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An investigative study on the effects of sub-suppliers to the networks of business relationships

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Project Management

Submission date: June 2012

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Acknowledgements

This thesis would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

Firstly, I would like to express my utmost gratitude to my supervisor, Tim Torvatn for his advice and guidance throughout this period. He has expanded my boundaries of thoughts and allowed me to perform better in this thesis.

Secondly, I also would like to give special thanks to all my interviewees who are willing to be interviewed by me and the help they have given to me for my thesis. They have provided crucial information for the case study in this thesis.

Last but not least, my family and friends who have always been there for me, supporting me and encouraging me with their best wishes.

Thank you all.

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Studieprogram Project Management

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Oppstartsdato 16. jan 2012	Innleveringsfrist 11. jun 2012
Oppgavens (foreløpige) tittel An investigative study on the effects of sub-suppliers to the networks of business relationships	
Oppgavetekst/Problembeskrivelse This thesis aims to find out how the sub-suppliers of a company can affect their customers or suppliers. Sub-suppliers are often left out of a procurement project discussion as they are considered the second tier suppliers. However, when viewed in another perspective, the sub-suppliers can play an important role when included such as improved delivery times and cost savings. This thesis will be based on literature research and a case study. The literature used will be within the fields of purchasing management, supplier network management, supplier customer management, etc. The case study will be of an established company in Norway.	
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Abstract

There is a trend in the value chain today where sub suppliers are included in supply chain activities. The benefits to include them in the value chain are in terms of time and cost savings. The sub suppliers are also involved in development projects where knowledge and skills are shared. The purpose of this thesis is to investigate the effects of sub suppliers when they are within a business network. The business network includes having relationships with actors such as the customer's customers, customers and the suppliers. Theory within the International Business, Industrial Marketing Purchasing, Purchasing Management and others are used to facilitate in the investigation. Interviews with Swisslog and Graniten are conducted to have an overview of the case study of a collaboration project between the two actors. The collaboration project involved Swisslog and Graniten fulfilling a special need required by St Olavs Hospital. The hospital is the customer and they wanted the pharmacy's logistic systems fully automatic. The interviews and case study will act as primary sources of data while literature found from journals and articles will act as secondary sources of data. The data are then used to comprehend more about the management of actors in business networks as well as the effects of sub suppliers in the case study. Triangulation of data and pattern matching are performed as part of enhancing the quality and validity of the study done. Through the interviews, actors are managed well through trust and respect and therefore, a positive effect is seen with the inclusion of sub suppliers in projects. In conclusion, a firm would always want a long continuous relationship with their actors such as the sub suppliers but the firm has to be aware of its 'surroundings' better so to be able to strategise better and gain a competitive advantage over others.

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1 Introduction

In this chapter, the background of this thesis is covered. The devised problem statement will furnish this thesis towards the interests of the author. Next, the purpose and the possible restrictions of the thesis will also be included in this chapter. Last but not least, the breakdown of the thesis's structure will be the closure of this chapter.

1.1 Background

During the 1990s, two key trends in purchasing are observed and they are outsourcing as well as supply chain management (Gadde and Håkansson, 2001). The two trends suggest that it is no longer common to talk or discuss about the management of suppliers and customers in isolation (Spekman et al., 1996). The authors have pointed out the transformation of the relationships between the actors are becoming inseparable within the activities of a value chain. The activities are sub-contracted out to the sub-suppliers by the suppliers to meet the high expectations of customers which might save delivery time and costs. The sub-suppliers also help input in the development of a new product but also produce many components for the end product which makes suppliers be reliant on their knowledge and skills (Fagerström and Johannesson, 2001).

The customers, suppliers and sub-suppliers (which could be known as third parties) are structured in networks, where long-term relationships with one another are deemed important. The network structures would stabilise or change over time. The stability arise from the interdependence between firms would require significant coordination whereas the changes are derived from relationships between firms (Andersson et al., 2007). The tension between stability and change would then offer opportunities as well as constraints to firms. Opportunities such as having a trusty relationship and maintain on-going business transactions whereas constraints might include cessation of relationships to exist or even coming into existence.

Studies have been performed pertaining to suppliers with their sub-suppliers (Fagerström and Jackson, 2002, Fagerström and Johannesson, 2001, Johnsen et al., 2000, Roseira et al., 2010, Fagerström and Olsson, 2002). Fagerström and Jackson (2002) have proposed a model to allow sub-suppliers to understand how to integrate better with the main suppliers. With better

understanding, the sub-suppliers will in-turn provide better services and higher quality solutions to the main suppliers.

Whereas studies performed concerning relationships in the business networks (Håkansson and Snehota, 1995, Holmlund and Törnroos, 1997, Håkansson et al., 1999) have pointed to the importance of understanding the management of relationships in a business network. The authors mention the complexity of overlying relationships that are connected to one another and still, bring out the dynamics of the actors within the network to have a good collaboration.

Thus, studying the effects of including the sub-suppliers within the business networks will be the main investigation for this thesis. The purpose for this thesis is to find out how to manage the relationships of actors such as the sub-suppliers or buyers in the business network. As a result, the actors would require the understanding of how they can create and deliver value in business-to-business relationships. It would also be interesting to understand the value creation of the sup-suppliers perceived by the suppliers/ customers through a real case study's perspective. This thesis aims to give a new aspect on top of the numerous studies previously performed by the academic as well the business world. It could help managers alike to understand better sub-suppliers and/ or third parties.

The research questions will be shown in the next chapter.

1.2 Research question

The new business world is not solely about connecting between the customer and suppliers but it is also including the sub-suppliers in the network. The network with many actors in it could become complex and tangled up. The complexity and entanglement are the cause of many relationship webs weaving through the network. And so, there is a need to manage the relationship between the actors to allow co-existence within the network. This leads to the first research question that is,

1. How can the actors (ie. Customer, supplier and sub supplier) within the focal relationship manage each other?

More and more suppliers are sub-contracting their activities to their sub-suppliers. Nevertheless, the suppliers gain a competitive advantage in terms of time and costs over competitors and as well as to gain customers' recognition. This might eventually lead to a trusty relationship. However, there is a negative side allowing the use of sub-suppliers. For instance, they risk losing their customers if they do not response fast enough to customer's value change. At the same time, if the sub-suppliers do not adapt fast enough to the customer's value changes, they might weaken the business relationship with the customer. The relationship between the sub-suppliers and customers might eventually turn sour or worse, be terminated. Thus, this leads to the second research question, which is:

2. What is the effect of sub-suppliers to the network of business relationship?

With the research questions determined, a case study will also be used as part of the thesis. The case study will aid in reinforcing the theory to ensure that a thorough study is performed.

Next, the delimitations for this thesis are discussed.

1.3 Delimitations

This thesis is conducted to understand about the outcomes of sub-suppliers in collaboration projects. Therefore, the focal relationship would be between the supplier and the sub-supplier rather than between the supplier and the customer.

As time is limited, the focus would be a case study with Swisslog and Graniten. This case study includes a three level supply chain where St Olav hospital as the customer, Swisslog as the supplier and Graniten being the sub supplier. The case study will determine how Swisslog and Graniten collaborated on a project for St Olavs and the relationship outcome of the project. Finally, the case study will be able to indicate if the sub-suppliers are of a positive or negative assistance to customer's projects.

The theory used for the thesis will be related to business relationship networks as well as supplier management, which have a vast range of selection. Therefore, this thesis will work within the theories of the supply chain management group, industrial marketing and purchasing group as well as the purchasing management group.

1.4 Structure breakdown

This thesis is broken down into five parts, which are:

- Introduction
- Methodology
- Theory
- Discussion
- Conclusions

The Introduction chapter inaugurates the author's interest towards the aim of this thesis. The main point of interest to discuss is related to the relationship of the suppliers and sub suppliers in a business network. This eventually leads to the forming of research questions and the delimitations of this study.

Next, the Methodology chapter seeks to conform the different methods of performing a thesis. The different of research strategy and the strategy approach are discussed and after which, the most appropriate ones are chosen to be used in this paper. For instance, the best-fit chosen strategy is the archival analysis method where studies are made through archived literature. Additionally, the weaknesses of the choices made are also touched on to avoid getting the wrong conclusions for the investigation performed.

The Theory chapter contains the main concepts used to understand the relationship of the supplier and the sub supplier. The utilised concepts include the comprehension of the business relationship and network as well as the relationship value. They will further assist the analysis of the case study in this thesis.

The Discussion chapter starts off with the case company where its history and the case study are examined. After which, the theory and case study is explored to merge theories and evaluations together. This chapter is also where the research questions will be answered based on the author's perspective.

Last but not least, the Conclusions chapter is the final chapter of the thesis. It consists of the comparison between the findings to the theory as well as the recommendations to whom the thesis might be of interest to. The evaluation for further work to be performed for the paper is also suggested.

2 Methodology

In this chapter, an overview of the methods for conducting the research is explained. This is also where the credibility of the thesis is strengthened. Firstly, the strategy of the research, choice of method and design of the research are examined. During which, the collection of the data is further explained. Finally, the quality of the thesis is analysed through validity, reliability and others.

2.1 Research strategy

A research always starts with a plan. The plan consists of the decision to how the research would be performed. Hence, the appropriate research strategy depends on the type of questions the thesis is aiming to answer. The research strategy can be classified into five categories as proposed by Yin (2004), and they are:

- Experiment
- Survey
- Archival analysis
- History study
- Case study

Each of the research strategy has its own method and tool to collect and analyse data. However, there are advantages and disadvantages to each strategy.

In the meantime, Yin (2004) also states the three criteria to select the suitable strategy used for a study. They are:

- Form of questions asked
- Extent that the investigator have control over the actual events
- Focus on contemporary (or historical) events

He additionally mentions three objectives through the different research strategies when used individually. They are:

- Exploratory

- Descriptive
- Explanatory

The table below shows more in detail the relevant situations for different research strategies.

Table 1: Situations for different research strategies (Yin, 2004)

Strategy	Form of research questions	Requires control over behavioural events	Focus on contemporary events
Experiment	How, Why	Yes	Yes
Survey	Who, What, Where, How many, How much	No	Yes
Archival analysis	Who, What, Where, How many, How much	No	Yes/ No
History	How, Why	No	No
Case study	How, Why	No	Yes

Looking back at the research questions, the author has chosen the archival analysis method as the main research strategy. The archival analysis consists of using existing archival data such as journals and databases written by scholars and researchers within the academic as well as business fields. Through this method, a possible general view of trends, relationships and results could be observed (Yin, 2004).

