (2007) pointed out the source of knowledge is coming from scientific methods, means that by taking into account theory, researcher through building up hypothesis are able to test the result in practical approach.

According to Prasad (2005) the root of hermeneutics is coming from Greek. Meaning of the process is regarded as interpretation of the text. Bryman and Bell (2011, p.16) define hermeneutics as a “*term that drawn from theology which, when imported into social sciences,*

is concerned with theory and method of the interpretation of human action”. Interpretation gives an overview much more than an explanation in this regard, scientists involve their personal understanding to accomplish deep level of phenomenon (Gray, 2009).

2.1.2 Applied scientific perspective

This thesis is mainly based on positivist perspective since theoretical background is the biases of the research. As the purpose of the research is to investigate supplier development elements and the evaluation of supplier performance in SME manufacturing companies, it is necessary to detect the supplier development concept through defined theories. Then the empirical findings have analysed regarding supported theory.

2.2 Scientific Approach

The relation between theory and research is considered as an important factor in scientific approaches according to Bryman and Bell (2011). According to Ghauri and Gronhaug (2005) researcher records their observation without preconception, in some case the observation that accepted as a true, would be considered as a basis in theories and law. Induction and deduction are two general paradigm, supported by scientific approaches (Ghauri and Gronhaug (2005); Bryman and Bell (2011) to “*establishing what is true or false can drive conclusion*” (Ghauri and Gronhaug, 2005, p. 15).

2.2.1 Induction and deduction

Inductive research influenced by empirical observations. This sort of research implies on qualitative method. Therefore, in inductive research approach, investigation will be concluded through empirical evidence (Ghauri and Gronhaug, 2005). Furthermore, this type the research leads to final results, through theory building (Ghauri and Gronhaug, 2005).

Considering inductive approach, data was collected in the first step and in the following step data will be analysed to demonstrate any relation between variables (Gray, 2009). According to Ghauri and Gronhaug (2005) outcomes of the inductive research are not definite due to empirical observation are being bases of the research. The process of induction research stated by Ghauri and Gronhaug (2005) research will conclude throughout the initiating assumption and move towards ➔ observations ➔ findings ➔ theory buildings.

Deductive is defined by Bryman and Bell (2011) as a most common perspective that represent the relationship between theory and research. The deductive theory is contributing researcher

to identify the theories and ideas through using the literature that will test using data (Saunders, 2009). Ghauri and Gronhaug (2005) define deductive approach as a research that concludes by logical ground. It might not be true in reality, however is considered as a feasible way. In this case, researcher in accordance with current available knowledge, make hypothesis which can lead to the empirical experiment. The analysed result in respect to empirical findings can be regarded as an acceptable or reject-able process (Ghauri and Gronhaug, 2005). In this regards Gray (2009) mentioned the theory as a basis process in deductive research approach. The terms of deductive approach are blazed by Ghauri and Gronhaug (2005) as a theory → observations → findings. According to Bryman and Bell (2011) there are six steps to conducting deduction approach in the research, the process is comprises theory, hypothesis, data collection, findings, confirming or rejecting hypothesis and then theory revision.

2.2.2 Applied scientific approach

This thesis is mainly based on deductive approach. In this research, questions formulated based on relevant scientific literature on supplier development. Moreover, the empirical findings have been collected through number of interviews and based of the empirical data. Then in order to answer the formulated research questions, empirical data were analysed.

2.3 Research Methods

Ghauri and Gronhaug (2005) categorized the research methods in qualitative and quantitative methods.

2.3.1 Quantitative and qualitative research methods

Bryman and Bell (2011) classify the research in two type quantitative and qualitative research. Quantitative research works with quantification of the data in collection and analysis phase while qualitative research works with words in collection and analysis phase rather than quantification as in quantitative research (Bryman and Bell, 2011). Ghauri and Gronhaug (2005) there exists procedural difference between quantitative and qualitative research. Qualitative research is process oriented whereas quantitative research is result oriented. Selection of the research method depends on the research problem and the purpose of the study. According to Bryman and Bell (2011) quantitative research emphasize on deductive approach and testing of theories, whereas qualitative research has the focus on inductive approach and generation of theories.

According to Creswell (2007) researchers employ qualitative research when they need understanding of complex problems, problem exploration, and identification of relevant variables for measurements. It provides the possibility to weaken the power of relationship between the research and the individuals thus it enables the individual to share their stories. It also overcomes the gaps which cannot be filled with statistical methods (Creswell, 2007).

According to Creswell (2007) qualitative research starts with supposition using the theoretical ideas and works with research problem that could deal with individual or group problem. Enquiry method is employed for gathering the data in natural settings to the study object. The analysis of gathered information is based on inductive approach. The presentation of the results based on participant's voices, researcher's descriptions and clarification of the problem. Finally it also recommends the possible solution to overcome the existing problem (Creswell, 2007). Bryman and Bell (2011) argued that there exists the difference between quantitative and qualitative research however this distinction is not permanent, one research approach could have the characteristic of other research method.

2.3.2 Applied research methods

Mainly qualitative research method has employed to conduct the study as the focus of the study is supplier development and supplier performance evaluation. Different key variables are identified and here the qualitative study is suitable to use as also discussed by (Creswell, 2007). The study also includes the quantitative part as average score of the results of companies' choices has been taken to show relative importance of different variables. The research design is based on multiple case studies as it provided the possibility to gathered data through different sources (interviews and observations) in natural settings. Thus here the case study method is a supplement to gather different type of qualitative data in real environment.

2.4 Research Design

Bryman and Bell (2011) categorized the research design into five different types; experimental, cross sectional, comparative, longitudinal and the case study design. Our research design for study is case study design.

2.4.1 Case study

According to Gummesson (2000) case study has become one of the important tool for researchers. According to Ghauri and Gronhaug (2005) researchers want to have enough information to relate the unique characteristic of the problem whereas case approach studies

the phenomenon with intensity. According to Gummesson (2000) it involves different information gathering techniques for data collection. It can involve both quantitative and qualitative methodology. According to Ghauri and Gronhaug (2005) researchers primarily employ case study approach when they want to study phenomenon with its natural settings or phenomenon under investigation could not be studied meaningfully without real context.

According to Ghauri and Gronhaug (2005) case study method could not be employed for every type of research however the problem and objective of the study will decide for suitable method of the study. According to Yin (2012) it could be suitably employed at three settings; first, the type of research question (especially descriptive and explanatory), second in real context and third for evaluation. Ghauri and Gronhaug (2005) Case study method could be employed in an organization or a department of the organization. It is also possible to study different organizations with respect to identified variables and this is referred as comparative case study. According to Bryman and Bell (2011) the selection of case study could be related to learning outcomes from the selected case company. Case study could be categorized into three types; intrinsic, instrumental and multiple case study. Intrinsic case study looks for particularities of conditions without general focus. Instrumental case study has a focus of generalization. Multiple case studies work with number of cases and generalization among them (Bryman and Bell, 2011).

According to Yin (2012) case study enables the researcher to collect quantitative and qualitative data through different sources, mainly data could be gathered through six sources; direct observations, interviews, archival records, documents, participant observation and physical artifacts. According to Ghauri and Gronhaug (2005) case study can include data gathering through different sources such as personal interview, observations, financial reports, operating statements and others. According to Yin (2012) direct observation is one of the most special features of the case study and it provided the opportunity to observe physical environment and natural settings. Ghauri and Gronhaug (2005) case study provides the possibility of observation and interaction.

2.4.2 Applied research design

Multiple case study design has used for this study. As the case study provides the possibility to investigate problem thoroughly and collection of data could be through different sources. The research question designed for the study needs deeper investigation of SMEs practices with respect to supplier development and supplier performance evaluation. It is more

appropriate to use case study design for the study. The multiple case studies are chosen as it for showing supplier development practices from the perspective of different SMEs manufacturers. The generalization of SMEs practices have then been utilized for VIDA Inspection supplier's development.

2.5 Data Collection Methods

According to Kumar (1996) data could be collected from primary sources which also called primary data using different methods like questionnaires, interviews or observation. Second method is collecting data from secondary sources; in this case documents are used as the main source of information, including books, articles, journals, magazines, and earlier research studies (Kumar, 1996).

2.5.1 Primary data and secondary data

Primary data is the data collected specifically to address a particular research problem, by utilizing most suitable procedures that is proper the best for the research problem (Hox and Boeije, 2005). Kumar (1996) added that primary data is collected for the first time and is in raw material form. Primary data may be collected through observations, surveys, focus groups or in-depth interviews (Curtis, 2008). There are various methods of collecting primary data. In general, the most common used methods are interview method, observation method, and questionnaires (Kothari, 2004).

According to Bryman and Bell (2011) Interview could be described as Eliciting of information and it occurs in our daily life. There are different forms of interviews like research interview, media interview, job interview and more. Structured interview is the type of researched interview with the focus of reducing the gaps of research from respondent and interviewer through standardization of interview. The perquisite of structure interview involves scheduled questions and exact recording of respondent. Semi-structured interview has series of schedule question with the opportunity to investigate more based on significant reply or vary the question sequence. Unstructured- interview is mainly informal in nature with open discussion based on interview guide or list of issues to cover during the interview (Bryman and Bell, 2011).

Observation method is considered as the most commonly used method when dealing with behavioral sciences and where researches collect data without contacting the respondents.

However the observation method is considered to be costly, and also results a limited amount of data. Questionnaires are considered to be a popular method as it is used by researchers, public or private organizations or in some cases even by governments (Kothari, 2004).

The secondary data is information which has already been collected and analyzed previously by somebody else (Saunders *et al.*, 2009). Using secondary data gives the opportunity to researchers to look into different sources from where they can obtain them. Secondary data could be available either as a published data including publications, literatures, scientific journals, books and so on. Meanwhile, unpublished data could be found for example with researches who did not publish their work (Kothari, 2004). For many reasons, secondary data should be used carefully because of possible problems what might be happen to the researchers if misused. For this reason, it is recommended for researches to follow a number of steps, including having the ability to locate useful data sources related to their research topic (Hox and Boeije, 2005).

2.5.2 Applied data collection method

In order to increase the accuracy of this thesis, the data collection is a combination of both primary and secondary data. The primary data has been collected through semi structured interviews. The first interview was conducted via Skype with Vida Inspection manager with the aim to understand better what is required from us and highlight the topic of this thesis. The first interview has helped to determine the company's goal which is in our case developing supplier development as a value added service for VIDA Inspection.

To conduct this project, the first step was to develop semi-structured interview guide which include all important questions related to supplier development elements and supplier performance evaluation in manufacturing companies. Firstly a phone contact was done with the chosen manufacturing companies in order to get their permission. Once we get the green light from them, an appointment was set in order to proceed with the interviews. Later on and based on the companies' replies, the collected data helped us to answer the research questions.

On the other hand the secondary data for this thesis was mainly used in the introduction, methodology, and theory chapters and was collected through university online database, relevant literatures, and scientific articles.

2.6 Sampling

2.6.1 Sampling methods

Selecting the part of the population for research can be considered as sample. There are two categories for sampling probability and non-probability sample (Bryman and Bell, 2011). In probability samples there are four types of samples, including simple random sample, systematic sample, stratified random sampling and multi-stage cluster sampling (Bryman and Bell, 2011). According to Ghauri and Gronhaug (2005) the basic form of sampling is the simple random sample. In this sampling method each unit of population has the equivalent possibility to being selected. Systematic sample could be defined as “*A variation on the simple random sample is the systematic sample, in this sample you select unit directly from the sampling frame without resorting to table of random numbers*” (Bryman and Bell, 2011, pp. 180).

Non-probability sampling could be divided into three parts; convenience sampling, snowball sampling and quota sampling. The sample that is easily accessible to the researcher due to its position is called convenience sampling. Snowball sampling is the type of convenience sampling, however the researcher makes initial contacts and then utilizes the contacts to access relevant samples. Quota sampling is utilized in the commercial research means collecting typical data from population (Bryman and Bell, 2011).

2.6.2 Applied sampling method

This research is carried out based on simple random sampling, convenience sampling and snowball sampling. In this thesis we use snowball sampling by using contact to find sample company. We also made phone contacts by random and asked the companies if they are interested in topic and we can interview them in order to complete our research work. On the other hand for easy access we choose convenience sampling to make a contact with companies which are based in Kronoborg region.

2.6.3 Scaling

There are different measuring scales in the empirical research, such as nominal scale, ordinal, interval and ratio scale. Nominal scale is considered as ground level of measurement, in this scale classification of investigation are done through numbers and favourable objects are pointed the same number. Ordinal scale meaning variables can be classified to show relation in ranking order. Interval Scale refers to having exact knowledge of distance between various investigations and its distance, meaning differences are comparable in this scale. Ratio scale,

differ from interval scale in having absolute zero meaning that it is possible to create substantive ratio with variables and weight the used variables (Ghauri and Gronhaug, 2005).

Having an indicator or indicators is essential in order to provide a measure of operationalization idea. Indicators can be designed through questioning, either as a part of a structured interview, or in the form of a self-completion questionnaire. Other resources for indicators include individuals' action records, as well as official statistic and examination of mass media content. Self-completion questionnaires are considered as self-administered, meaning, the answering is carried out by respondents with no supervision (Bryman and Bell, 2011).

Likert scale is known to be a form of closed-question an advantage of utilising closed questions can be pre-coded to turn the process to simple task. However, some content should turn into scoring the items. In scaling method, recognizing what should be measured is considered as a first step. Creating a scale item can be regarded as the next, where there are two rating methods that can be based on 1 to 5, or 1 to 7. Here, one illustrates the item with the least importance and depending on the chosen spectrum, 5 or 7 illustrates the strongest (Trochim, 2006).

2.6.4 Applied scaling method

The research conducted sampling through semi-structured interviews. However since the variables are not measurable, they need to be judged by means of indicators. In this study sampling is carried out in different manufacturing companies, active in diverse fields, to see different outcomes. In this research, questionnaires were the same for all studied SMEs companies consisting of eleven elements related to supplier development and thirteen measures related to supplier performance evaluation. In this thesis we have taken the ordinal scale measurement to illustrate different degrees of importance for each element. Also we have taken ratio scale to take the average for each variable and both questionnaires are based on 5 point Likert scale.

2.6.5 Selected companies

Manufacturing companies are selected by simple random sampling, convenience sampling and snowball sampling. The following section includes the overview of the selected companies:

Willo AB

Background: Willo has the specialization in complex metal parts. They are mainly supplying parts to three different industries; Energy, medical and precisions. The company is located in Växjö and has 70 employees. The turnover in 2013 was 86 Million SEK and approximated turnover for 2014 is 100 Million SEK.

Interviewee: Bengt Swanström, Managing Director

Peter Grahm, Administration Manager

Ryds AB

Background: Ryds is a small boats Swedish manufacturer located in Ryd and it has 23 employees. The company represents around 25 percent of the Swedish market in its segment of products. Norway and Denmark are also important market for the company.

Interviewee: Tom Kühne, Managing Director.

Arcoma AB

Background: Arcoma is located in Växjö, Sweden. The company produces radiographic systems and components with combination of Scandinavian ergonomic and engineering design. In this regards, a wide portfolio of products designed to meet its customer's requirement. Company has approximately 50 employees with a turnover of 140 Million SEK.

Interviewee: Florim Mustafa, Purchasing and Supply Chain Manager

Fogmaker AB

Background: Fogmaker specialize in manufacturing and distributing of high pressure fire suppression systems. The company is located in Växjö and has 33 employees. The turnover in 2013 was approximately 30 Million Euros.

Interviewee: Matthias Mörk, Purchasing Manager

IV Produkt AB

Background: IV Prodcukt is the air handling units manufacturer and floated in växjö. The company has 204 employees.

Interviewee: Jorgen Gustavsson, Purchase Manager

Alpha AB

Background: Since the chosen case company wants to be anonymous so this case company would be referred as "Alpha". Alpha produces battery-chargers for vehicles and industrial

application. The company is located in Växjö. In 2013 the company has turnover of around 6 Million Euros.

Interviewee: Alpha's Managing Director

2.7 Data Analysis

2.7.1 Case study data analysis

According to Yin (2012) Case study analysis requires more attention and it is a critical step in the case study as the data will not speak for itself. According to Creswell (2014) data gathered in qualitative study may or may not be useful so it will require more concentration by researchers. According to Yin (2012) the motive of the research have the influence on the analysis; if the drive is to work for research question the analysis will be directed to that or if the drive is work for general results the analysis will be leading to that. Researchers could employ different techniques for analysis based on their requirements such as Pattern-matching, Explanation-building and Time-series analysis. Pattern matching looks for different pattern and compares pre and post developments, Explanation building looks for deep justification of the open research question while Time-series analysis includes the description of sequence of events and finding the arrays of causes of events (Yin, 2012).

2.7.2 Applied case study data analysis

As the research designed of the study is case study and we received different type of data through multiple sources. The data that are relevant to our research question has only been utilized to conduct the analysis. Pattern matching among multiple case studies are suitable to identify key variables in SMEs. The analyses was focus on minimizing the risk of subjectivity and try to answer the research questions while making generalization of the finding for making an applicable solution for VIDA Inspection.

2.8 Scientific Credibility

The credibility of research results depends heavily on two particular issues which are validity and reliability (Saunders *et al.*, 2009).

2.8.1 Reliability and validity

As stated by Yin (2009) reliability represents the ability of an analysis to show the same outcomes while using different information selection techniques. The purpose of establishing reliability is to be sure that, if a later researcher follows the same techniques as described by a previous one, the later researcher should reach the same outcomes and results. Joppe (2000) goes in the same direction by describing reliability as the level to which outcomes represents the scenario where it will be possible to depend on research results eventually and to which the research can be re-conducted and following the same method.

