



JÖNKÖPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

SUPPLIER SELECTION UNDER UNCERTAINTY.

THE CASE OF NEWLY CREATED SUPPLIER FIRMS

Master Thesis in International Logistics and Supply Chain
Management

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Abstract

The role of purchasing in supply chain management has received and continues to receive increasing attention as the years go by. Purchasing enhances efficiency and competitiveness among other benefits but to realize these benefits it is imperative to select and maintain competent suppliers. However, many factors affect a firm's ability to choose the right supplier. Uncertainty is an issue that has received great attention. It affects all functions of a company consequently affecting purchasing and supplier selection.

This thesis seeks to provide an understanding of the supplier selection process and criteria under circumstances of uncertainty in the case where the potential supplier under evaluation is a newly created company. The authors try to find out if uncertainty varies with firm's age and tested the suitability of existing criteria on the selection of newly created firms. They also sought ways by which uncertainty can be reduced.

One of the realisations of this thesis is that there is a relationship between the characteristics or problems faced by new firms and uncertainty. Uncertainties created by new firms include lack of trust and commitment, inadequate finance, poor quality, unreliable delivery times, inadequate logistic technological capabilities. No new types or sources of uncertainty were discovered however, it was found that uncertainty was certainly higher when working with new firms.

The criteria delivery, quality, cost/price, financial position and communication and technology were recognized as the commonly used criteria a fact confirmed from empirical results as well as in previous literature. However other criteria such as ISO certification, reliability, credibility, good references and product development were also identified. These criteria had existed before but did not receive the same attention in previous studies. This show that focus is shifting from solely relying on quantitative factors to include qualitative criteria.

The study identified that some methods of minimising uncertainty could include detailed financial analyses, site visit, intensive verification, close relationships, ISO certification, good references and recommendations. It is worth noting that uncertainty cannot be entirely eliminated in all situations

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1 Introduction

Chapter one describes the background of the study presents the research problem, outlines the research questions and purpose. It also includes the delimitation, and disposition of the research.

1.1 Background

Supply Chain Management has attracted much attention since its first appearance in the 1990s. Many authors have attributed its growing popularity to driving forces such as global sourcing, an emphasis on time, quality-based competition and many others. The concept has since been subjected to many definitions. One of the acceptable definitions has been given by Mentzer, DeWitt, Keebler, Min, Nix, Smith and Zacharia (2001) as:

The systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across business functions within the supply chain, for the purpose of improving the long-term performing of the individual companies and the supply chain as a whole.

The traditional business functions mentioned in the definition may include marketing, sales, production, purchasing etc. These basic functions are coordinated to achieve customer satisfaction, value, profitability, and competitive advantage for individual companies and the entire supply chain. Mentzer et al. (2001). One of the functions that have been singled out as important in the coordination processes of the individual firms and supply chain is purchasing. The role of purchasing has never been merely negotiating prices anymore. It is becoming increasingly clear that its early involvement in selecting a potential supplier to play active and effective role in cost reduction, quality improvement and efficiency enhances the overall performance of the supply chain (Van Weele, 2000).

To further stress on the significant role of the purchasing in the management of any firm and the supply chain, it is reported that purchasing from suppliers outside accounts for a huge percentage of the total operation cost of many firms. It further stated that the raw material purchased for most US firms constitute 40-60% of the unit cost of a product and for high technology firms, purchasing material and services represent up to 80% of total production cost (Burton, 1988; cited by Weber, Current and Benton ,1991). The ripple effect of this development could be passed on to others areas along the supply chain which would consequently affect competitive advantage of the entire supply chain. Additionally, Weber et al. (1991) wrote *“In today’s competitive operating environment it is impossible to successfully produce low cost high quality product without a satisfactory vendor”*. Thus one of the important purchasing decisions is the selection and maintenance of a competent group of suppliers”

The subject of uncertainty is widely researched. Several authors have come up with contextualised definitions, categorization as well as sources and types of uncertainty. Gelderen, Frese and Thurik (2000) assert that firm’s actions and decisions are affected by their environments and these environments create different types of uncertainties. Some sources of uncertainty include lack of perfect information, newly emerging or complex technologies and lack of historically proven record of the supplier (Slack and Michael, 2002). Other sources include language and cultural issues.

Brindley (2004); Ford (1990) and Van Weele (2000) among others have confirmed the impact of uncertainty in business. Brindley (2004) states that uncertainty affects the supply

chains through firm's individual actions termed internal uncertainty, the external environment and relations between firms and their customer called network uncertainty.

1.2 Development and Identification of Problem

Ford (1990) and Van Weele (2004) confirm the fact that uncertainty affects the purchasing function in general and the supplier selection process in particular. Ford (2003) categorically asserts that buying firms are faced with different kinds of uncertainties such as technological, environmental, transaction, need and market uncertainties and this influence the supplier selection process.

Supplier selection is a sensitive process even when it involves existing firms that have proven their worth over time and whom buyers know much about. Furthermore, Ford (1990) also confirms this by stating that, there is the tendency for buyers to favour those suppliers with whom they already have relations or who have firmly established a strong brand in the market. The business world has witness an increasing interest in entrepreneurship which has given rise to the prevalence of new companies which play a crucial role in the economy (Kranzt and Green, 2007). These newly created companies share the characteristics as expressed by Ford. They have neither created a brand nor have they had previous dealings with potential customers. The absence of a past performance record which would act as a vital proof of their ability to perform is an indication of the difficulties that customers would face when deciding on engaging a new firm as a supplier.

This induces the authors of this study to question if the supplier selection process is even more complex when firms carry out a supplier selection involving newly created firms that have not yet known the market nor created a name or reputation. The authors of this research are interested in investigating uncertainties that affect the supplier selection process and thus enhancing the understanding of the uncertainties that plague buying firms, originating from the newness of the supplier.

As stated by of Ellram (1990) different situations require the use of different models and criteria for supplier selection. Given that firm's environments affect the decisions, the authors see the need to evaluate the fitness of existing supplier selection criteria when applied to newly created supplier firms.

Although the importance of uncertainty and supplier selection studies are widely recognized, the concept of uncertainty, with respect to supplier selection of newly created firms has not been vastly exploited. Thus the aim of this thesis is to provide an understanding of the supplier selection process and criteria under circumstances of uncertainty in the case where the potential supplier under evaluation is a newly created business.

1.3 Problem Statement and Purpose

This thesis conducts a study of supplier selection under uncertainty by examining the phenomena from the point of view of three firms in the Jonkoping region. These case studies include a newly created supplier firm; Premould AB of Jonkoping, JLT Mobile Computers Sweden (Vaxjo office) which is a computer manufacturer and also a customer of PreMould AB. Theofil Carlsson AB (Head Office in Jonkoping) sells tools and fittings but has no operations with PreMould.

The main research question is shown below:

What criteria are appropriate in the selection of a newly created supplier firms under uncertainty?

The main question has been broken down to include the following sub questions:

- Does the level of uncertainty vary for new and established firms?
- What criteria are suitable for selection of newly created supplier firms?
- How can firms reduce the problems associated with uncertainty?

In order to provide answers to the research questions and based on the perceptions and experiences of the case studies, our thesis seeks to

- Explore the degree of uncertainty associated with newly created supplier firms as compared to established firms.
- To investigate the appropriateness of the existing criteria and identify other criteria that can be suitable for selection of newly created firms.
- To explore ways by which uncertainty can be reduced in the supplier selection process of newly created firms

1.4 Significance of Study

Numerous studies about supplier selection under uncertainty have centred on the type of supplier selection methods applicable under uncertain conditions .However research about the types or choice of criteria to use under conditions of uncertainty has been neglected. Furthermore studies about supplier selection methods and criteria have not been made with particular reference to new firms. Thus this study redresses the above shortcomings.

The contribution of this study is important to two types of economic actors; buying firms and to a lesser extent newly created firms. The authors seek to strengthen the understanding of the effects of firm age on the supplier selection process, by finding out if firm age influences the type and degree of uncertainty that buying firms perceive to be characteristic of new firms. The study also identifies the relevance of the existing criteria that have been identified in a majority of studies in order to evaluate if they are suitable when applied to new created firms.

Through an understanding of uncertainty, buyers will be able to include and lay emphasis on those criteria that take into consideration the distinctive properties of new firms. Fur-

thermore the buying firms will propose ways of minimizing the uncertainty in newly created firms thus increasing the effectiveness of the supplier selection process in a situation where the potential supplier is new firm. New firms aiming to attract and create a market base will be able to understand how their potential customers perceive them and what criteria they are evaluated on. Buying firms may also gain an insight into what they could do to reduce the effects of uncertainty thereby facilitating the supplier selection process.

1.5 Delimitation

This research is based on uncertainty and newly created firms in the supplier selection process. The emphasis is laid on the uncertainties that buying firms may face as a consequence of the newness of the supplying firms. This research defines newness in terms of age and considers new firms as those between the times of incorporation to four years in existence. Case studies include one New Supplier (PreMould AB) created in 2004 and two purchasing firms. One of the firms; (JLT) is a customer of Premould and Theofilis Carlsons which has no connections to Premould guarantees unbiasedness in the results. The study is limited to the views provided by these three companies and may not reflect a more general view of a study involving a large number of companies.

1.6 Disposition

This section describes the organisation and layout of the research.

Chapter 1 Explains the background of the study presents the research problem, outlines the research questions and purpose. It also includes the delimitation and disposition of the research.

Chapter 2 Describes the theories used in the study. The first part of this chapter discusses supplier selection, methods, processes and criteria. Part two discusses uncertainty, its sources, and uncertainty with respect to supplier selection. Section three discusses new firms and their characteristics.

Chapter 3 Discusses the main research approach used in the study. It discusses sources and methods of data collection, presentation and analysis of data. Finally it presents criticisms and limitations of the method used in the study.

Chapter 4 Contains the presentation of the results obtained from interviews with the representatives of the three firms involved in the study.

Chapter 5 Contains the analysis of empirical findings discussed in relation to the theories that make up the theoretical framework.

Chapter 6 Shows the conclusion of the study. The authors of the research highlight the important points and presented the results from the study.

Chapter 7 Carries proposals for further research.

2 THEORETICAL FRAMEWORK

In this section we describe the theoretical framework that we use to study supplier selection of newly created firms under higher levels of uncertainty. This chapter is divided into three parts. Part one discusses supplier selection, its method, process and criteria. Part two discusses uncertainty, its sources, and uncertainty with respect to supplier selection. Part three discusses new firms and their characteristics.

2.1 Development in supplier selection

Supplier selection is the art of identifying from a number of competitive suppliers, a potential one to satisfy a company's need and aspirations. It has attracted the attention of many academicians and purchasing practitioners since 1960, when Dickson, (1966) first had his publication on the topic. The emphasis of Dickson was on the best criteria that can be used in the supplier selection processes. Many more researchers have been influenced by his work. Weber et al. (1991) provided the most comprehensive review, annotation and classification of 74 related articles since Dickson's 1966 publication. Undoubtedly, Weber et al.'s (1991) work provided an explicit overview on issues of supplier's selection up to 1991. Since then, a large number of articles concerning supplier selection have been published in this direction.

2.1.1 Review of Supplier selection methods

Suppliers have assumed an important role in the success of individual firms and in formidable supply chains as well. Many authors have attributed the causes of this change to high premium to the individual firms as well as the supply chains place on issues such cost, quality, delivery reliability and other similar factors to enhance profitability and competitive advantage. This has resulted in the attention supplier selection is receiving as a crucial component in any purchasing process (Van Weele, 2000).

In supplier selection decisions, two issues are of particular significance. One is what criteria should be used, and the other, what methods can be used to compare suppliers. (Zhang, Lei, Cao, To, and Ng. 2003). As to what methods are used to compare suppliers, quite a number of models have been discussed by different authors. These models may be (prescriptive) based on the way in which model proponents believe a decision should be made or (descriptive) the way they believe decisions are actually made (Ellram, 1990). The use of one method or the other in a particular selection situation is important because of the severe influence it may probably have on the result of the selection. Bhuta and Huq (2002). In an attempt to design any comprehensive criteria for use by practitioners, academicians use a model or two so that their selection criteria can cover a wide spectrum of needs of the company at that particular time. Below are the general highlights on some common methods discussed by authors.

Methods	Discussed author and year	Cited author and year
Total Cost of Ownership	Bhutta and Huq (2002)	Bhutta and Huq (2002)
Linear-weighted Models Categorical Methods	Timmermann (1986)	Ellram (1990)
Matrix Model Analytical Hierarchical Process (AHP)	Gregory (1986) Chen and Yang 2006	Ellram (1990)

Table 2.1 Some Commonly Discussed Evaluation Methods

Four evaluation models for supplier selection as listed in the Table 2.1 feature prominently in several literatures. One of these is Matrix model. It is the situation where suppliers are rated on the weighted factors, based on present written standards. The use of standards is created to lower the subjectivity of supplier rating on each factor. The model allows for varying factor weights, adjustment if a supplier cannot be rated on a certain points, and addition of rating factors as needed. The supplier with the highest overall rating is selected (Gregory, 1986; cited by Ellram, (1990).

Another multi-criteria decision-making method is Analytical Hierarchical Process (AHP) model. AHP is effective method for providing a structured purpose of the weights of criteria by using pair-wise comparison to select the best supplier (Chen et al., 2006). A major advantage that AHP enjoys over other criteria is the relative ease at which it handles multi criteria. AHP is easier to understand and it makes effective use of both qualitative and quantitative data. Decision makers are able to structure complex problems in the form of hierarchy, or a set of integrated levels which has at least three levels namely the goal, the criteria, and the alternative. The goal is to select the overall best, the criteria can be quality, price, service, delivery, and others and the alternatives are the variety of proposal supplied by the suppliers (Benyoucef, Ding, & Xie, 2003). Ideally, it is suitable for supplier selection problems because it provides a way of ranking alternative courses of action based on the decisions maker's judgements concerning the importance of the criteria and extend to which they are met by each alternative (Chen et al. 2006). Researchers who have used this method to deal with the supplier selection issues include Bhutta et al.(2002), Tam and Tummale (2002) and Handfield et al. (2002), (cited by Chen et al. 2006). One major disadvantage of AHP is its weakness in determining interrelationship among factors (Benyoucef, et al. 2003)

Other traditional methodologies of the supplier selection process in research literature include the categorical and weighted-point evaluations methods (Timmerman, 1986; cited in Ellram, 1990).