However, he mentions the downsides of this method are the uncertainty of the conditions under which the documents are produced as well as its accuracy. Therefore, a need of understanding the conditions of the evidence is important, as it would determine the suitability for the study. Also, a sub-strategy would be another way of prevention. Therefore, a case study is used in this thesis.

The case study that is another research strategy chosen for this thesis would show a wide variety of dimensions and more details to analyse. The case study also allows the author to look at the question on hand from a different perspective as well as with more clarity. The case study performed in this thesis is relating to Swisslog and its PillPicker system. It shows a comprehensive real-life situation happening within the company.

However, there are biasness and unknown gaps within the case study (Yin, 2004). These downsides might come from the subjects within the case study who would want the author to understand what they perceive and not on a general basis. Hence, it is important to keep a

note of it while analysing the case study as it might affect the results and conclusions of the thesis. Nevertheless, there are ways to prevent it. One such prevention is by getting a third party's perspective which in this case, the author's supervisor is consulted to reduce the mentioned downsides.

Quality checks are always important when performing a study such as a thesis. Therefore, quality in the form of validity and reliability will be further discussed in detail.

Next, the approach to conduct the study is examined.

2.2 Research approach

The research approach is determined by how the author wants to collect data for this thesis. There are two main research approaches that are qualitative and quantitative. The choice depends on the characteristics and abilities within each approach and the author's preferences of how the research questions are to be answered and conducted. Factors such as the author's beliefs and values are among others to rely on when selecting the suitable approach.

The qualitative approach is used more to describe or explore to give an understanding of 'how' and 'why' of a study. The approach is based on concepts and easy to comprehend. Therefore, Ellam (1996) (cited from Løvås and Hoberg, 2008) states that the results from the qualitative approach indicate an understanding of relationships or complicated interactions. The qualitative approach also focuses on the informant's point of view and is process-oriented.

On the other side, the quantitative approach is used more to run simulations, building models and testing survey data statistically (Ellam, 1996 through Løvås and Hoberg, 2008). The test is performed on a known sample group and verified after. Hence, this approach points closer to logic and critical analysis.

Evaluating the research area and questions, the qualitative approach is selected. The reason is due to the nature of the research questions being exploratory and explanatory. Additionally, the study of relationships and the business networks are not just about figures and facts but are built upon emotions, cultures and other complicated factors. Thus, the qualitative approach would be a fit with the aim of the thesis and opens up further probing of the how

and why of using sub-suppliers. The performed interviews and the observations made by the author also points to the suitability of the qualitative approach, compared to the numerical approach.

One research methodology within the qualitative approach includes using the case study to explore the research area of interest. The case study helps to explain, or describe an occurrence of interest (Ellram, 1996 cited from Løvås and Hoberg, 2008). The case study used will help to explain and explore the existing theory further in relation to the topic of interest in this thesis. The topic of interest in this thesis, in this case, is the effects of including the sub-suppliers within a business transaction.

Next, the method of data collection is discussed.

2.3 Data collection

Data collection is part of the process when using the case study method. There are six sources of evidence as proposed by Yin (2004). They are:

- Documentation
- Archival analysis
- Interviews
- Direct observations
- Participant observations
- Physical artifacts

He continues to mention that with proper use of each of the evidence, it will help to deal with problems during the construction of validity and reliability of the case study evidence. Each of the sources listed has its advantages and disadvantages. Therefore, a proper selection must be made as each one affects time and quality of data directly. However, Yin (2004) has argued that having a single source of evidence is not highly recommended as it might achieve a one-sided perspective through the single source. Hence, multiple sources of evidence, also known as triangulation, are used in this thesis.

The triangulation of sources used should validate the same fact and phenomenon to reduce the potential problem faced when using a single source. Additionally, the events and facts of

the case study will be supported by more than using a single source (Yin, 2004). The multiple sources of evidence used for the study is divided into a primary source and a secondary source.

Primary data means that there are no previous existing documentation and is created to understand for a specific area of interest. The primary source is usually collected through conversations, interviews or questionnaires (Henriksson and Nyberg, 2005). Therefore, the primary source in this study is by conducting interviews with relevant people within the case study. The interview questions are pre-formatted and the interview is conducted in an open-ended manner.

The advantage of the interview is to be able to obtain information from the key informants which are critical for the study. The informants not only provide new insights but also suggest other sources, such as other people to interview that can be useful for the case. However, there are the downsides with interviews such as inaccuracies to poor recall and reflexivity where the interviewees give what the interviewer wants to hear (Yin, 2004). The prevention is then to use the secondary sources to validate the information provided by them.

Secondary data means information in the intermediate form that is published or available in a way or another (Henriksson and Nyberg, 2005). The secondary sources used in this study come from previous projects, Internet sources, books, scientific journals and other documentation. The advantages of using the secondary sources are less time-consuming as well as low cost as it could be performed anywhere. Quick information can also be gathered easily. On the other hand, the author might lose sight of the objectives set in the study and gets too general information from the vast range of information available. The data might also get challenging to obtain under complicated circumstances.

While trying to collect the data for this project, the challenge for the author is to keep a balance by using the existing knowledge base. The author is constantly reminded not to blindly follow the sources of evidence which will affect the trustworthiness of the entire thesis.

2.4 Quality

Quality means to be of high standards and it is much required while performing a research study. The researcher is to maintain the trustworthiness of a research through these criterion suggested by Yin (2004). They are:

- Internal validity
- External validity
- Reliability

However, Yin (2004) mentions validity needs to be constructed before the validity of the study can be performed. The construction of validity is to ensure the right operational measures for the concepts being studied (Kidder and Judd, 1986 through Yin, 2004). In this thesis, the tactics used to construct validity is mentioned earlier such as the use of multiple sources of evidence and having the advice of the author's supervisor.

Internal validity can be depicted as the level of studied research and measures the intended (Merriam, 1994 through Wong and Chiu, 2008). Yin (2004) suggests performing internal validity during the data analysis phase of the research. It is a qualifying check or measure to the research done. This would then prevent from having a wrong conclusion at the end of the thesis or making a wrong inference through the data collected. Some of the tactics recommended by Yin (2004) are performing pattern-matching, explanation building, addressing rival explanations and using logic models.

Hence, one of the methods the author tries to use is the pattern-matching strategy to internal validate her study. The pattern between the case study and the theory are studied to see if there is a match between the two. At the same time, there are multiple discussions with the author's supervisor to ensure the convergence of information between her supervisor and herself. Another strategy is using the multiple sources in the research. All of these mentioned plans will then enhance the internal validity of this thesis.

External validity, on the other hand, can be depicted as knowing if the outcomes of a study are generalisable beyond the immediate case study (Yin, 2004). He suggests performing external validity during the design of the research. This could be performed through various ways to heighten the validity externally such as interviews and theories. Other tactics recommended by Yin (2004) are using theories in single case study or replication logic in multiple-case study.

Since a single case study is performed in this thesis, the use of theories is preferred. The author additionally has interviewed people who are relevant to the case study. All of the information collected will be processed through by the author and presented as findings for the thesis. Furthermore, with an awareness of external validation, the author has written the thesis with simple and coherent words for the readers to understand the author easily.

Reliability is one of the important challenges for the author to ensure the information collected is dependable. The check is performed during the collection of data in the research and the purpose of reliability is to minimise the errors and biases in the research (Yin, 2004). He emphasises that the study performed should be able to obtain with the same results on the same case and not with other cases. Some of the tactics are implementing a case study protocol or developing a case study database (Yin, 2004).

In order to make her research reliable, the author has made a case study protocol. The protocol helps the author to focus on the topic of interest and to anticipate of any upcoming problems during the research. Additionally, extra attention has been given during the interviews and data collection process. For example, English is used as a common language because it is a language both interviewer and interviewee could understand. Thus, minimising any misunderstandings.

However, even when quality checks are performed through internal validity, external validity and reliability, there are problems encountered. For instance, the interviewees might give selective answers, as information of the case study may be highly sensitive. The disclosure of sensitive information might be a breach to the contract signed between the parties involved. Additionally, the author is unable to do observations of the interviewees, as they are located in different countries such as Sweden and Italy.

In spite of that, the interviews will be performed openly in all fairness. Emails are sent beforehand to the respective interviewees to inform of the topic of the thesis performed as well as a verbal agreement before the start of the interview to do a recording of the conversation.

As mentioned earlier, the author wishes to perform a data triangulation of the collected data. This would ensure a full spectrum analysis of the topic of interest and provides the author a broad perspective to the findings. Furthermore, the data triangulation allows performing a

second check on the results to observe the possible trends. This would also help to enhance the reliability of the study.

Next, the theory concepts for this thesis are examined and discussed further.

3 Theory

This chapter entails the main concepts that will be used for the thesis. The concepts will be taken from research performed previously. Before the concepts are explained, the focal relationship is described. After which, it would be essential to understand the connection between the relationship and business network. The concepts of business networks as well as the concepts of business relationships will be explained and summarised. From here, the value created by business networks and relationships are discussed. Within the concepts, a model of managing in networks by Ford et al. (2002) will also be studied and used as part of making recommendations for the case study.

3.1 Focal relationship

First and foremost, it is important to define the focal relationship that will be under investigation for this thesis. The relationship can be viewed as a three-level supply chain where it constitutes the sub-suppliers, supplier and buyers. The figure below shows the supply chain network where the actors exist.

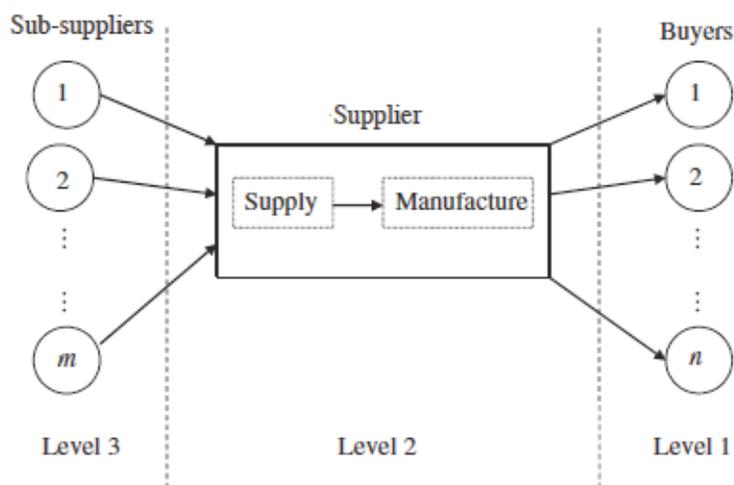


Figure 1: A schematic diagram representing a three-level supply chain with multiple suppliers, a single vendor, and multiple buyers (Jaber and Goyal, 2008)

The third level consists of the sub-suppliers who mainly provide parts and components which are installed into a system. The second level consists of the supplier who uses the items provided by the sub-suppliers to manufacture/ assemble into a complete system. Finally, the first level consists of buyers/ customers who will buy and own the system.