According to Bryman and Bell (2007) validity is considered as the most important criteria of a research. They added that the validity concerns just measuring what is proposed to measure and that nothing else impacts the outcome. Regarding qualitative research the substance of validity is specifically influenced by the researchers' observation of the thought, for example Creswell and Miller (2000) illustrate how in numerous research studies, researchers used validity to their own particular set of basis, including authenticity, rigor, or trustworthiness.

In order to fulfill men's needs to solve problems; there will be always a need to conduct researches to achieve that goal. Research could be explained as a process by which its aim is to increase the knowledge or at least resolve it. While doing experiments, researchers are dealing with different kind of variables. Basically problem solving is originated from the ability to understand or/and control the interaction between variables and how they affect each other. Actually there are three types of validity evidence. Firstly, the internal validity came from the control of variables. In another words, internal validity can be explained by how well a research was conducted and most important how successfully confounding were avoided. Thus internal validity could be explained simply by how a research can gives the opportunity to choose between different explanations of something because less confounds affect positively the confidence due to high internal validity (Kumar, 2006).

The external validity is an important concept in quantitative research. It is explained by the degree to which the conclusions and results of a research might hold for different persons in different locations and at different times, meaning that the findings of a study might be generalized (Bryman and Bell, 2007). The third type of validity evidence is called construct validity which is according to Yin (1994) building right operational measures for the concepts researches being based on.

2.8.2 Applied reliability and validity

To ensure a high reliability of this thesis, we have spent a lot of time and effort to build up a series of selected questions based on the findings from the literature presented in the theory chapter. Before conducting interviews with companies they were all informed of what specific information we are looking for, and they were aware about what kind of questions they will be asked during interviews as we have send them examples of our questions beforehand. Our aim behind this action is to give our interviewee enough time to be prepared in order to get the most reliable answers for our questions. After getting permission from companies all interviews were recorded which has helped us to go back to it whenever there was a need for that. We believe that if the same study has conducted in the future similar results will be reached, because the target of this study was limited to specified type of companies (SME's manufacturing companies), also interviews were conducted mostly with professional people (purchasing managers) which affect positively the reliability of this thesis.

The thesis has high internal validity because we were ensuring that the collected empirical data is corresponding to the research subject. We believe that managing collecting data from multiple case study companies will increase the internal validity of our research. On the other hand, the external validity of this research is expected to be appropriate. It is true that the research is based on several companies, but still we have to take into consideration that we have based our research just on a limited number of SMEs located in specific geographical area (Kronoberg, Sweden). But that does not mean that the results of our research cannot be applied or generalized by other SME's manufacturing companies in other part of the world. We can say the same thing for the construct validity of this research, meaning that information about supplier development has been gathered from one source only (interviewed companies) so we were not be able to be in contact with their suppliers the thing which minimize the ability to look supplier development from different angles.

2.9 Ethical Consideration

Whenever there is a human participation in a conducted research project, researchers has some responsibilities towards the participants. As any research process is related to data collection, it is therefore recommended here to keep in mind a number of ethical considerations. In another words, some points needed to be considered while collecting data

where the ethical principles should be respected by researchers before submitting their proposals. Ethical consideration includes responsibility of researchers for a safe and ethical treatment towards all participants. Guarantee for the participants the freedom refusing or withdrawing from participation if they are not well informed about the goals of the research study. Privacy protection is considered as one of the important ethical consideration while collecting data, so there is always a need to ensure that all types of participants' privacy will not be violated nor invaded (Kumar, 2006). Graziano and Raulin (2010) have presented the same principles, but they also added that any research study must be well prepared beforehand so that it will be of informative value. Also, will participants in the research receive feedback by the end of the study or not.

2.9.1 Applied ethical considerations

Since this study require involvement of human respondents represented by a number of responsible from different Swedish SME's, several ethical issues were respected in order to ensure the privacy and safety of the participants. Some ethical issues that have considered before, while, and after the research process is manifested by the contact of companies by phone/e-mails to see the extent of the response whether they will participate in our research or not. The interviewees were informed with all necessary information which gives them a general idea about the nature of our research, type of data we are looking for, and also the goal behind it. Moreover, we need their permission of whether the interviewees' names, positions as well as the results of our study could be published to the public or not.

2.10 Summary of Research Methods

Table 1 presents, the summary of research methods used for complementation of the study project.

Table 1: Summary of research methods

Scientific Perspective	Positivism
Scientific Approach	Deduction
Research Methods	Mainly qualitative Partly quantitative
Research Design	Multiple case study
Data Collection Methods	Primary data Secondary data
Sampling	Random sampling Convenience sampling Snowball sampling
Scientific Credibility	Construct validity External validity Internal validity Reliability
Ethical Consideration	Respondent validation Purpose awareness

(Source: Composed by authors)

3. LITERATURE REVIEW

Based on our research questions, this chapter of this thesis presents important aspects of supplier development and supplier performance evaluation. The first part of literature is allocated to Small and Medium Enterprises (SMEs), secondly followed by manufacturing companies. In the third part of this chapter Supplier Development (SD) is discussed and finally it includes the description of Supplier performance evaluation.

3.1 Small and Medium Enterprises

Small and medium enterprises (SMEs) can be categorized on the basis of employees and turnover; employees less than 250, turnover less than 50 Million Euros and independent from larger firms. SMEs represents a major percentage of European enterprises i.e. 99.8 percent, it also provides 67.1 percent of private sector jobs. The major challenges faced by SMEs are related with; administrative, finance, taxation, skills, competition, labor law, international market access and information access (European commission, 2008).

Löfving *et al* (2014) and Hudson *et al* (2001) mentioned the characteristics of SMEs which include; good innovation potential, organizational flexibility, tilted towards personalized management, reactive strategy, resources limitations and limited market and customer access. The study of Thakkar *et al* (2012) through literature review identified different issues with SMEs supply chain in the area of; organizational culture, trust, information technology (IT) utilization, strategic planning, strategy formulation, supplier selection, long term relationship and with logistic development. The study of Morrissey and Pittaway (2006) identified that SMEs Owner- manager has the influence on the purchasing relationships however SMEs showed the trend for developing separate purchasing department.

According to Yusof and Aspinwall (2000) SMEs have better understanding of customer's requirements due to close relations and immediate feedbacks. Singh *et al* (2010) highlighted the importance of SMEs strategy development for acquiring competitiveness. The success of Chinese SMEs is also result of appropriate strategy implementation and continuous efforts for improvements. Yusof and Aspinwall (2000) argued that SMEs due to their characteristics need simpler framework than large business. Frameworks for SMEs are required to be of; simple structure, systematic, understandable, clearly linked and easily implementable.

3.2 Manufacturing Companies

According to Bellgran and Säfsten (2010) Manufacturing companies have the objective of profitability; this motivates them for production of products and customer satisfaction. During last 20 years Toyota Company being one of the important leader in efficient production. According to Singh *et al* (2010) technological development and customer preferences have an impact on competitive paradigms and the nature of paradigms are changing continuously. This had made the manufacturing companies to strive on different dimensions as; improved manufacturing processes, design improvements, new product development, fast market distribution, effective purchasing communications and suitable market strategies (Singh *et al.*, 2010). Now customer demands products at best price, high quality, in desired amount and at span of time. Meeting customer's demands require an efficient production system capable dealing with complexity (Bellgran and Säfsten, 2010).

Bellgran and Säfsten (2010) highlighted the importance manufacturing strategy for achieving desired level of competitiveness. Manufacturing strategy is a plan of activities and series of decision which the company will make for meeting targets and achieving competitive advantage. Manufacturing strategy could be divided into two divisions; content and processes. The content phase of manufacturing strategy comprises of competitive factors and decision categories. Competitive factors are derived from company's objectives or competitive priorities and mainly consist of among; cost, quality, flexibility and deliverability. Decision category could be explained as the choices made by company or decision taken to achieve competitive factors or competitive advantages. The decision category further could be look from five areas of decisions; decision regarding facility and equipment, production planning and control, product design and development, organization and leaderships and decision related to labor specializations. As discussed the second division of manufacturing strategy is processes and this division is related with formulating and implementing the manufacturing strategies (Bellgran and Säfsten, 2010).

Thomas *et al* (2008) discussed the utilization of advanced manufacturing technologies for SMEs to improve their competitiveness. However they argued the compatibility of technologies with SMEs mission and objectives as in the absence that the desired results of performance improvements could not be obtained. SMEs also require management commitment and appropriate level of skills to fully utilize the resources for improvements.

3.3 Supplier Development

Buying firms are nowadays becoming increasingly dependent on the efficient suppliers to supply technologically developed products economically and in limited time. Generally, suppliers do not deliver the expected efficiency in regards with providing the customer with supplies in a time and perform it incompetently (Krause *et al.*, 2000).

Supplier Development (SD) concept has been first introduced by Toyota in 1939, emphasizing within the concept on buyer-supplier collaboration, to enhance overall performance. Then, SD program was implemented by Nissan in 1963, in the year 1973 Honda also participated (Handfield *et al.*, 2009). It is generally accepted that supplier development initiate through buying firms with the aim of improve capability of the current suppliers when the suppliers are incapable to meet short and long term buying firm's expectations (Prahinski and Benton, 2004).

In the fierce competitive market, manufacturing companies to survive their business are inevitable to reduce the cost, with improving quality and service. Traditional conceptualization was limited to eliminate waste of products. However, supplier development approach establish as new idea to reduce the cost along with enhancing quality and service. Therefore, manufacturing companies with collaborating suppliers create competitive advantages through focusing on their core competencies. Supplier development also regarded as an upgrading supplier's technical capabilities, quality, delivery and cost through long-term cooperation attempt between manufacturing firms and their suppliers (Chavhan *et al.*, 2012).

Previous research presents using respective supplier development practices by buying firms in order to improve supplier's operations (Krause, 1999; Rodriguez, 2005; Wagner and Krause, 2009; Krause and Ellram, 1997; Shokri *et al.*, 2012). This will lead to promote the efficiency of supply chain as well as a reducing cost for buying firms (Shokri *et al.*, 2012).

Mortensen and Arlbjorn (2012) mentioned that supplier development have major impact on collective supply chain performance. There are various ways to define supplier development, number of researchers defined supplier development as “*any activity of a buying firm with its suppliers to increase the performance and/ or capabilities of the supplier and meet the buying firm's short and long term supply needs*” (Krause and Ellram, 1997; Rodriguez *et al.*, 2005; Li *et al.*, 2007; Lopez *et al.*, 2012). Wagner (2006) argued that supplier development help suppliers to improve their capabilities and performances. Supplier development is considered as buying firms activities to create and maintain a network of competitive and efficient

suppliers in order to improving firm's productivity and competitiveness (Chavhan *et al.*, 2012).

Rodriguez (2005) differentiated supplier development practices into three general groups (basic, moderate, advance) in accordance with the level of firm's involvement and execution complexity. Basic, is viewed as a supplier development practice to impose a necessity of the limited firm engagement and less investment of buying firm's resources that are known as personnel, time and capital. Hence, in order to enhance supplier(s) performance and capabilities, buying firms are willing to implement such practices. Moderate, considers as mediate level of buying firm's involvement and execution complexity in the supplier development practices. As can be clearly seen from the meaning of moderate, it is obvious that will allocate more resources (personnel, time and capital) by buying firms compare to the previous type. Advance, considers high level of buying firm's involvement with its supplier(s), thus requires significant utilization of the buying firm's resources. In this regards, cooperation between buyer-supplier is of a great importance that can be achieved through exchange of information (Chavhan *et al.*, 2012; Rodriguez, 2005).

The following table 2 shows the summary of supplier development categorization.

Table 2: Supplier development categorization

Basic Supplier Development	Moderate Supplier development	Advance Supplier development
Evaluation of supplier's Performance and feedback to suppliers Sourcing from a limited number of suppliers Parts standardization Supplier qualification	Visiting suppliers' plants Awards and approval of supplier's performance improvements. Collaboration with suppliers in materials improvement. Supplier certification	Training to suppliers Collaboration with supplier Involvement of suppliers in the buyer's new product development process Intensive information exchange with suppliers

(Source: Chavhan *et al.*, 2012, pp. 40)

According to some literature another type of categorization is “*direct or internalize and indirect or externalize*” (Chavhan *et al.*, 2012; Krause *et al.*, 2000; Prahinski and Benton, 2004; Wagner, 2006; Wagner, 2010). Wagner (2006) illustrate Direct (internalize) SD is precise to dedication of human and/or capital resources to the supplier by the buying firms. Indeed, direct SD refer to significant investment by the buying firms, on- site consultation,

training, transferring personnel, inviting suppliers' personnel and providing equipment or capital (Wagner, 2006; Krause, 2000; Chavhan *et al.*, 2012).

On the opposite, when Buying firm does not commit enough resources to the specific supplier for improving the performance is considered as an indirect supplier development (externalize). Indirect supplier development refers to the lack of buying firms involvement in the supplier's performance as well as information transmission from buyer to supplier is evidently absent (Prahinski and Benton, 2004). In indirect supplier development; the buying firm utilizes the communication and external market forces to achieve performance improvements (Wagner, 2006; Krause, 2000; Chavhan *et al.*, 2012). Subsequently, the author resulted in, direct supplier development rises capabilities of the suppliers while, indirect supplier development promote product and delivery performance of the suppliers (Wagner, 2010).

3.4 Supplier Development Elements

Supplier development program is considered as elements of creating sustainable supply management. It is important to realize the detail of critical factors (success factors and barriers) affects supply chain (Routroy and Pradhan, 2011). Krause and Ellram (1997) argue that success factors (SD elements) and barriers can affect the implementation of supplier development. According to Routroy and Pradhan (2011) success factors play crucial role for implementing supplier development program efficiently and effectively. In the view of Krause and Ellram (1997) supplier development barriers includes; Lack of willingness by the supplier to improve social relationship, Low cultural and structural similarities, Lack of supplier willingness to implement certification program, Low interest to follow the results of evaluation conducted by the buying firm and lack of efficient communication.

Reviewing supplier development literatures, resulted in the description of several critical elements that playing crucial role in the buying firms success such as; communication, certification, evaluation, reward, technical support, training, investment in suppliers equipment, new market support, collaboration for improvements, product development improvements, visits at supplier sites, alternatives sources procurement and future business promise (Rajput and Bakar, 2012).

The following table 3 illustrates the important elements of supplier development program. It also showed the review literature for each element of SD.

Table 3: Supplier development elements literature

Supplier Development	Identified Literature
Communication	Benton (2004); Abdullah (2003); Anderson and Narus (1995); Lawson <i>et al.</i> , (2009); Kraus and Ellram (1997); Humphreys <i>et al.</i> , (2004); Ganesan <i>et al</i> (2005); Carr and Kaynak (2007); Dewett and Jones (2001); Sahin and Robinson (2005); McIvor and Humphreys (2004); Obal and Lancioni (2013).
Knowledge transfer and training	Grant (1996); Krause <i>et al</i> (2000); Nagati and Rebolledo (2013); Modi and Mabert (2007); Ragatz <i>et al</i> (1997).
Product development	Handfield (2009); Loch <i>et al</i> (1996); Menon <i>et al</i> (2002); Ragatz <i>et al</i> (1997); Utterback <i>et al</i> (2006); Sivadas and Dwyer (2000); Wagner (2006); Wynstra <i>et al</i> (2001).
Supplier's site visit	Grant (1996); Gupta and Govindarajan (2000); Cousins and Menguc (2005); Krause and Ellram (1997); Justice (2006), Riswadkar (2008).
Supplier's certification	Handfield <i>et al</i> (2006); Sollish and Semanik (2012); Darnall (2006); Routroy and Pradhan (2011); Baiman <i>et al</i> (1998); Ittner <i>et al</i> (1999); Heide (1996); Kalyanam and Brar, 2009); Gilliland and Manning (2002); Gilliland <i>et al</i> (2010).
Quality audits	Krause and Ellram (1997).
Technical and capital support	Dyer and Chu (2000); Matthyssens and Inemek (2012); Tungjitjarum <i>et al.</i> , (2012); Modi and Mabert (2007); Li <i>et al</i> (2007); Wagner (2006); Wisner (2003); Krause <i>et al</i> (2000).
Collaboration and trust	Allred <i>et al</i> (2011); Cao and Zhang (2011); Heide and Miner (1992); Jassawalla and Sashittal (1998); Nagati and Rebelledo (2013) Yan and Dooley (2014).
Top management involvement	Govindan <i>et al</i> (2010); Hahn <i>et al</i> (1990); Humphreys <i>et al</i> (2004).
Procurement from alternative sources	Klemperer (1995); Liu (2006); Wagner and Friedl (2007); Wagner <i>et al</i> (2009).
Long term commitment	Li <i>et al</i> (2007); Sharma <i>et al.</i> , (2006); Ring and van de Ven (1992); Coote <i>et al</i> (2003); Routroy and Pradhan (2011); Doney and Cannon (1997); Abu Saleh <i>et al</i> (2012).

(Source: Composed by authors)

3.4.1 Communication

According to Prahinski and Benton (2004) communication is one of the important elements of supplier development (SD). That is supported by the findings of many literatures which say that effective two ways communication is considered as a very important element towards an effective supplier development (Abdullah, 2003). Anderson and Narus (1995) defined

communication as a way of sharing information in both formal and informal way between companies. Communication can be seen as the glue that holds partnerships between different parties (Lawson *et al.*, 2009).