With the categorical method the experience and ability of the individual buyer is taken into consideration. Opinions of people responsible for purchasing, quality, production and sales are expressed about the supplier's performance based on standard criteria which are important to them. The departments assign either rating for each of the selected attributes for every contending supplier. The buyers determine the suppliers overall score after discussion the rating with members of the departments. It is assessed as very simple and has the main advantage of helping to structure the evaluation process in a clear and systematic way. The main drawback is selected attributes are weighted equally and it provides fairly subjective decision (Timmerman, 1986; cited in Ellram, 1990).

Additionally in the Total cost of ownership, the quoted price from each supplier is taken as the starting point and then each issue being considered is replaced by a cost factor. It looks beyond the price of a purchase to include many other purchase-related costs. The importance of approach has increased because companies are looking for means to understand and manage cost better. It provides clarification and definition for supplier performance expectations for both supplier and the buyer. Again it gives focus and a consistent message about what is important, creates less work, and the outcome of selection can be applied to pre-qualify suppliers and qualify suppliers (Bhutta et al., 2002). Basically what it does is that it measures the cost of each factor as a percentage of total purchasing for the suppliers. Companies wanting to implement the model in their selection process often face the problem of how to include non-monetary issues such as delivery and quality performance, lead time, services and social policies (Monczka and Trecha, 1988; Porter, 1993; cited in Bhutta et al., 2002). It is also claimed by Bhutta et al. (2002) that the amount of complexity and the data requirements are major setbacks of the approach.

It is very important to mention that many authors have chosen to classify the supplier selection methods into sorting and supplier final selecting methods. This is done in order to demonstrate the main purpose of the methods. For example, the sorting methods are meant to eliminate the inefficient suppliers in the beginning of the process; a typical example is the categorical method. On the other hand, supplier final selection methods consist of multi-attribute utility approach and weighted-point approach.

2.1.2 Supplier Selection Process

Supplier selection process has to do with the systematic evaluating and selecting of a potential supplier. Organisations use different approaches to arrive at satisfied conclusions since there is no hard and fast way of selecting of a supplier that has been agreed upon. The most important aim of the evaluating process is to rigorously follow the selection procedure that would ensure that risk is minimal and value is maximised by the purchaser. (Monczka, Trent, and Handfield, 2002; cited in Bello, 2003). Supplier selection is usually done through a survey and for the survey to be classified as effective; it has to be comprehensive, objective, reliable, flexible and mathematically understandable. A systematic step-by-step approach is highly recommended to ensure its success. Monczka, Trent, and Handfield, (2002) have proposed a step to follow when going through the process as shown below (cited in Bello, 2003)

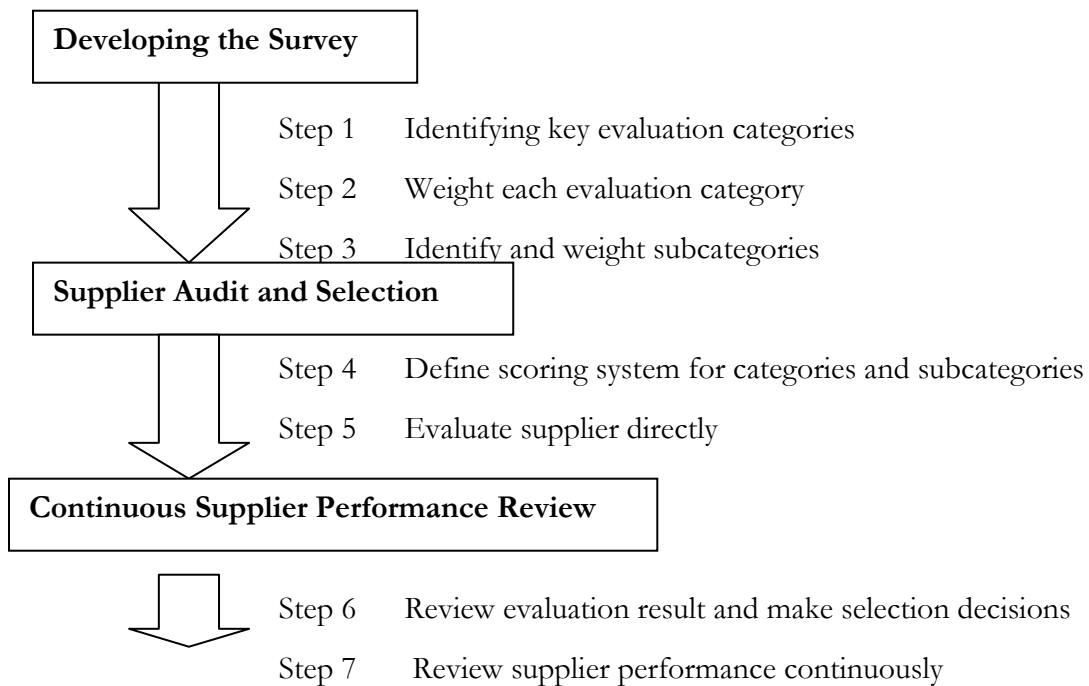


Figure 2.1 Process for supplier selection, source: Bello, (2003)

According to Bello (2003) the main problem of purchasing manager when developing supplier survey is mainly about which performance criteria to include. The basic criteria that are generally used and therefore considered to be critical are price / cost, quality, and delivery. Other areas that need more deep analyses of supplier capabilities, a more exhaustive supplier evaluation study is required as shown in step one in fig. 2.1

Other steps in the process are the performance categories which normally contain a weight that reflects the relative importance of the category. Provision for flexibility is made available through assigning different weights or adding and deleting performance categories when necessary (Bello, 2003).

There is the need to identify and weight subcategories if they exist, within each broader performance category which should total up to the weight of the performance category. A clear and comprehensive scoring system should be defined for categories and subcategories. The different suppliers should be assessed and compared objectively based on their scores. The final recommendation is given as to which supplier best qualifies as a business partner and would be able to meet the aspiration of the company. Finally, maintaining the relationship with the qualified supplier now becomes the focus (Bello, 2003).

2.1.3 Supplier Selection Criteria

The other significant issue in supplier selection is the criteria to be used in the selection. Creating a standard criterion to assist in the evaluation of suppliers has never been easy all over the years. This is simply from the fact that different criteria must be considered in any particular decision making process (Weber et al., 1991). An attempt to analyse criteria for selection and measuring the performance of suppliers has therefore been the focus of many academicians and purchasing since years back. This attention on criteria identification also

emphasis the strategic role of supplier selection in any firm as has been stressed by Benyoucef et al., (2003).

Creating a common set of criteria for effective evaluation involves the determination of quantitative factors (price, quality etc) and qualitative factors (service, flexibility etc) so as to select the best suppliers (Bhutta et al., 2002). The importance of using the appropriate criteria for a particular selection has been emphasised by a large number of researchers, notably Weber et al. (1991), Ellram (1990), and Dickson, (1966). Supplier selection based on number of qualitative criteria (subjective) is influenced by personal judgements. These criteria are less accurate because of the complications involved in their measuring as compared to the quantitative criteria. Whilst studies have shown that there are some variation in the criteria used across different purchase situations and product types, in general the four most important criteria are *delivery*, *price*, *quality* (product) and *service* (Kannan and Tan, 2002; Verma and Pullman, 1998; Ellram, 1990; and Dickson, 1966; cited in Hsu, 2006).

The emphasis on these criteria has long been created since Dickson (1966) surveyed purchasers in order to identify the factors they considered important when awarding business to competing suppliers. His work has since been one major reference source of other papers dealing with supplier and selection problems. The analysis of Dickson was based on a questionnaire sent to 273 purchasing agents and managers selected from the membership list of the National Association of Purchasing Managers. In all 23 criteria were ranked with respect to their importance during that time. In fact it has served as the bases for the emergence of other criteria. The study gave recognition to factors such as “*quality*” of the product, “*on-time delivery*”, “*the performance history*” of the supplier and the warranty policy used by the supplier (Weber et al. 1991).

Rank	Criteria	Main rating	Evaluation
1	Quality	3.508	Extreme importance
2	Delivery	3.147	
3	Performance history	2.998	
4	Warranties and claims policies	2.849	Considerable importance
5	Production facilities and capacity	2.775	
6	Price	2.758	
7	Technical capabilities	2.545	
8	Financial position	2.514	
9	Procedural compliance	2.488	
10	Communication system	2.426	
11	Reputation and position in industry	2.412	
12	Desire of business	2.256	
13	Management and organisation	2.216	

14	Operation control	2.211	Average importance
15	Repairs services	2.187	
16	Attitudes	2.120	
17	Impression	2.054	
18	Packaging ability	2.009	
19	Labour relations record	2.003	
20	Geographical location	1.872	
21	Amount of past business	1.597	
22	Training aids	1.537	
23	Reciprocal arrangements	0.610	

Table 2.2 Dickson's supply selection criteria Sources: Weber et al. 1991

Weber et al.'s (1991) study of supplier selection criteria of several academicians and practitioners, proved that out of 74 articles which attempted to address supplier selection criteria in two important areas (manufacturing and retail), twenty-two of the 23 criteria considered by Dickson appeared in at least one of the articles. Forty-seven of the articles ranked more than one criterion. The most ranked criteria include net *price, quality, and delivery*.

Dickson's study		Criteria	Number of articles	of (%)	
Rank	Rating				
6	1	Net price	61	80	
2	1	Delivery	44	58	
1	1A	Quality	40	52	
5	1	Production facilities and capabilities	23	30	
20	2	Geographic location	16	21	
7	1	Technical capabilities	15	20	
13	2	Management and position in the industry	10	13	
11	2	Reputation and position in industry	8	11	
8	1	Financial position	7	9	
3	1	Performance history	7	9	
15	2	Repair service	7	9	
16	2	Attitude	7	8	
18	2	Packaging ability	7	4	

14	2	Operational control	3	4
22	2	Training aids	2	3
9	2	Bidding procedural compliance	2	3
19	2	Labour relations record	2	3

Table 2.3. Criteria discussed in annotated bibliography. Source: Weber et al. 1991

Also important were production facilities, geographical location, financial position and capacity. Ellram (1990) in a study of supplier selection among firms engaged in buyer–supplier relationships identified additional factors considered as ‘soft’ factors and grouped them under financial issues, organizational culture and strategy, technology and miscellaneous factors. Ellram did not rule out the importance of the quantitative criteria but looked out for supplementary criteria that are related to maintaining long-term relationship (See Table 2.5). Further, the distinguished principal criteria considered by Barborosoglu and Yazgac, 1997 were the performance of the supplier, technical capabilities and financial and the quality system of the supplier (cited in Benyouvet et al., 2003). In all the attempts to create criteria suitable for the evaluation of suppliers, no particular mention was made as regards a set of criteria that could be used in the selection process of newly created supplier firms. Thus this gap created gives impetus to our study.

No.	Criteria
1	Economic performance
2.	Financial stability
3.	Trust
4.	Management attitude
5	Strategic fit
6.	Top management
7.	Compatibility
8.	Organisational structure
9.	Manufacturing current and future capabilities
10.	Design capabilities
11.	Development speed
12	Safety record

Table 2.4. Supplier Partnership Selection Criteria.. Source: Ellram, (1990)

2.2 The Concept of Uncertainty

Meijer et al (2006) define uncertainty broadly as “any deviation from the unachievable ideal of completely deterministic knowledge of the relevant system”. Though there is a large number of studies about uncertainty there exists some controversy on the subject. Some researchers have seen the need for clarification on the definition of uncertainty and have distinguished between two types of uncertainty namely objective and perceived uncertainty. Objective uncertainty is defined as a characteristic of the environment that can be measured objectively. Perceived uncertainty is said to be dependent on individuals and hence cannot be measured objectively.

Perception is defined as the process by which individuals organize and evaluate the stimuli from the environment. The mere existence of information does not have meaning unless it is perceived by an individual hence gathering information cannot always reduce uncertainty because uncertainty exists even in situations where information is available. Since perceived uncertainty is determined by the way individuals view the environment, different persons will interpret and react differently to different types of uncertainty.

Milliken (1987) points out three common definitions of uncertainty as used by organizational theorists which include:

- The inability to assign probabilities as to the likelihood of future events
- The lack of information about cause and effect relationships
- The inability to predict accurately what the outcomes of a decision might be.

According to Ford (1993) buyers are faced with different kinds of uncertainty which make the supplier selection process difficult to carry out. These uncertainties include technological, environmental, transaction, need and market uncertainties. According to Slack and Michael, (2002) uncertainties are as a result of lack of perfect information, newly emerging or complex technologies and lack of historically proven record of the supplier. Other important areas that could trigger uncertainty in the supplier selection process are differences in language and culture (Ford, 1990). The uncertainty associated with language, culture and other sources have become a severe obstacle as more companies are required to select their suppliers beyond their domestic environment.

Gelderen, Frese and Thurik (2000) state that firms are influenced by the environment in which they operate and are faced by uncertainty that require different management approaches. They state that without uncertainty the role of entrepreneurship in business diminishes since uncertainty calls for entrepreneurs to arbitrate, take risk and innovate. Milliken (1987) also states that an understanding of uncertainty is necessary to enable firm administrators respond to conditions in the external environment.

Another issue that researchers have dwelt on is the meaning of the words risks and uncertainty. One school of thought has emphasized in the need to distinguish between risks and uncertainty. Risk is linked with issues about unpredictability which affects decision making and results in consequent loss and is defined as

“The extent to which there is uncertainty about whether potentially significant and or disappointing outcomes of decisions will be realized” (Sitkin and Pablo, 1992 p.2; cited in Brindley, 2004).