However, the main focus in here are the suppliers (level 2) and sub suppliers (level 3). In this case, the buyers/ customers (level 1) will be less mentioned. Nevertheless, the readers should note that the buyers/ customers still do play an important role within the supply chain.

3.2 The business network

In this chapter, the author aims to allow the readers to understand better about the business network. Thus, it is further broken down into a few sections. Firstly, the definition of the business network is described, then the characteristics of the business network are broken down and finally, a model of managing the business network is explained.

3.2.1 What is a business network?

A business network can be generally defined as, '*set of two or more connected business relationships, in which each exchange relation is between business firms that are conceptualized as collective actors*' (Emerson, 1981 as cited in Holm et al., 2007). As such, a network structure is formed through the connected business relationships. The network structure is separated into positively and negatively connected relations (Holm et al., 2007). Positively connected relations are when one or another actor complements and/ or supports the other (Emerson, 1981 as cited in Holm et al., 2007). Whereas, negatively connected relations are where competition is observed and hinders the business partnership (Holm et al., 2007).

However, Ciabuschi (2006) points out the two different perspectives within the academic world relating to networks. They come from the International Business (IB) and the IMP group respectively. Each of the perspective will be discussed below in detailed.

3.2.2 Networks in IB

Studies performed within IB have been mainly network metaphors to describe and understand firms' internationalisation, the MNC's organisation, strategy and structure (Johanson and Vahlne 1990, Blankenburg 1995, Hedlund 1986, Bartlett and Ghoshal 1989 and Forsgren et al 2005 cited through Ciabuschi, 2006). With so many research performed in IB, Ciabuschi (2006) points out three main research areas which focus and introduce three diverse network's perspectives (and set of boundaries).

Firstly, he mentions about scholars who deal exclusively with the corporate subsidiary network which is located within the Multi-National Company (MNC) boundaries (also known as the corporate network). For example, Bartlett and Ghoshal (1989) (through Ciabuschi, 2006) mention about the Transnational Corporate Networks and indicate the emphasis of interdependence, cooperation and diversification within the network to obtain a competitive advantage against others. Another example is through Ghoshal and Nohria (1997) (through Ciabuschi, 2006) where the authors' focus is on the internal organisation and conceptualise large MNC as Differentiated Network of subsidiaries.

Secondly, Ciabuschi (2006) mentions the existence of researchers who focus the external network and distinguish the difference between the local and international external network. He gives a few examples such as Johanson and Mattsson (1986) as well as Johanson and Vahlne (1990) where they work on the process of internationalisation of firms with long last business relationships with external counterparts (f.e. customers and suppliers located internationally in local markets and/ or located locally in new markets).

Last but not least, Ciabuschi (2006) points to studies distinguishing the theoretical and empirical point of view about the difference of internal (also known as corporate) and external network. For example, Forsgren et al. (2005) (through Ciabuschi, 2006) mention the existence of two very different but are interlinked through the units of a corporate and external network.

With the three main areas explained, Ciabuschi (2006) brings them together and proposes a network framework. The framework is based on the nature of relationships versus the nature of actors linked in the network. The nature of relationships may be local or international

whereas the nature of actors may be corporate or external. The framework can be seen in the table below.

Table 2: Two-by-two matrix for IB business network (Ciabuschi, 2006)

		Nature of Actors	
		Corporate	External
Nature of Relationships	Local	Relationships among units in the same organisation are located in the same market	Relationships with local external actors (f.e. local customers and suppliers)
	International	Relationships among units within the same organisation but located in different markets	Relationships with international external actors (f.e. International customers and suppliers, both located in different markets)

The first quadrant on the top left indicates only corporate actors within the legal and organisation boundaries of the firm. Since the actors are located within the same market, they are characterised as locals. This is a typical situation of specialisation and division of labour within the same firm. For example, the network of Firm Y with Unit A located within a certain country. Unit B, who comes from the same firm, supplies raw materials to Unit A. Unit B is also located within the same country. At the same time, Unit A receives orders and sells it to Unit C (f.e. the sales office) of Firm Y located locally.

The second quadrant on the bottom left indicates an internal network of an integrated MNC. The different units relate with one another and perhaps forming an interdependent corporate network. The boundaries are set within the firm, but the location of the units is within different markets. Hence, the nature of the relationships established can be treated international.

The third quadrant on the top right indicates the actors locating within the same local market. They establish buying and selling relationships between the different firms. This is, to Ciabuschi (2006) is the typical and can be refer as the model of interorganisational network. It is commonly seen within many industries such as the car or high-technology industries.

Last but not least, the fourth quadrant on the bottom right indicates a network that consists of relationships of external counterparts who are international by nature. (Ciabuschi, 2006)

mentions the possibility of two types of external international relationships. One, for instance, is a relationship between a Unit operating in Country A and a counterpart in Country B. This relationship is known as a direct international relationship. The other, for instance, is a relationship established between a local Unit and a counterpart that is international by nature. This relationship is known as an indirect international relationship. However, in the latter case, the relationship can stretch via the same external counterpart in many different countries and involving different units within the same organisation.

Next, the perspective on networks in IMP is explained.

3.2.3 Networks in IMP

When the business network within the IMP group is viewed, it encompasses of a structure as well as a process (Ford and Mouzas, 2008). Ritter (2000) and Ritter and Gemunden (2003) (through Ford and Mouzas, 2008) state that the business network is made up of evolving *structure* of relationships and reliance between actors that precede the entry to it of any single firm or other actor.

The network is difficult to characterise and measure as it has no objective borders (Ford and Mouzas, 2008, Ford et al., 2002). The firms are free to link with actors who they have contact with or know of as well as actors who appear to influence or be influenced by (Ford and Mouzas, 2008). As such, a business network can have no centre, as it is not a creation of, nor be owned or managed or controlled by anyone (Ford and Mouzas, 2008, Ford et al., 2002). The *process* that takes place in the business network is of multi-lateral interaction, both recognisable and unrecognisable between the actors (Håkansson et al, 1982, Håkansson and Ford, 2002 as cited in Ford and Mouzas, 2008).

Additionally, the idea of networks in IMP is restricted to components such as actors, resources and activities that are observed in the network (Ciabuschi, 2006). The components mentioned are part of the IMP interaction model as proposed by Håkansson (1982). Nevertheless, when the network is at a micro-level, a lot of details concerning the specific actors and specific relationships bonding them together are obtained. On the other hand, when the network is at a macro-level, the network borders and effects become vague and increasingly difficult to define.

The business network can also be a value creation network as it is possible for a group of firms to pursue a collective strategy to raise their joint performance (Astley, 1984 through Holm et al., 2007). In a study performed by Hill (1990) (as cited in Holm et al., 2007), it can be observed that firms are more willing to engage in cooperating with partners who can demonstrate their trustworthiness and cooperative ability in other relations. When there is a past experience of cooperation with other firms, there is a high possibility of cooperating in other relationships as well. Therefore, partners will have the ability to cooperate more effectively if both firms/ involved parties engaged in business networks with connected relationships (Holm et al., 2007).

It is also emphasised that the network context is a matter of the firm's "choice of perspective" and is related to the firm's (who is also the actor) cognitive processes (Snehota, 1990 through Holmen and Pedersen, 2003). Holmen and Pedersen (2003) mention that firms should be aware of more than what they see as being the immediate relevance to decide as a basis for their actions. Hence, the network context can be conceptualised as being surrounded by a network horizon (Holmen and Pedersen, 2003).

Therefore, in the next chapter, the network horizon is briefly discussed.

3.2.4 Network horizon

What is a network horizon? As defined by Anderson et al. (1994), the network horizon is seen as "*how extended an actor's view of the network is*". In other words, a network horizon consists of other firms and relationship that the focal firm is acquainted with, regardless of the firm considering them relevant or not.

The network horizon of a single firm is and should be fairly narrow as only a small portion of opportunities and constraints can be looked and acted upon (Holmen and Pedersen, 2003). There are also hidden problems when firms try to take more results of their actions on their relations and connections between them (Wilkinson and Young, 2002 through Holmen and Pedersen, 2003). However, the problems will become apparent when a network becomes over richly interrelated and structured (Holmen and Pedersen, 2003).

The authors also recommend that a firm needs to identify, read and interpret moves or changes within the network so to find the right strategy to use to gain a competitive

advantage over others. Therefore, Håkansson and Snehota (1995) (cited through Holmen and Pedersen, 2003) propose to have a “*broader horizon when it comes to monitoring the behaviour of other actors in the context*”. With a broader horizon, the firm will be able to understand the network in different views. Hence, firms should remove their ‘myopia and be able to put on different ‘glasses’.

Next, the model of managing in networks is presented.

3.2.5 The model of managing in networks

The model is made up of 3 parts, namely network pictures, networking and network outcomes (Ford et al., 2002). These 3 aspects are interrelated as seen in the figure below.

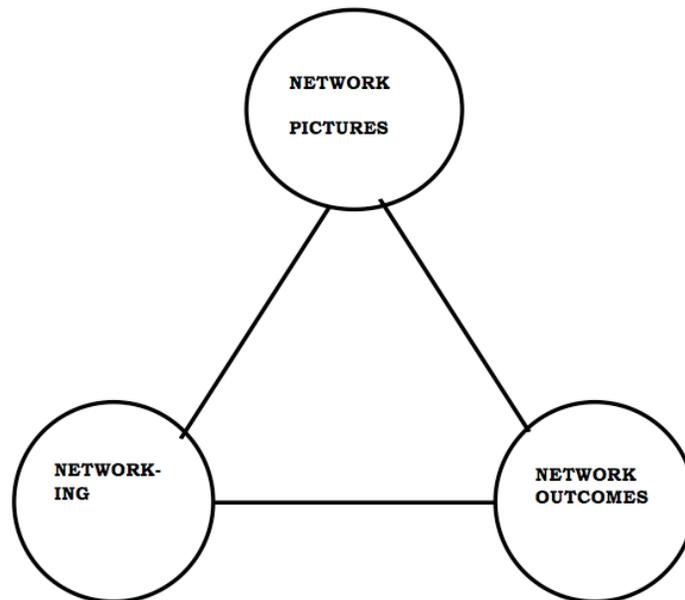


Figure 2: Model of managing in networks (Ford et al., 2002)

3.2.5.1 Network pictures

The first part of the model is the ‘network pictures’. The network pictures are referred to “*the views of the network held by participants in that network*” (Ford et al., 2002). The network picture is made up of the individual’s to understand what is happening around them, which includes their actions and reactions in the network. The actions and reactions include one’s experiences, relationships and position in the network. In turn, the network picture will be

influenced by any problems, uncertainties and abilities and by the boundaries of the actors' knowledge and understanding.