According to Kraus and Ellram (1997) the absence of an effective communication between purchasing and supplier companies could be considered as an obstacle to SD. As Humphreys *et al* (2004) mentioned, effective communication is positively related with buying companies performance improvement. Also they said that continuous and open communication between buying companies and their suppliers is an essential key to motivate suppliers. In the view of Ganesan *et al* (2005) sharing information plays an essential role in knowledge sharing, and it has a big influence between partners making them better to understand each other's goals.

Based on the finding of Carr and Kaynak (2007) there are two communication methods used by buying companies to communicate with suppliers: traditional communication methods and advanced communication methods. The traditional communication methods is reflected in face to face contact, telephone, e-mail, or simply written (Dewett and Jones, 2001). On the other hand advanced communication methods could be seen when using enterprise resource planning (ERP), electronic data interchange (EDI), or when using links between computers (Sahin and Robinson, 2005). Nowadays, the dependability of buyer-supplier on digital communication has increased (McIvor and Humphreys, 2004). Yet face to face communication is still considered as the communication method that has the biggest impact on information exchanging between a buyer and supplier (Obal and Lancioni, 2013).

3.4.2 Knowledge transfer and training

According to Grant (1996) instability in the business environment has made the companies to focus on organizational capabilities and resources to compete in business environment. Dynamic-competitive environment has made the knowledge as one of the important resource. Grant (1996) categorized the knowledge as explicit and tacit; explicit knowledge has the characteristic of written down while tacit knowledge cannot as it is mainly based on known-how and practices. The processes demands wide range of specialized knowledge however tacit knowledge reside in the minds of individuals. Modi and Mabert (2007) argued that the knowledge is transferred through the routines in companies. Operational knowledge transfer activities are arranged to transfer the knowledge that resides in the minds of specialized individuals. The knowledge also transferred across the boundaries of the organization between buyer and their supplier for the improvement of manufacturing processes.

According to Nagati and Rebolledo (2013) training and education will be an investment made by the customers, so strategic suppliers are suitable for training and education. Krause et al (2000) argued that direct influence of customers through training of suppliers have significant effect on suppliers performance level. According to Modi and Mabert (2007) supplier's employees expertise could be improved by providing them trainings and problem solving skills, it will also impact on the supplier's productivity. The training will provide the opportunity to transfer tacit knowledge which in terms will improve supplier's competences and that will influence the future business.

According to Ragatz *et al* (1997) trainings and education strengthen the relationship and improves the performance level of both buyer and supplier. He categorized the training into periodic and ad hoc trainings. Periodic trainings enable suppliers to have deeper understanding of customer's processes and the improvement areas. Ad hoc trainings are more new product development specific and with building long term relationships (Ragatz *et al.*, 1997).

3.4.3 Product development

As a result of technological rapid changes and short products life cycle, firms are permanently under pressure to supply market with new products (Menon *et al.*, 2002). This situation has forced companies to have increased number of partners which means that the product development has become more networked (Utterback *et al.*, 2006). New product development is seen by companies as a means to increase their competitive advantage and profitability (Loch *et al.*, 1996).

The study of Ragatz *et al* (1997) identified that supplier involvement in new product development have number of benefits in the area of product quality, purchasing cost, access to technology and product development time. The involvements of suppliers in product development will not only support the manufacturing company to improve design and avail the expertise of their suppliers. However companies can also influence the direction of their supplier for improvements (Ragatz *et al.*, 1997). When suppliers are involved in product development it requires a regular flow of information from both directions in order to ensure the targeted results (Sivadas and Dwyer, 2000). According to Cousins and Handfield (2009) Supplier's early integration in a product development is crucial to reduce time to market, improve quality, and cut down costs.

According to Ragatz *et al* (1997) different issues can arise when working with suppliers for product development like information sharing risk, resistant culture of the company and suppliers resistance of sharing information and technologies. Sharing of information with suppliers may cause future problems as there is risk of sharing that information unintentionally with the competitors or the supplier could also be competitor of the buyer company. The culture of the company can also be a barrier for accepting the ideas from suppliers for improving product design. Suppliers may also have some reservation of sharing the information and ideas to their buyers (Ragatz *et al.*, 1997). According to Wynstra *et al* (2001) some studies does not share the same idea about the positive results of supplier involvement in product development, but in the opposite it is found that as more suppliers are involved this directly increases costs, lowers the product performance, and lengthens the time of product development.

3.4.4 Supplier's site visit

Riswadkar (2008) recommended that before entering in any new partnership with a supplier, a site visit must be conducted by the buying firm. According to Justice (2006) it is not possible for buying firms to get the real situation of a supplier based just documents or returned feedbacks from suppliers. He continuous that in order to have a clear picture of the suppliers it is then necessary for buying firms to site visits of the suppliers. Supplier's site visit is linked to a specific time period which is needed to be done during the evaluation period of the suppliers. During site visits it is required to take into consideration the differences between buying companies and their suppliers such as language, work ethics, and cultural differences. Site visiting is an important element which determines whether outsourcing from one supplier or another is a value added for buying companies or not and subsequently strengthens buyer-supplier partnership (Justice, 2006).

Regular visits at supplier's site by the buyer's engineers, and dedicated supplier development teams is a direct involvement activity by the buying firm, in order to improve the supplier's skills and performance (Krause and Ellram, 1997). Site visits, social events and cross functional teams are recognized as a key means of facilitating the flow of knowledge within and between firms (Gupta and Govindarajan, 2000). This would involve creating opportunities for socializing employees of each firm through supplier conferences, on-site visits, workshops and team building, as well as implementing innovation-focused performance measures that reinforce the need to collaborate on product design and development (Cousins and Menguc,

2005). According to Grant (1996) site visits increases the collaboration between buyer-supplier and helps in tacit knowledge transfer.

3.4.5 Supplier's certification

Certification program helps the supplier to improve their performance and use this as a marketing tool for generating further business as well as more recognition by the buying firms (Handfield *et al.*, 2006). Supplier certification has come up as a solution for solving information differences that used to appear between buyers and suppliers (Horngren *et al.*, 2008). Supplier certification decreases the need of deep inspection by the customers as the supplier will be following the standards of certification. An acceptable level of product quality will be produced by the suppliers (Sollish and Semanik, 2012).

According to Darnall (2006) supplier certification is a process which indicates that a supplier has succeeded in achieving several quality requirements. For buyers, certification represents an important value because it strengthens confidence between them and suppliers. This confidence will be translated therefore into a success including the operations and financial situation of the buying company (Chen and Deng, 2013). The supplier certification done by buying company or another external source constantly plays important role by giving more confidence for the buying company to continue doing business with suppliers (Routroy and Pradhan, 2011)

A certified supplier according to Baiman *et al* (1998) is a supplier who passed several investigation phases including its personnel, technology, manufacturing, and operations capabilities. This type of supplier is certified to deliver components and materials without permanent testing of each of the deliveries. Ittner *et al* (1999) noted that in order for suppliers to be involved in a buying companies' activity (for example product design) buying companies put a prerequisite that suppliers must be certified. Stump and Heide (1996) added that supplier certification increase the opportunity for a greater joint action among buyer and supplier because it provides a technique for checking supplier's capabilities and motivation.

In supplier- buyer relationships, certification control has shown its importance due to the positive impact on this relationship (Kalyanam and Brar, 2009). Yet, supplier control has also a negative side for different reasons. Firstly, certification control when applied in rigid manner over suppliers that could be understood as conflicting message towards partners (Gilliland and Manning, 2002). Second reason is about considering that certification control

can be seen as a forced controlling tool which can lead toward reducing coordination between partners (Gilliland *et al.*, 2010).

3.4.6 Quality audits

Sustainable supplier development needs both sides' effort and willingness. Quality audits and engineering assistances are perceived as win-win strategy. Buying firm needs to encourage the supplier to produce a higher quality product and maintain this quality and in case of shortage of necessary engineering know-how, they need to transfer to the suppliers. Moreover the supplier can utilize the learnt quality control and improvement methodologies on other parts or products of its own organization and with other customers (Krause and Ellram, 1997).

3.4.7 Capital and technical support

Buyer assistance towards suppliers can take several forms, where the assistance is the efforts done by buying companies in order to help supplier's to overcome problems, also for the goal to improve its performance and capabilities (Dyer and Chu, 2000). Technical assistance from the buyer towards supplier according to Matthyssens and Inemek (2012) can increase knowledge transfer between two involved parties. Example of technical support could be by sending engineers from buying companies to suppliers with the goal to increase its efficiency (Modi and Mabert, 2007). According to Tungjitjarurn *et al* (2012) technical support is one category of investment that can be done by buying firms because according to Li *et al* (2007) buyer's investments could be by investing directly in a supplier capital or by investing in supplier technical support or training.

According to Krause *et al* (2000) supplier development can take several aspects including providing equipment or capital. (Wisner, 2003) added that supplier development by equipping supplier by technological support, equipment, or even by direct investments. Based on Wagner (2006) findings, transfer of capital resources is much less compared to transfer of human resources from a buyer company towards suppliers. He also found that transfer capital from a buyer to a supplier is quite rare.

3.4.8 Collaboration and trust

Collaboration is a process where two parties or more are involved to find solutions to a problem which cannot be done due to their limited resources or know how (Jassawalla and Sashittal, 1998). According to Yan and Dooley (2014) buyer-supplier collaboration can take several types and forms. These forms could be collaboration quality, inter-organizational collaboration, supply chain collaboration, and collaboration capability (Allred *et al.*, 2011;

Heide and Miner, 1992; Yan and Dooley, 2014; Cao and Zhang, 2011). According to Jap (1999) collaboration requires big investments and also the ability to share sensitive information between both parties and collaboration success is built on goal compatibility between buyer and supplier, shared values, and trust.

According to Nagati and Rebolledo (2013) the climate of trust is essential for working with supplier development as the trust will minimize the risk and uncertainties that exist between customer and supplier. The building of supplier's trust on supplier development program will encourage the supplier to actively participate in the program rather than just take it as the customer's requirements.

3.4.9 Top management involvement

Top-level managers, mainly top managers of the buying firm should perceive the need for supplier development and initiate, thus the importance of top management support in success of supplier development is not deniable, so they are aware of the strategic implications for the company to remain competitive in the marketplace (Hahn *et al.*, 1990). Govindan *et al* (2010) mentioned manager of purchasing function in the buying firms to enlarge their range of resources in operation of suppliers requires top-management inspiration and support. Krause *et al* (1999); Humphreys *et al* (2004) argues various resources, whether financial or human related, must be considered by the ones in-charge at the top of company hierarchy to support those suppliers that are involved in supplier development program.

3.4.10 Procurement from alternative sources

According to Wagner and Friedl (2007) the benefits of switching suppliers lie in reducing costs, and also give opportunities for the development of new products. Li *et al* (2006) says that buying from alternative sources requires involvement of searching for alternative suppliers and buying products from different capable supplier.

Wagner *et al* (2009) argue that purchasing managers should be aware of their purchasing strategy because some of their supplier defaults can have big consequences on the buying firms. Based on the current or future needs of the buying companies, this latter can go for a partial or complete supplier switching depending on its suppliers situation, internal capabilities, and external environment (Wagner and Friedl, 2007). The main barrier of procurement from alternative sources stays the cost which according to Klemperer (1995) is quite hard to quantify. Switching sources cost can be demonstrated in many forms including

the cost of terminating contracts of current supplier, the cost to build up a new partnership and the cost of time consumed (Liu, 2006).

3.4.11 Long term commitment

A successful relationship performance between a buyer and supplier passes through the development of a long term commitment between both parties (Li *et al.*, 2007). The consequences of such a long term commitment according to Sharma *et al* (2006) can result to acquire competitive advantage. Based on the definition of Abu Saleh *et al* (2012) commitment is considered as a factor which contains several dimensions that combine the involved parties. Coote *et al* (2003) suggest that commitment is the main determinant of a company's efficiency, effectiveness, productivity, and long term benefits in terms of financial results from the commitment.

When a manufacturer and a supplier decide to proceed in a long term relationship, commitment is then required from the two sides. Such commitment will be the key facilitator for starting a supplier development program in order to achieve firm s strategic goals (Routroy and Pradhan, 2011). According to Doney and Cannon (1997) information sharing is a fundamental element for building a long term buyer-supplier commitment, because information sharing is the basis for building trust between the involved parties (Ring and van de Ven, 1992). The resulting trust from sharing information will influence reducing unethical behaviors (Eckerd and Hill, 2011).

3.5 Supplier Performance Evaluation

According to Yang (2010) companies are required to improve supply chain competitiveness and this could be accomplished by evaluating and improving supplier's performance.

3.5.1 Performance measurement

Neely *et al* (1995) defined performance measure as, "*a metric used to quantify the efficiency and/or effectiveness of an action*" while performance measurement as, "*the process of quantifying the efficiency and effectiveness of an action*" (Neely *et al.*, 1995, pp.80). According to Langfield-Smith (1997) performance measurement has been an important topic of study especially in the management accounting field, where the focus area cover performance measures, performance measurement systems and frameworks. Simpson *et al* (2002) argued for monitoring the supplier performance as in the absence of established

criteria for supplier evaluation both the company and their suppliers will be unable to meet desired standards of each other. According to Neely *et al* (1995) SMEs manufacturers come across some performance measure issues like which performance measures add more value and the cost of measure as comparison to its outcomes.

In order to motivate supplier to improve its performance, companies utilize supplier evaluation systems (Kraus *et al.*, 2000). For companies being able to evaluate their current suppliers' performance provides them with all necessary information about the possibilities of potential development (Hahn *et al.*, 1990). Modi and Mabert (2006) added that supplier evaluation should take the first place before moving forwards toward any performance improvement program or knowledge transfer.

3.5.2 Supplier evaluation process

Yang (2010) developed a model for supplier performance evaluation based on five dimension or variables; finance, customer service, learning, reaction and manufacturing. Each variable was consisting of different measures. According to Sollish and Semanik (2012) supplier's reviews are conducted by companies to assess the progress of their supplier's performance. The performance scorecard could be utilized to communicate the supplier performance with the perspective of different categories like cost, quality, level of service on time delivery and other. The performance scorecard includes the desired level of performance among different categories and the current level of supplier's performance (Sollish and Semanik, 2012).

Fowler and Graves (2011) discussed the process of supplier selection and categorized that into five steps; identification of importance of supply, performance criteria, allocation of weight to performance criteria, supplier assessment based on performance criteria and finally selection of supplier based on the results obtained. They further argued that the evaluation of selected suppliers is also necessary. The criteria used for selecting the suppliers in step two i.e. performance criteria will be applicable for measuring supplier's current performance level as they have been selected based on that criterion (Fowler and Graves, 2011)

According to Sollish and Semanik (2012) companies need to consider the supplier's perspective and their feedback for improvements. The supplier performance could be improved through developing an effective plan and it mainly based on six important steps; analyzing the current situation and performance level of suppliers, the identification of gaps from expected level of performance, development of improvement plans, implementation of

plan, measurement of improved performance level and finally the continuation of this complete cycle for continuous improvements (Sollish and Semanik, 2012).

Forslund (2007) developed a model for logistic performance management for meeting customers' expectations. The model included seven activities; objective and strategies, definition of metrics, target setting, measurement, analysis, evaluation and improvement process. According to Sollish and Semanik (2012) companies need to decide about type of monitoring technique and schedule of reporting. Supplier review is conducted by the companies through different ways like product testing, supplier site visit and meeting with supplier to identify the causes of performance decline or the improvement areas for achieving the desired objective of the companies from their suppliers (Sollish and Semanik, 2012). According to Simpson *et al* (2002) the results of their study showed that 45.5 percent of the respondent firms do not have formal method for supplier evaluation.

3.5.3 Supplier performance measures

According to Sollish and Semanik (2012) performance measures do not have the core value until they are compared with certain standards. Organizations can use software for monitoring supplier performance. According to Chan (2003) performance measures are also industry specific, different industries have different importance for performance measures however time, delivery service and part specification are important for most of the industries. According to Simpson *et al* (2002) traditionally the evaluation commonly based on price and delivery but now communication and customer relationship are considered important factors for suppliers selection and evaluation. Continuous improvements in design and in quality also have significant importance in supplier evaluation (Simpson *et al.*, 2002).

According to Forslund (2006) logistic performance could be analyzed while evaluating measures such as; on-time delivery, decided lead time, order placement procedure, obtainability of delay information, accurate invoices, accurate orders, inventory availability and rush order fulfillment. The study of Simpson *et al* (2002) identified that firms commonly based their supplier evaluation on variables like supplier certification, quality, distribution factors, relationship factors, facilities and continuous improvements. According to Fowler and Graves (2011) there are different variables which can be considered for assessing the supplier performance such as; price, responsiveness, flexibility, quality, reliability, lead time, specification and other depending on the requirements.

The study of Simpson *et al* (2002) classified the supplier evaluation process based on nineteen categories or variables. The variables are listed here according to their importance in their study results; quality and process control, continuous improvement, facility/environment, customer relationship, delivery, inventory and warehousing, ordering, financial condition, certification, price, staff/customer service, leadership/management, technology, education/training, invoicing, packaging, employees, warranty and location. Each of these variables is measured through different evaluation items or criteria's (Simpson *et al.*, 2002)

According to Talluri and Sarkis (2002) manufacturers have considerable importance for critical components while price is not the only variable of concern between manufacture and their suppliers however the variables like quality, flexibility and delivery also have significant importance. According Simpson *et al* (2002) quality is one of the important factors of supplier evaluation however firms focused on low cost and standard products do not consider quality as most important factor for supplier evaluation.

3.6 Value Added Services

Manufacturing companies are becoming fiercer as the market structure is turning to be more complex. As a result, the challenge of responding to customer requirements, as well as wide fluctuations in the product design, is ever more noticeable. The company knowledge to design and introduce high quality products to market in short-term with low cost, can be considered a key advantage to success in the competitive marketplace. In order to meet these requirements, companies have no choice but to enhance value added products or services (Jiao *et al.*, 2003).