Meanwhile, uncertainty is defined as *“the absence of information concerning the decision situation and the need to exercise judgment in determining the situation, alternative solutions and possible outcomes”* (Brindley, 2004). In extreme cases uncertainty can be referred to the total absence of knowledge or information about the existence of a problem or situation. Usually the uncertainty in a particular situation is determined by the fact that the precise nature of a situation, its causes, possible solutions and the reaction of those involved or affected by the solution cannot be determined.

As evidenced in risk and uncertainty literature, the major distinguishing factor between risk and uncertainty is the potential for measurement. (Brindley, 2004) defines risk as *“a chance, in quantitative terms, of a defined hazard occurring”*. Risk is also defined as the possibility of the future not turning out as hoped for or anticipated, but where the probability of occurrence can be estimated (Grundy and Brown, 2004). This implies that there is a probability of measuring the chance of the event occurring as well as the possibility of measurement of the consequences of that event. On the contrary, uncertainty refers to the case whereby the possibility of the future may not turn out as hoped for or anticipated and furthermore, it is not easy to estimate the probability of occurrence. Uncertainty, therefore, cannot be measured or calculated and are thus genuinely unknown.

While it is common practice to use the terms risks and uncertainty interchangeably, it is common in the context of business to use the term risk to mean either situations of risk or uncertainty (Brindley, 2004).

2.2.1 Types of uncertainty

According to Gelderen et al. (2000), different types of uncertainty present in firms' environments. They categorized the different forms of uncertainty at the level of the industry, firm or personal levels. Uncertainty at the industry level may be caused by change and the unpredictability of the economic environment. These changes could be caused by developments in technology, consumer preferences, and competitors' behaviour. They further add that new firms could face uncertainty resulting from limited processing capabilities and competition with existing firms for limited resources.

At the firm level, firms face the uncertainty of whether they will succeed or not. Also at the firm level, the threat of unfaithful customers, unreliable suppliers, lack of finance, or opportunistic employees account for what is termed resource uncertainty. On the personal level uncertainty of failure or success can be explained by a firm's uncertainty about its entrepreneurial capabilities.

Firms are also faced with Information and knowledge uncertainty. Information uncertainty is recognized as a more severe type of uncertainty because it is influenced by all the other forms listed above. Milliken (1987), distinguishes three forms of uncertainty related to knowledge. State uncertainty refers to uncertainty about the current occurrences in the firm. Effect uncertainty relates to uncertainty about the impact on environmental changes while response uncertainty refers to uncertainty about the possible response options that exist and their impact on the firm.

The collective term of knowledge uncertainty arises from the fact that firms are faced with a lack of information and knowledge about the economic environment as well as the as well as the cause–effect relationships in the environment in which they operate (Milliken,

1987; cited by Gelderen, 2000). Gelderen et al (2000) further state that for start up firms the first years are characterized by a high degree of uncertainty.

2.2.2 Sources of uncertainty.

Meijer et al (2006) identify six sources of perceived uncertainty in the organizational environment which affect the decision-maker. Distinguishing between different sources of uncertainty is important for choosing appropriate strategies to cope with the uncertainty.

Technological uncertainty arises from uncertainty about the characteristics of new technology such as costs or performance aspects. It could also be caused by uncertainty about relationships between new technology and current infrastructure or concerns about how easy it is for firms to adapt new version of current technology.

Resource Uncertainty arises from the concerns about amount and availability of raw materials, human and financial resources as well as decisions about whether to outsource or carry out research and development in-house.

Competitive Uncertainty is about the behaviour of potential and actual competitors and the effects of such competitive behaviour on the business.

Supplier Uncertainty refers to issues about the supplier's performance such as quality, price or timing of deliveries. The degree of supplier uncertainty increases as the dependence on the supplier increases.

Consumer Uncertainty includes doubts about consumer's preferences and characteristics as well as concern about their long term development of demand over time.

Political Uncertainty arises from government's behaviour as well as its regimes and policies. Firms may be uncertain about the effects of current or future policies or legislation on the business.

Deloach (2000) distinguishes sources of uncertainty to a business under three risks categories (cited in Brindley, 2004).

Externally driven or environmental risks are risks that are caused by external factors such as competitors, customer's needs, and technological innovations, political, legal or regulatory conditions. These uncertainties might affect a firm's performance or renders its present choices obsolete or ineffective.

Internally driven or process risk refers to cases where business processes do not achieve set objectives. Uncertainty may result from operations, information processing. In addition is uncertainty from financial sources related to problems of price, liquidity and credit.

Decision driven or information risks arise when the information needed to support decision making is incomplete, out of date, inaccurate, late or irrelevant to the decision making process. This form of uncertainty may be witnessed in issues concerning pricing, contracting, measurement, business reporting and environmental issues.

Source	Uncertainty Type /category
Meijer et al (2006)	Technological uncertainty Resource Uncertainty Competitive Uncertainty Supplier Uncertainty Consumer Uncertainty Political Uncertainty
Deloach 2000(cited in Brindley,2004)	-Externally Driven or environmental risks -Internally Driven or Process Risks -Decision Driven or Information Risks

Table 2.5 Sources of uncertainty compiled by Authors

2.3 Supply Chain Uncertainties

According to Juttner et al (2002) there are three broad sources of risks or uncertainties that are relevant to the supply chain (cited in Brindley, 2004). These sources are categorized into external, internal and network related sources. External sources of risks included political, natural, social, industry or market risks, an example being volatility in demand. Risks resulting from internal sources include labour, production or IT system risks or uncertainties. Examples are strikes and breakdown in operating equipment or IT systems. Another source is the networking risks and examples are risks resulting from interactions between firms in the supply chain.

Brindley (2004) distinguishes the risks and uncertainty that affect the supply chain from general risks that affect businesses. She describes supply chain risks and uncertainties as those related to logistics with relation to the flow of products and information. These risk and uncertainties are based on the supply chain perspective and affect the business as well as its customers, suppliers, sub suppliers and partners.

Brindley proposes a framework for defining these supply chain uncertainties. They are operational accidents, operational catastrophes and strategic uncertainty that influence or affect logistics and supply chain activities and resources. This framework leaves out financial, legal or currency risks of a business unless where the risk and uncertainties also affect other firms.

2.4 Uncertainty and Supplier Selection

Uncertainties in the supplier selection process affect both buyer organizations and potential suppliers. While some researcher discusses uncertainty on general terms, Ford et al (2006) analyze the concept of uncertainty from both the supplier and buyer perspectives. Instead of identifying individual components of uncertainty, they have classified uncertainty into

three broad categories for both suppliers and customers. This provides us with the framework that is applied in our research for understanding uncertainty with respect to the supplier selection process. However the study is concerned with the uncertainties faced by the customers.

2.4.1 Uncertainties faced by purchasing firms

The purchase function would be easier if firms were sure of the precise solutions that would satisfy their needs and that there were suppliers whose offerings matched those needs. Another condition is that there are also sure that these suppliers performance would meet their expectations and more so, at the lowest price possible for such service.

However, in reality customers are not always sure of the above because the business environment is imperfect. Thus the absence of perfect knowledge about these situations reflects examples of the different types of uncertainties that buyers face. These uncertainties have an influence on their decisions in the supplier selection process. Ford et al (2006) characterize these uncertainties as need, market and transaction uncertainties respectively.

Need Uncertainty. This type of uncertainty refers to the situation whereby the customers cannot define their problem or do not know the specific solution that is required to solve the problem. Under situations of need uncertainty customers are more likely to take long time in concluding deals, have frequent and close relations with potential suppliers, demand suppliers participation in making decisions .Furthermore there is the tendency for buyers to favour those suppliers with whom they already have relations or have firmly established a strong brand in the market (Ford 1990; Leenders & Fearson,1997; Ford et al 2006,).

Market Uncertainty. Market uncertainty results from the fact that several potential suppliers exist and buyers have to choose those suppliers that best satisfy their needs. Another source of such uncertainty may also be caused by the existence of numerous technological solutions that are constantly changing such that customers have to choose from a wide variety and new sources (Ford 1990; Ford, 2006).

Transaction Uncertainty. According to Ford (1993); Ford (2006), several dimensions of transaction uncertainty exists for the buyer. The buyer may be concerned about whether the supplier will be able to implement its offering by delivering the right quality and the right quantity at the right place ad time and at the stated price as they promised. It also includes doubts about the customer's ability and willingness to perform the above responsibilities with consistency (Ford 1990; Leenders & Fearson, 1997; Ford et al, 2006)

2.4.2 Uncertainty and Purchasing

Van Weele (2002) states that the degree of uncertainty associated with purchasing transactions can be influenced by the type of purchasing situation. Uncertainty varies with the complexity of the purchase. The three categories of purchasing transactions and their relationship with uncertainty can be explained as follows:

The new task situation occurs when an organization buys a completely new product that is supplied by an unknown supplier. Purchase may involve capital goods or new components that are built to the buyers specifications. Transactions involving the purchase of new products from unknown suppliers are characterized by high degree of risk and uncertainty.

The modified re-buy takes place when an organization purchases a new product from a known supplier or an existing product from a new supplier. This may result if the buyer is unsatisfied with the current supplier or when better alternatives for the existing product are made available in the market. This situation is less risky because the buyer is familiar with the supplier or with the product in the respective cases.

The straight re-buy involves the purchase of a known product from a known supplier. Uncertainty in this case is lower than in the above mentioned cases because terms and conditions of the contract are known and is re-established with each transaction.

The level of uncertainty can also be determined or affected by the nature of product complexity. Puttick (1994), describes this relationship by advancing that the nature of uncertainty may vary with product complexity. He identifies four types of product of varying complexities and resulting uncertainty. His classification shows that capital goods are characterized by high degree of complexity and operate in high uncertainty environments while commodity products have a low product complexity and equally face low environmental uncertainty. Fashion goods have a low product complexity and face high environmental uncertainty. Durable goods on the other hand are characterized by high product complexity and low uncertainty (cited by New and Westbrook, 2004. p 141).

2.5 Uncertainty Reduction in the Supplier Selection Process

Ford et al (2006), hold that suppliers and customers can influence the level of risks inherent in the supplier selection process by understanding as well as manipulating the respective uncertainties and abilities.

Suppliers will also be attracted to those customers whose requirements match their abilities. Thus they will seek customers whose uncertainties they can minimize through their abilities. Suppliers can minimise the uncertainties faced by customers by using problem solving and demand abilities.

Suppliers possess problem solving abilities if they are able to propose an offering that satisfy customers specific requirements (Ford et al, 2006). This trait is important where customers find themselves in the mist of high need or market uncertainty. Transfer ability is determined by the supplier's ability to keep its promise by delivering the right quantity, quality and functionality at the right time and at the agreed price.

Customers will seek suppliers who provide evidence of problem solving or transfer abilities that are more likely to minimize their uncertainties. Customers can also reduce the effects of uncertainty by improving on their demand and transfer abilities as shown below.

Customers who possess demand ability are sure about their requirements such that it can advise the supplier with precision about the type of products they need as well as the correct volume, hence supplier can better organise its offerings (Ford et al, 2006). This is vital when the supplier faces high capacity or application uncertainty (Ford et al, 2006). Transfer Ability determines the customer's ability to provide accurate information about the type and volume of orders as well as managing the buyer supplier relationship efficiently and effectively.

2.6 The Concept of New Firms.

There is a prevalence of literature about new business or firms with respects to different aspects such as the reasons for their formation, factors affecting their formation, problems faced by new businesses, characteristics of entrepreneurs, the influence of new businesses on the economy and their survival amongst others .However a controversy exist with no universally accepted definition of newness with respect to firms age. The concept of new has been attributed different meanings when linked to corporate organizations thus the meaning of “new” varies. Hence, researchers give the term a contextual meaning based on their perception of “newness” as expressed in some studies.

Studies such as Storey (1985) and Terpstra and Olson (1993) identify new businesses as those that are in their first year of existence while a study carried out by Cromie (1991) define new business as including those in their first four years of existence (cited by Brunaker ,1995).

Brunaker (1995) proposes a definition of new business by discussing properties of new businesses. In his opinion properties of new business include intentionality as reflected in the goals and objectives of the business in addition to resources, boundaries and exchange. This view holds that a business is in existence as long as one or more of these properties exists. Hence a business may be new even when it is not yet created. He confirms the conceptuality of the definition of new business by further claims that by the time a new organization is incorporated it becomes an “*old*” new organization because intentionality, resources, boundaries and exchange are identified even before the business commences its operations.

In the context of our research, we define new business as including a time frame from incorporation to 4 years after incorporation. This is based on the fact that an organization becomes a corporate entity after its incorporation. Furthermore during its early years a new business is in a continuous process of learning and adaptation.

2.6.1 Strengths and Weaknesses of New Firms.

New firms are an important component of the economy and play a vital role. New firms are a source of new jobs, they are leaders in developing breakthrough innovations, and they create new industries and generate technologically superior products. Some new firm attains exceptional growth levels that traditional firms cannot achieve (McKelvie, 2007).

Despite these advantages new firms are also plagued by a number of problems which constitute their weaknesses. All firms face problems but there are some that are specific to new businesses. The main concern of new businesses is to integrate and become known in the market in order to gain a sizeable and stable share of the market demand. New firms are adversely affected by the liability of newness which includes lack of funds, lack of routines, lack of legitimacy and a lack of knowledge (McKelvie, 2007).

Storey (1995) found out that the most important problems faced by these firms in their first year of business include shortages of demand , skill shortages, supply shortages, high wage costs and financial problems (cited by Brunaker, 1995).Other less important problems include high labour turnover and industrial disputes. However the intensities of these problems varied with firm size, industry or growth strategy.

In Brunaker (1995), Cromie (1991) concludes that three main sources of problems exist for new business. Marketing problems include insufficient sales, pricing and competition. The financial problems are lack of funds and cash flow problems. The third source includes management of human resources. Production problems are another sources consist of poor quality and inadequate supplies.