However, the involved actors might bind the network picture by having a common view and stereotyping the network (Ford et al., 2002). The actors, with a common view, would come together as one to join actions for or against change, when necessary. On the other hand, stereotyping are categorised into broad and narrow. Broad stereotyping includes defining the network as a 'supply chain' or 'distribution channel' whereas narrow stereotyping includes having views of 'who should do what' and 'who should with whom' (Ford et al., 2002). Hence, the authors suggest having a common network stereotype that requires recognising different 'types' of network.

Nevertheless, the types are the network pictures seen by a particular perspective or by a particular firm. Though it might be the same network but it could be a different type because it is being viewed from a different angle. Therefore, there is no one definite network type, as all networks will have different elements, characteristics, and possibilities when seen from a different perspective.

3.2.5.2 Networking

Next, 'networking' makes up the second part of the model. Networking includes '*all of the interactions of a company or individual in the network, including all its activities concerning the management of the existing relationships, the management of the position that it occupies in their surrounding Network and strategies on how to network*' (Ramos and Ford, 2006).

Some characteristics of networking which are based on Ford et al. (2002), consist of:

- Networking is interactive
- Networking is based on restricted freedom
- Networking involves 'Coopetition'
- Position and experience are central factors in networking
- Networking is based on incomplete knowledge

The networking has its contradictions and Håkansson and Ford (2002) (through Ford et al., 2002) have pointed them out as three aspects of networking. They are:

- Choices within existing relationships
- Choices about position
- Choices about how to network

Firstly, the first aspect relates to choices within existing relationships in the network. As mentioned earlier, relationships are the foundation of the network activities. Without the existence of relationships, the network will not be able to function. As such, when changes take place, there are advantages as well as disadvantages in terms of costs and time. There is also a risk of resisting changes. So the first aspect of networking involves choices of **confronting** the status quo of accepted methods of operating and **conforming** to operation methods which are linked to its relationships (Ford et al., 2002). The involved parties in the network would need to understand that the choice between confront and conform has to be made even though there will be positive outcomes for some and negative outcomes for others. Therefore, firms would work towards having positive outcomes rather than having negative outcomes. As changes in the network are happening continuously, Ford et al. (2002) mention the importance of going through the choices with the involved actors regularly so to prevent the relationships in the network from going sour.

Next, the second aspect relates to choices about position. Firms are naturally concerned about their position in the network. The network position is defined by the existing relationships, or making use of existing or new relationships to change the position they are in. The firm can then work within its existing position, regardless of the problems it may involve, by using the first aspect of networking to improve efficiency and effectiveness (Ford and Havila, 2003). Either way, the firm could choose to solve the problem by changing its position by combining its existing relationships in new ways or building new relationships (Ford and Havila, 2003). Hence, the choice falls between when to **consolidate** by stabilising and strengthening its existing network positions or **creating** a new position through changing existing relationships or to develop new ones (Ford et al., 2002).

Lastly, the third aspect relates to choices about how to network. Firms always need to make decisions on networking both within and between relationships. This also includes considering *how* to interact with its counterparts. However, firms must be careful with controlling the network otherwise it might to a disastrous effect. So the choice falls between when to **coerce** others to do their wishes and when to **concede** to the wishes and initiatives of

others (Ford et al., 2002). Still so, firms would try to control some partners whilst accepting other partner's control or perform both in different parts of each relationship at the same time. The capabilities of the firms involved in the network let counterparts coerce (Ford et al., 2002). For example, one firm might have the technology capability to control its counterparts to give into its needs and demands. On the other hand, conceding might include informing or persuading, or accepting the decisions of the counterpart, with good intentions (Ford et al., 2002). The authors then suggest that the network of a firm will then have to consider the dependence on one another, the lack of a network picture, the broad views, approaches, needs and goals of those around the network and the need to give in and work with these and to coerce others when needed.

As a summary of the three aspects of networking, a table is shown as below.

Table 3: The three aspects of networking (Ford et al., 2002)

Aspects of networking	Choices for each aspect	Management for the network paradox
1.	Choices about working within relationships	Conform vs Confront
2.	Choices about network position	Consolidate vs Create
3.	Choices about how to network	Coerce vs Concede

3.2.5.3 Network outcomes

Last but not least, the third part of the model is the 'network outcomes'. Firms conform/ confront, consolidate/ create and coerce/ concede while networking. Hence, a network outcome is produced in the network both individually and collectively (Ford et al., 2002). Since a network is made up of webs of relationships, there is no one specific network. But the authors have pointed out that there are positive and negative outcomes in terms of revenue or profit, now or later. The actors in the network can, however, observe, access and respond to a section of the networking outcomes that has influence on the particular network picture (Ford et al., 2002).

As the network outcomes affects the firm's networking, the firms must be proactive to discover the network outcomes from network actions which are deemed important to them. For example, a negative outcome will cause the firm to change some networking activities and/ or network picture (Ford et al., 2002). On the other hand, a positive outcome will lead the firm to broaden its actions to strengthen the network outcomes (Ford et al., 2002).

Therefore, Ford et al. (2002) suggest to study network outcomes based on actors, activities and resources.

Outcomes and actors: There are three different levels of actors. They could be single actors, actors in a single relationship and for the entire network. As such, the outcomes may solve, fail to solve or lead to new problems (Ford and Havila, 2003). It would then be important to understand the outcomes of networking on each level and the degree of the problems solved or created.

Outcomes and activities: The network outcome is affected by how the various activities are linked to one another. The firm's relationships are re-structured when activities within the firms or the links between one another are changed (Ford and Havila, 2003). The network outcome can also re-structure the network when new firms and relationships are formed and existing ones disappearing (Ford and Havila, 2003). The outcomes can also be known as 'aggregation', 'dis-aggregation', 'dis-intermediation and 'intermediation' (Ford et al., 2002). Hence, it is good to note that there are often widespread effects on ways of working when networking is used to solve an immediate or narrowly defined problem.

Outcomes and resources: The network outcomes can influence the development and utilisation of resources (Ford et al., 2002). The development of resources could be in the form of technical, physical or operational whereas the utilisation of resources could be in the form of existing technology or know-how, offerings, facilities or an organisation unit (Ford et al., 2002). Therefore, the resource effects are crucial for capital- and knowledge-intensive firms (Ford and Havila, 2003).

Considering that the three different elements of the model of managing the network are explained, it is still valuable to note that they are all inter-connected. Each of the parts does not automatically precede the others but will influence one or the other parts (Ford et al., 2002).

Next, the concepts of business relationship are discussed.

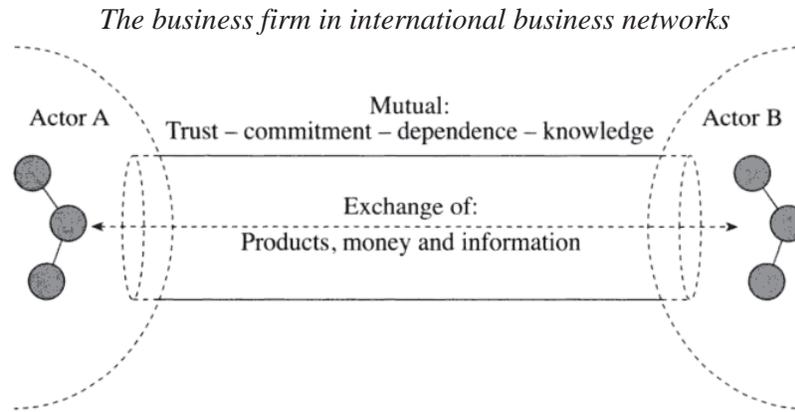
3.3 The business relationship

Before the start of a business network, there is a need for a business relationship to exist (Håkansson and Johanson, 2001). The existence of a business relationship is a result of having interactions between the parties doing business (Ford (1990); Håkansson (1982); Turnbull and Valla (1986) through Holm et al. (2007)). The interactions will possibly lead to less formalised, but close and long-lasting, exchange relationships between suppliers as well as customers (Håkansson and Johanson, 2001).

The initial weak relationship can also be known as the ordinary arms-length market exchange (Forsgren et al., 2005). In this stage, the firms are trying to understand one another before it will be transformed into a strong and mutual dependence (Håkansson and Johanson, 2001). In normal cases, one of the firms – usually a supplier but often is also a buyer – will take the first initiative towards the business transaction with its partner. During the interaction evolvement, commitments between the two are made and it also where competences as well as behaviours are understood between the two (Fiol and Lyles, 1985 as cited in Holm et al., 2007). This also allows the relationship partners to coordinate their independent activities and still have benefits (Håkansson and Johanson, 2001). Benefits include reduction cost of exchange and raise joint productivity by adapting to each other (Zajac and Olsen, 1993 through Forsgren et al., 2005).

The maintenance of the business relationship ultimately falls upon the involved parties. If either of the involved parties is not motivated to maintain the relationship, then further development will be a futile attempt. It also depends on a strategic decision if the developed relationship is profitable and worth further expansion. All in all whether the business relationship could be preserved still depends on the relationship outcome from the first business transaction where uncertainties and possible opportunism could be lowered as well (Holm et al., 2007).

In summary, the figure below depicts a better understanding of a business relationship between the actors. It shows the mutuality of the partners in terms of trust, commitment, dependence and knowledge as well as the dynamic aspect in terms of exchange of products, money and information.



3.3.1 Characteristics of business relationships

To further understand business relationships, the characteristics of business relationships are listed. Werani (2001) (cited in Mikkelsen and Hedda, 2003) classifies the characteristics into cooperative business relationships and non-cooperative business relationships, with the difference resting in the specific quality of the interaction process. The difference is distinguished into five areas as Werani (2001) mentions (Mikkelsen and Hedda, 2003), and they are:

- Long-term orientation: It is the degree of the long-term orientation rather than the length of the relationship.
- Relationship-specific investments: The relationship-specific investments are also known as the existence of mutual adaptations.
- Contractual safeguarding: The interaction is based on implicit agreements and relationship-specific norms developed during the relationships. They are on a more formal level and are contractually fixed agreements.
- Frequency of interaction: It is the level of mutual coordination, for example the frequency of interaction between the relationship actors.
- Change of contact persons: The presence of relatively stable patterns of social interaction which is caused by a low degree of fluctuations of interaction actors.