Ravald and Grönroos (1996) define adding something by companies as an additional product factor and supporting service as an added value, like adding technical product structures or service support by suppliers. According to Ravald and Grönroos (1996) concept of adding value is conducted in different approaches which can outcomes to reducing cost for customer. The ability to provide superior value to customers is a prerequisite when trying to establish and maintain long-term customer relationships (Ravald and Grönroos, 1996). Value can be considered as creating mutual phenomena between buyers and suppliers, also value creation are playing significant role in service and understanding value outcome is undeniable. According to Grönross and Helle (2010) value can be considered as productivity advantage for both supplier and customer side, therefore value creation provide support towards the customers.

Berghman *et al* (2006) defined new value creation capacity as a capability to create new business model or basically various business as well as changing the functions and relations in industry or supply chain. Smith and Colgate (2007) demonstrated creation of value for customers are critical function, when new products or service development are conducted. According to Berghman *et al* (2006) companies needs three types of competencies in order to achieve new value creation, these includes; marketing activities for absorbing the external knowledge, general organizational abilities and supply chain/network abilities. In the view of Agrawal *et al* (2012) repeated purchase by customer is linked with the customer value proposition offered by companies. According to Gallarza *et al* (2011) Achievement of customer perceived value increases customer loyalty. Meeting the perceived customer value enhances customer satisfaction which transferred into trust and commitment with the company and that results in customer loyalty (Agrawal *et al.*, 2012).

3.7 Conceptual Model

The conceptual model below gives a general view of the thesis structure. After problem discussion, three research questions were built. Based on the research questions theories where selected including SMEs manufacturing companies, supplier development elements, supplier performance evaluation, manufacturing companies and value added services. The chosen eleven supplier development elements are based on finding from literatures. For supplier performance evaluation more than twenty measures were identified in the literature however the questionnaire developed for semi-structured interview contains thirteen most important measures. These thirteen measures are based on its repetitive availability in the literature and also through brainstorming by authors of the thesis. The empirical data was collected based on conducted semi-structured interviews with the six chosen case companies. Therefore theories and gathered data were analyzed and discussed. The final part of the thesis was devoted to answer the research questions.

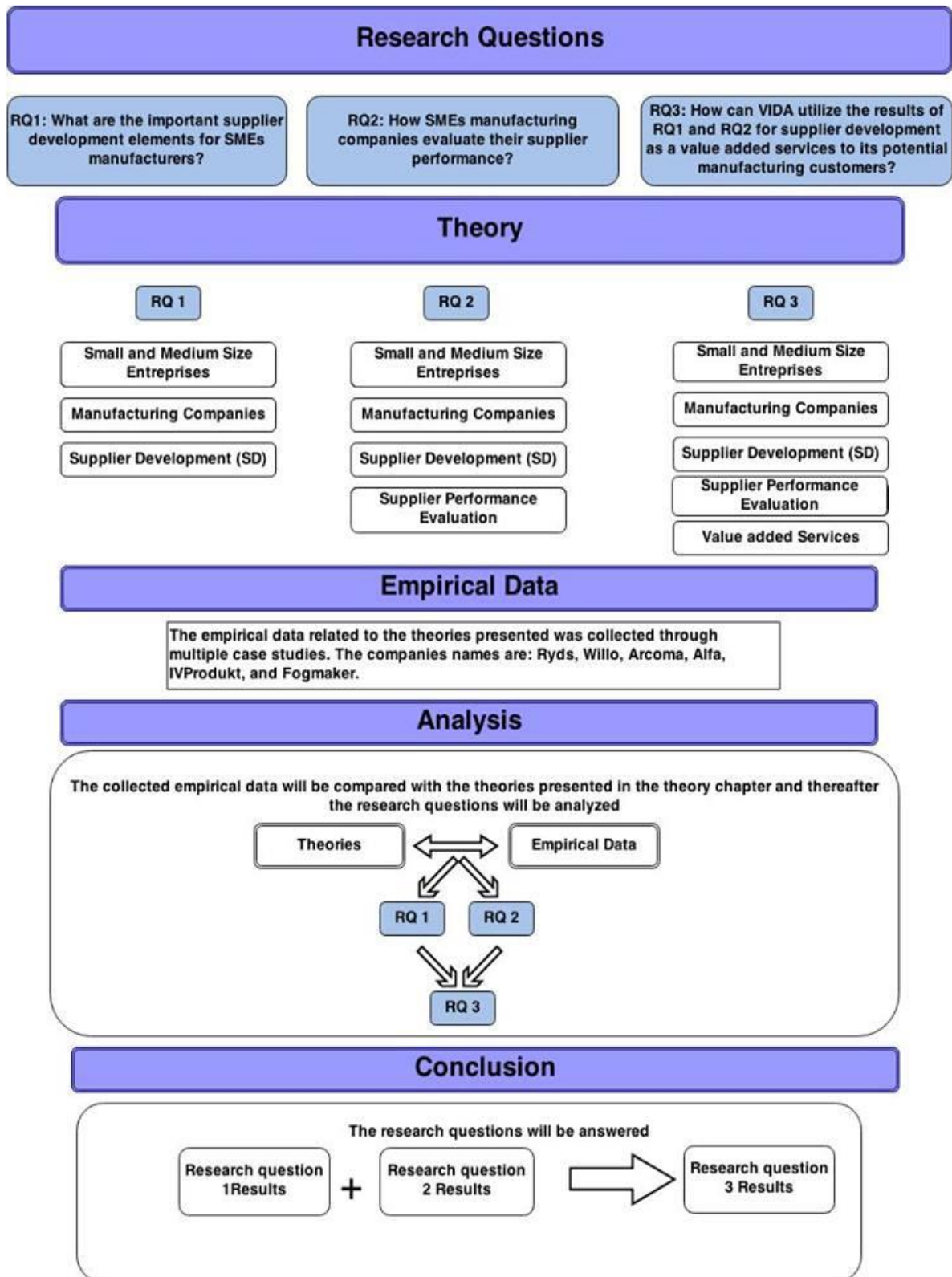


Figure 4: Conceptual model

(Source: Composed by authors)

4. EMPIRICAL FINDINGS

Empirical chapter present the findings gathered from multiple case studies. First, the perspective of VIDA Inspection is discussed then all the empirical from six studied manufacturing companies are mentioned. Information from each case study is divided into four headings; introduction, company's view of supplier development, supplier development elements and supplier performance evaluation.

4.1 VIDA Inspection GmbH

VIDA Inspection services mainly include certification, inspection, verification and consulting services. VIDA guaranty companies, compliance of purchased or traded goods (Products, Equipment and Materials) with the statement in its customers' contracts in accordance with particular norms and standards. VIDA uses other companies' network to cover different countries. Portfolio of services in VIDA contributes companies to enhance their productivity in terms of decrease material shortages, delays, low quality on the one hand and increase customer's satisfaction and contributing firms to maintain long-term relationship with their customers (VIDA Inspection, 2014).

VIDA Inspection is small size startup Company with limited resources; the competition in the market is increasing continuously. VIDA want to have long term relationship with its customers to survive the competitive environment. Now customers want to have value added services in addition to core services. Meeting the perceived customer value require VIDA to be equipped with expected customer services. Customer should feel that they are getting expected level of services in return to what they are paying to VIDA. This customer feeling is essential for satisfying the company's customers. Customer satisfaction will make them to have repeat business with VIDA and this repeat business and goodwill is necessary for VIDA's growth. VIDA has better understanding of their customer's processes and think that proving the supplier development and supplier performance evaluation services to manufacturing companies can have positive impact on VIDA's development. VIDA expect that manufacturing customer will see services as value adding to their processes. VIDA want to add value added services however lack in deep empirical investigation of important supplier development elements and supplier performance evaluation process. VIDA want to satisfy the existing customers and looking for potential manufacturing customers. These value added services will make the current customer satisfy and will attract potential customers for VIDA (Tizro, Managing director, 2014b).

4.2 Willo AB

4.2.1 Introduction

Willo AB has an expertise in metal cutting and was founded in 1956. The company is located in Växjö and has 70 employees. They have the concept of becoming leading supplier of complex critical parts in the market. The company has expertise and advanced machines to meet the customer's challenges. The quality of manufactured parts is very important for the company and the customers can rely on company's products. Willo looks suppliers as the partners and want to establish long term relationship for meeting high standards of quality and error free deliveries. The company has ISO 13485:2003 and ISO 9001: 2008 certifications, and expect from the suppliers to work according to ISO 9001:2008 (Willo.com, 2014). The turnover in 2013 was 86 Million SEK and the current production level is expected to 100 Million SEK for 2014. For meeting the increased demand Willo is investing in building new production facility and will have new production machines. The company is a sub-supplier and work business to business. Willo produces small parts that are used for medical equipment's, energy and for precision (Swanström, Managing director, 2014).

4.2.2 Company's view of supplier development

Willo has long term commitment with their customers and also expect from sub-suppliers to meet the company's expectations. Company has repeated business with the suppliers and there is need to know supplier very well specially for hardening and surface treatment process (Swanström, Managing director, 2014). There are not many problems with the suppliers as company's customers have 98 percent on-time delivery, and problems that company faces are mainly due to the mistakes made during supplier's processes. The company wants an active relationship with the supplier as the good experience with supplier is very important. The company does not want to change their suppliers as long as there are no big problems. Willo mainly have new supplier when receive new assignments from customers (Grahn, Administration manager, 2014).

It is important to work with supplier as it helps to avoid the problems and will decrease the cost of reclaims made. Communication with the supplier is very important as it provides the opportunity to understand each others perspective. Problems in supplier's supplies results in disturbance in production process and causes delay to customers. Supplier back up will be good for company as it will decrease dependency on supplier. Willo want to have the control of the supplies as it affects Willo's performance. Suppliers are responsible and have their

checks on the supplies however Willo also want to ensure that the supplies meet the specification as efforts should be from both sides (Grahm, Administration manager, 2014).

Willo want to grow and will have specialized personnel and systems to have better control of the processes as they grow. Working with supplier will not only improve the supplies however the problem in supplies could be seen in advance and that will lower the reclaim cost. Small and medium size companies have better control and the personnel take active responsibilities however bigger companies require systems to control the processes. Small and medium size companies need to calculate and prioritize the work as the resources are limited. Companies are more motivated to work and invest provided that payback is visible to them (Grahm, Administration manager, 2014).

4.2.3 Supplier development elements

The communication with suppliers is through email, telephone and through meetings. Willo have higher expectations with their suppliers as they understand (Swanström, Managing director, 2014). Willo communicate with suppliers as problem arises in supplies, it is important to solve the problem as company has repetitive supplies from suppliers (Grahm, Administration manager, 2014). So the communication is important to be as clear as possible, suppliers written agreements also improve that (Swanström, Managing director, 2014).

Willo is specialist in their field and requires their suppliers to be specialist as well; so no training program is offered to suppliers. Through dialogue company communicate and make suppliers understand what is required and why it is needed, and then Willo expect the improvements from the supplier's side (Swanström, Managing director, 2014).

Willo involves suppliers when gets new product from customers and look for sub-suppliers who can provide the specifications with high quality and low cost. Company can propose the improvements to customer's product based on the discussion with suppliers especially for good hardening and surface treatment process. There is very little room for change as the product mainly decided by the customers. Company share information with sub-suppliers and have confidential agreement with them so Willo does not have the risks for sharing the important information (Swanström, Managing director, 2014).

Willo conduct supplier's site visits as it is important for different reasons, especially in beginning of the new project when there is need to see supplier's capability of dealing the with processes. It also provide the possibility to conduct the informal audit and see that they

have the right knowledge, equipment and process control and do what they are supposed to do. Company also verifies the product specification and look that the suppliers have the required human resources. Willo expect entire supplier base to be live up to ISO 9001 and follow what is in ISO 9001 even if they are not certified. Willo does own certification in a way by getting material certificate from supplier when deliveries reach at Willo, as suppliers need to show that they have done it in a correct way (Swanström, Managing director, 2014).

Willo reviews their supplies base annually and decide that we can continue with the current supplier or not. Quality audit of suppliers are conducted in informal way however there will be developed more structured and formal way of conducting quality audits of suppliers. Willo is specialized and have sub-suppliers that are also specialized in their areas; however company still have technical dialogue with them instead of supplier investment as they are already specialized in their areas. Supplier collaboration in term of quality is more important for Willo. The company's management is aware of the impact of supplier development. Willo usually have backup of some suppliers (Swanström, Managing director, 2014).

Long term commitment is important for the company. Willo wants to do good business with customers and make them satisfied, as it is difficult process to find new customers. Company wants to be good supplier and also want its sub-suppliers to meet Willo's expectations. There are also few formal commitments with suppliers. Company sees long term cooperation and hopes the long term cooperation from supplier side. Company is aware of the problems that are faced and expects suppliers to improve and provide required level of quality (Swanström, Managing director, 2014).

Table 4: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree		5= strongly Agree		
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.2.4 Supplier performance evaluation

Willo continuously follow supplier performance as the supplier performance affects the production process, quality of the product and delivery to customers. Company has the experience as they are aware of what type of problems can arise from supplier's side (Grah, Administration manager, 2014).

The company has yearly meeting for supplier performance evaluation. Meeting includes personnel from different departments such as production, purchasing and concerned departments. Company has approximately 450 suppliers; 20 percent of the suppliers include 80 percent of the value while 80 percent of the suppliers add 20 percent of the value. Meeting mainly includes the evaluation of the suppliers which are important and add more value to company's products. The progress of major suppliers is discussed in meeting based on the claims that have come from supplier during the year. The meeting results into a list which consists of different actions based on supplier's performance; it can include meeting with supplier for discussing the problems or discontinuation with the current supplier which is very rare (Grah, Administration manager, 2014).

Willo also looks for monthly reclaim Euro value of the suppliers and have continuous discussion with the suppliers. Open communication with suppliers help to solve the problem at initial stages else it can affect continuously due to repeat supplies from suppliers. Site visits could also be conducted to solve the problem. Whenever suppliers have certain problems, they also ask Willo to provide input for solution of the problem. Supplier's performance evaluation is continuous processes during the year and in yearly performance evaluation Willo summarizes the results and prepare the action list (Grah, Administration manager, 2014).

Table 5: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance		5= High Importance		
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

4.3 Ryds AB

4.3.1 Introduction

Ryds is a leisure boats manufacturer located in a town called Ryd, Sweden. The company was established in 1949 starting making fishing equipment, skates, car toys for kids and hokey gloves. By 1960 Ryds started producing small boats and since then they have produced more than 180000 units divided into four different boats segments. Nowadays, Ryds is considered as one of the largest manufacturers of small size leisure boats and also one of the most popular in the Nordic countries (Ryds, 2014).

During years of its existence the company owned by different owners including big companies like Volvo or sometimes private owner which is the case at the moment. The company employs 23 persons of which 19 in the production. The main market of the company includes Sweden, Norway, and Denmark. Ryds represent between 20-25 percent of the Swedish market. The company's strategy is based on cost control efficiency. But on the top of that, environment, quality, and safety are the main priorities within the company (Kühne, Managing Director, 2014).

4.3.2 Company's view of supplier development

Ryds have around five hundred suppliers however there is a tendency to reduce the number of the company's suppliers and replaced with system suppliers and it is not that easy task due to

the small size of Ryds. Within the company, there is possibility to have system suppliers in some areas (supplies of stainless steel) because the company changes suppliers from time to time. For plastic supplies there is no meaning for the company to use system supplier, the reason behind it is that suppliers of such material offer the same quality and services, so the only thing that matters for the company is the price. Out of the total number of Ryds' suppliers ten of them are the most important, including stainless steel, electronics, engines, winches, plastics, fiber glass. Ryds' most suppliers are locals (Sweden), but for some materials the company also deals with suppliers from Europe, and also from other parts of the world (e.g. USA, Egypt) (Kühne, Managing Director, 2014).

At Ryds, beside price the things that suppliers can affect the company's products and performance is their ability to keep their promises of deliveries on time with required quality. So the delivery time is the main problem what the company faces from the suppliers. In most cases, and in order to deal with such problem the company does not ask suppliers to pay penalty fees due to limited ordered quantities from them, instead Ryds ask them to have some safety stock in their inventory to avoid the same thing to be happen again. If they are not able to do so, Ryds needs to keep some safety stock in house or somewhere else (Kühne, Managing Director, 2014).

Ryds believe that investing on suppliers can improve supplies from them however due to the small size of the company they have done investment on one new supplier (Stainless steel) in an indirect way. They managed to do this by promising the new supplier to buy all of the company's stainless steel materials from them if they will invest in a new machine that will produce the parts what the company is willing to buy. The reason behind this reaction is because Ryds current stainless steel suppliers do not want to decrease their price and that is why there was a desire to search for a new stainless steel supplier (Kühne, Managing Director, 2014).

From the company's point of view and because of the company's limited resources being as a small enterprise, as well as the low volumes ordered from suppliers, the company believes that in matter of suppliers' development, suppliers should rely on themselves so they have to be good on what they are doing. On the other hand, the company believes that if they have more resources that allow them to be involved in supplier's development could help them in reducing costs. Beside the limitations of small companies, Ryds also benefits from the status of being a small enterprise in matter of efficiency, flexibility when taking decisions,

multifunctional employees, and low salaries compared to big companies (Kühne, Managing Director, 2014).