Terpsta et al. (1993) in their study found related problems including sales and marketing, difficulties in obtaining external financial, problems of internal financial management and general management(cited by Brunaker , 1995). Other sources of problems include product development, human resource management, production, problems resulting from the economic environment and the regulatory environment.

The above problems faced by new business can be linked to uncertainty. This is because in their early years firms are in a learning and adaptation process and consider these problems challenging. New firms must organize their resources, update their competences, test and revise their problem solving abilities in order to face these challenges.

Source	Characteristics of new firms	
	Strengths	Weaknesses
<i>McKelvie 2007</i>	<i>Source of new jobs, leaders in developing breakthrough innovations, creation of new industries, technologically superior products, Exceptional growth levels</i>	<i>include lack of funds, lack of routines, lack of legitimacy and a lack of knowledge</i>
<i>Terpsta & Ohlson, (1993)</i>		<i>Sales and marketing, difficulties in obtaining external financial, problems of internal financial management and general management, product development, human resource management, production, environmental problems</i>
<i>Brunaker (1995)</i>		<i>Shortages of demand , skill shortages, supply shortages, high wage costs and financial problems, high labour turnover and industrial disputes</i>
<i>Cromie (1991), Brunaker (1995)</i>		<i>Marketing problems e.g. insufficient sales, pricing and competition. Financial problems e.g. funds and cash flow problems Management of human resources. Production e.g poor quality and inadequate supplies.</i>

Table 2.6 Strengths and Weaknesses of New Firms. Source: Compiled by Author

3 METHODOLOGY

This chapter discusses the main research approach used in the study. It also specifies the sources of data and analysis of data collected. It again deals with our method of data collection in terms of selection of respondents and interview procedure. We conclude by considering limitations and constraints encountered in the course of this research work

According to Ghauri, Grønhaug & Kristianslund, (1995) research methodology can be conceived as a system of rules and procedures. Such rules and procedures are important in research for several reasons mainly:

- It can be conceived as rules for reasoning, in other words a specific logic to acquire insight,
- It reports in details how the researcher has obtained his or her findings means that can be evaluated by others,
- It is also considered as the rule for communication. By reporting on the rules and procedures used enables others to try to replicate them, or criticise the approach chosen and the findings reported.

3.1 Research Approach

The research method used in this study is the qualitative approach. Qualitative research involves investigating opinions, behaviours and experiences from the informant points of view. It is described by Mark, 1996 as an approach that uses general description to describe or explain. Again Maanen (1983) defines qualitative approach as ‘ an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world’ (p. 9) cited in Easterby -Smith, Thorpe & Lowe, (1999). He further assessed that in-depth interview is the most fundamental of the all qualitative approaches of research.

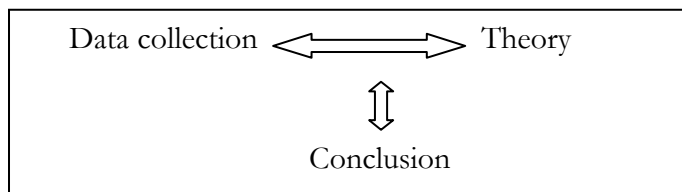


Figure 3.1 Qualitative research sequences. Source: Mark, 1996

Mark, (1996) discussed the main characteristics of qualitative research. First, as shown in Figure 3.1 above, the qualitative researcher moves freely back and forth between the data collection and theoretical analysis. They observe or interact intensively with the research participants, often taking copious notes. In addition, the qualitative approach proceeds from the specific to the general level. This type of research may use any method of data collection, including questionnaires and structured interview. The goal of qualitative research is to enhance our general knowledge about complex events and processes. Merriam (1988) mentioned characteristics of qualitative research:

- The first one concerns the vitality of seeing and understanding events through the eyes of the participants.
- The second feature concerns the fact that it is the researcher that is the principal instrument responsible for the collection of data and analyzing the data that has been collected.
- The third attribute of qualitative research is that it requires the need for field work through the observations of situations and people own eyes.
- The fourth attribute is the reality of qualitative research whose focus is on building new theories rather than testing old ones.

Our research adopts a qualitative approach because there is the need to have personal interactions with respondents through an interview procedure to identify whether uncertainty is high or low with respect to new supplier firms as compared to established firms, identify the suitable criteria and the ways through which uncertainty can be reduced so that we can draw conclusion through the interpretation of gathered data from our interview.

The quantitative approach on the other hand, studies phenomena using numerical means. There is an emphasis on counting, describing and using standard statistic. In this type of approach researchers are more interested in outcomes. It also requires detachment of the observer, especially in the experimental method where the personal involvement can affect the outcome of the research.

3.1.1 Theoretical Study

The theoretical study is based on analysis of relevant materials that have been written on the subject under study namely supplier selection under uncertainty. The current development in supplier's selection was discussed and an in-depth review of supplier selection methods processes and criteria have been discussed. Uncertainty as applied to supplier selection of newly created firms has also been reviewed. The prime purposes of literature review as described by Ghauri, Grønhaug & Kristianslund, (1995 pp. 23) are to:

- a. *frame* the problem under scrutiny;
- b. *identify* relevant concept, concept/techniques and facts; and
- c. *position* the study

3.1.2 Empirical study

We select both suppliers and customers in order to get well informed views. From the suppliers we intended to find out their start up experiences, customers willingness to contract, customers doubts, their insecurities and their opinion of the selection criteria and methods. On the other hand, from the customer point of view we intended to find out the significance of firm's age in the supplier selection process, the doubts they had towards these new suppliers, criteria for selection and what they believed could reduce the uncertainties that were associated with newly created firms.

An analysis of the result would provide answers that could reveal whether uncertainty is high or low in new supplier firm than established one, whether the existing criteria are rele-

vant for selection of newly created supplier firms and also if there are criteria that are being applied in practice that was not yet present in existing literature.

3.2 Sources of Data

Research studies are often conducted empirically, implying the gathering of and the use of the data. The reason for gathering data is to obtain information of importance for the research problem under scrutiny. The quality of the information depends considerably on the measurement procedure used in the gathering of the data (Ghauri, et al., 1995). According to Welman, Kruger and Mitchell, (2005) two main types of data exist for gathering information on which to do inferences and make conclusions. They are the primary and secondary data.

Primary data refers to information that must be collected by the researcher for a particular purpose from primary sources through questionnaires, interviews or observations. Primary data for this study has been collected through telephone conversations, emails correspondences and interviews.

Secondary data is raw data that is already available and need only be extracted from sources like government publications, earlier research, personal records or the mass media. Secondary data sources include articles but journals and data bases as well as books form the Jonkoping University Library and the Internet.

3.3 Data gathering techniques

3.3.1 Case study approach

Case studies enables the researcher to gain a rich understanding of the context of the research and the processes being carried in a bid to provide answers to questions of what, how and why .

3.3.2 Selection of Cases

The study involves three case studies. The cases include one newly created supplier (Premould AB) and one of its major customers (JLT Mobile Computers) as well as another purchasing firm (Theofil Carlssons, AB) that has no relations with the newly created supplier.

PreMould AB henceforth known as (Premould) a newly created supplier firm from whose perspective an in-dept interview is carried to find out more about newly created firm, uncertainty and the criteria related issues. JLT Mobile Computers AB (JLT) was selected because they have direct link with Premould a newly created supplier and would be in a better position to give us their own experience on their selection of premould, uncertainties they faced and the suitable criteria they customers used. Theofil Carlssons AB (Theofil) is a buyer firm from whom we want to have general information about newly created supplier firms, problems, criteria and their experience in dealing with newly created supplier firms.

The aim of involving both the newly created supplier firm and its customer was to analyze the topic from both view points. We wanted to find out customer's perception about uncertainty in the supplier selection process where new firms were involved. We wished to find out what factors they considered during supplier selection and why. We also wished to find out their opinion about what could be done and what they expected of suppliers to reduce uncertainty and the effects on supplier selection of new firms.

We also intended to learn from the new supplier firm themselves about their perception of the degree of uncertainties they faced as new firms and the way they were viewed by their potential customers. This was intended in a bid to confirm if their being new affected them as they integrated themselves in the market. We also wanted their proposals about what new firms could do to reduce the uncertainties linked to new firms with respect to supplier evaluation. By including Theofilis Carlssons AB which neither had business relations with Premould nor had they had previous dealings with a newly created supplier we wished to have an unbiased view about the way such a customer perceive a newly created firm.

Selection of respondents

In order to enhance reliability and validity of the study we made an effort to involve top management and those directly concerned with the supplier selection process. With regard to Premould, interviews were conducted with the managing director who is directly involved in all sales issues as well as an employee working with the sales department.

Telephone interviews were conducted with the Project Manager at JLT and due to time constraints we could not talk to other personnel. At Theofilis interviews were carried out with the managing director and the purchasing manager

3.3.3 Interviews

An interview is a purposeful discussion between two or more people aimed at gathering information that is reliable and relevant for answering research questions and objectives (Saunders, Lewis & Thornhill, 2003). There are different types of interviews which vary according to their degree of formality and structure. Interviews are classified as structured, semi structured and unstructured interviews. Interviews could also be standardized or non-standardized as well as respondent or informant interviews (Saunders et al, 2003; Welman et al, 2005).

Structured interviews use predetermined and standardized questionnaires which are similar for each respondent. Such interviews are used in descriptive studies to identify general patterns and also for explanatory research.

Semi structured and unstructured interviews use non- standardized and additional questions and probes may be used to improve quality of answers received (Saunders et al, 2003; Welman et al, 2005). For semi- structured interviews, the themes and questions may be different for each interviewee. This type is mostly used for explanatory studies to understand relationships between variables and to some extent for exploratory studies (Saunders et al, 2003).

Unstructured interviews are informal, are also referred to as in-depth or non directive interviews. They are used for in depth exploration of subjects of interest and thus this is

highly appropriate for exploratory research to find out what actually happens in a given situation and to seek new insight. They have no predetermined list of questions as such the interviewee can talk freely based on his or her perceptions of the topic hence it is also called a respondent interview (Saunders et al, 2003; Welman et al, 2005).

Given the above explanations the authors of this study use both semi- structured and un-structured interviews. They are appropriate for explanatory and exploratory research and encourage interviewee’s use of their perception as well as in-depth information about phenomenon.

3.3.4 Interview Procedure

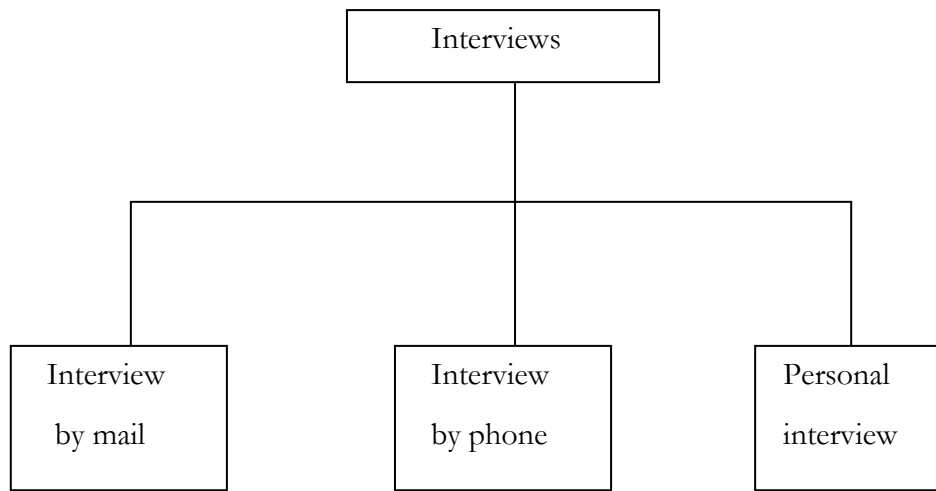


Figure 3.2 A typology of interviews: Sources: Ghauri, et al., 1995

For the purpose of our research the interviews were performed by telephone or by personal contact based on proximity. The interviews begin with general information about the company and extend to the interviewees individual or perceptions regarding the topics under review .Semi-structured questions were used to allow for greater flexibility. After each interview session, the information was then reviewed and further questions are derived to close the gaps. Questions were aimed at finding out details about issues considered of selection criteria to be of prime importance as well as to shift focus to neglected aspects.

3.4 Presentation and Analysis of Empirical Findings

Analysis of qualitative data involves four main processes which include data categorisation, unitisation of data, relationship recognition and development of analysis and lastly, development and testing of hypothesis (Saunders et al, 2003).

Data categorisation refers to the classification of data obtained from empirical sources or from the theoretical framework into meaningful categories in order to create a well structured framework .The choice of categories are derived from research questions and objectives. **Unitising of data** refers to attaching relevant parts of data also called units, to the categories that have been developed. **Recognising relationships and developing categories** enables the researcher to develop categories and assign different units of data under each category thus enabling the researcher to identity patterns and relationships be-

tween categories. Finally in the *development and testing process*, patterns or relations can be transformed into hypothesis and tested to conclude about the existence of relationships. Saunders, et al., (2003) also propose analytical strategies which may be inductive or deductive or a combination of both inductive and deductive elements.

In this study the authors create organise data collected from empirical sourced into categories. These categories are derived from theoretical and empirical data, and guided by the research questions and purpose. The organised information obtained is then compared with the theoretical literature to find points of divergence or convergence.

3.5 Method Criticism

3.5.1 Validity

Validity can be explained as the extent to which the research findings accurately represent what is happening in the situation under study. The validity of any research can be hindered by faulty research procedures, poor samples or misleading measurement (Collis and Hussey, 2003). The validity of this study is assured as the empirical study conducted is coherent with the reality. The questioned are structured to capture information that is relevant to the study and reflect the perceptions of the interviewees.

3.5.2 Reliability

Reliability is concerned with the consistency and accuracy of the results obtained and it is achieved if research results can be repeated (Collis & Hussey, 2003). According to the authors, reliability is achieved by measuring a construct using a particular instrument, comparable results can be obtained irrespective of when the measurement is done, which version is used or who is doing the measurement. Welman et al. (2005) explain reliability the reliability of this study is assured given that the same results would be obtained if a different set of researchers were to conduct this same study under the same circumstances. Furthermore, the research is reliable as the interviews are conducted in the same way for all respondents.