However, through these five areas, it could be deduced that cooperative business relationships are more in favour than non-cooperative business relationships. As Anderson (1995) (through Mikkelsen and Hedda, 2003) mentions the most important reason for

collaborative customer-supplier relationships is value creation and value sharing. Therefore, the concept of value and value creation will be further evaluated in the following chapter.

3.4 Concepts of Value

Value is defined as the *'regard that something is held to deserve; the importance, worth, or usefulness of something'* (OxfordUniversityPress, 2012) or *'a fair return or equivalent in goods, services, or money for something exchanged'* (Merriam-Webster, 2012). Through the definitions, value can be regarded as a trade-off between benefits and sacrifices. Some would define value in business markets monetarily while others would define it as non-monetary rewards such as competence, market position and social rewards (Walter et al., 2001).

As such, the assessment of value is deemed as a complex task due to the problems in identifying and measuring both the monetary and non-monetary benefits and sacrifices. Moller and Törrönen (2003) mention that the perceived value and sacrifices will vary due to differences in cultures, differences in between as well as among customers, within supplier/customer or supplier/sub-supplier relationship.

With the concept of value being defined, the categories of value concept are identified in the next section of the chapter.

3.4.1 Categories of value concept

Much research has been performed to categorise the concepts of value. As such, there is a wide range of categories where a degree of overlapping exists. Based upon some researchers such as Lapierre (2000), Ulaga and Eggert (2003), Walter et al. (2002) (from Mikkelsen and Hedaa, 2003) have identified different types of variation of value. For example, Lapierre (2002) has identified 13 drivers of value and differentiate them into three groups of benefit (namely product, service and relationship benefits) and two groups of sacrifice (namely price and relationship costs). Whereas Ulaga and Eggert (2003) expand five further benefit groups (namely product, service, know-how, time-to-market and social benefits) as well as two sacrifice groups (namely price and process costs). The table below shows other findings of other researchers relating to relationship value.

Table 4: Findings of other researchers on relationship value concept (Ulaga, 2003)

Authors	Benefit dimensions	Sacrifice dimensions	Comments
Anderson et al. (1993); Anderson and Narus (1995, 1999)	economic benefits, technical benefits, service benefits, social benefits	price	theory-based
Wilson and Jantrania (1995)	economic benefits, strategic benefits, behavioral benefits	none	theory-based
Ravald and Grönroos (1996)	episode benefits, relationship benefits	episode sacrifices, relationship sacrifices	theory-based
Grönroos (1997)	core solution, additional services	price, relationship costs	theory-based
Lapierre (2000)	product-related benefits, service-related benefits, relationship-related benefits	price, relationship-related sacrifices	survey of 209 and 129 purchasing managers in the Canadian IT and finance sectors
Möller and Törönen (2003)	efficiency function, effectiveness function, network function		theory-based
Walter et al. (2003)	direct functions: quality volume safeguard indirect functions: market function scout function innovation function social support function	direct function cost reduction	survey of 230 purchasing managers in German manufacturing companies

Walter et al. (2002) posit that relationships are steered by the need to create value (both product and relationship based) and this is understood upon the concept of trust. The authors classify two overall dimensions (namely network and purchasing functions). The difference between the two dimensions is the type of influence it would affect the actors. For example, the network dimension is looked upon as an indirect influence to the goals of the customers whereas the purchasing dimension has a direct influence to the goals of the customers. Each function is then sub-classified into three sub-dimensions. The sub-dimensions for the network function are the market, the scout and the innovation development function whereas the sub-dimensions for the purchasing function are the cost-reduction, the quality and volume function. The level of trust in the relationships is then built upon the fulfillment of the different dimensions and this is tagged to the value of the relationship perceived by the customer.

With the different definition of value concepts, it can be deduced that the perceived value is a weigh-off between price and quality that is supported by Ulaga and Chacour (2001) (through Mikkelsen and Hedaa, 2003). These dimensions would then be the chosen functions to be used for this thesis. Hence, further elaboration about price and quality will be seen in the next sub-chapter.

3.4.2 Perceived value (Price vs Quality)

3.4.2.1 Price

The price can be derived from the types of procurement orientation such as the buying orientation, the procurement orientation and supply management orientation (Anderson and Narus, 2004). The procurement orientation, also known as purchasing orientation is the guide for managers to make purchasing-related decisions and to specify their area and influence (Anderson and Narus, 2004). The figure below then shows the three types of purchasing orientation.

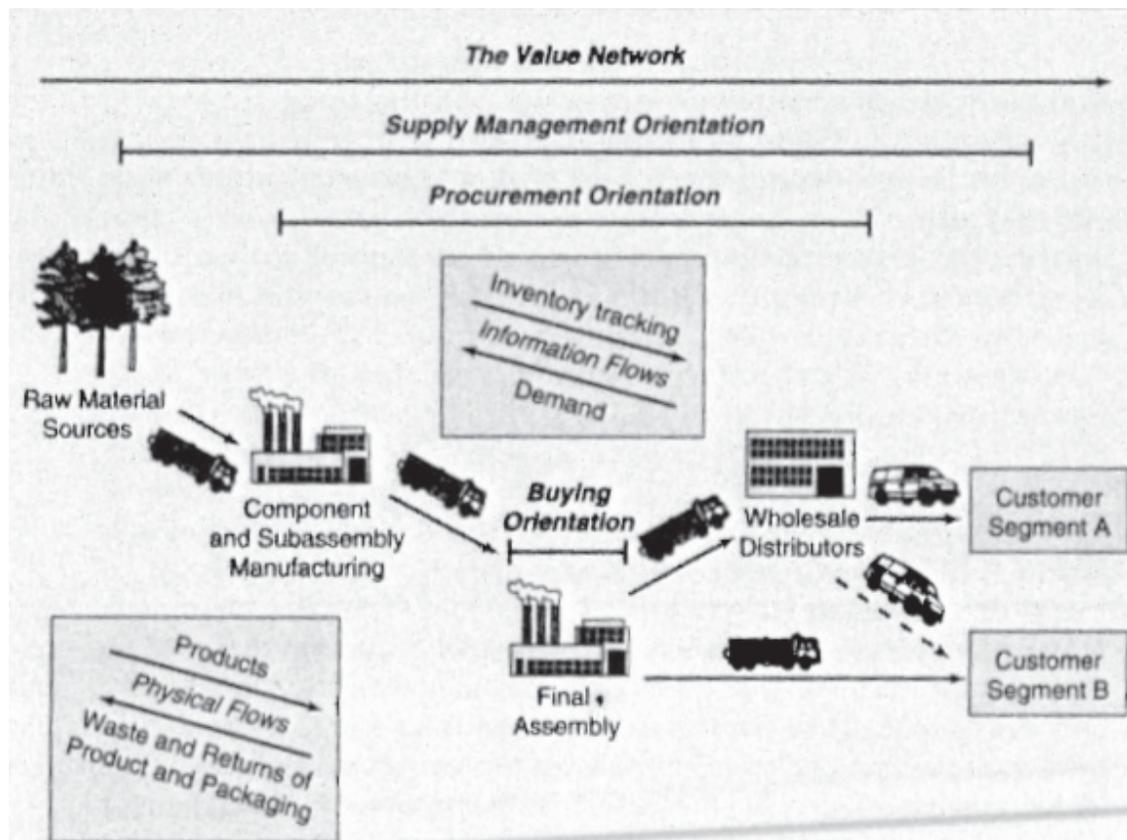


Figure 4: Purchasing orientations and the value network (Anderson and Narus, 2004)

From the above figure, it can be seen that buying is the most narrowly focused orientation. The main notion of *the buying orientation* is to achieve getting the best price, quality and availability from the suppliers (Anderson and Narus, 2004). It is also to maximise power over the suppliers and minimising risk whenever possible (Anderson and Narus, 2004). Therefore,

the focus for the buying orientation is to minimise the price paid in a single given transaction (Mikkelsen and Hedaa, 2003).

Procurement involves the widening of the area and level of influence of purchasing. Functions such as materials handling, logistics and physical distribution would then fall under the procurement orientation. The main notion of *the procurement orientation* would then to achieve an increased productivity through increased quality, reduce total cost of ownership and cooperating with the suppliers (Anderson and Narus, 2004). Therefore, the focus for the procurement orientation is to reduce the total cost associated with the use of a product or service (Mikkelsen and Hedaa, 2003).

Last but not least, the supply management involves the integration and coordination of purchasing with other departments within a firm and with other firms in the value network. The main notions of *the supply management orientation* are to achieve the firm's efforts to deliver value to all end users, to have a strategy surrounding the firm's core competences and resources so to be able to build a supply network that is able to complete the business processes which would then be able to carry on good collaborative relationships with its suppliers and sub-suppliers (Anderson and Narus, 2004). Therefore, the focus is to maximise the benefits relating to costs and price from an offering (Mikkelsen and Hedaa, 2003).

3.4.2.2 Quality

The other dimension of the perceived value is quality. Quality can be in the form of product quality, service quality and promotion quality as suggested by Ulaga and Chacour (2002) (from Mikkelsen and Hedaa, 2003). However, quality being a commonly used word and may mean many things in different context so it would be required to define it correctly for the use in this thesis.

Having quality as part of the dimension of value and further elaborating on the views of value influenced by problem-solving capability as well as knowledge transfer ability (Ford et al., 2003, Håkansson, 1980 through Mikkelsen and Hedaa, 2003), the concept of 'fit' is selected to enhance the foundation of value. The concept of 'fit' can then be classified into three groups (Mikkelsen and Hedaa, 2003), they are:

- Product fit

- Service fit
- Relational fit

Product fit is demonstrated by the capability of the supplier or sub-supplier. This means the delivered product is made as per to the stringent requirements of the customer. The requirements may be in terms of functionality, reliability, design, etc. The product fit also relies on the quick solving abilities of the supplier or sub-supplier. With that, they will have a good understanding of end-users requirements (which may be customer's customers) and always be available to the customers with its offering.

Service fit is demonstrated through the degree of flexibility, speed and time in producing and delivering the product. This means the degree to which relationship related sacrifices could be reduced through the knowledge transfer abilities of supplier or sub-supplier (Mikkelsen and Hedaa, 2003).

Relational fit is demonstrated through the elements of the relationship between the customer/supplier that go beyond the exchange of products and services. As it is the individuals that make relationships work or fail, the relational fit would then be the social distance between one another. It could be in terms of interpersonal trust, ease of communication and interaction within the relationship.

Next, the creation of value by interactions, relationships and networks are discussed.