As a small company, Ryds think that the best way to effectively implement supplier development is to work with small size suppliers, in other words suppliers should be at the same size of the company or even smaller that will make the power balance between the two parties equal. In this case both parties the company and supplier will feel the importance of one to another and then the communication will be better between them. Another way to effectively implement supplier development is by being a part of a big supply, meaning that the company's suppliers supply the same components to large companies, so small companies can benefit from using the same type of materials to get good quality and price same as big companies (Kühne, Managing Director, 2014).

4.3.3 Supplier development elements

At Ryds communicating with suppliers is mainly done through e-mails, telephone and Fax. Due to lack of communication with suppliers that can cause the company some problems, for example it might happen that one of the suppliers knows that they cannot deliver required materials on time and on top of that they do not inform the company beforehand. This can create different problems for the company, because then the company can come under pressure to make some changes in the production and rescheduling. To solve communication problems with suppliers the company always send e-mails and make calls, but if it does not work then they try to arrange meetings with the suppliers (Kühne, Managing Director, 2014).

Ryds have not been involved in any kind of offering training to any of its suppliers and also they are not planning to do that in the future, because they believe that suppliers should be competent in their fields, so Ryds' role is limited to ask them what are the company's requirements and therefore supplier's job is to supply the company with required materials and equipments. From Ryds' experience there were many evidences that certain improvements have been made based on their recommendations related to products specifications (Kühne, Managing Director, 2014).

When developing new boats some of Ryds' suppliers are directly involved, this can be beneficial for the company for making the cost down which can be reflected later on the company's market position. At the same time the small size of the company can create some limitations because in most cases Ryds is not the main customer of their suppliers. Sometimes this might slow down the process of developing a new products, and therefore it can take a

longer time compare with what they have been planned due to long delivery time from suppliers. Another possible undesirable issue of involving suppliers in a new product development is the risk of losing the exclusivity of some of Ryds unique techniques to other competitors. Beside these the company is in favor for suppliers to be involved in product development as they are using almost the same processes compared to other boats manufacturers. In Ryds strategy for the future suppliers will be involved whenever there will be a new boat development project (Kühne, Managing Director, 2014).

At Ryds as a small boats manufacturer supplier's site visit is not very important. Supplier's site visit is done only during price negotiations otherwise they do not visit suppliers' sites on regular basis, because they are convinced that it will not add any value to the company due to limited demand from suppliers compared of the supplier site visits benefits for the car industry for example. The company does not see that it is necessary that all of their suppliers should be certified, but it is very important that some materials involved in boats production are certified. As an example, wood products should be FSC certified, and also chemical products should correspond to the standards (Kühne, Managing Director, 2014).

Concerning quality auditing, the company does not apply any kind of measures to monitor its suppliers' quality conformance because once again because of the small amount of purchased materials from suppliers. Of course trust is important between Ryds and its suppliers, where sometimes trust is respected but sometimes it is misused by suppliers because it happened that one of the company' suppliers used to supply Ryds with product with as much as the double of its normal price. Management has the focus to improve and work with supplier. Ryds does not rely on attentive supplier sources due to low volume of supplies. Ryds is involved in long term commitment with its suppliers even they cannot see any benefits from such commitment (Kühne, Managing Director, 2014).

Table 6: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree			5= strongly Agree	
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.3.4 Supplier performance evaluation

There is no doubt that supplier's performance affects the company's products. The most important supplier's performance elements that affect the company are delivery time, quality, and the most important stay always the price. As Ryds is a small company it is hard for it to evaluate supplier's performance and therefore they do not follow any model for evaluating supplier performance. In case of certain problem Ryds directly contact with supplier and send them their deliveries back if needed (Kühne, Managing Director, 2014).

Table 7: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance			5= High Importance	
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

4.4 Arcoma AB

4.4.1 Introduction

Arcoma AB is at interchange of technology, functionality and design. The company utilizes combination of ergonomic Scandinavian design with engineering to produce innovative radiography systems and components. Arcoma was founded in 1990 by two entrepreneurs. The company is located in Växjö, Sweden and has its headquarters in U.S and Canada (Arcoma.se, 2014). Company has around 50 employees and has three main customers namely Fuji Film, KonicaMinolta and Canon which are buying 70 percent of their finished product. The Company's turnover during last year was approximately 140 Million SEK (Mustafa, Purchasing manager, 2014).

4.4.2 Company's view of supplier development

Arcoma has approximately 400 suppliers among which 130 suppliers are delivering to the serial production and these are classified into three categories A, B and C based on purchasing volume. Arcoma has three approaches to select and categorize suppliers that are serial production, spare parts and tools suppliers. Category A supplier covers 75 percent of purchasing, 10 percent of the purchasing is assigned to suppliers B and the rest of them are categorized in suppliers C. Suppliers are both national and international. Arcoma is dependent on their suppliers as they affect company's performance and success in term of on-time delivery and required quality. The main problem with suppliers is on- time delivery. The order is placed based on three months lead time considering recommendation of marketing department yearly forecast (Mustafa, Purchasing manager, 2014).

Arcoma needs to have suppliers that are specialist in their filed for product development and can deliver on-time, with high quality and at good price. Dependency on suppliers can be regarded as a barrier for the company. By being medium size company Arcoma thinks that low volume is the main limitation when dealing with suppliers while no bureaucracy structure and fast decision making could be regarded as benefit for the company. Since Arcoma is an innovative company and many big companies wants to be Arcoma's suppliers and want to use Arcoma's name as their customer. Arcoma is trying to take big customers and wants to grow along with those customers. The company wants to reduce supplier base and is more tilted towards system suppliers (Mustafa, Purchasing manager, 2014).

4.4.3 Supplier development elements

Arcoma communicates with its suppliers mainly by e-mail, phone and Scala system. Moreover, the purchasing manager has meeting with suppliers A and B every year. Meetings with suppliers can be considered as a measure to improve the communication with suppliers. Arcoma does not provide any training to its suppliers as they are already specialist in their fields (Mustafa, Purchasing manager, 2014).

Company is trying to extend and uses its suppliers for new product development. As company has limited resources in R&D department and mainly want to focus on core competencies, this could be considered as a benefit, on the other hand there is no more risk involved while involving supplier into product development due to agreement with them. Arcoma has regular site visit of supplier A and B each year. By visiting site and face to face meeting with suppliers, company accesses the improvement in production, quality of the processes and equipment. Price could be also discussed during the visit. According to Arcoma policy, suppliers must be certified based on ISO 9001 as it will improve their quality (Mustafa, Purchasing manager, 2014).

Arcoma with the support of quality and purchasing department conducts quality audits annually and make the supplier aware of their deviation form quality standards, service level and deliveries. The audits could also be conducted any time if there arises some problems. Arcoma does not provide financial and capital support to its suppliers. When it comes to technical support, company helps the suppliers by testing and evaluating prototypes and components. Trust and good communication are important factors while working with suppliers. Arcoma's management is aware of supplier development importance and prefers to make partnership with suppliers. Company uses alternative sources for simple parts and not for critical. Arcoma uses purchasing agreement based on supplier categories; one year for supplier C and three to five years agreement with suppliers A and B. Arcoma believes that stability and sustainability can be benefit of having commitments with the suppliers (Mustafa, Purchasing manager, 2014).

Table 8: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree 5= strongly Agree				
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.4.4 Supplier performance evaluation

Suppliers' performance affects the company's performance in terms of delivery performance, quality and cost. Company follows its own model to evaluate the supplier's performance. Company communicates performance evaluation with their suppliers twice a year. Company's quality and purchasing department conducts annual internal review of supplier's performance and investigates quality and service level of the suppliers. If supplier performs out of agreement then company asks them to follow the contract, if it happens continuously, company will continue with new supplier (Mustafa, Purchasing manager, 2014).

Arcoma has specific division for technical purchases which is divided in two groups; one is responsible for buying equipment while other is responsible for measuring supplier performance. Arcoma has up-to-date balance scorecard that reviews monthly supplier delivery and quality performance. The important aspect while evaluating supplier performance is stable suppliers with good economy. Supplier must have company structure that can meet Arcoma's requirements. Arcoma considers supplier's feedback for improvements. For the company quality is the most important followed by delivery and price (Mustafa, Purchasing manager, 2014).

Table 9: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance		5= High Importance		
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

4.5 Fogmaker International AB

4.5.1 Introduction

Fogmaker International AB is a Swedish company located in Växjö. The company was founded in 1995 and they specialized in manufacturing and distributing of high pressure fire suppression systems with water mist for engine compartments. The suppression system produced by the company is characterized by its uniqueness extinguishing performance as it both cools down and chokes the fire; at the same time as the foam additive effectively prevent the fire from reigniting (Fogmaker.com, 2014). Fogmaker is the European leader in their field and they have customers all over the world. They have sold over 85 000 suppression systems and their main customers are in the automotive industry especially buses, as well as mining machines, forest machines and boats. Some of the main Fogmaker's customers are Volvo buses, Caterpillar, and Conecranes (Mörk, Purchase Manager, 2014).

The company has 33 employees, and in 2013 the turnover was about 30 Million Euros. The company is certified ISO 9001 and ISO 14001. Due to the regulations that govern the American market, Fogmaker has a franchise in USA called Fogmaker North America, where some parts of the system are sent from Sweden and then assembled in the US. 80 percent of the customers are from buss industry sector and also 80 percent of the company's production

is exported. Fogmaker sees potential for growth in Australia, Turkey, and Latin America (Mörk, Purchase Manager, 2014).

4.5.2 Company's view of supplier development

Fogmaker has about 50 suppliers, the reason why the company has such few amount of suppliers is because the low volume they use to produce in the past. Fogmaker's supplies used to be done through intermediary agents, but as now the produced volume is increasing year after year they are thinking to surpass current agents and be in a direct contact with suppliers. This new strategy will increase the company's suppliers in the future. Among current 50 suppliers 10 represents Fogmaker's major suppliers. The majority of the company's suppliers are located in Sweden however some suppliers are international (cylinders from Turkey) (Mörk, Purchase Manager, 2014).

Fogmaker think that suppliers have an impact on quality of their products and Fogmaker have good advices from suppliers which can help the company's product development. On the other hand, the main problem for Fogmaker in their relation with suppliers remains the delivery time and quite rare quality problems. To deal with the delivery time problem Fogmaker keep some safety stock in – house. There is a common believe within the company that working with suppliers can definitely improve supplies from suppliers however there was no investment done by the company on its suppliers (Mörk, Purchase Manager, 2014).

Fogmaker consider supplier development as very important, however due to small size of the company they do not have enough people to work just on it as most of the company's human resources works with multiple tasks. Fogmaker believe that supplier development can lead to improve their supplier's processes, reduce cost, and minimize the lead time. The company think that supplier development can have barriers like suppliers do not want to be involved in such project and therefore they do not want their clients to be so near, they do not allow others to know their processes because they have other customers as well (Mörk, Purchase Manager, 2014).

4.5.3 Supplier development elements

For Fogmaker, communication with suppliers is mainly done through e-mails, phone and suppliers also have regular visits at Fogmaker. Supplies orders are placed through e-mail and rarely by fax. Lack of communication with suppliers appears when the company switches suppliers and some issues might appear when the company develops a new product, these

situations could lead to some quality problems. In order to improve communication with suppliers check lists or forms are usually used (Mörk, Purchase Manager, 2014).

Fogmaker does not provide training program to their supplier except the information what they get while visiting Fogmake's facility however they are in preparation to develop a new training program for selling agents. The company has witnesses that certain improvements have been made by suppliers based on the company's recommendations. The most recent one is back to the improvement done for one part of the system which shows some rust and based on Fogmaker's recommendations (Mörk, Purchase Manager, 2014).

The involvement of suppliers on product developments is a common practice for Fogmaker however the involvement is done just in the late stage of the development program when prototypes are ready. Supplier's involvement in product development can be beneficial for both parties, because this will give the ability for suppliers to improve their processes and for the company to get good quality product at the best possible price. Fogmaker do not see risks of involving suppliers in products development because they do not have much competitors worldwide (three in total), also to decrease the risks to the minimum the company has a signed documents together with the suppliers where all obligations are mentioned (Mörk, Purchase Manager, 2014).

A Supplier's site visit is an important element for Fogmaker, regular supplier's site visits are conducted by either the purchasing manager, production manager or the CEO of the company. The benefits of site visits are many for example it gives the opportunity for personals to have an idea of their suppliers working processes, are they respecting the quality norms etcetera. Suppliers' site visit could also help to identify production wastes in terms of waiting, products defects and therefore eliminate them (Mörk, Purchase Manager, 2014).

Supplier's certification does not present a priority for the company, but of course they wish that all their suppliers are certified. At the company they think that a certified supplier can assure that standards have been respected by suppliers. There is always plan to ask suppliers to be certified especially suppliers who supplies critical parts for the company, on the other hand for other suppliers they do not see any urgent or even necessary need for them to be certified. The company does a quality audit to monitor its suppliers once every second year, supplier's auditing includes their economy situation, quality, environment, logistics, and development. Based on the findings, decisions are then taken of what should be done next (Mörk, Purchase Manager, 2014).

It is mostly that Fogmaker does not provide any technical or financial support to their suppliers. Collaboration quality, delivery time, and price represent types of collaboration what are important for the company's interest. Fogmaker's management is aware of supplier development importance and is involved directly on activities related to supplier development. Fogmaker has several alternative suppliers for some of their supplies however they are planning to develop the concept to achieve having alternative suppliers for their critical and important materials to increase the flexibility of the company to deal with its customers demand. Fogmaker in most of the cases is engaged in one year long commitment with their suppliers. This type of commitment with suppliers give the ability to supply the required materials based of the company's forecast which is updated every 3 months (Mörk, Purchase Manager, 2014).

Table 10: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree			5= strongly Agree	
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.5.4 Supplier performance evaluation

Fogmaker does evaluate some of their supplier's performance; the reason why they do not evaluate all suppliers is because the limited capability of the company's current ERP system which cannot handles all evaluation tasks. To solve this issue they have hired new quality manager who can manage such tasks in the future. The model used for evaluating supplier's performance is basically the same what is used during the auditing process and the company practice supplier's evaluation whenever there is a new supplier as well as for the current suppliers. Fogmaker continuously follow delivery from their suppliers and have a look on supplier's performance and improvements. To communicate supplies problems with their suppliers the company use what is called HD report. It is sort of report that help tracking the

sources what causes the problems and the person responsible of such tasks is the quality manager. Fogmaker consider supplier's perspective and feedbacks, while evaluating supplier performance the most important aspects for Fogmaker are quality, supplier's economic situation, supplier's future development, delivery time, and price (Mörk, Purchase Manager, 2014).

Table 11: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance			5= High Importance	
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

4.6 IV Produkt AB

4.6.1 Introduction

IV Produkt is producing air handling units and is located in Växjö, Sweden. The company has 204 employees; turnover was 57.7 Million Euros in 2013 and was founded in 1969. The company has mission to develop and manufacture air handling units for meeting customer's needs. IV Produkt wants to manufacture products that are cost efficient, energy efficient and environment friendly. IV Produkt has special concern for quality and environment; quality is improved by meeting expected operational demands and annual improvement targets are also set, environment awareness is highlighted in company, selection of material and production process considers environmental aspects. IV Produkt has quality and environment certifications; ISO 9001:2008 and ISO 14001:2004 respectively (IVprodukt.com). IV Produkt has good profit and customers are satisfied. The company is growing and investing in new

machines and buildings. IV Produkt has the expectation for doubling the turnover till 2020 (Gustavsson, Purchase manager, 2014).

4.6.2 Company's view of supplier development

IV Produkt approximately has 200 suppliers and 20 percent of these suppliers have 80 percent of the value of supplies. Mainly the suppliers are from Europe and one of the biggest suppliers is from Germany which supplies fans and motors for IV Produkt. IV Produkt customers are mainly from construction companies in Sweden while 25 percent of the customers are from outside like Denmark and Finland. IV Produkt wants to have close relationship with its suppliers as this help them to know early about supplier's future progress and their impact on IV Produkt. The relationship will help them in product development and will provide opportunity to discuss the problems. It will also help them to know about what is happening on supplier side and will improve the communication (Gustavsson, Purchase manager, 2014).

IV Produkt has invested 60 Million SEK for development in construction and in new machines. Company has good financial condition and has the plan to grow and double the turnover till 2020. The capital stays in company as it is owned by local owner. The IV Produkt has good product at good price and performing better than the competitors, it also own 35 percent of Swedish market share. Being a medium size company, IV Produkt enjoys the faster decision making and reduced new product development time. The communication in the company is faster and processes are easier to control (Gustavsson, Purchase manager, 2014).

4.6.3 Supplier development elements

IV Produkt considers communication as one of the important element that affects supplier performance. Research and development requires a better communication with suppliers at early stages of product development. Mainly the communication is through mail, telephone, fax, EDI and visits. IV Produkt has good communication level with its suppliers however in rare cases some language barriers could affect the communication process. No more numbers of trainings are provided to suppliers however in some cases suppliers may require special trainings (Gustavsson, Purchase manager, 2014).

New product development is important company's success and 25 percent of IV Produkt employees are involved in product development. It is very important to involve suppliers into product development as their involvement in product development can have impact on product specification improvements and cost reduction. Suppliers can suggest in initial stages

of product development, how they produce in better and right way as they possess the expertise and experience. There are no more risks associated with suppliers when involving them into product development (Gustavsson, Purchase manager, 2014).

In some cases IV Produkt conduct supplier site visit however mainly the suppliers visits IV Produkt. The discussion with suppliers improves the technical problems in supplies. Supplier site visit provides the possibility to assess the suppliers, see the production facility and meet the supplier's personnel. As IV Produkt want to have long term commitments with their suppliers and supplier site visit helps to evaluate the suppliers and build image of the supplier's company. IV Produkt is ISO 9001 and ISO 14001 certified. It is good for IV Produkt if the suppliers are certified as it will help to improve product quality and raises trust with suppliers. The company relay on its own supplier certification. IV Produkt mainly does quality audits when there exist some quality issues and have the documentation for that (Gustavsson, Purchase manager, 2014).