Generalizability

Generalisation refers to the ability to apply the results of a particular research to cases or situations other than those examined in that study. It is also described as the extent to which conclusions about a whole population based on information obtained from a single sample (Collis & Hussey, 2003).

The cases in this study differed in activity, size, scope and age as well as their positions in their various supply chains. Though the sample size may not be large enough to represent the entire population of companies involved in the industry or supply chain position, we believe that the results of the study will be beneficial to those categories of firm represented. This view is based on the view of Norman (1970) that it is possible to generalise from a single case or several cases as long as the analysis fully captures the interactions and characteristics of the phenomena under study (cited in Collis and Hussey, 2003). Other authors also argue for the richness of detail within a single case by looking for multiple implications of the ideas under study.

On the other direction, multiple case studies are considered more appropriate for studies not involving rare, critical or revelatory cases. In this approach one should be clear that every case has to serve a particular purpose in the study and it also important to justify the selection of each case (Ghauri, et al., 1995. p.93).

3.5.3 Limitation of study

The problems encountered during this study include the following.

Firstly the authors of this research encountered a lot of resistance and unwillingness from firms who were contacted for this study. Phone calls and even visits to their premises proved futile. This limited the choice and number of companies involved in the study.

Language and communication barriers. The authors did not understand Swedish while some of the firm representatives understood and spoke little or no English. The information from some of the websites was entirely in Swedish and the help of some Library staff was enlisted to translate the required information. This might have affected the level of detail and choice of responses obtained hence the validity and reliability.

We also found that some of the firms who were willing to grant us audience would not fit as case studies. Some of the firms had existed before and had only changed names while some of them had existed for long and had only created new branches and thus the authors did not consider them as newly created firms. One of the firms was still in the process of being started hence not yet operational. This further limited the choice and number of companies chosen for the study.

One of the interviews had to be carried out over the phone and hence lacked the detail and flexibility associated with face-to-face interviews.

4 Presentation of results

This Chapter contains a presentation of the results obtained from interviews with the representatives of the firms involved in the study.

4.1 Theofil Carlsson AB

4.1.1 About the Company

Theofil Carlsson AB belongs to the Vattern Industrier AB. The company has two parts of operational sectors mainly stores and warehouses. The main warehouse of the company is in Jonkoping from where it distributes to all other sub-stores and sub-warehouses in other areas in Sweden. It has 55 employees in the all the four well established stores and warehouses in Sweden. The company had 130 million SEK, as a turnover in 2006 and has projected a turnover of 137 million SEK, in 2007 (Power point presentation by Managing Director).

Theofil Carlsson AB popularly known as 'Theofils' is admittedly one of Sweden's established local tools retail companies, established in 1922 which sells kitchen fittings, fitting for sliding doors, electric tools for carpenters, adhesives for woodworking industries and other small items i.e. screws and knots. Theofils has been in existence serving their customers for about 85 years. Until 1967, Theofils concentrated on selling to furniture manufacturing companies locally. It started selling and concentrated on small and medium sized customers in 1994. For all these years, Theofils was selling from its main warehouse in Jonkoping. In 1997 it established a store and warehouse in Stockholm, the capital of Sweden. Another store was opened in Malmo in 2005. Its final development project was establishing a store in Gothenburg in the 2007. Theofils since 1995 is certified in accordance with ISO 9001 (Power point presentation Managing Director).

ISO 9001 is the internationally recognized standard for the quality management of business. It applies to the process that creates and controls the products and services an organization supplies. It prescribes systematic control of activities to ensure that needs and expectations of customers are met. It is designed and intended to apply to virtually any product or service, made by any process anywhere in the world. (ISO QAR 2007-12- 05)

Services offered by Theofils

Theofils offers a large range of assorted items to their customers mainly for manufacturing of kitchen, Bathroom, office decorations, furnishing, and other necessities. They sell electric tools for carpenters (See items chat in appendix) .They are committed to providing high standard logistic services mainly daily deliveries and well equipped warehouses to serve their customers needs and at the expected times. The company has highly skilled staffs that seek to provide solutions to their numerous customers and suppliers.

4.1.1.1 Supply Chain of Theofilis

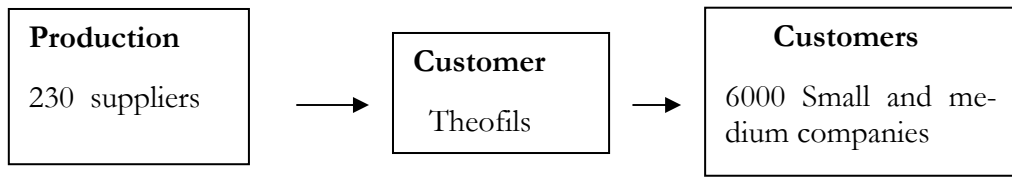


Figure 4.1 Supply Chain of Theofilis: Source: Managing Director.

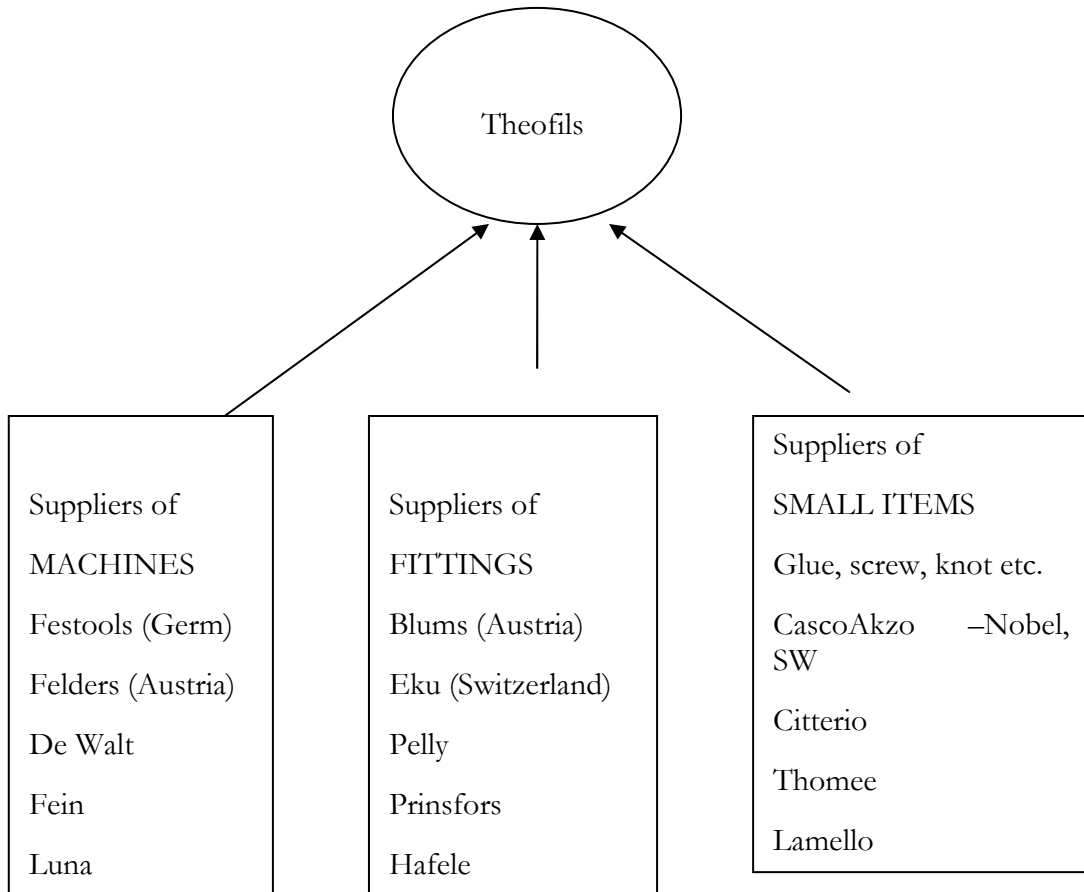


Figure 4.2 Some of Theofilis suppliers. Source: Managing Director's Presentation

Theofilis has a large supply base made up of between 230-300 potential suppliers. New suppliers are very often added on to the list and old non-performing suppliers are avoided. The internet, exhibitions and established potential suppliers provide Theofilis with information about new suppliers. It is the demand of Theofilis that their suppliers possess a high competence and skill to create and develop new products at low cost.

The suppliers of Theofils are classified into three categories as shown in figure 4.2. There is a group of suppliers which supply electrical tools for carpenters (machines). These types of suppliers are mainly foreign based firms located outside Sweden. Typical examples are Festool (German firm) and Felders (Austrian firm). The second group also made up of companies outside Sweden supplies fittings of all kinds for different purposes. Blum (Austrian firm) and Eku (Swiss firm) are two examples. The third group of suppliers is made up of basically locally based and foreign companies. They supply a large range of small items used in the wooding industries. Casco (Akzo-Nobel) is a typical local firm and many others from China and Italy. (Sales and Purchasing Manager)

4.1.1.2 Theofils Customers

Theofils deals with significantly quite a large number of customers. The number of customers will fall within the environment of 6000. The customers are mainly within the range of small and medium size companies. 95% of these customers are local firms and the remaining 5% are firms in Norway and Finland. Theofils works closely with the potential customers to foster cooperation and long term relation. The cooperation is maintained through constant meetings, exhibitions, new product development, and training. Theofils provides highly efficient order management, standard warehousing and highly precise delivery security for the customers. Theofils started making efficient use of e-commerce since 2004. This provides the large range of customers with all kinds of service which creates enabling environment for transactions.

4.1.2 Supplier Selection

4.1.2.1 Supplier Selection Process of Theofils

One of the most significant aims of Theofils is to serve their numerous customers with the best products in the markets at every time. According to the Managing Director, Theofils do not produce any single item they serve their customers by themselves. Thus selecting a supplier that would prove worthy of the desire of Theofils as well as their numerous customers is very crucial to their success and paramount in their business plan. Theofils therefore leaves no stone unturned in conducting the evaluation of suppliers to approve the selecting of a supplier (Sales Manager, Yohan Carlson).

The identification of the basic criteria is always the first step and then assigned weighted points. Suppliers are evaluated directly through visit to their firms. However far off companies with minimal or small volumes of transactions are negotiated with by phone and internet. The results of the evaluation are scrutinized by various responsible persons namely the Managing Director, Sale and Purchasing Manager etc. Final selection of the potential supplier is made (Sale and Purchasing Manager: Yohan Carlson).

4.1.2.2 Criteria for the evaluation of established firms

Theofilis regularly works with few very important criteria in their evaluation process of old and established firms. Empathically, Theofilis has the usual trend of selecting well established producers in order to ensure that they maintain the quality of their products and remain competitive in the market. According the Management of Theofilis, the most important criteria in their selection process is delivery time. Significantly, this criterion has to do with an effective logistic system of the companies under evaluation. The companies must have regular and precise **delivery** times. **Financial position** of the suppliers is other criterion mentioned by the authorities of Theofilis. **Price, reliability and quality** were also mentioned. **ISO Certificate** to ensure that the companies are well certified by an International Organization of the quality of product and services is also considered. The companies have to prove of some kind of **credibility** over time.

Rank	criteria
1.	Delivery
2.	Quality
3.	Price
4.	Financial position
5.	ISO certification
6	Reliability
7.	Credibility

Table 4.1 Supplier Selection Criteria of Theofilis. Sources: Management of Theofilis

4.1.2.3 Supplier selection criteria for newly created firms

According to the officials of Theofilis newly created suppliers are hardly selected. In rare occasion where newly created suppliers become the most appropriate option the very likely criteria used to evaluate them are **price and design of a product**. To illustrate how price becomes one of the criteria for the selection of newly created firm the Managing Director used the scenario of a new bulb as describe below.

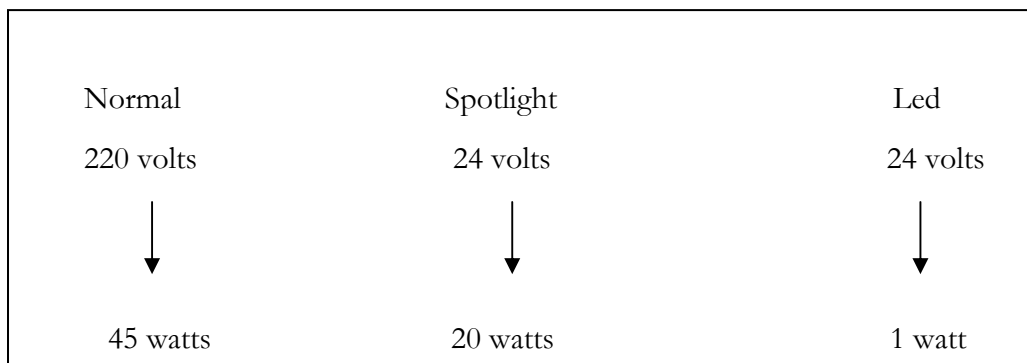


Figure 4.3 Price and Product design illustration. Source: Managing Director Theofilis.

From the figure above, the normal bulb of 220 volts uses 45 watts at the price of XXX. The spotlight is an improvement upon the normal bulb which uses less volts and less watts at less cheap price. The third development upon the same bulb is the led that uses 24 volts and far lesser watts at a lesser price. In this instance, newly created firm which develops the led bulb with lesser price and uses lesser volts would be evaluated based on the price of the commodity and product development.

Delivery is other important criteria which could be used in the evaluation process of the newly created firm. As to how efficient and responsive a newly created firm would be in delivering of the product would be other area that can be of a great concern to the any customer. A firm like Theofils which would not compromise **quality** for any thing in serving our customers would definitely have quality in the line as a criterion to evaluate the newly created suppliers. They also mentioned credibility and ISO certification

Rank	Criteria
1.	Quality
2.	Delivery
3	Price
4.	Product design
5.	Credibility
6.	ISO certification

Table 4.2 Supplier Criteria for newly created firms.