3.4.3 Value creation by interactions, relationships and networks

There has been a trend to reduce the value creation within a firm which in turns, increase the value bought into the firm from suppliers (Ritter and Gemünden, 2003). Through that, new relationships are created not only in numbers but throughout the value chain as well. Therefore the different types of value created by interactions, relationships and networks are analysed in the next sub-chapter.

There are five types of value created as suggested by Ritter and Gemünden (2003) and they are:

- Value created in a dyad
- Value created in a portfolio

- Value created in nets
- Value created in networks
- Value created by humans

The *value created in a dyad* can be viewed three ways. Firstly, the value created for both involved actors may not necessarily be the same amount for each actor. Secondly, there is value in the relationship. Lastly, value-creations are categorised into direct and indirect functions which are mentioned in the previous section. Direct functions such as profit, volume and safeguard create value for the supplier within the relationship. On the other hand, indirect functions such innovation, market, access and scout create value for the supplier either in the relationship in the future or in connected relationships.

The *value created in a portfolio* is based on a whole set of relationships. However, within the portfolio, there are different relationships used for different meanings. As such, the value of an entire portfolio is determined by the degree of how relationships complement and substitute each other. This means the value will be either more or less of the relationships' value and not the sum of it.

All the different portfolios of a firm bring the *value created in nets* together. Hence, the value created is determined by how well fit the different pieces is when put together. Gemünden et al. (1996) (through Ritter and Gemünden, 2003) have pointed that different nets support different innovation aims.

The *value created in networks* is looked upon at the level of entire industries or supply networks. The *value created by humans* has different effects as every individual has their own level of analysis. For instance, sales personnel or procurement controllers have value created in a single relationship whereas a project team will have value created in a portfolio of relationships.

3.5 Theoretical summary and framework

Having discussed the theory in the above chapters, this chapter is a summary of it. The summary of the theory will be useful to the readers to understand the concepts better from the author's perspective. As such, the summarised theory will lead to answering the research questions in a simple and proper manner.

In order to answer the research questions, it is important to understand the focal relationship that will be investigated for the thesis. As the research is related to the sub suppliers, the main relationship of interest would be between the supplier and the sub supplier. Hence, the customers are less mentioned in the research performed. However, it is once again pointed out to the readers that as the customers are also part of the network, they are thus, an important actor to the network and should not be neglected.

Once the relationship of interest is determined, the author seeks to find the definitions of the business network. There are two different perspectives regarding networks. One comes from the research in International Business (IB) and the other comes from the research in IMP. Ciabuschi (2006) mentions that researchers within IB and IMP (for ex. Ford (1979), Håkansson (1982), Johanson & Mattson (1986 & 1987), Johanson & Valhne (1990)) have started to grow apart even though the two groups shared the same roots and basic concepts.

Within the IMP tradition, factors such as mutual trust and strong commitment are established, developed and maintained between the interacting business actors (for example. customers, suppliers, competitors) (Ciabuschi, 2006). Hence, the IMP uses the network perspective and study tools such as the Interaction model and ARA model to understand the network context. In addition, Håkansson and Snehota (1989) (through Håkansson et al., 1999) view the network context as entities which belongs to the focal actors.

However, within the IB tradition, there are many different types of research performed relating to the network context. Ciabuschi (2006) then brings all of the different IB network perspectives that he has found and builds a two-by-two matrix framework. The framework is based on the distinction between the local and international nature of relationships between the actors and on the distinction between the internal and external nature of the actors linked within the network (Ciabuschi, 2006). It can then be deduced that the IB researchers not only tackle specific network's aspect and specific types of networks, but they also try to understand the network context in a broader sense.

While the network is viewed thoroughly, there is also a need to further understand about the network horizon. The network horizon helps in giving a clearer viewpoint of a business network. The network horizon indicates complete information about the suppliers, sub suppliers, customers and even competitors in the business network. In other words, the actors

who see the existence of others within the business network will be able to for example, have further collaborations but also be able to manage them better.

With a proper understanding of networks and its horizon, the author feels the essentiality to acknowledge and investigate about the relationship value between actors. Through Westerlund (2004), there is an increasing attention in the academic world relating to it. Even though, the common definition of value is related to monetary terms, there are other definitions of value as well. For example, one considers the time perspective of economic value through long-term costs and benefits in exchange relations (Gadde and Snehota 2000, Hogan 2001, Hibbard et al. 2003 cited through Westerlund, 2004), whereas another considers the value implications of relationships as changes in firm value (Wimmer and Mandjak 2002, Park et al. 2004 cited through Westerlund, 2004).

However, Westerlund (2004) continues to mention that value consists of two interconnected concepts and they are value creation and value appropriation. He defines value creation as the creation of customer value, which combines innovating, producing, and delivering the product into the market through the business networks. On the other hand, he adds on to define value appropriation as involving the economic component in appropriating value in the market place such as taking profits. Therefore, with the use of the case study, the author will evaluate what type of relationship value is deemed crucial to the actors.

Last but not least, the model of networks will aid in recommending solutions to the case companies. The model will help the firms understand what methods could be used to improve or build new relationships within the firm or with their customers and suppliers.

After a detailed summary of the key dimensions within the concepts, the figure below shows a clearer framework of this research performed.

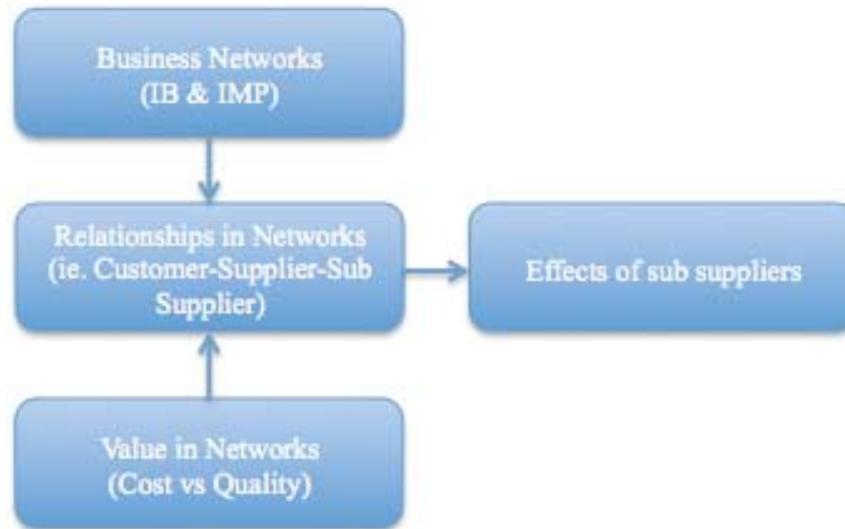


Figure 5: Theoretical framework

Next, the research questions will be answered and explained in detailed in Chapter 4.

4 Discussion

In this chapter, the case study is described in detailed. After which, the research questions will be answered and evaluated through the author’s own opinions and approach. The case study and performed interviews will attempt as references to align to the theory.

4.1 Case companies

This chapter aims to provide a brief introduction of the two companies involved in the case study. They are Swisslog Holding AG and Graniten Engineering AB respectively. However, the main case company of interest is Swisslog. Most interviewees are from Swisslog and they will be more focused as part of investigation performed for the thesis. Firstly, a short history introduction as well as the outline of the business of each company will be described. Following on, the description of the case study will be explained.

4.1.1 Swisslog and its history

Swisslog is a known global supplier of integrated logistic solutions with a wide range of services (Swisslog, 2012). From their website, it could be seen that their services include

building complex warehouses and distribution centers to in-house logistics solutions for hospitals.

Swisslog's headquarters is located in Buchs/ Aarau, Switzerland, and has over 2000 employees in almost 20 countries on four continents: Europe, North America, Asia, and Australia (Swisslog, 2012).

Swisslog's history is dated back to 1898 where Sprecher & Schuh AG was founded in Aarau, Switzerland. Ever since, the company has progressed itself as a supplier of automation systems to a competent partner in consulting services and the implementation of integrated logistic solutions. Currently, their portfolio encompasses implementation of Swisslog's own software as well as in-house logistics solutions for hospitals and pharmacies.

4.1.2 Graniten and its history

Graniten's business concept is to provide smart solutions within machine development with a focus on function and performance (Graniten, 2012). The smart machine solutions are suited based on individual customers' needs and requests. From their website, it is known that they pride themselves highly on innovations and technology.

As such, they have a group of talented employees to create the best machine solutions for their customers. In addition, Graniten has regarded the importance of having business partners to ensure the highest standard of machine solutions they can offer to their customers (Graniten, 2012). The partnerships have allowed Graniten and its partners to share and utilise one another's experience and knowledge and in turn, delivering the best product to the customers.

Graniten is mainly located in Sweden where they have four offices. The four offices are located in Uddevalla, Falköping, Lund and Linköping respectively. Their core values include Smartness, Quality and Partnerships.

Graniten is founded in 1992 by a diverse group of engineers with a common goal of solving difficult technical problems. The ownership structure changed over the years until 2002, when the company became employee-owned. However, the one thing that has not changed was their business concept of offering smarter machine solutions with a focus on performance and results.

4.2 Case study

For the case study, there are 6 interviewees interviewed by the author. They are:

- Helge Jordal, Ex Sales Manager for Swisslog for the Nordic regions
- Filip Lindgren, Current Sales Manager for Swisslog for the Nordic regions
- Gabriele Bianconi, Customer Support in Swisslog Italy
- Luca Orlandi, Production Manager in Swisslog Italy
- Maurizio Bertoni, Purchasing Manager in Swisslog Italy
- Jan-Olof Olsson, Sales Manager for Graniten

Each of the interviewees is interviewed between 45 minutes to 1 hour. All interviewees except for one are interviewed through the use of the phone or Skype. The exception interviewee is Helge who is interviewed face-to-face at PwC office located in Trondheim. As mentioned earlier, the interviews are all conducted in a fair and open-ended manner to obtain the highest quality and reliability out of it.

The case study involves the logistic systems produced by Swisslog for St. Olavs Hospital located in Trondheim, Norway. During the planning phase of hospital upgrading project, the hospital realised its needs for a more efficient logistic systems. Hence, since 2001, the hospital decided to use the integrated solutions provided by Swisslog which would be able to fulfill their needs. The integrated solution consists of three different systems provided by Swisslog. They are the TranspoNet Pneumatic Tube system, TransCar Automated Guided Vehicle system and last but not least, the PillPick Automated Drug Management system. The start-up of each system was in 2003, 2005 and 2010 respectively.