Mainly small and some bigger companies are suppliers of IV Produkt. The economy of supplier could impact IV Produkt so IV Produkt considers the economy of suppliers and supports their suppliers in some cases. IV Produkt wants to have good collaboration with suppliers particularly for quality as suppliers are connected with 40 percent of the turnover. The management of IV Produkt is aware of supplier contribution for achieving the company's objectives. IV Produkt wants to have alternative sources of suppliers to reduce the dependence on suppliers and for having batter choices of supplies for their products. IV Produkt want to have long term and short term commitment with their suppliers and this commitment depend on supplies for company's product. IV Produkt want to work with their suppliers on long term basis as it has different benefits and will impact on quality, logistic and communication with suppliers (Gustavsson, Purchase manager, 2014).

Table 12: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree			5= strongly Agree	
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.6.4 Supplier performance evaluation

Supplier performance has an impact on IV Produkt and it is very important for suppliers to meet IV Produkt requirements. Supplier performance level improves the trust as the company want to have long term commitment with suppliers. Measurement is important however in some case it is very important to measure the supplier performance. Quality is one of the important factors for IV Produkt, followed by delivery at right time and then the price. Technical specifications of the supplies are important as it affects the quality of the product. Technical department measures the product specification and quality problems are solved by discussing with suppliers. Delivery problems also require the discussion with suppliers and they are asked to make the deliveries on right time (Gustavsson, Purchase manager, 2014).

IV Produkt do not follow specific model for supplier performance evaluation however supplier performance evaluation is based on the product requirements and specifications. IV Produkt continuously follows supplier performance and has special measurements in case of new product. It is important to understand supplier perspective and know the facts from supplier side to find the solution of the problems (Gustavsson, Purchase manager, 2014).

Table 13: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance			5= High Importance	
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

4.7 Alpha AB

4.7.1 Introduction

Alpha is a manufacturing company produces battery-charger for vehicles, boats and industrial applications (Alpha.se, 2014). Alpha is a part of Beta AB group which has the turnover approximately 28 Million Euros in 2012, part of Beta AB can be seen as an advantage for Alpha, and so the customer looks Alpha as a strong business partner. Alpha has 10 employees with 6 Million Euros turnover in 2013 and is located in Växjö. The quality of products is important for the company therefore, Alpha has certified to ISO 9001. Company's suppliers are mainly internal (i.e. from Beta's other parts) however there are still number of external supplier that are not as important as internal suppliers. Alpha's major customers are Volvo, Scania, Ambulance manufacturers and Fire-trucks producer (Alpha, Managing director, 2014).

4.7.2 Company's view of supplier development

Alpha has approximately 30 suppliers that divided into major and minor suppliers. The major suppliers are consisting of three suppliers that are all part of Beta group and are located in China, Finland and Sweden. Minor suppliers which provide components with less importance and can be purchase from alternative suppliers and close relationship with them are not of much significance for the company. Suppliers play crucial role for Alpha and can effect on

company's performance. The main problem company is facing with its suppliers is only on-time delivery from China due to the shipment delays. The new and better routine as well as regular improvement can be considered as a solution for Alpha to deal with problem. Working with suppliers can improve the supplies from supplier through understanding both sides routines and processes, therefore communication with suppliers is important to eliminate misunderstanding (Alpha, Managing director, 2014).

Having good relationship with suppliers to improve the process is very important for the Alpha. Increasing the quality of the products and at the same time decreasing the cost can be considered as a benefit of supplier development from company's perspective. As a small company, Alpha thinks that flexibility and effective lead-time for project are the outcome of supplier development. One of the barriers of supplier development could be that suppliers have different goals and directions and not aligned with company's perspective. Small companies have the limitation to work with supplier development as the big companies have the more resources to work with that and low volume of supplies could be seen as another barrier (Alpha, Managing director, 2014).

4.7.3 Supplier development elements

Alpha communicates with its suppliers mainly through e-mail and phone, to link with internal suppliers company use ERP system, company is also equipped with Office 365. Lack of communication with suppliers can be the problem for company and to improve the communication between parties, company has measure such as routines and documents to evaluate the progress of work. Alpha does not provide any training to its suppliers and believes that effective communication with supplier is more important. Alpha believes that if there is something wrong from supplier's side they need to solve that problem based on company recommendation in order to improve product quality and specification (Alpha, Managing director, 2014).

Alpha is involve to product development with its suppliers, having knowledge in specific area and utilize that knowledge together, the outcome of it can be seen as a benefit for company's market. Incorrect input from the market is limitation for company to involve the suppliers in product development. Alpha has regular supplier site visit. Site visit can be beneficial for the company for the improvement of the product and solving the problem from supplier site as well as to solve the communications problem (Alpha, Managing director, 2014).

For Alpha having certified supplier is important in order to be sure if they have routines and they can work, internal suppliers of Alpha are also certified. Following the certification by supplier can be beneficial for the company and Alpha rely on the ISO 9001. Alpha conducts quality audit to monitor the supplier quality conformance. Alpha does not supply financial support to its supplier however provide technical support to its supplier when required by suppliers. Company has planned to continue the technical support in the future as well (Alpha, Managing director, 2014).

Collaboration with supplier is based on trust and company also has legal documents to control the suppliers. Alpha's management is aware of the supplier development importance since it effect on company's performance. It is not usual for the Alpha to use alternatives supplies for main products however company can have alternative sources for minor supplies. Alpha has long-term commitment with internal suppliers and having commitment with supplier can be beneficial for the company from stability and sustainability point of view. Alpha believes that in long-term relationship with supplier both parties can know each other better, their expectations are reveal for both parties as well as they know the business well and work in better way (Alpha, Managing director, 2014).

Table 14: Elements level of agreement from company perception

No	Elements	Level of Agreement				
		1= Not Agree			5= strongly Agree	
1	Communication	1	2	3	4	5
2	Knowledge transfer and training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5

4.7.4 Supplier performance evaluation

As supplier's performance affects the company product, Alpha continuously follows a special model based on ISO standards to evaluate its suppliers. Evaluating suppliers carry out once a year for both internal and external suppliers. Conducting supplier performance evaluation

Alpha consider delivery time i.e. whether suppliers fulfil the company's delivery expectation and reclamation ratio to show amount of faulty units by suppliers. Alpha also has monthly meeting for discussion of problems and improvements (Alpha, Managing director, 2014).

Alpha considers supplier's perspective and feed back to improve the performance since the suppliers have knowledge on their area. Since the Alpha is a small company so they do not have special division for monitoring supplier's performance. While evaluating the suppliers performance, reclaims, quality and delivery accuracy are the most important aspects. For Alpha quality is the most important measurement, followed by price and delivery is relatively important (Alpha, Managing director, 2014).

Table 15: Performance measures and their level of importance from company perception

No	Elements	Level of importance				
		1= No Importance		5= High Importance		
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5

5. ANALYSIS AND DISCUSSION

The analysis and discussion chapter is based on the literature review and empirical finding from six studied SMEs manufacturing companies. The chapter comprises of three sections; Supplier development and value added services, supplier development elements and supplier performance evaluation.

5.1 Supplier Development and Value Added Services

Supplier development has become essential for manufacturing companies to survive in competitive market. Manufacturing companies are under permanent pressure to improve quality and reduce the cost. Now companies see new opportunities by focusing on core competencies and strengthen collaboration with suppliers (Chavhan *et al.*, 2012). Willo wants to have active relationship with their suppliers as it will help them to reduce the problems and that will be reflected in reducing the cost (Grahm, Administration manager, 2014). From Ryds perspective in addition to price suppliers have the impact on delivery of supplies (Kühne, Managing director, 2014). According to Arcoma the company's level of performance is related to supplier's ability to deliver high quality supplies and meet delivery time requirements (Mustafa, Purchasing manager, 2014). In the view of Fogmaker supplier development has the impact on quality, performance and product development (Mörk, Purchase manager, 2014).

IV Produkt wants to have close relationship with its suppliers as it will help them to have better view of supplier progress and how can that affect the company's performance. It will also provide an opportunity for improvements and new product development (Gustavsson, Purchase manager, 2014). From Alpha point of view supplier development have an impact on quality, cost and process improvement (Alpha, Managing director, 2014). Manufacturing companies look at supplier development from their own perspective; for some companies it provides opportunity for improvements, for some it helps them to increase level of quality, decrease cost and in time delivery. For some companies it helps them in product specification improvement or product development. Manufacturing companies mainly consider quality, cost and flexibility as their competitive priorities (Bellgran and Säfsten, 2010). For all of the studied companies quality represents their competitive priority and followed by cost. Bellgran and Säfsten (2010) also discussed different decision that manufacturing companies take to meet the competitive advantages like decisions related to equipment and facility, product

development, production planning, leadership and labor specialization. Willo and IV Produkt have taken the decision to invest in new buildings and machines.

Organizational flexibility, innovation potential, personalized management is the characteristics of SMEs (Löfving *et al.*, 2014 and Hudson *et al.*, 2001). SMEs also possess close relations and immediate feedback (Yusof and Aspinwall, 2000). Flexibility is seen one of the benefits of SMEs as discussed by Ryds and Alpha. Fast decision making is seen as another benefit for Arcoma, Ryds and IV Produkt. Employees of SMEs also work with multiple tasks as argued by Fogmaker and Ryds. From Willo's perspective they have the better control of process and personnel take active responsibility due to their size. IV Produkt have short product development time, Arcoma argued for no bureaucracy structure while Ryds said low salaries can be seen as advantages for being SMEs. All the studied companies avail the benefit of being as SMEs. The characteristic of SMEs has the positive impact on studied companies while flexibility and fast decision making are the most common characteristic of studied companies.

According to European commission (2008) SMEs can have different challenges like with finance, skills, competition and access to the international market. Resource limitation and reactive strategy are discussed by Hudson *et al* (2000) as limitations of SMEs. Thakkar *et al* (2012) added that organizational culture, trust, usage of informational technology, supplier selection and long term relationship could be some issues in SMEs supply chain. SMEs limited resources are being the important characteristic while working with supplier development as discussed by most of the studied companies; Willo, Ryds, Fogmaker and Alpha. The resource limitations were related to finance and human resources. The Low volume of supplies is another limitation from SMEs to work effectively with supplier development as argued by Arcoma, Ryds and Alpha. The major common limitations of studied SMEs were the resources and low volume of supplies.

Willo need to prioritize tasks due to resources limitation. SMEs are more motivated to work and invest when they have visible results of their efforts (Grah, Administration manager, 2014). As discussed by Yusof and Aspinwall (2000) SMEs want to have simpler framework that are clearly lined. Power balance between suppliers is another limitation while working with supplier development as discussed by Ryds. Working with same size of supplier or smaller size could have better result of supplier development as in this case both the companies will have same power balance and understand each other's perspectives (Kühne,

Managing director, 2014). Trust could be another limitation while working with supplier development as some suppliers could be resistant to allow their customers to have close involvement of their processes (Mörk, Purchase manager, 2014). One limitation for supplier development could be of strategic misalignment between manufacturing SMEs and their suppliers, meaning that supplier have different goals than the manufacturers (Alpha, Managing director, 2014). Most of the companies were not using advanced information technology tools as this limitation was discussed by (Thakkar *et al.*, 2012). For the studied companies; task prioritization, working with simple framework, trust between partners, power balance and strategic alignment were the limitations of SMEs while working with supplier development.

Supplier development practices could be categorized into three groups basic, moderate and advanced. These categorizations are based on the company's involvement with their suppliers (Chavhan *et al.*, 2012; Rodriguez, 2005). Comparing supplier development categorization mentioned in table 2 with the empirical findings it could be stated that companies' practices mainly comes under moderate level of supplier development, however Ryds is at basic level of supplier development. Companies like Willo, Arcoma, Fogmaker and IV Produkt also have some practices of advanced supplier development especially in case of new product development. Supplier development practices could also be looked from the perspective of direct or indirect involvement of company with their suppliers. Company's involvement with resources (capital, human, time) in supplier's processes for supplier performance improvement could be referred as direct supplier development. On the other hand indirect supplier development lack in resource utilization in supplier's processes and avail external market forces for performance improvement (Wagner, 2006; Krause, 2000; Chavhan *et al.*, 2012). Comparing with empirical data it could be argued that companies' categorization cannot be regarded as indirect supplier development as they are investing some of their resources. Similarly companies also cannot be categorized as practicing direct supplier development because they are not investing capital on supplier development activities; however they are somehow using human resource and time. Therefore it could be argued that studied manufacturing SMEs are situated in-between direct and indirect practices of supplier development.

VIDA wants to build long term relationship with their customer by provide them value added services in order to strengthen its position in the market (Tizro, Managing director, 2014b). This was supported by Jiao *et al* (2003) that beside high quality and good price companies are

required to provide value added services to their customers. While Raval and Grönroos, (1996) insisted on reducing the cost for customer by providing them value added services which will lead to establishing long term relationship with customers. Berghman *et al* (2006) discussed that for value creation companies require three competencies; external knowledge related to value creation, organizational abilities and networks. VIDA is expert in its field, has networks while lacks in empirical investigation related to elements of supplier development and supplier performance evaluation. VIDA want to satisfy its customers for making them loyal as well as for attracting potential manufacturing customers (Tizro, Managing director, 2014b). Agrawal *et al* (2012) related customer satisfaction with repeat business and customer loyalty. Gallarza *et al* (2011) also related perceived value with loyalty of customer.

5.2 Supplier Development Elements

Supplier development elements are discussed below from the perspective of studied companies. The following table indicates the perception of studied manufacturing SMEs related to importance of supplier development elements. The average value of each supplier development elements is shown which shows that the communication and collaboration are most important elements, whereas supplier certification was being of least importance for studied SMEs.

Table 16: Elements level of agreement from SMEs perception

SD Elements	Willo	Ryds	Arcoma	Fogmaker	IV Productt	Alpha	Score	Total Score/6 case companies	Average
Communication	5	5	5	5	4	5	29	29/6	4,83
Collaboration and trust	5	3	5	5	4	5	27	27/6	4,5
Product development	3	4	4	5	4	5	25	25/6	4,17
Top management involvement	5	4	3	4	4	5	25	25/6	4,17
Long term commitment	5	3	4	4	4	5	25	25/6	4,17
Quality audits	4	1	4	5	4	5	23	23/6	3,83
Capita and technical support	3	3	5	5	4	3	23	23/6	3,83
Knowledge transfer and training	4	3	3	4	4	4	22	22/6	3,67
Site Visit	5	2	4	4	3	4	22	22/6	3,67
Procurement from alternative sources	3	3	3	5	4	3	21	21/6	3,5
Supplier's certification	5	1	4	3	3	3	19	19/6	3,17

(Source: Composed by authors based on empirical findings)

5.2.1 Communication

Information sharing supports knowledge transfer and also helps to understand each other's perspective (Ganesan *et al.*, 2005). Supplier development requires effective communication with the suppliers (Abdullah, 2003). Ineffective communication is the barrier to supplier development (Kraus and Ellram, 1997). Performance improvement is related to effective communication (Humphreys *et al.*, 2004). Willo wants to have good effective communication with their suppliers as it helps them to solve the problem at the initial stage and for understanding of each other's perspectives (Grahn, Administration manager, 2014). From Ryds point of view supplies delay can be caused by lack of communication which will result some disturbances in production process (Kühne, Managing director, 2014). Meeting with critical suppliers can improve communication process (Mustafa, Purchasing manager, 2014). Fogmaker believes that mainly lack of communication can arises in new product development and with new suppliers, this could cause quality problems and here using appropriate documentation could fulfill the communication gap (Mörk, Purchase manager, 2014). Alpha also insisted on having documentation for solving communication problems (Alpha, Managing director, 2014).

IV Produkt considers effective communication of much significance especially at the start phase of new product development. Language differences could sometime act as a communication barrier and cause some misunderstandings with foreign suppliers (Gustavsson, Purchase manager, 2014). Communication is important while working with suppliers as mentioned by all the studied companies. Each company has its view on utilization of effective communication. As for some companies it is of much importance at product development time and for some it could help in improving quality, performance and supplies from suppliers. Appropriate documentation could be used as a tool for improving the communication process.

Communication could be through a formal and informal way (Anderson and Narus, 1995). Communication could be categorized into a traditional and advanced communication method (Carr and Kaynak, 2007). Traditional communication is through e-mail, mail phone and face to face (Dewett and Jones, 2001). While advanced communication is through systems like enterprise resource planning (ERP), electronic data interchange (EDI) and other systems (Sahin and Robinson, 2005). Manufacturing SMEs mainly utilizes traditional communication methods for their daily communication with suppliers like email, mail, telephone, fax, meetings as argued by all the studied companies. However in addition to traditional

communication methods advanced communication tools are also being used at limited level which include usage of electronic data interchange (EDI) system by IV Produkt, Scala system by Arcoma and enterprise resource planning (ERP) and office 365 by Alpha.