(Managing Director & Sales and Purchasing Manager of Theofils)

4.1.3 Uncertainty

According to the manger of Theofils in every purchase transaction there exist several elements of uncertainty. These uncertainties have to be analyzed and their sources and impact evaluated and solutions found to minimize them.

The first aspect of uncertainty that is witnessed in the supplier selection process is felt at the initial stage. This is the stage that involves the identification of potential suppliers for a needed product. Uncertainty arises from the fact that at this initial stage there is *no clear knowledge about firms*. During this stage Theofils purchase team must refer to information from the internet, from exhibitions, recommendations from other suppliers. To enhance information collected, visits to the supplier is also necessary. Uncertainty is further a problem because some of their suppliers are located in other countries such as Switzerland, Austria and as far as China.

However even with the company information obtained certain above, aspects of uncertainty still exist because the availability of information alone does not remove uncertainties from the business environment. Sources of uncertainty are classified into two categories. These are internal uncertainties that are specific to the supplying firm and those that come from the environment in which the firm exist.

Internal sources of uncertainty refer to those uncertainties that are caused by the actions of potential or existing suppliers. Theofilis is devoted to quality and prompt delivery of ordered goods to their customers. Thus the greatest source or types of uncertainty result for the fact that suppliers *may not be able to deliver on time or may not produce the right quality*. Issues about pricing are less uncertain because prices are usually negotiated at the beginning of the contract. Failure to deliver the right quality or failure to deliver on time has drastic consequences for Theofilis ability to satisfy their customers as well as it damages their finances.

Usually to enhance quality issues Theofilis order test products or models. There is no guarantee that these tests will meet the specifications of Theofilis and even when they do there is no guarantee that subsequent editions of the product will meet the expected quality.

Another source of uncertainty is the aspect of *trust*. This is because at the initial stage of the buyer - supplier relationship Theofilis is not certain if the partner will work to the interest of the relationship. Sometimes a supplier may be enthusiastic and collaborative during the negotiations and trial period but performance may deteriorate after the contract has been established. Trust issues get better as the relationship continues.

Uncertainty could also result from the fact that suppliers do not have *adequate capacity* to produce the required amount with consistency hence variability in supply. This is important in inventory control as a certain level of inventory must be available in order to minimize risks of stock out as well as reduce inventory costs.

Lack of correct and up to date information. This could result from incompatibility in information systems or the lack of seriousness on the part of the suppliers to relay the right information and at the right time. Site visits and face to face meetings and negotiations are more frequent for suppliers within Sweden. For large suppliers outside Sweden supplying the main products, visits are less frequent but must be at least once a year. Smaller suppliers of peripheral products may not be visited.

Other sources of internal uncertainty include the lack of adequate financial resources, technology, commitment, and logistic capabilities.

Other sources of uncertainty come from the environment in which the firm operates. Such uncertainty could come from the fact that better and updated versions of a product could be introduced in the market, Increases in the general price level of raw material thereby increasing costs, cultural barriers, Language differences and communication inefficiencies.

Internal uncertainty	External uncertainty
<ul style="list-style-type: none"> -Quality -Unreliable Delivery times -Trust and commitment Issues -No clear knowledge about firms - Lack of correct and up to date information -Lack of adequate financial resources, -Technology, -Logistic capabilities. 	<ul style="list-style-type: none"> -General increase in price levels -Cultural barriers -Language barriers and inefficient communication

Table 4.3 Types of uncertainty. Source: Sales and Purchasing Manager.

4.1.4 Uncertainty and New firms

According to the respondents at Theofilis, the most important issues that concerns them are reliability regarding delivery times, quality, product development and finance. They agreed that the uncertainty is created by the factors such as poor quality, unreliable delivery time, trust and commitment and others as listed above. These factors are basically the problems that new firm face according their experience the Mckelvie, (2007), Terpsta et al. (1993) and several other authors. These characteristics that are common with new firms makes uncertainty associated with their selection high especially when it concern to firms from far distance (Sale and Purchasing manager). As to how to reduce uncertainty in the selection process, he suggested that one has to conduct several visits to receiver first hand information. The verification stage in the process should be very well handled and close relationship would also allow suppliers to open up and give right information and be trusted. They were also very particular about ISO certification which could also give some assurance to the customer. Other issue they talked about were recommendation and good references.

4.2 PreMould AB (The Newly Created Supplier Company)

4.2.1 About the company

PreMould is one of the five companies in Sweden which specialize in manufacturing prototypes and test components from Aluminium. The company was started in 2003 by three people. The long working experience of these three people in an old similar company gave them much impetus and boost to establish and develop the company. They are basically a service company which makes tools and furnish plastic components. According to one of the managing directors, steel was the common material that was used in modelling all tools and components from time in memorial. There happened to be a sudden shift from using the steel to using aluminium not longer than ten years ago in modelling tools and components for what is termed as '*shorter serials*'. These tools are used for low volume series. The use of aluminium for this purpose has become very popular because of environmental issues, for recycling reasons and more importantly for easy modelling. (Anders Johansson, Managing Director of Premould)

PreMould has 13 highly skilled and very competent staff. This includes the three brilliant founders of the company. The company had a turnover of approximately 7 million SEK in 2004. There was an increase to the tune of 10 million SEK in 2005 fiscal year. A sharp increase was realised in 2007 to an amount of 16 million SEK. The projected turnover for the company during the year 2007 is 20 million SEK. This tremendous increase in the turnover of the company is simply as a result of product development and broad customer base. (Managing Director of PreMould)

PreMould until the time that we had this information is still not ISO certified. Notwithstanding, the company has been committed to the quality services they provide to their customers in order to provide them with some security and also serve as evident to others. (Homepage of Premould)

4.2.1.1 Services and Products of PreMould.

- Tooling
- Plastic parts
- Prototypes
- Machinery
- Files Transfers
- Product development.

PreMould designs tools in TopMold and PowerShape. These tools are cheaper than the traditional tools but are also more convenient for low volume manufacturing. (homepage of Premould). PreMould develops tools of aluminium. Significantly, these tools are more cost-effective than ordinary tools but can be used for production of a lower number of components or shorter runs. (approx. 20 000 pieces) (homepage of Premould)

Accordingly, it is very profitable to use prototypes and test components. They allow one to test all aspects of products design at an early stage and therefore avoid late changes in the serial tools. PreMould provides all different techniques on the market for producing prototypes. It allows one to use the techniques that fit in every case and also combine different

technique if necessary. PreMould strives to maintain faster production and delivery times than companies in their line of business. (Homepage of Premould).

PreMould makes use of modern technology (media) to reach its customers all over the globe. The e-mail is the widely used source of contact and exchange of information. The use of CD is also very common when the files are pretty large to be transferred through the e-mail. Basically data exchange between PreMould and its customers are formatted through the following modern Technology:

- IGES : for manufacturing of tools
- STEP : for manufacturing of tools
- STL : for rapid prototyping
- VDA
- CAD- systems: autoCAD, CATIA, etc.

Emphatically, developing new products is one of the unique attributes of PreMould that puts them higher above other competitors in that field of endeavour. The many years of experience of the managing directors make them a strong partner in cooperation when developing new product (Homepage of PreMould). The high quality of skilled staff of Pre-mould and the adaptation of efficient and current technology facilitate the development of new products.

4.2.1.2 Customers of PreMould

PreMould primarily serves many of the large manufacturing companies locally in Sweden and internationally. Our customers range from small inventors of all items to very large automobile manufacturing companies. Notably, we have customers in Norway, Germany, USA and mainly in Sweden. PreMould cooperates very effectively with their suppliers in developing new products to give a unique touch to their final products. This is evident in the product our customers sell to market. (Managing Director of Premould)

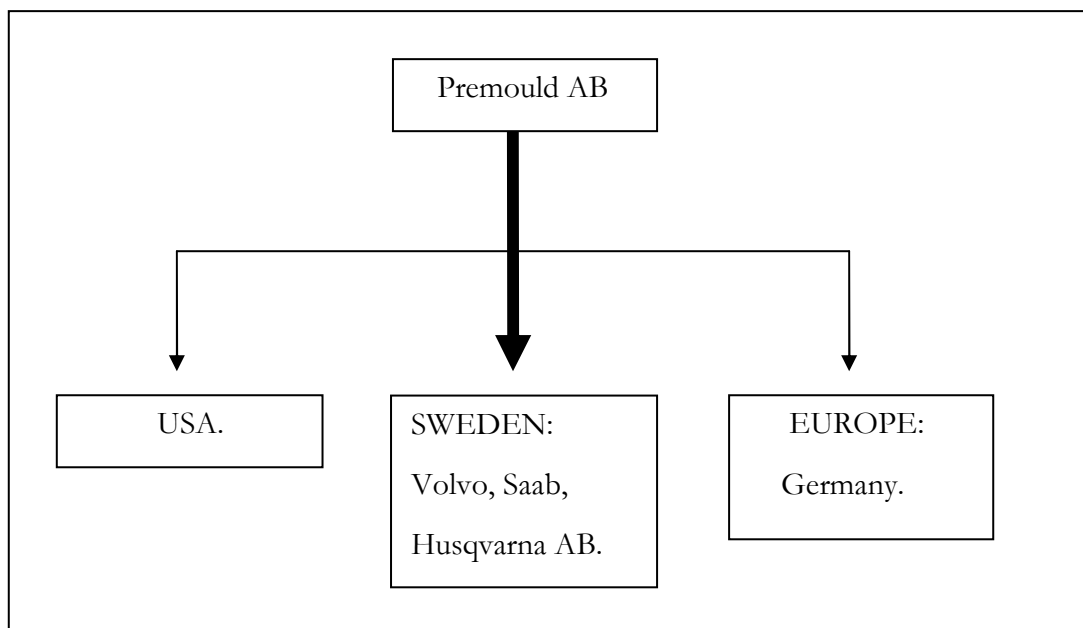


Figure 4.4 Customer network of Premould. Source: Managing Directors.

4.2.2 Supplier Selection

4.2.2.1 Selection criteria use by customers

PreMould Managers have fairly good idea about the supplier selection criteria their numerous customers use in evaluating the company capabilities in serving them. As far as PreMould is concern both local and international customers stress on very few but essential selection criteria to satisfy their strategic focuses. According to the Managers there is emphasis on:

- **Delivery time.**
- **Quality**
- **Cost**
- **Financial position**
- ISO certification
- Technology

Again, the criteria as stated above follow up in that order of importance. The supplier company is rated in the order of its efficiency to deliver in expected time, provide and maintain quality standard at the minimal cost (Managing Director of PreMould). As to whether these criteria are appropriate for the evaluation of companies to be selected as potential suppliers, the answer was emphatically “yes”. Further made mention of additional criteria needed for evaluation of newly created firm like ISO certification and technology capabilities by then the companies were more meticulous about **delivery time, quality, cost and financial issues** as the basic criteria every supplier must meet.

4.2.3 New Firms and Uncertainty in Supplier selection

According to Anders Johansson, many factors have influenced their ability to attract customers. These customer base include both large and small companies as well as Swedish and international companies.

The past experience of founders has been very instrumental. All three founders were had gained at least 8 years experiences in the industry. Thus they had all the knowledge necessary for starting their own business and this greatly reduce the intensity of problems faced in the start up process.

Also the reputation of company also played a role. The Company is a large company with broad range of customers. Their association with company give them an advantage as firms evaluate their abilities based on the strength of their former employer. They attracted both former customers as well as new customers. In their opinion their association also contributed immensely to their success.

When asked what kinds of problem Premould faces one of the Managing Directors declares that the most serious problem is the issue of trust. They have to work hard to gain and maintain the trust of their customers most especially those that are still in the initial stages of creating a relationship with them. They also add that as the relationship progresses and customers get satisfied with their performance trust builds up.

They also add that another major problem is inadequate finance. They had a lot of difficulties in getting the necessary finance for starting the business and they still have need funds to enable them grow in unison with the growth they have witnessed in the business.

They affirm the fact that the above problems of a new firm such as Premould are a source of uncertainty which affect the supplier selection process. However they do not confirm the fact that new firms pose greater uncertainties than established firms.

4.3 JLT Mobile Computers: The Customer

4.3.1 About the Company

JLT Mobile Computers AB hitherto referred to as JLT is one of the many companies that have established a great interest in modern technology development. JLT is located at Vaxjo a medium-size city in Southern Sweden. The company has experienced a historical development which is very fascinating. Beginning from 1994 entered into manufacturing “Rugged Mobile Computing”. The concept was adopted by well notable companies and large vision of a networking organisation was created facilitating the company’s globalization. This included an effective supply chain communication, product- development and logistic. Their product introduced very special features which has become a standard for development in computers over the years. During 1999/2000 era JLT a small Swedish company strongly entered into Scandinavia, Europe and US markets as the leading supplier of Rugged mobile computers. Expanding their product portfolio in 2000s earned them the proud headline 10 years of growth/ 10 years of profit. (<http://www.jitmobile.com/about.asp>)

The core business of JLT is research and development of rugged vehicle computers for use in very tough environments. The JLT’s rugged computers are specifically designed for very demanding environments. The computers are mainly used outdoors and therefore well protected for adaptation for instance enclosed in an aluminium casing instead of plastic and using industrial flash drives instead of normal hard disc. JLT products work faultlessly over years where the normal computer would only survive a few hours. (<http://www.jitmobile.com/about.asp>)

Again, JLT is an ISO 9000 certified company and ensures that it serves its customers with quality products to remain ahead of its competitors in the market. (Interviewee from JLT)

4.3.1.1 Suppliers of JLT mobile computer AB

JLT like all other computer developers and manufactures, we employ the services of a large of suppliers of various parts and components. One of the suppliers of JLT which of is great interest to our project is PreMould AB. PreMould became a supplier of JLT in the middle of 2007 and supplies the company with plastic products used in the computers. PreMould was first to introduce this product onto the market. Other companies that supply the similar items to JLT are Intratech Jonkoping and Rudens Plast Anderstop.