However, the hospital wanted to make the process fully automated. The automated process, for example, starts when the doctor puts in the electronic request for the medication for a patient, the transfer unit then helps transfer the medication into the pneumatic tube carriers and delivers it to the relevant patient in the ward. At that time, there was no suitable system from Swisslog to be able to make the process automatic. Then, with the help of a third party, the Sales Manager of Swisslog Nordic and the Sales Manager of Graniten were introduced to one another.

The collaboration between Swisslog and Graniten started with a discussion with the hospital about the specific requirements and possibilities to make the process automatic. Graniten then designed and assembled a mechanic interface to link Swisslog's TranspoNet Pneumatic Tube system and PillPick system together.

When the systems were fully functional in fall 2011, the process became fully automated. Swisslog and Graniten had successfully designed a one-of-the-kind interface for the hospital which satisfied the hospital's requirements of having an automated materials transport as well as an automated drug management.

4.3 Analysis and discussion

From the theory, case study and interviews performed, this thesis targets to understand the relationships between Swisslog & its suppliers, and the results to include suppliers in collaboration projects. However, there is one collaboration project in particular that fits into this thesis which was mentioned during the interview with Helge. The collaboration project was between Swisslog and Graniten and the project is meant for St Olavs Hospital.

Relationship between Swisslog, Graniten and St Olavs Hospital

The relationship between the three actors began when there was a demand from St Olavs Hospital, who is Swisslog's customer. The hospital wanted new technology solutions to be added into the new hospital. The hospital's desires made it possible for the two companies to partner and to fulfill the requirements of the customer. Without the hospital's request of a new technology solution, the collaboration project would not have even existed.

The figure below shows the relationship of the three actors in detail. There is a direct relationship between Swisslog and St Olavs Hospital as well as between Swisslog and Graniten. However, the indirect relationship between Graniten and St Olavs Hospital is so because St Olavs Hospital is the customer of Swisslog. Therefore, all communication from Graniten to St Olavs Hospital had to be through Swisslog. This is done to prevent information loss between all parties as well as mis-communication. Moreover, Graniten had to sign a disclosure contract to ensure no additional information relating to the project and St Olavs Hospital is shared externally.

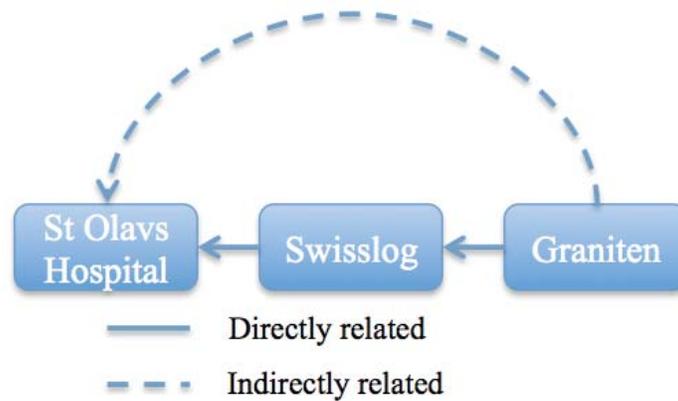


Figure 6: Relationship between the actors

Relationship between Swisslog and Graniten

The relationship between Helge (Swisslog for Nordic regions) and Jan-Olof (Graniten) started through the introduction by a third party. Since both parties come from the Scandinavian countries (Norway and Sweden respectively), it means that they have the same working cultures and thus, it is easy to understand each other. During the interviews of Helge and Jan-Olof separately, both expressed the good outcome of the project when it ended and a good relationship was obtained in the project performed for St Olavs Hospital. This points to the cooperative business relationship between the both where value was created and shared. Also, it can also be inferred that both men were able to communicate well from the beginning as well as having the same attitude and goals for the project.

Now that Helge is no longer with Swisslog and Filip replaces his position, the relationship between Swisslog and Graniten could be weaker and less motivated than before. It could be caused by the fact that Jan-Olof was having more interactions with Helge during the project. That is when commitments between the both parties are made and it also where competences as well as behaviours are understood between the two. Therefore, it is not easy for Jan-Olof to build the same kind of relationship with Filip as he has had with Helge. However, Filip also mentioned that he had ever worked with Graniten before he replaced Helge and he is still maintaining continuous communication with Graniten today.

Additionally, through the interview with Jan-Olof, he mentioned projects within Graniten are quite common with the help of a third party. This is due to the reason that Graniten is small and it has a large competition with the markets, both local and international. Since Graniten's

business is mainly selling mechanical solutions to customers and assembling & testing of the mechanical tools, all the more reason for them to depend on current customers for repeat orders, new orders as well as third party's introduction to new customers and also going into collaborations with suppliers. Therefore, Graniten's expectation of maintaining a strong relationship with Swisslog could be deemed stronger than Swisslog.

Value created for Swisslog and Graniten

Having built a mechanic interface for Swisslog to link both the Pneumatic Tube system and the PillPick system also meant a new possible business market for Graniten. The new possible business market means going internationally. From the interview with Jan-Olof, he mentioned the collaboration agreement between himself for Graniten and Helge for Swisslog for the Nordic region was that Graniten could keep the design and assembly of the mechanic interface but on the other hand, it can only be sold exclusive to Swisslog. It can be assumed that Swisslog does not want the interface design to go into competitor's hands. Also, there were strict disclosures between the two firms as well before the project at St Olavs started. The disclosure was to ensure both parties do not share relevant information to irrelevant persons outside the project.

When the project ended with St Olavs, Helge and Jan-Olof managed to sell one more of the same unit to another hospital in the Nordic region but that was all. The reason for not being to market and sell more units internationally could be due to firstly, Helge's departure from Swisslog and secondly, the international markets not seeing the necessity of the mechanic interface linked with Swisslog's systems. Additionally, the agreement was only signed between Swisslog for the Nordic region and not with the rest of the Swisslog offices in the world. Hence, the motivation to maintain the business relationship between both parties became lower, thus creating a lower value as well.

Relationship of Swisslog Italy and suppliers

On the other hand, through the interview with Luca and Maurizio, they mentioned most suppliers are located in Italy and hence, there are no problems of communication and cultural issues when dealing with the suppliers. However, they are currently starting to look into sourcing for suppliers out of Italy and it is not known if cultural or language difference would be a challenge to them as it is too early to say. Yet, if Swisslog Italy chooses to source

suppliers out of Italy, the possible opportunities are expanded as they could obtain lower cost due to the exchange rate and higher quality of the components. Having said so, there are still risks to doing so. For example, a longer delivery time might be expected and higher taxation & import costs. Therefore, it is necessary to plan wisely so that they can avoid the necessary risks and still get more opportunities out of it.

Value created for Swisslog Italy and suppliers

Luca and Maurizio have indicated that 90% of the suppliers are in a long-term collaboration with Swisslog Italy. This means continuous agreements between Swisslog Italy and the suppliers are renewed all the time. The motivations for the collaboration are quality, purchased price and volume. This means to obtain the best quality of the components or parts from the suppliers as well as to having fixed price agreements based on purchased volume. However, they still have to get at least three quotations before a proper supplier is selected. That is part of Swisslog's procurement strategy.

When asked about supplier selection, Luca and Maurizio emphasised the importance of quality and cost when suppliers are selected. They mentioned the balance of the two factors is mainly required. For example, they would prefer to choose a supplier who can provide them components or parts with the best quality for a low cost. However, this is not always the case, as there are other factors such as suppliers being inflexible with delivery time. As such, other alternatives such as choosing other suppliers have to be used instead.

Inclusion of (sub) suppliers

Jan-Olof mentioned in his interview that the inclusion of sub suppliers should begin very early during a collaboration project. The reason being information is shared among all three parties (ie. customer, supplier and sub supplier) in the beginning and no information will be lost. It is also good to know about the customer better and fit into their needs.

According to him, openness and trust are also important factors to have when having a relationship with customers and suppliers. This is again due to the same reason pointed out earlier with sharing information as early as possible. Also, when there is openness and trust in the relationship, the goals set together in the partnership can be met.

Luca and Maurizio also mentioned the importance of openness and flexibility. These factors are deemed important to Swisslog Italy when including their suppliers in their value chain. For example, Swisslog Italy has monthly meetings with their suppliers, mainly who supply manpower, to inform the suppliers about the previous manpower trends and future manpower trends. This is to ensure the suppliers understand and are in-line with Swisslog's existing and future production plans. If the suppliers cannot response to Swisslog's value change, then they are out of the competition.

This leads us back to the research questions, which are:

3. How can the actors (ie. Customer, supplier and sub supplier) within the focal relationship manage each other?
4. What is the effect of sub-suppliers to the network of business relationship?

From the relationships of all the actors, it can be deduced that actors should manage each other with trust, respect and openness. With these three top factors, the actors can communicate with one another better and smoothen work processes. This would then encourage all the actors to work together towards the same goal. This was seen in the case study between Swisslog for the Nordic region and Graniten.

There are other factors such as honesty, commitment and flexibility that could help the actors gain a good relationship with others (Teo, 2011). These factors can also be viewed as the elements to handle actors in customer-supplier-sub supplier relationship as seen in the case study between St Olavs, Swisslog and Graniten.

Therefore, with proper understanding of the factors, actors can manage each other better. It would then lead to positive outcomes and benefits. Positive outcomes and benefits include a successful collaboration where a valuable learning process can be learnt, new relationships are built, old relationships are strengthened and last but not least, profit can be made and shared.

As such, the effect of including the sub suppliers is viewed positively. Nevertheless, actors should be aware of the possible side effects of including the sub suppliers. For example, there is a risk of being over-friendly to the suppliers and that would be a disadvantage working

with them. In this case, saying ‘no’ might be difficult because the relationship is taken advantage of. Thus, such situations should be avoided if possible.

The next chapter concludes the investigation made for this thesis as well as recommendations and further work to be done are discussed.

5 Conclusion

In this chapter, the theory, case study and interviews are compared with one another and concluded. Recommendations are made to the case companies on ways to improve the relationships in the network. Additionally, recommendations are also made to those who may be interested about this thesis. Also, last but not least, further work to improve this thesis is mentioned.

5.1 Comparison

Firstly, the focal relationship that is clearly defined theoretically is also commonly seen in the business world. The common simplest relationship is a dyad where the buyer deals with a supplier but being a MNC such as Swisslog, the relationships get complicated. The relationships include having customers, other suppliers and perhaps supplier’s suppliers and customer’s customers. This would become a network of business relationships. The actors in Swisslog know their role and what is expected of them in the company. Thus, this makes the relationships in the network less complicated.