5.2.2 Knowledge transfer and training

Grant (1996) categorized knowledge into explicit that can be written down and tacit that resides in human minds. Manufacturing processes could be improved through knowledge transfer within or outside company's boundary like between companies and their suppliers. Training to supplier's personnel and tacit knowledge transfer could also improve supplier's productivity (Modi and Mabert, 2007). Supplier performance could be improved by trainings and education (Krause *et al.*, 2000). Periodic and Ad hoc trainings could be provided to suppliers for performance improvement as well as for building long term relationships with them (Ragatz *et al.*, 1997). Willo, Ryds, Arcoma, Fogmaker and Alpha has higher expectations from their suppliers and assume their suppliers to be expert in their fields so no training program is offered to them but through discussion the desired level of expectation is conveyed to suppliers. This discussion will make suppliers aware of the desired level of performance and also for improvements in case of some problems. On the other hand IV Produkt also shares the same idea of training as other studied companies although in some special cases they can provide training to their suppliers when needed as argued by IV Produkt Purchase manager Gustavsson (2014). By comparing the theories with studied companies' empirical findings it could be argued that, SMEs manufacturing companies' lacks in providing periodic or Ad hoc training to their suppliers which is necessary for explicit or tacit knowledge transfer. This could have an impact on supplier productivity enhancement and supplier performance improvements.

5.2.3 Product development

Product development with support of suppliers can have different advantages for manufacturing companies like design improvement, quality improvement, cost reduction, technology access, short development time and supplier's direction adjustments (Ragatz *et al.*, 1997). Cousins and Handfield (2009) also argued that early supplier involvements in product development can result in cost reduction quality improvement and reduced time to markets. Successful supplier involvement in product development requires effective information sharing between manufacturing and supplier (Sivadas and Dwyer, 2000). Willo, Ryds, Fogmaker and IV Produkt believe that cost could be reduced by involving suppliers into product development. Product quality improvement could be achieved by supplier

involvement as argued by Willo and Fogmaker. Alpha and Ryds have opinion that involving suppliers will have positive impact on their company's market position. Arcoma believe that involving supplier into product development provides them opportunity to focus on their core competencies (Mustafa, Purchasing manager, 2014). From Fogmaker perspective involving supplier will result into supplier process improvement (Mörk, Purchase manager, 2014) this could be related to Ragatz *et al* (1997) point of view of supplier's direction adjustments. IV Produkt relates supplier involvement with specification or design improvement (Gustavsson, Purchase manager, 2014) and that is also mentioned by Ragatz *et al* (1997). Willo think that involving supplier into development process will also be beneficial for their customers by receiving proposed improvements from their suppliers (Swanström, Managing director, 2014). IV Produkt involves suppliers in the initial stage of development whereas for Fogmaker supplier involvement comes at the last stage of product development. All the studied manufacturing SMEs involve their suppliers into their product developments for different benefits and at different stages of the development process.

Involving suppliers in product development could have some risks like information sharing risk, technology sharing and company's resistant culture (Ragatz *et al.*, 1997). Willo, Fogmaker, Arcoma and IV Produkt think that there are no more risks involved and agreements with suppliers could lower the probability of risk. Fogmaker also has lower risk due to less number of competitors (Mörk, Purchase manager, 2014). However Ryds have the opinion that there could arise some risks in losing unique production techniques, also as not being the main customer of their suppliers due to low volume supplies, so the product development time could be long (Kühne, Managing director, 2014). Studied manufacturing SMEs do not have higher risks while involving suppliers into product development and the risk is also controlled through confidential agreements.

5.2.4 Supplier's site visit

Supplier site visit provides the possibility to have the clear picture of supplier, cultural differences, work ethics and it also strengthen the relationship with supplier (Justice, 2006). Supplier skills and performance could be improved through supplier site visits (Krause and Ellram, 1997). It will help in socialization of employees (Cousins and Menguc, 2005). Knowledge could be transferred through site visits (Gupta and Govindarajan, 2000). Assessment and improvement of production processes is one benefit of supplier site visit as described by most of the companies like Willo, Arcoma, Fogmaker and IV Produkt. Quality assessment is another outcome of supplier site visit as mentioned by Arcoma and Fogmaker.

Willo insisted on supplier site visits especially in the start of the project as it will make the company aware of supplier's abilities to fulfill the requirements. The site visits will also enable the opportunity for an informal audit of supplier (Swanström, Managing director, 2014). Similarly IV Produkt mentioned that it will help them to build an image and evaluate the suppliers (Gustavsson, Purchase manager, 2014). From Alpha's point of view it will support them to solve problems and improve the communication with their suppliers (Alpha, Managing director, 2014). As discussed by Grant (1996) direct interaction of buyer-supplier employees will be beneficial in transferring tacit knowledge. IV Produkt also mentioned that meeting with supplier personal and discussion with them is seen as a benefit of supplier site visits (Gustavsson, Purchase manager, 2014).

The studied companies are aware of the importance of supplier site visits; some companies like Willo, Arcoma, Fogmaker and Alpha have frequent supplier site visits. IV Produkt has few suppliers' site visits however their supplier frequently visits them (Gustavsson, Purchase manager, 2014). Ryds also have rare supplier site visits and visits are mainly used for price negotiations. It is due to the fact that they have low volume supplies and therefore they see no more benefits for visiting the suppliers except price (Kühne, Managing director, 2014).

5.2.5 Supplier's certification

Certification helps in supplier performance improvement (Handfield *et al.*, 2006). It reduces information differences between buyer and supplier (Horngren *et al.*, 2008). Standardization is made due to certification which lowers the customer's effort of inspection (Sollish and Semanik, 2012). Supplier certification has a positive impact on buyer-supplier relationship (Kalyanam and Brar, 2009). Willo and IV Produkt have their own certification for some supplies. Willo have own certification for special material for ensuring that supplies meet the required standards (Swanström, Managing director, 2014). From Ryds point of view supplier certification is not of much significance for them but some material needs to have certification. Arcoma links certification with the quality improvement (Mustafa, Purchasing manager, 2014) as it also is mentioned by Darnall (2006) that supplier certification ensure quality requirements. Fogmaker believes that certification improve standardization and ask their suppliers of critical supplies to be certified however this is not an obligation for suppliers. Certification also contributes in confidence building (Chen and Deng, 2013). IV Produkt also related certification with trust building and quality improvement (Gustavsson, Purchase manager, 2014). Alpha internal suppliers are certified and Alpha think certification ensure that supplier meets the standard routines.

Most of the studied manufacturing companies are ISO certified and therefore know very well that how supplier certification can impact them. Willo, Fogmaker, IV Produkt and Alpha expect from their suppliers to be ISO certified however, the certification is not a compulsion for their suppliers. On the other hand, Arcoma was the only company that has obligation for their supplier to be certified. Ittner *et al* (1999) mentioned that some companies have the requirement that their supplier must be certified. According to Gilliland *et al* (2010) certification could be understood by a supplier as a controlling tool which could affect the relationship between partners. However the empirical findings did not show that the companies and their supplier's relationship are being affected by certification.

5.2.6 Quality audits

Quality audit could be related to a win-win strategy for both buyer and supplier. Quality audits motivate suppliers to improve the quality of product based on the buyer encouragement (Krause and Ellram, 1997). Willo and Arcoma conduct quality audits annually, Willo conduct it in an informal way however they have the plan to strength this area (Swanström, Managing director, 2014) whereas Arcoma do it in a formal way. Fogmaker also have quality audits however every second year and make future decisions on the basis on that (Mörk, Purchase manager, 2014). From IV Produkt point of view Quality audits are conducted where there exist some problems (Gustavsson, Purchase manager, 2014). Alpha also have quality audits for making their suppliers meet quality conformance (Alpha, Managing director, 2014). Ryds have another point of view for not conducting quality audits as they relate it with a low volume of supplies (Kühne, Managing director, 2014). For improving the quality of product as also is argued by Krause and Ellram (1997) most of the studied companies conduct quality audit but these audits are part of the evaluation process of suppliers. Companies do not follow a structured way of conducting audits except Arcoma.

5.2.7 Technical and capital support

Supplier development can include providing technical and capital support to suppliers (Krause *et al.*, 2000; Wisner, 2003). This will result in improving supplier performance and capabilities (Dyer and Chu, 2000). Technical support will increase the knowledge transfer (Matthyssens and Inemek, 2012), technical support could be sending engineers to supplier's site (Modi and Mabert, 2007). Capital support could be done in form of direct investment or through technical support or training to suppliers by the buying companies (Li *et al.*, 2007). Willo, Arcoma and Alpha do not provide capital support to their suppliers. Willo suppliers are already specialist so Willo only have some technical dialog with them (Swanström, Managing

director, 2014). On the other hand Arcoma provide technical support in the form of testing and evaluation of prototypes to its suppliers (Mustafa, Purchasing manager, 2014). Alpha in some way provides technical support to their suppliers. IV Produkt concern about the economic condition of its suppliers as it will have impact on IV Produkt, the company can have some capital support to its suppliers in some special cases (Gustavsson, Purchase manager, 2014). Ryds and Fogmaker do not provide any type of support to their suppliers. The studied companies are aware of the outcome of the support to their supplier for improving supplier's performance as also argued by Dyer and Chu (2000). The empirical findings show that companies provide more technical support than capital. This was also argued by Wagner (2006) that companies provide technical support more than direct invest to suppliers. Not providing capital support could also be linked with SMEs financial limitations as mentioned by to European commission (2008) that SMEs faces financial challenges.

5.2.8 Collaboration and trust

Collaboration involves partner for finding solution of problems for improvements (Jassawalla and Sashittal, 1998). Collaboration could be looked from the perspective of quality, inter-organizational collaboration and supply chain collaboration. Trust is one of the important factors while working with supplier development as it reduces risks and uncertainties (Nagati and Rebolledo, 2013). Willo, Fogmaker and IV Produkt stated that while working with supplier development quality collaboration is an important factor. IV Produkt added that 40 percent of turnover is connected to supplies so quality is most important (Gustavsson, Purchase manager, 2014). For Ryds, Arcoma and Alpha trust have an important role when dealing with suppliers. It could be argued that quality collaboration and trust are important factors while working with supplier development.

5.2.9 Top management involvement

Supplier development has an impact on the competitive performance of a company so the management needs to be aware and involved in supplier development process (Hahn *et al.*, 1990). The management of all the studied companies argued that they are well aware of the importance of supplier development and its impact. Arcoma furtherer added that they want to build partnership with its suppliers (Mustafa, Purchasing manager, 2014). Fogmaker is involved in supplier development activities. IV Produkt wants to strengthen the relationship with suppliers to achieve company's objectives (Gustavsson, Purchase manager, 2014). Alpha believes that supplier development has impact on company's performance. The studied companies work in accordance with what was said by Hahn *et al* (1990).

5.2.10 Procurement from alternative sources

Supplier's defaults can have consequences for the buying company (Wagner *et al.*, 2009). Company current or future needs may require a partial or complete switching of supplier; it could also lower the cost (Wagner and Friedl, 2007). Arcoma, Alpha and Fogmaker look alternative suppliers from the perspective of critical and non-critical supplies. They have alternative suppliers of some non-critical supplies and not for critical supplies. On the other hand Fogmaker also wants to have alternative suppliers for critical supplies as it will increase the company's flexibility and for meeting customer's future demands (Mörk, Purchase manager, 2014) and this was also argued by Wagner and Friedl (2007). Willo and IV Produkt want to have alternative sources of supplies. For IV Produkt it will reduce dependence on suppliers and therefore the company could have alternative sources (Gustavsson, Purchase manager, 2014). Ryds due to low volume relies on their current suppliers (Kühne, Managing director, 2014). All the studied companies know about the importance of alternative sources. They are also willing to look for alternative sources of some supplies but empirical finding do not support that they want to switch the suppliers and this could be related to the findings of Liu (2006) that switching suppliers can have some costs like the cost of ending the contracts, the cost of time consumed and the cost of building a new partnership.

5.2.11 Long term commitment

Buyer supplier relationship requires commitment while working with Supplier development (Routroy and Pradhan, 2011). Long term commitment is considered as the key factor for successful buyer supplier relationship (Li *et al.*, 2007). This commitment can lead to achieving competitive advantages (Sharma *et al.*, 2006). The commitments outcome could be viewed in term of productivity improvement and long term economic benefits (Coote *et al.*, 2003). Arcoma and IV Produkt look at the commitment with criticality of supplies; short term commitment with less critical suppliers and long term commitment with critical suppliers. Arcoma related the commitment with stability and sustainability (Mustafa, Purchasing manager, 2014). In addition to stability Alpha also related commitment with better understanding with suppliers (Alpha, Managing director, 2014). Formaker believe that commitment will result in meeting their supplies requirements (Mörk, Purchase manager, 2014). From IV Produkt's point of view the commitment will have impact on communication, logistic and quality of supplies (Gustavsson, Purchase manager, 2014). Willo wants to satisfy its customers and for that commitment with suppliers is an essential element for meeting customer's expectation (Swanström, Managing director, 2014). Studied companies agreed

with the point of view to have long term commitment with their suppliers for availing the benefit as also argued by Li *et al* (2007). Companies also have the point of view that long term commitment is more important for critical suppliers and short commitment for non-critical suppliers.

5.3 Supplier Performance Evaluation

There exists need for certain performance evaluation standards for meeting the desired objectives of both buyer and suppliers (Simpson *et al.*, 2002). Supplier evaluation systems are used for motivating supplier to improve their performance level (Kraus *et al.*, 2000). For evaluating the supplier's performance the studied companies have different procedures. Some companies are using specific models while other do it in an informal way. Companies like Arocma, Fogmaker and Alpha evaluate their supplier performance based on the specific models. Arcoma works with Balance score card and their specific model for performance evaluation (Mustafa, Purchasing manager, 2014). Beside ERP system Fogmaker also uses model for performance evaluation as this model is also used by them for auditing of suppliers (Mörk, Purchase manager, 2014). Whereas Alpha follows the supplier performance evaluation model based on ISO standards (Alpha, Managing director, 2014). Evaluating the supplier performance different model could be utilized as mentioned in literature like Yang (2010) developed a model that was based on five dimensions. Forslund (2007) also developed model for logistic performance measurement. Sollish and Semanik (2012) discussed a plan that could be used for supplier performance evaluation. On the other hand findings show that companies like Willo, Ryds and IV Produkt conduct supplier performance evaluation although they do not have specific model for that.

The following table indicates supplier performance evaluation practices of studied SMEs manufacturing companies.

Table 17: Companies' practices of supplier performance evaluation

Manufacturing SMEs	Performance Measurement Practices
Willo	<ul style="list-style-type: none"> • No specific model for performance evaluation • Performance affects; production process, quality and delivery to customers • Evaluation of critical suppliers • Continuously follow supplier performance • Yearly meeting for supplier performance evaluation • Supplier request for Willo's feedback for problem solution List of action plans based on meeting • Continuous and Open communication with suppliers for solving problems at initial stage • Supplier site visit for problem solution
Ryds	<ul style="list-style-type: none"> • No specific model for performance evaluation • Important supplier performance aspects; delivery time, quality and price • Direct communication with supplier for problem solution
Arcoma	<ul style="list-style-type: none"> • Arcoma's model for performance evaluation • Balance score card for reviews monthly delivery and quality performance • Important supplier performance aspects; delivery time, quality and price • Evaluation of critical suppliers • Continuously follow supplier performance • Annual internal review of supplier performance by quality and purchasing department • Performance discussion with supplier twice per year • Consider supplier feedback • Technical purchase department responsible for supplier performance evaluation.
Fogmaker	<ul style="list-style-type: none"> • Model for supplier performance evaluation • Some supplier performance evaluation due to ERP system limitation • Important supplier performance aspects; quality, supplier economic condition, delivery time and price • Continuously follow supplier performance • Once every second supplier performance evaluation • Consider supplier feedback from supplier for performance improvement • Usage of HD report for tracing problem sources • Quality department responsible for supplier performance evaluation
IV Produkt	<ul style="list-style-type: none"> • No specific model for performance evaluation • Important supplier performance aspects; quality delivery time, price and economy of supplier • Evaluation of critical suppliers • Technical specification of supplies are more important • Technical department measures technical specification of supplies. • Performance discussion with supplier related to technical specification and delivery problems • Continuously follow supplier performance

	<ul style="list-style-type: none"> • Discussion with suppliers when quality and delivery problem arises • Special measurement in case of new product development • Consider supplier perspective and feedback for finding problem solutions
Alpha	<ul style="list-style-type: none"> • Model for supplier performance evaluation based on ISO standards • Important supplier performance aspects; delivery time, quality and reclaim ratio • Continuously follow supplier performance • Annual internal review of supplier performance for external and internal suppliers • Monthly meeting for supplier performance discussion • Consider supplier perspective and feedback for performance improvements

(Source: Composed by authors based on empirical findings)

Companies conduct supplier review to evaluate supplier performance, they can utilize performance scorecard with different perspectives including cost, quality, level of services, delivery time and others (Sollish and Semanik, 2012). All studied companies have utilized measurements where the perspectives were prioritized depending on each company's needs, but at the same time they all agreed that quality comes at the top of their priorities. The quality as the supplier performance evaluation measure was supported by many authors like Simpson *et al* (2002) study also mentioned quality, they further argued for continuous improvement of quality. Quality as the supplier performance measure was also mentioned by Fowler and Graves (2011); Talluri and Sarkis (2002). All studied companies see delivery time as important perspective of supplier performance evaluation right after quality. Supplier delivery variable is also supported by different authors like Chan (2003); Forslund (2006); Simpson *et al* (2002); Talluri and Sarkis (2002). Price is also another important factor for supplier performance evaluation as argued by most of the companies and also supported by the literature as by Simpson *et al* (2002); Talluri and Sarkis (2002). Price and delivery are referred as traditional performance measures by Simpson *et al* (2002). It could be argued that quality, delivery time and the price are the important variables for measuring supplier performance.