The major customers of JLT are road carriers and transport companies. JLT also serves a large number of different firms in other industries as well as some government institutions (<http://www.jitmobile.com/about.asp>). The most notable of these companies are:

- IKEA uses product in warehouses and in logistic firms
- Revano use products in their garbage trucks for weighting and charging
- USA police Patrol uses product in patrol operations
- AAA uses the mounted JLT computers in rescue vehicles and in tow trucks
- Carlsberg use in warehouses
- Sodra Skogsmaskiner uses products in harvesters.

4.3.2 Supplier Evaluation and Criteria

According to the interview participant of JLT, suppliers are evaluated through the normal evaluation processes as done by several other companies. JLT gets information about our customers from consultants, other suppliers and customers, internet and exhibition shows. Basically the array of customers is endorsed for evaluation process to start. The company creates its criteria arranged them in the order of importance depending on the nature of supplier companies and the most pressing need of the company. Evaluation and assessment of information provided by the customer are made. There is very often a follow up visit for verification and confirmation. Finally, decisions are made on the supplier that best satisfy majority of the criteria offered by the company.

Premould and the other suppliers according to the Participant were evaluated based on the following criteria:

- Delivery time
- Cost/price
- Quality
- ISO certified
- Financial problems

The interviewee made mentioned of other emerging criteria as

- Good reference
- Technology capabilities /Communication facilities

4.3.3 Characteristics of new firms

The results of the interview with the JLT respondent revealed characteristics of new firms based on the perception of the respondent. According to the respondent these factors are based on his experience in his career and not only on their experience with Premould.

Negative traits	Positive traits
Lack of Experience	Flexibility,
Lack of skilled staff	Superior products
Lack of adequate finance	Use and easily adopt new technology
Lack of adequate capacity	
Unable to keep promises of quality and delivery.	
Lack history and reputation	

Table 4.4 Characteristics of New firms

4.3.4 New firms and Uncertainty

As revealed by the respondent of JLT characteristics of new firms could also be a source of uncertainty that affect both themselves and the existing and potential customers. Negative characteristics of firms affect their productivity, efficiency and profitability. This is evident by the effects of negative characteristics as presented below.

The respondent reiterates that the above mentioned characteristics of new firms affect their ability to satisfy their customers. As concerns uncertainty the respondent reveals that the negative characteristics of new firms are a major source of uncertainty.

According to Project Manager of JLT, new companies lack the *experience* that established companies have acquired during the period that they have been in business.

New companies lack skilled staff and also do not have *adequate number of employees*. However this problem is resolved as time passes and the company grows or gains more experience.

Another problem is the *lack of finance*. All firm need finance to set up the company, be able to cover its operational expenses as well as to grow. New firms face more problems and resistance due to trust issues.

New firms do not keep promises. According to the respondent at JLT the most pertinent issues that affect the purchasing function are quality and delivery times. Buying firms face uncertainty with regards to the fact that the supplier may not supply the right product or the right quality and at the right time. However their experience with Premould has been positive. Premould has a competent team. Quality is ensured through tests products and most of the time, delivery times are respected.

New firms lack history and reputation. According to the respondent, “*Lack of past information is a problem but it must encourage them to work harder to build a good reputation*”. This information builds credibility and improves the supplier’s reputation .to a large extent this information is absent or limited thus the buyer must rely on other factors for evaluation.

Inadequate capacity is another source of uncertainty. Having adequate capacity assures both existing and potential customers that suppliers will be able to meet customers’ requirements. Capacity takes into consideration technology, machines, and logistics facilities.

Types/ sources of Uncertainty
<ul style="list-style-type: none"> • Lack of Experience • Lack of skilled staff • Lack of adequate finance • Lack of adequate capacity • Unable to keep promises on quality and delivery • Inadequate capacity • Technology capabilities

Table 4.5 Types/Sources of Uncertainty (Project manager)

According to the respondent, the supplier's age and experience influences the degree of risks or uncertainty that a supplier may pose on the selection process. The respondent concludes that even though these uncertainties are common with suppliers; it is more severe where the supplier is a new firm.

4.3.5 Risk and Uncertainty Reduction

The representative for JLT proposes solutions as ways by which uncertainty can be reduced such that the performance of new firms can be enhanced. Some of these solutions can be implemented during initial stages of the supplier selection process.

- The supplier must carry out intensive research to get the right information and references.
- Perform personal contacts and site visits, especially with those directly involved in each project.
- Maintaining quality standards that are generally acceptable under the particular business or industry. By meeting such standards the supplier's credibility is enhanced
- Capacity: Ensuring adequate capacity on the part of the supplier gives the customer the assurance that the supplier will be able to meet up with their demands.
- Forming a reputation: Newly created firms are new in the market. Each individual firm must work hard to establish and maintain a good reputation. This reduces the uncertainty that can be attributed to a particular company
- Trust is a vital issue in relations between suppliers and their customers. Both partners have the responsibility to work for the benefit of both parties.

5 Analysis of Empirical findings

In this chapter, the authors perform an analysis of the results obtained from interviews with the representatives of the firms involved in the study. Empirical findings are assessed against the theories that make up the theoretical framework.

5.1 Uncertainty

According to the respondents interviewed uncertainty is an important item which affects all parts of the company and thus must not be neglected. Given the importance of purchasing and consequently the supplier selection process it is imperative to consider the uncertainties that buying firms face. This view confirms the crucial nature of the issue of uncertainty to firms as emphasized by some researchers of uncertainty.

For example the work of Gelderen et al. (2000) state *that firms are affected by uncertainties that are present in their environments and that these uncertainties affect how they operate.* Milliken (1987) also states *in order for firm administrators to make decisions concerning the events that are happening in their environment, firms must understand uncertainty.* To some researchers, uncertainty is responsible for creativity and innovation in business.

Uncertainty is analysed based on the perceptions of the interviewees and with respect to their different experiences with their present firms as well as their experiences gathered in the course of their careers

5.1.1 Types/Sources of Uncertainty that Influence the supplier selection process

The respondents of the buying firms advance different types of uncertainties that new firms could pose on the purchasing process and which affect the supplier selection process.

Among these factors are common factors such as uncertainty regarding *quality, delivery times, and inadequate finance and technological capabilities.* Customers are aware of the fact that the negotiations may differ from the final outcomes as regards performance. According to Ford et al. (2006) and van Weele (2004) the supplier may not supply the right product, and in the right quantities and quality. Delivery times are also an importance aspect for customers. The right product, quantities, quality and correct delivery times are a source of cost savings for firms. Reduced lead times, and avoidance of stock out enhance firms productivity and profitability.

The above mentioned uncertainties are termed under the category of transactional uncertainty as advanced by (Ford 1990; Leenders & Fearson, 1997;). According to these authors transaction uncertainty refers to the concerns about the ability of the supplier to provide the right products, of the right quality and at the right place and time and the right price. The respondents lay immense emphasis on *quality and delivery times.*

Inadequate finance falls under the category of resource uncertainty described by Meijer et al (2006). Inadequate finance upset the process of start up as well as disrupts growth. Meijer et al (2007) also identifies technology capabilities as a source of uncertainty.

Theofilis talks about uncertainties such as *lack of correct and up to date information, trust and commitment Issues, Logistic capabilities.* JLT mobile talks about *Lack of adequate capacity, Lack of ex-*

perience, history and reputation and Lack of skilled staff. All these uncertainties fall under one of the classifications of Deloach (2000) and Juttner et al. (2002) who advance that internal risks result from the operations and decisions of the firm. The above mention uncertainties can be managed by firms these uncertainties result from the decisions that they take

Another category of uncertainties advanced by one of the companies are general increase in price levels, cultural and language and communication uncertainties. These fall under the category of external uncertainties. According to Deloach (2000) and Juttner et al. (2002) external risks are caused by external factors that affect a firm's performance or renders its present choices obsolete or ineffective. This company's focus on culture and language barriers stem from the fact that they have suppliers within Europe and as far as China. For this reason they also stress on the logistic capabilities that affect delivery times.

According to Meijer et al (2002) perceived uncertainty is said to be dependent on individuals and is defined as *"the process by which individuals organize and evaluate the stimuli from the environment"*. Thus different persons will deduce the happenings of the environment in different ways and will also respond differently. The table below shows pattern in the perceptions of the respondents of the two companies. The common points advanced are quality, delivery times and finance and technological uncertainties. The result also shows that Theofils have a focus on cultural factors due to their interactions with non Swedish suppliers. Premould as a customer identifies lack of trust and lack of finance two problems that increase uncertainty for the buyer. This is inline with the points advanced by Theofils and JLT as well in the literature.

Theofils	JLT	Premould
Quality -Unreliable Delivery times - Lack of adequate financial resources - Lack of correct and up to date information Trust and commitment Issues -Technology, -Logistic capabilities.	Unable to keep promise -Poor Quality -Failure to deliver on time -Lack of adequate finance -Lack of adequate capacity -Lack of Experience -Lack of skilled staff -Technological capacity -No history and reputation.	-Lack of trust -Inadequate finance

Table 5.1 Summary of sources of uncertainties facing new firms

5.1.2 Uncertainty and new firms

New firms have proven to have a tremendous influence on the environment as confirmed by numerous authors. These authors also state that they face problems or uncertainties that reduce the efficiency of their transactions with their customers. The results obtained with respect to new firms and the degree of uncertainty that they generate show that the two purchasing firms have a common view. They state that from their experiences, they have recognized that the degree of uncertainty that a customer may face is higher when dealing with a new firm than an older firm.

The project manager of JLT confirms that customers face a higher level of uncertainty when working with new firms. He states *“We have to realize that we take a risk, and at the same time we have to plan, communicate, and collaborate together so that both parties can benefit.”*

The Purchasing Manager at Theofils also adds *“The most important issues expected from a supplier are reliability regarding delivery times, quality and product development. For a customer it can be difficult to find the supplier who can satisfy all three issues. Newly created firms will probably have a tougher job to convince the market regarding the above issues.”*

The representative for PreMould does not agree absolutely that uncertainties are greater when doing business with a new firms than with than with older and established firm. As expressed in his words. *“It’s a risk for customers to choose suppliers they don’t know butNew firms are more creative and have often better delivery times than old firms.”*

5.2 Supplier Selection

Hsu, Kannan, Leong and Tan (2006) emphasize that supplier selection continues to be very crucial process in how organizations address their strategic intents to enhance their competitive advantages. For an organisation to realize this unavoidable dream, selection criteria which is one the major components of the process should be given all the necessary attention it deserves. This buttresses the growing importance of selection criteria as mentioned by several authors such as Hsu et al. (2006); Teng and Jaramillo (2005); Tracey and Tan (2001); Motawani, Youssef, Kathawale and Fitch (1999); and Ellram (1991).

In the cause of the interview with participants, four major criteria emerged as the common factors that almost all companies consider essential in the selection of suppliers. These criteria were **delivery, quality, cost and financial position**. In the traditional supplier selection approaches discussed earlier in the paper, these very essential factors were considered applicable in all circumstances. Dickson’s survey which always served as the starting point gave prominence to these factors. Again, one of the broadest classification and annotations conducted on supplier selection by Weber et al., as against the original work of Dickson clearly demonstrated the importance of these criteria over time.

All factors that were mentioned by participants are shown in Table 5.1.1. Many of the criteria mentioned in the list are more of quantitative in nature than qualitative especially the four primary criteria: **delivery, quality, cost and financial position**. This points to another fact that in spite of the pretty much attention that other authors like Ellram 1990 have given to factors considered as **‘soft factors’** which are more qualitative in nature, there is still more emphasis on the primary quantitative factors.

	Criteria
1.	Delivery
2.	Quality
3.	Cost
4.	Financial position
5.	ISO certification
6.	Product design
7.	Reliability
8.	Credibility
9.	Good reference
10.	Communication facilities

Table 5.2 Criteria mentioned by participants interviewed. Sources: Authors.

First on the list is the ability of the supplier firm to meet the specific delivery time of customer. This may include consistency in time and the various systems used in the delivery processes. Again as customers continue to look beyond their borders to access the services of suppliers in other parts of the globe as part of their strategic agenda, the supplier must prove to have system capabilities to delivery in quantity, quality and as scheduled. The participants of the case study said that they rely on the services of the firms in Far East for their supplies and therefore do thorough assessment of their all issues concerning delivery before a firm is finally endorse as a supplier. Also the suppliers firm confirmed that they supplies to all firm both locally and internationally and therefore their customer would like to rely on their precise and on timely delivery to select them as a customer.

Quality as another criteria mentioned in the list has been defined by van Weele (2000, page 177) “*as the degree in which customers requirement are met*”. It is further explained by the author that quality products or quality services are considered when both the suppliers and customers agree on the requirements and these requirements are met. The requirement referred to by the author according his understanding not only relates to the technical properties of the product but also can be related user-friendliness ease of maintenance, delivery agreement and packaging instructions.

According to van Weele (2000) the issue on quality will also lead as the concept of quality management. This concept has four interrelated functions: setting standard, assessing the standards, control, and assurance. Quality assurance was specifically mentioned as the concern of customers. It is the *keeping up of the methods and procedures of quality control*, in other words making sure that they are efficient, they can lead to the desired objective, and they are applied correctly. Customers do what is called verification to assess their suppliers. All the participants interviewed discussed the issue of quality along this line. They would like to

verify how suppliers would comply and keep up of the methods and procedures of quality control. According to one participant

“The first consignment from suppliers from the Far East would be ok but a lot of flaws in the subsequent ones”

There is emphasis on the quality systems and process. The supplier’s quality systems and the processes that would maintain and improve quality and delivery performance are key factors as attested by the participants. Kahraman, Cebeci and Ulukan (2003) also stressed on these issues.

The cost or the price as many participants put it included freights charges and discounts offered by the participants. Again price became frequently used criteria as many customers would intend to use lower price to maintain competitive advantages. The case study participants alluded to fact every customer would like to have a complete over view of the total cost of doing business with a particular supplier before a final selection is made. A customer empirically demonstrated with the lead bulb scenario and linked product development to price. He emphatically stated that every buyer would go in for the supplier which develops the lead bulb with much improvement at lower cost.