Secondly, using the theory obtained from networks in IB, it can be observed that Swisslog deals locally as well as internationally internally. Swisslog, for example, has sales representatives located worldwide. The sales representatives have customers located locally and the sales representatives send feedback to Gabriele in Swisslog Italy. Gabriele is the contact point in Swisslog to deal with problems or feedback obtained from the sales representatives. Also, he goes on yearly visits to selected countries to visit the customers to get direct feedback from them as well as to maintain a good relationship with them.

Additionally, it can also be observed that Swisslog deals locally and internationally externally. For instance, it is known that most suppliers of Swisslog are located in Italy but Graniten, for example, is one of the suppliers who has its factory based out of Italy. However,

it is not known if Gian and Maurizio deal with Graniten directly but it is known through Jan-Olof that Swisslog Italy is aware of Graniten's existence.

Hence, business relationships can be improved with the understanding of the boundaries of the networks as seen through the examples listed above. Roles are set and responsibilities are known.

Next, using the theory relating to networks in IMP, the ARA model is used to understand about the relationships in the network. Actors, resources and activities make up the model to help interpret and possibly improve relationships. In the case of Swisslog and Graniten, the actors who were Helge and Jan-Olof respectively came together to produce a mechanic interface for St Olavs. The mechanic interface is the activity that links the actors together. The resources required were the information shared between one another as well as human resources from each side. Meetings were held with all three parties to come together to design a suitable system that would work for all.

The network horizon of Swisslog should not be taken for granted as it has many offices, suppliers and customers located worldwide. Through the theory, it is understood that once the firm plans its strategy through network horizon, only then it is possible to gain a competitive advantage over its competitors. However, the author does not know if Swisslog Italy has frequent communication with other Swisslog offices regarding about the knowledge of other customers or suppliers. The network model proposed by Ford et al. (2002) is a model that can help Swisslog to further analyse its network horizon and improve business relationships. This, in turns, gives Swisslog a possible competitive advantage.

Through the concepts of value, it is posited that relationships are motivated by the need to create value (Walter et al., 2002). The authors classify the two dimensions; network and purchasing. These two dimensions are also observed in Swisslog. For example, Swisslog has gained new customers through the recommendations of St Olavs by either word-of-mouth or through the visits of hospitals to St Olavs. On the other hand, St Olavs has become a hospital that others recognised to be one of the highly technological hospitals around Norway.

The procurement orientation is perceived to be the purchasing orientation used by Swisslog Italy where low cost with high quality of components has been deemed important. Gian and Maurizio have mentioned multiple times about the importance of balancing of cost and

quality in the interview. The quality of components provided by the suppliers should be of 'product fit', which is to meet the stringent requirements of the customer (Swisslog).

However, in the case study, it could be observed that the interface delivered to the hospital had a mixed of 'product fit' and 'relational fit' quality where both the actors were very enthusiastic about the project. They were convinced from the beginning that the interface would be the next 'new' thing for the healthcare industry worldwide. Nonetheless, with some hiccups in between, the project of linking Swisslog systems with Graniten's mechanic interface to have more interested buyers did not happen as planned.

5.2 Recommendations

With the help of the model of networks proposed by Ford et al. (2002), it is possible to widen the network horizon of Swisslog.

Firstly, the network pictures of Swisslog can be expanded through department meetings to update everyone about the happenings within the company. Also, company outings such as yearly company trips to build up bonds and relationships will help to understand what other departments are doing as there will be a lot of communication going on between employees. Team building events can also be organised to share one's experiences and problems at work. This not only helps one another understands about the possible problems but also possible opportunities with working together internally in Swisslog. These recommendations would possibly align all employees' network picture into one and thus, enhancing the work performance of all.

Secondly, networking is the second part of the network model. Networking helps to gain new customers as well as suppliers and/or retain existing ones. Ford et al. (2002) mention that position and experience are the important factors in networking. Swisslog has its offices placed worldwide and there should be limited or no restrictions placed on the sales representatives in those offices to network with customers and suppliers. Additionally, networking is interactive and requires all actors within the network to participate in order to make networking effective.

Networking involves cooperation as well as competition where suppliers such as Graniten coming together with Swisslog to have a collaboration on the possibility of inventing new

developments. On one hand, it is a cooperation between the two firms and yet, they are both competing for businesses perhaps within the same industry and similar. Also, another method is to have informal suppliers meeting sessions where suppliers are gathered to have an information sharing session. This is only done based on a high level of trust where Swisslog can be ensured that whatever information is shared in the room, remains in the room.

There are 3 types of conflicts relating to networking. One of it is choice within existing relationships. This is where the choice of confrontation and conformance has to be chosen. Gian and Maurizio mentioned that suppliers would be confronted if non-conformities are found against them and if improvements are not made, then they will be out of the supplier list. Hence, all suppliers have to conform to the specifications set by Swisslog.

Last but not least, the network outcomes which are influenced through the network pictures and networking methods. The outcomes can be determined through actors, resources and activities. Outcomes through actors can help to solve, fail to solve or even lead to new problems therefore, it is important to have continuous communication internally or even externally to suppliers. For example, if the third party had not heard about the special need of St Olavs, Swisslog might not have a solution or a solution from Graniten.

Outcomes from resources can be obtained again through communications with suppliers and customers to discover new developments and customers' needs. This is to ensure the best solution can always be offered to the customers. Outcome from activities are where activities have ended and the outcome of the relationships that the firms want. They can be continuous, discontinuous or dying depending on how the activity ends. Most firms would want the relationship to carry on in a continuous mode, however this might not happen as seen in the Graniten's case. Even though, continuous communication is maintained, there are times where each firm might neglect one another for some time. Therefore, having informal meetings are needed with suppliers, deemed important by the firm. This could strengthen the bond and relationship between both parties.

5.3 Further work

As with all research work, there are loopholes within this thesis. The project could have been better if they are not neglected. However, this is not possible with the time limitation and the problems faced during the period.

The case companies, Swisslog and Graniten, are interviewed through phone due to the geographical distance. Hence, it was impossible to do the interviews face-to-face. Also, with the short time period, it is impossible to understand in detailed with the aspect of the firm's network horizon. It would help in analysing the case better and perhaps a different perspective of understanding of business networks.

Additionally, as the case study is related more towards the healthcare industry, thus the research outcome cannot be an indication for all types of industries in the world. However, managers could still be able to relate some parts of the research such as the understanding of one network horizon to plan out its strategy.

In conclusion, the thesis manages to answer all research questions. The verification of all information found within theory, case study and interviews performed have been done in the best possible process. From the findings, it is also concluded that the author did not manage to unite both theory and case study as proposed, but it is reasonable to believe that both sources can be tied together to a certain extent.

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7 Appendix

7.1 Swisslog

Introduction

1. Introduction of interviewee

Swisslog (General Questions)

2. How many suppliers do you have?
3. Do you have any long term/ collaboration relationships with suppliers?
 - 3.1. If yes, how long?
 - 3.2. If no, why not? (one time purchase)
4. What do you think of collaboration? Is it important for Swisslog?
 - 4.1. If yes, what is motivation for collaboration in the beginning? Describe the process of collaboration.
 - 4.2. If no, why not important?
5. What kind of contract is preferred?
 - 5.1. Longer period (more than 3 years) or shorter period (less than 3 years)?

The product (The pillpicker machine)

6. Who are the main suppliers?
7. Describe the relationship with the supplier.
8. Do you contact the same person with the suppliers?
9. Are there any problems during the ordering/ installation of the components for the pillpicker?
 - 9.1. What are the solutions?
10. How do you select your suppliers? (Price or Quality or other factors?)
11. Do you work with other suppliers or third party during development of the product?
12. How involved were the suppliers to the customers?

The business network and relationship

13. How has the relationship been carried out with supplier? Please give scores (1 is lowest – 10 is highest)
 - Realistic vision
 - Long term perspective
 - Satisfactory performance
 - Information exchange
 - Practices
 - Interaction
 - Responsibility
 - Openness
 - Trust

- Flexibility
14. How often does Swisslog communicate with suppliers?
 15. Do you get feedback from your supplier about project?
 16. Are there any limitations that make the procurement process less effective? (ex. Time limitation, cost limitation?)
 17. How do you network with suppliers?
 18. Do you think if the length of the collaboration, geographic distance and culture has any significance on the collaboration?
 19. Are there supplier audits?
 20. Are there effects of including the supplier in projects? (If yes, what are they?)
 21. What are the risks and opportunities of collaboration?
 22. What are the advantage and disadvantage of collaboration?
 23. ~~23.~~ When do you think it is beneficial to include subcontractors in partnering?
 - 23.1. What kind of projects is more suitable?
 24. Which factors have to be present for partnering/ collaboration to be successful between main contractors and subcontractors?
 25. Which threats can hamper a partnering collaboration?
 26. How are suppliers managed and what will you do to manage suppliers better?

7.2 Graniten

Introduction

1. Introduction of interviewee

Graniten (General Questions)

2. Do you have any long term/ collaboration relationships with suppliers/ customers?
 - 2.1. If yes, how long?
 - 2.2. If no, why not? (one time purchase)
3. What does partnering means for Graniten?
4. What do you think of collaboration? Is it important for Graniten?
 - 4.1. If yes, what is motivation for collaboration in the beginning? Describe the process of collaboration.
 - 4.2. If no, why not important?
5. What kind of contract is preferred?
 - 5.1. Longer period (more than 3 years) or shorter period (less than 3 years)?

The product (The pillpicker machine)

6. How did the partnering begin with the PillPick machine?
7. Are there competitors that you know of?
8. Describe the relationship with the Swisslog and St Olavs Hospital.
9. Are there any problems during the partnering collaboration?
 - 9.1. What are the solutions?
10. Do you work with other suppliers or third party during development of the product?
11. How involved were the suppliers to the customers?

12. Has it been a profitable collaboration?

The business network and relationship

13. How has the relationship been carried out with supplier? Please give scores (1 is lowest – 10 is highest)

- Realistic vision
- Long term perspective
- Satisfactory performance
- Information exchange
- Practices
- Interaction
- Responsibility
- Openness
- Trust
- Flexibility

14. How often does Graniten communicate with suppliers/ customers?

15. Do you get feedback from your supplier/customer about project?

16. Do you think if the length of the collaboration, geographic distance and culture has any significance on the collaboration?

17. Are there supplier audits?

18. Are there effects of including the supplier in projects? (If yes, what are they?)

19. What are the risks and opportunities of collaboration?

20. What are the advantage and disadvantage of collaboration?

21. ~~Q6~~ When do you think it is beneficial to include subcontractors in partnering?

21.1. What kind of projects is more suitable?

22. Which factors have to be present for partnering/ collaboration to be successful between main contractors and subcontractors?

23. Which threats can hamper a partnering collaboration?