IV Produkt and Fogmaker consider supplier economic situation while evaluating the supplier performance as it will have an impact on their development. This was also argued by Hahn *et al* (1990) that the current level of supplier performance indicates the potential development possibilities of supplier. Willo wants to have open communication with suppliers to solve the problem at a very initial stage and they consider supplier site visits as one of important aspect for problems solution (Grahn, Administration manager, 2014). Ryds argued for direct communication with supplier in case of problems. Supplier site visits and meeting with

suppliers are discussed by Sollish and Semanik (2012) whereas Simpson *et al* (2002) presented communication as an important factor for evaluation.

There could be some issues that SMEs manufactures can come across related to value addition of performance measures like which measures add more value for company comparatively (Neely *et al.*, 1995). The empirical data of studied companies shows that companies are mainly working with performance evaluation of suppliers that represents more value added inputs in term of critical supplies. Companies like Willo, Arcoma and IV Produkt are working with the supplier evaluation of critical suppliers. Willo has 20 percent of supplier that represent 80 percent of supplies value and vice versa. Willo's supplier evaluation process mainly directed towards more value added suppliers (Grahm, Administration manager, 2014). Arcoma has categorized their supplier into A, B and C suppliers based on their importance and are mainly working with A and B suppliers (Mustafa, Purchasing manager, 2014). IV Produkt 20 percent suppliers represent 80 percent of supplies which is same as in the case of Willo. For IV Produkt technical specifications of supplies are more important and technical department consider these specification as one of the important measure for supplier performance evaluation (Gustavsson, Purchase manager, 2014). Categorizing the suppliers based on their value addition can help the companies to work with effective supplier performance evaluation measures as the issues of more value added performance measures was highlighted by Neely *et al* (1995). Compared to previous three mentioned companies empirical investigation indicated that supplier performance evaluation of Ryds, Fogmaker and Alpha are not mainly categorized based on criticality of supplies.

Buyer supplier effective relationship requires continuous monitoring of supplier performance and feedback can be utilized for improvements (Talluri and Sarkis, 2002). All the studied companies continuously follow the supplier performance. However Ryds due to small volume of supplies do it infrequently. Willo, Arcoma and Alpha have a yearly internal meeting to discuss their suppliers' performance evaluation. In addition to that Arcoma have meetings with their supplier twice per year for discussing the problems faced (Mustafa, Purchasing manager, 2014). On the other hand, Alpha has a monthly internal meeting to discuss their supplier's performance (Alpha, Managing director, 2014). Fogmaker conducts supplier performance evaluation once per two years (Mörk, Purchase manager, 2014). IV Produkt has discussion with their suppliers when quality or delivery problem arises. They also have special measurement during new product development (Gustavsson, Purchase manager, 2014). It could be argued that companies continuously follow supplier performance as

mentioned by Talluri and Sarkis (2002). Companies also conduct yearly, twice per year or monthly meetings to discuss supplier performance evaluation whereas Fogmaker conduct every second year. All the studied companies mentioned that they consider supplier feedback for performance improvement as this was also argued by Sollish and Semanik (2012) that companies should consider supplier's feedback.

The next table summarizes the results of supplier performance evaluation measures based on their importance from the companies' perception. Supplier performance evaluation measures like quality, reliability and delivery were being of highest importance whereas supplier certification and location were found to be of least importance.

Table 18: Performance measures and their level of importance from SMEs perception

Supplier Performance Evaluation	Willo	Ryds	Arcoma	Fogmaker	IV Produkt	Alpha	Score	Total Score/6 case companies	Average
Quality	5	5	5	5	5	5	30	30/6	5
Reliability	5	5	5	5	4	5	29	29/6	4,83
Delivery	4	5	5	5	5	3	27	27/6	4,5
Communication	4	4	5	5	4	5	27	27/6	4,5
Price	4	5	4	4	4	4	25	25/6	4,17
Responsiveness	4	4	4	4	4	5	25	25/6	4,17
Customer relationship	4	3	4	5	4	5	25	25/6	4,17
Flexibility	3	3	5	3	4	5	23	23/6	3,83
Lead-time	3	4	3	5	4	4	23	23/6	3,83
Continuously improvement	4	1	4	4	4	5	22	22/6	3,67
Warranty	3	1	3	5	4	5	21	21/6	3,5
Supplier certification	3	1	5	3	3	3	18	18/6	3
Supplier's Location	3	3	3	3	4	2	18	18/6	3

(Source: Composed by authors based on empirical findings)

6. CONCLUSION

The following chapter will be devoted to answer the three research questions presented in the introduction chapter. Reflections will also be carried out in this chapter, as well as some suggestions for future researches.

6.1 Answer to research question 1

RQ1: What are the important supplier development elements for SMEs manufacturing companies?

By combining the theoretical framework with the empirical findings it can be argued that all the supplier development elements are witnessed in studied manufacturing SMEs, this indicates that all selected elements from the theories are important for a successful supplier development. On the other hand, the level of importance of each one of the supplier development elements differs from one company to another depending on their needs and the available resources.

Communication is one of the most important elements for studied SMEs as analyzed and it could also be seen in table: 16 however mainly traditional communication methods are utilized and this could be seen as the limitation for SMEs. Knowledge transfer and training is an important element as mentioned in literature but studied SMEs lacks in providing training to their supplier as companies expect their supplier to be specialist in their fields. Involving suppliers in product development is another important element as analyzed; all the companies involve their suppliers in product development at different stages of development. Studied SMEs also do not see more risks while involving their suppliers in product development due to agreements they made with their suppliers. Supplier site visits are used by companies for having better understanding of their supplier's processes and for supplier's performance improvements. Most of the companies consider supplier site visits as an important element and have frequent visits while some have rare site visits. Certification improves standardization and reduces the chances of errors; most of the studied companies were ISO certified. Companies are aware of importance of certification; Willo and IV Produkt do their own certification. Supplier certification is not considered as an important element by companies, this could be due to the fact that they expect their suppliers to meet the standards but they are not enforcing their suppliers to be certified except Arcoma. Not enforcing suppliers to be certified does not indicate that it is not important, however it could be regard as of moderate importance for studied SMEs.

Most of the companies look at the quality audits with appropriate importance but they conduct quality audits in an unstructured way during supplier performance evaluation. Capital and technical support is not considered of much significance from studied SMEs perspectives. No companies were found to be investing capital however they are somehow involved in technical support to their suppliers. Studied SMEs practices contradict with what is mentioned in table: 16 related to importance of capital and technical support. Lack of capital and technical support could be linked with SMEs resource limitation, on the other hand the significance of capital and technical support could not be undermine while working effectively with supplier development. Studied companies are aware of the importance of having alternative suppliers but at the time they are not planning to switch their current suppliers. Collaboration and trust, top management involvement and long term commitment are viewed as an important supplier development elements form studied SMEs perspective.

Answering to research question it could be concluded that all supplier development elements are important for SMEs manufacturing companies but at a different level of importance. Supplier development elements like; communication, collaboration, product development, top management involvement and long term commitment are considered as high level of importance while quality audits, capital and technical support, supplier's site visits, procurement from alternative sources and supplier certification are of moderate level of importance for studied SMEs manufacturing companies.

6.2 Answer to research question 2

RQ2: How SMEs manufacturing companies evaluate their supplier performance?

Supplier evaluation is used by companies for motivating suppliers to improve their level of performance. Studied manufacturing SMEs do evaluate their supplier performance where some companies do it in a structured way by using model while others do it in an unstructured way. It was also found that companies are more interested in evaluating performance of those suppliers which add more value to companies i.e. based of criticalities of supplies. Studied companies were analyzing their supplier performance mainly annually, half yearly and monthly. Different measures have been utilized by companies to evaluate their supplier performance. According to empirical study quality, cost and delivery time were the most

important and commonly used measures utilized by studied companies. Economic situation of suppliers, supplier site visits and technical specification of supplies were also being considered as measures for supplier evaluation. Looking at table: 18, it could be concluded that quality, reliability, delivery, communication, price, responsiveness and customer relationship have higher level of importance while evaluation supplier performance. Most of the studied SMEs due to their limitations were not having special section for motioning and evaluation the supplier performance as personnel has to deal with multiple tasks. One positive aspect found was studied SMEs were willing to used supplier's feedback for performance improvement. It could be concluded that studied manufacturing SMEs uses structured or unstructured model for supplier performance evaluating. Quality, cost and delivery are the most important supplier performance evaluation measures used by studied manufacturing companies.

6.3 Answer to research question 3

RQ3: How can VIDA utilize the results of RQ1 and RQ2 for supplier development as a value added services to its potential manufacturing customers?

VIDA Inspection wants to provide value added services related to supplier development to their potential manufacturing customers. VIDA Inspection can utilize the results of RQ1 and RQ2 for providing this service. The results of these research questions can be applied by categorizing them into four different phases; understanding phase, analysis & planning phase, action phase and follow up phase. The first phase i.e. understanding phase will require all the important information related to manufacturing company; open communication with company, their competitive priorities, future development of company, current supplier base, strengths of current suppliers, problem & improvement areas of current suppliers, available resources of company, limitation of company and gathering of all the required information related to company and their suppliers.

The second phase is analysis & planning phase. This phase will have the focus on analyzing all the gathered information from the company. Looking at the competitive priorities and then relating it to supplier role to achieving that e.g. quality is one of the competitive priorities then how the supplier can affect the quality is need to be identified. The problem or improvement areas identified in the previous phase can be further analyses for identification of root causes. All the supplies need to be categorized based on their criticality as most of the studied

manufacturing companies were mainly working with more value adding suppliers. The important element identified in the first research question is needed to investigate deeply. It may be possible that the moderate level of importance element is of high level of importance for the current company. Communication will always be the important element to consider however the ways of communication could be discussed. After supplies categorization and important supplier development element selection then the measurements can be designed for supplier performance evaluation. These measurements will surely have quality, delivery and cost as identified in second research question. Design of measurement will include a specific model, frequency of measurements, frequency of supplier evaluation meetings, different measures in addition to important measures as discussed before and other steps to effectively evaluate supplier performance. The analysis & planning phase is very much important as accurate analysis will lead to more appropriate planning. The company's available resources and limitations are needed to be considered for having an effective plan.

The third phase i.e. action phase requires resources and effective communication with manufacturing company and their suppliers for a successful implementation of planning. Successful supplier development will require efforts from both sides and also from VIDA Inspection to deliver them best value added services for making their manufacturing customers loyal to them. The final follow up phase will require continuously monitoring and evaluating elements of supplier development and supplier performance evaluation. Considering supplier's feedback is also important step while working with continuous improvement. First effectively working with critical supplies, then adjustment could be made to include other supplies also however considering their economic outcomes. It could be concluded that VIDA Inspection could utilize the results of RQ1 and RQ2 for providing their potential manufacturing customers with value added services.

6.4 Reflections

Supplier development is a wide area of research so for this master's thesis certain limitations could be taken into account. All studied companies were situated in the same geographical location (Kronoberg, Sweden) on the other hand most of VIDA inspections potential customers are located in Switzerland. Also studied manufacturing companies are active in different industries so it could be argued that it would be better to focus on just one industry rather than different industries. One of the limitations could be that some of the company's

interviewee is not aware of the full concept of supplier development meaning that it was found that some of the companies are working with supplier development practices and supplier performance evaluation but in informal way. Also it was hard sometimes to extract the desired data during interviews.

Due to the limited time frame we were not able to have deep investigation of the studied companies as we believe that by doing that some new important supplier development elements and more supplier performance evaluation measures might reveal e.g. the importance of power balance between manufacturing companies and suppliers was identified but it was not mentioned on studied literature. Most of gathered data was through conducted semi structured interviews with one responsible of each company. We believe that having interviews with different responsible in each studied company could increase the level of valuable data related to our thesis topic.

The subject of this thesis work was mainly focused on studying and analyzing supplier development from the perspective of SMEs manufacturing companies but not from the perspective of suppliers. Most of the theories used for this thesis were taken from literature related to manufacturing companies in general but not specifically related to SMEs manufacturing companies as the concept of supplier development, supplier development elements and supplier performance evaluation were basically developed for manufacturing companies' need. This does not reduce the validity of the thesis for example Arcoma wants to understand how the big companies work with supplier development and then customize it according to their needs.

6.5 Suggestions for future research

As we mentioned before that the supplier development is a wide research area, so our recommendation for further studies is to consider all the limitations mentioned in previous reflections section. In the future more extensive empirical research could be done related to the same topic by involving a higher level of participants. Future research studies of supplier development and supplier development evaluation practices should not be confined for a specific region within a country. We suggest that it should cover a country or even entire group of states e.g. European Union. Other suggestion could be that the future research studies from different perspectives and industries will result in gathering important data. This will help to find out common supplier development and performance evaluation practices of

each industry. Also findings could be the base of developing a common supplier development model which can be used by other manufacturing companies active in similar type of industries. One more suggestion could be that the future researches should not be limited to manufacturing companies but it should include suppliers, especially the one who represents more value to companies.

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Appendix 1

Interview Guide

Ethical Considerations

- Permission for recording the interview.
- Permission for mentioning the name of the company in research work.
- Assure them usage of information for only thesis work.
- Ask for any especial restrictions or considerations from company.
- Briefly explain the thesis topic.

General Questions Related to Company and Their Suppliers

1. What is the position of interviewee?
2. General information about the company?
3. What are the main products of the company?
4. Approximately how many suppliers does company have?
5. Among your suppliers how many of them are important for the company?
6. How your suppliers are geographically located (Sweden, Europe or Abroad?)
7. What do you think that how can suppliers effect on your products and performance?
8. What are the main problems that you face from your supplier's side?
9. How the company deals with those problems?
10. Do you think that working and investing on suppliers can improve the supplies from suppliers?

Especial questions related to supplier elements

1. Communication

1. How do you communicate with your suppliers? (Face to face, Telephone, E- mail or Letters, EDI or ERP or any other method)
2. What type of problems you have faced due to lack of communications?
3. What measures you have taken to improve the communications with your suppliers?

2. Knowledge transfer and training

1. Does the company have offered any type of training to their suppliers?
2. Does the company have any plan to offer training program to their suppliers?
3. Do the suppliers have made certain improvement based on company's recommendations?

3. Product development

1. Does the company with their suppliers have worked on product development or product specification improvement?
2. What are the benefits and risks for involving suppliers into product development?
3. Does the company have any plan to involve suppliers in product development or product specification improvement?

4. Supplier's site visit

1. Does the company's representative visit supplier's site?
2. What are the benefits of visiting supplier's site?
3. Does the company have any plan for supplier's site visit?

5. Supplier's certifications

1. Is it necessary for every supplier to be certified?
2. What are the benefits of supplier's certification?
3. Does the company have any plan to strengthen supplier's certification?

6. Quality audit

1. What steps the company taken to monitor the supplier quality conformance?

7. Capital and technical support

1. Does the company provide technical and financial assistance to suppliers?
2. Does the company have any plan to provides technical and financial assistance to suppliers?

8. Collaboration and trust

1. What type of collaboration is more important for the company with supplier (collaboration quality, inter-organizational collaboration, supply chain collaboration, and collaboration capability)?

9. Top management involvement

1. Does the company's management aware of the supplier development importance?

10. Procurement from alternative sources

1. Does the company use alternative suppliers and what is the reason for that?

11. Long term commitment

1. What are the benefits of the commitment for the company?
2. What kind of commitment (short or long term), does the company have with their suppliers?

Supplier development elements level of agreement form company's perception

No	Elements	Level of Agreement				
		1= Not Agree			5= strongly Agree	
1	Communication	1	2	3	4	5
2	Knowledge transfer and Training	1	2	3	4	5
3	Product development	1	2	3	4	5
4	Site visit	1	2	3	4	5
5	Supplier's certification	1	2	3	4	5
6	Quality audits	1	2	3	4	5
7	Capital and technical support	1	2	3	4	5
8	Collaboration and trust	1	2	3	4	5
9	Top management involvement	1	2	3	4	5
10	Procurement from alternative sources	1	2	3	4	5
11	Long term commitment	1	2	3	4	5
12	Other	1	2	3	4	5
13	Other	1	2	3	4	5

Questions related to the company's supplier performance evaluation

1. Does supplier's performance affects the company's products?
2. Does the company evaluate the supplier's performance?
3. Does the company follow any model for evaluating supplier performance?
4. Does the company continuously follow the supplier performance and improvements?
5. Does the company consider supplier's perspective and feedback?
6. How a company communicate supplies problems with their suppliers?
7. Does the company have any specific section for monitoring and improving supplier performance?
8. What are the important aspects while evaluating supplier performance?

9. Do you have any performance evaluations documentation?
10. For company which measures has more relative importance (Price, Quality, Delivery)
11. Can you priorities the measures based on company's importance for supplier evaluation?

Performance measures and their level of importance form company's perception

No	Elements	Level of importance				
		1= No Importance		5= High Importance		
1	Quality	1	2	3	4	5
2	Price	1	2	3	4	5
3	Delivery	1	2	3	4	5
4	Flexibility	1	2	3	4	5
5	Lead-time	1	2	3	4	5
6	Reliability	1	2	3	4	5
7	Responsiveness	1	2	3	4	5
8	Communication	1	2	3	4	5
9	Customer relationship	1	2	3	4	5
10	Supplier certification	1	2	3	4	5
11	Continuous improvement	1	2	3	4	5
12	Warranty	1	2	3	4	5
13	Supplier's location	1	2	3	4	5
14	Other	1	2	3	4	5
15	Other	1	2	3	4	5

Company's perspective of supplier development

1. What is your perception of supplier development?
2. What are the benefits and barriers of supplier development?
3. As SMEs manufacturing company what are your limitations and benefits?
4. As SMEs what are the benefits and limitation while working with supplier development?
5. How SMEs can effectively implement supplier development?



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