The financial position stated as important criteria in the selection is very much linked to financial stability of the supplier. This normally reflects the long term viability of the firm. The case study participants interviewed stated clearly that firms would require their suppliers to have a sound financial support as financial strength is a promising sign of the supplier’s long-term stability. According to Karhaman et al. 2003,

“A solid financial position also ensures that performance standards can be maintained and that products and services will continue to be available”

The case study participants said that their firms conduct a detailed financial analysis of the suppliers based on the available information and review of their records. The implication is that a supplier with unstable financial position would have much difficulty in expansion, product development and pricing. Consequently, firms need to understand and thoroughly investigate their potential partner’s financial stands.

In the course of the interview, other principal criteria were recorded. One of these criteria is ISO certification. It is one determinant of quality that has gained a tremendous deal of attention. ISO quality standards are becoming basic prerequisites for doing business in some regions of the world especially the European Community. (Timbers, 1992) cited in Montwani et al., ISO requires that the supplier incorporate quality into the production process from the start as ISO is a frame work for quality. Timber, (1992) states that ISO requires that the firm has a third party assessment of both the products produced and of the company’s manufacturing processes.

The case study participants interviewed confirmed that if a buyer firm buys from the a ISO registered firm, that firm is to some extent assured reasonable level of quality indicating an international quality standard. The supplier firm confirmed that even though it was not registered until now but the customer was fully assured of high level quality product pending their registration. Some of the participants included the ISO Certification in the quality issues. Buyer firm would therefore like to see a display of ISO certification before selecting the supplier as a potential partner.

Product design was one of the criteria also linked to price by some of the case study participants. The capability of the supplier firm to conduct research, develop and improve upon product is becoming a concern of the buying firm. The supply firm confirmed that all the customers both closely located and far had a good insight of their capabilities to develop and improve upon the products before they were selected partners. The led bulb case scenario discussed under price and in the empirical section also confirms the situations where product design becomes an important criterion. In other situations the supplier firm's ability to have a leap jump so that new products and services can be introduced to markets quickly, is an utmost asset for the buying institution.

Credibility, reliability and good reference are three interrelated criteria mentioned by the case study participants. For a supplier firm to be reliable, it need to have enough credible records and also appears in the recommendation notes of many well known institutions. The customer firms asserted to fact that the suppliers were selected based on the recommendation from a well known consultant who has been dealing with the firms. This gave the firms some level of credibility and therefore could be relied upon by the customer.

A good communication systems or facilities also emerged as a factor that buyer firms deem important in their selection of suppliers. This come under the broad area of the supplier's technology capability which supports information exchange, supplier's design capabilities, and fast pace at which product goes through from development into production. (Ellram, 1990).

Supplier firm attested to fact that by stating that:

"When dealing with big firms like Volvo, Saab, Husqvarna and the notable American firms, these firms would like to understand your technological capabilities"

These provides the firms with an enormous amount of information concerning the equipment conditions, operating environment, and a good general knowledge of their operation (Ellram, 1990). It is also evident in the way the supplier firm uses the modern technology and communication facilities to display their design capabilities, exchange of information and interaction with companies far and near.

5.3 Reduction of Uncertainty in the Supplier Selection Process

New firms according to McKelvie, (2007) play a significant role in all economics of the world. They are basically potential sources of creating new jobs, lead in developing breakthrough innovations, and create new industry and superior products.

In spite of these advantages that new firms bring to the economy, it is confirmed by McKelvie, (2007) and other authors that new firms also face problems that could hinder their efficiency and effective operation. The argument has been supported by the participants interviewed in the case studies of our research. They also confirm that even though new firms face general problems some of the problems are more related to new supply firms. These problems are particularly important to our research because they constitute the sources of uncertainty associated new created supply firms. Below are some of the critical problems that were enumerated by our respondents.

- Lack of trust and commitment
- Inadequate of finance
- Quality
- Poor delivery time
- Lack of adequate capacity
- Logistic capabilities.
- Technology capabilities.

All the problems as listed above are interrelated and interwoven and considered as sources of uncertainty in newly created firms. Lack of trust and commitment are directly related to quality and delivery. Participants confirmed that firms from the Far East hardly sustain the quality of products they supply and maintain their delivery schedules. Quality sometimes fall below expectation and delivery time fluctuates now and then. Invariably set the whole supply chain of the firm in disarray. Promises are often not kept, which speaks volumes to customers that new firms are less committed. These invariably increase uncertainty.

It is again confirmed by the participants that new supplier firms are very often faced with the problem of financial instability. They basically have unstable financial footing and in attempt to focus their effort on improving on that, quality is sometimes affected. Lack of finance, very often than not, affects the production capacity which is also another basic problem of new supplier firms. Having adequate capacity assures both existing and potential customers that suppliers will be able to meet customers' requirements. Capacity takes into consideration other factors like technology, machines, and logistics facilities. The buyer firms might expect that their potential suppliers expand proportionately and also contribute to new products development. New supplier firms needs to be financially stable to be able to perform meaningfully.

Another problem mentioned by participants is technological capabilities. In many instance, new supplier firms are reluctant to invest and expand current technology and plan for the future. The technology could either be the suppliers' manufacturing capabilities, research technology and communication. According to PreMould, for a new supplier to be selected to work with the notably big firms like Volvo, Saab and others they need to have well established technology capabilities. These problems as addressed by the participants are liable to contribute to uncertainty or risk associated with new supplier firms.

In an attempt to suggest means of reducing uncertainty associated with supplier selection process of new created supplier firms, participants provided these solutions.

- Detailed financial analyses
- Visit/personal
- Verification
- Close relationship
- ISO certification
- Good references and recommendation.

As means to reducing the uncertainty that could be brought about a result of financial instability of the supplier, participants suggest that detailed financial analysis should be performed by the buyer firm to ascertain much more information. This could be based on public information and review of suppliers' records. The suppliers on the other hand should be willing to provide the necessary information.

Visit and verification are crucial steps in the selection process. They provide first hand information and complete understanding of the firms entire operational system. These provide security to some extent for the buying firm on relying on the information in their domain.

Additionally, working closely with the suppliers from the evaluation stage could also develop a good rapport and thus enhance the relationship. Trust would therefore be built which can have positive effect on the supplier of information. The right information given would significantly reduce problems associated with all kinds of uncertain to a very large extent.

Display of ISO certification can also confirm that the supplier firm has been assessed by an external recognised body and as such other people can be assured of their quality standard. In absence of this certificate, suppliers have to strongly assure their customers of high quality service or product. This is the case of the supplier firm in the case study. Another suggestion is that customers should rely on good references and recommendation from reliable sources. The consultant with fairly good knowledge about these supplier firms could be a good supplement to other sources.

6 Conclusion

This Chapter shows the conclusion of the study. The authors of the research highlight on the important findings from the study.

The research revealed that the commonly used existing criteria such as **delivery, quality, Cost/price, financial position and communication /technology** are still relevant in the selection of newly created suppliers despite the fact that they face higher level of uncertainties. The interview with the companies revealed the confirmation of the relevance of the criteria. This has been as a result of the current emphasis on the strategic dispensation where firms use these criteria as weapons to boost competitive edge in the market. Other criteria which were identified in the course of our research were **ISO certification, reliability, credibility, good references and product development**. These criteria are not entirely new to the previous researches and in the practical field, but were not given much attention because the authors and practitioners laid more emphasis on the quantitative factors. The newly created firm confirmed that their customers basically used these criteria in evaluation of both established and newly created suppliers.

One other purposes of this thesis sought to find out if new firms pose a higher degree of uncertainty. In other words the thesis sought to find out if uncertainty varied with firms' age such that engaging a newly created company as supplier result in greater uncertainty than engaging an old well-known and more experienced company. Newness was evaluated based on the firm's age. Based on the empirical findings and analysis, no new type or sources of uncertainty was discovered. However it was identified from the views of the respondents of the purchasing companies that uncertainty was certainly higher when working with new firms. This is as a result of the negative characteristics of newly created firms such those mentioned below

- Lack of trust and commitment
- Inadequate finance
- Quality problems
- Poor delivery
- Logistic capabilities
- Technological capabilities

The fundamental factors that were identified as problems in the research also appeared to contribute to the uncertainty or risk that is associated with supplier as revealed by different authors in the theoretical framework. Naturally, when problems are identified there is also the need to made significant suggestions. The participants interviewed presented the following suggestions as some practical measures to help reduce uncertainty in the supplier selection process.

- Detailed financial analyses
- Personal contacts and site visits
- Intensive verification
- Close relationships
- ISO certification
- Good references and recommendations.

It is worth noting that uncertainty or risk cannot be entirely eliminated in all situations. However as much the company representatives are concerned and from their point of view, these measures can significantly reduce the uncertainties that customers face when working with newly created suppliers.

7 Recommendation for Future Research

The results of this study provide some useful and interesting issues that would be essential for buyer firms considering the selection of newly created firms.

It should be noted that the conclusions of this study are based on the results of the case studies used in this research. The limited number of case studies could affect the generalizability of the results of this research.

Moreover the two firms differ from other firms in terms of attributes such as size, industry, products, management style etc. This implies that firms of different sizes, different products, and firms belonging to different industries, different points of the supply chain or different stages of the production process may have different notions about uncertainty as regards selecting newly created firms as potential supplier. Conducting this study with a larger sample of companies may result in a contrary view from the results obtained in this study.

- The authors thus suggest that to have a more accurate depiction that represents a general perspective about the concept of supplier selection process and criteria under uncertainty, quantitative methods could be used and questionnaires administered to a wide range of firms.
- Furthermore one could conduct the study with respect to firms that share a specific attribute such as firms in the same industry or producing similar products or firms in the same stage of production. This would enable the researcher to understand uncertainty and make conclusions with respect to that specific population of firms.
- An investigation could be made to find out how newly created supplier firms sell themselves and convince their potential customers given that they lack a performance history; a situation which creates uncertainty

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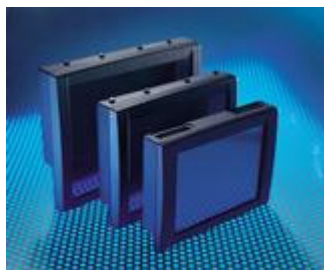
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Appendix

APPENXIX 1: THEOFILS CARLSSONS AB



APPENDIX 2: PRODUCTS SOLD BY JLT AB



Three sizes of Computers



Handheld computers used in the field



Stand alone display that can be attached to any PC

Appendix 3

PROPOSED INTERVIEW QUESTIONS FOR SUPPLIER FIRMS

TO WHOM IT MAY CONCERN

SIR/MADAM,

Thank you for accepting to take part in this research. We wish to assure you that this interview has been carried out for academic purposes only. This research is a requirement for the completion of a degree in the International logistics and Supply Chain Management Program in the Jonkoping International Business School. We promise to treat any information you consider confidential as such and to use it for the sole purpose of this academic undertaking.

Anyinke Nkongtendem .N. and Donkor Nartey .M.

PROPOSED INTERVIEW QUESTIONS FOR SUPPLIER FIRMS

Company Information

- Name and position of respondent.
- What business do you do?
- What kind of customers do you have?

New firms

- What are the characteristics of newly created firms?
- Do these characteristics influence them positively or negatively during supplier selection?

Does the degree of risks or uncertainty vary with firms' age?

- What kind of risks or uncertainty do you face as a newly created supplier firm?
- Would the degree of risks differ for older firms
- How do they affect the customer
- Would the degree of risk that a customer faces differ when working with a newly created supplier or an older firm? How and why

What are the existing criteria for supplier selection and how appropriate are these criteria in the selection of new firms.

- What criteria do customers use in their supplier evaluation?
- Do you think the criteria are appropriate?
- Are there other criteria or factors that you think will be better for evaluation of newly created firms.

What can firms do to reduce the uncertainty associated with doing business with newly created suppliers?

- What uncertainties do newly created supplier firms cause?
- How can these uncertainties or risks be reduced

Appendix 4

INTERVIEW QUESTIONS FOR PURCHASING FIRM /CUSTOMER

TO WHOM IT MAY CONCERN

SIR/MADAM,

Thank you for accepting to take part in this research. We wish to assure you that this interview has been carried out for academic purposes only. This research is a requirement for the completion of a degree in the International logistics and Supply Chain Management Program in the Jonkoping International Business School. We promise to treat this information as confidential and to use it for the sole purpose of this academic undertaking.

Anyinke Nkongtendem .N. and Donkor Nartey .M.

INTERVIEW QUESTIONS FOR PURCHASING FIRMS /CUSTOMERS

Company Information

- What business do you do?
- What kind of customers do you have?
- Who is in charge of purchasing and supplier selection?
- Who are your suppliers and what products does each of them supply.

Supplier Selection

- From what source do you learn about suppliers?
- Why do you carry out supplier evaluation?
- What do you intend to achieve from the process?
- What other evaluation do you consider in addition to your company evaluation?
- Can you describe your supplier selection process?

New firms

- What are the characteristics of new firms?
- Do these characteristics negatively or positively influence their selection and performance?
- Under what conditions will you prefer a new firm to an established firm?

Does the degree of risks or uncertainty vary with firms' age?

- What kind of risks can you expect from suppliers? Would these risks be different if it is a new firm?
- Are there certain risks that are specific to new firms?
- How does the degree of risks or uncertainty differ between working with old and newly created firms.

What are the existing criteria for supplier selection and how appropriate are these criteria in the selection of new firms.

- What criteria do you use for supplier evaluation?
- How do you rank these criteria in order of importance?
- Will the criteria differ for new firms (how and why?)
- Are there any specific criteria that should be used for evaluation of new firms?

Experience with Newly created suppliers

- Have you worked with a newly created supplier before?
- What were your experiences

What can firms do to reduce the problems associated with risks?

- How can new firms reduce uncertainty involved in supplier selection?
- How can customers reduce uncertainty of supplier selection?