STUDYING INFORMATION SYSTEM PROVIDER RELATIONSHIPS IMPACT ON BUSINESS RELATIONSHIPS

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ABSTRACT

Information systems are used for managing and supporting companies' business relationships and have become an important part of companies' exchanges with their customers. Information systems are usually managed by a third party, an information system provider (IS-provider). Companies are dependent on their information systems to maintain their business performances and are therefore also dependent on the IS-provider's competence. This paper studies the impact that a company's IS-provider relationships have on its customer business relationships. By using the concept of connection and studying its degree of continuity and strength, the study offers insight on the impact of the IS-providers' relationships on a company's customer relationships. The study consists of a case study involving five customer relationships and four IS-provider relationships, creating twenty within-cases. The result shows that the companies' relationships are dependent on the exchanges with the IS-providers. This impact and the characteristic of the connection may vary over time, making the concept of continuity important to consider when evaluating a company's relationship with IS-providers. The study shows that it is important for companies to consider these two business relationships in relation to one another when managing the IS-provider relationship and the information systems that are used in customer relationships. Important management aspects can be missed in the evaluation of an IS-provider, if the connection between the relationships is left out of the analysis.

Keywords: Connection, business relationships, continuity, information system provider

Paper: Competitive

INTRODUCTION

Modern industrial companies are highly dependent on their use of information systems in their daily business activities (Nakata, Zhu and Izberk-Bilgin, 2011). The information systems are used for example as; everyday operational activities as ERP (Enterprise Resource Planning) systems for manufacturing and logistics, intranets and extranets for communication and information sharing, CAD/CAM systems for R&D and EDI or XML-based systems for inter-organizational transactions; as well as tactical and strategically actions as Decision Support Systems (DSS) and Executive Information Systems (EIS) for managerial decision-making. The list of critical information systems can go on. The large number of different information systems in a company makes the managerial situation of the information systems complex. Furthermore, these information systems are most often managed by a third party (i.e. an information system provider, IS-provider) who adds even more complexity to the situation. Most industrial companies' uses different IS-providers for each of their information systems, resulting in them having to manage several IS-provider relationships. Many of these information systems are highly integrated in the company's business activities, i.e. the information systems supports the company's business. Thus, the company becomes dependent on their information systems and thereby also indirect dependent on their IS-providers since they have knowledge regarding the information systems.

Most companies manage the different IS-providers in a similar way and the IS-provider business relationships often have a rather narrow scope where short return on investments and pre-defined activities are prioritized. Thus, there is a risk that the company and the IS-provider only focuses their efforts on their business relationship and thereby neglects that business relationship's impact on other important business relationships with for example customers. Numerous of a company's information systems are, directly or indirectly, used in the interaction with their customers as a support for different exchanges. They might use email for information exchanges, an ERP system for product or service exchanges, and a CAD/CAM system for a customer initiated development project (Durmusoglu and Barczak, 2011). The IS-provider becomes vital in the context of a company's customer relationship since several studies have shown that information systems are integrated in a company's business relationships exchanges and thereby affects the overal performance of a company (Sanchez-Rodriguez and Martinez-Lorente, 2011; Laage-Hellman and Gadde, 1996). Consequently, information systems become an integrated part of the exchanges in a relationship with a company's customers (Hadjikhani, Lindh and Thilenius, 2006). Taking the fact that information systems are integrated in the business relationship exchanges and that these information systems are managed by IS-providers in to consideration, it can be argued that the IS-provider is linked to the business relationships of a company, i.e. connected. The managerial task becomes more complex when it shall include other, connected, relationships but such approach does also offer possibilities to make the business more efficient and effective. There is a research stream focusing outsourcing of information systems and some has also expanded the scope to address business processes (Lahiri and Kedia, 2009). Though, few researchers have addressed the connections between a company's business relationships with its IS-providers and its business relationships with customers, as this paper will. Cook and Emerson (1978) defined a connected relationship as the degree to which exchange in the one relationship is contingent on exchange upon the other relationship. Such definition puts theories on connected business relationships in a markets-as-network context (Johanson and Vahlne, 2011; Mattsson, 1997).

This paper aims at present a study of the characteristics of connections between business relationships when the strength of the connection is put in relation to the degree of continuity of the connection. Empirically this is studied by *how a company's business relationships with its IS-providers impact its other (customer) business relationships.* Thus, the impact is studied unidirectional (i.e. the IS-provider relationships' effects on customer relationships and not the other way around). Initially, there are some basic assumptions that can be drawn regarding connected business relationships. The connection between two business relationships may exist but can also be absent, i.e. two business relationships might not affect each other at all. Furthermore, the connection between the relationships may be more or less visible over time, i.e. the connection can be intermittent in its characteristics. Thus, from a managerial perspective the degree of continuity of a connection is of importance to consider given that it affects how much attention it requires and also what events make a connection occur. A connection may also wary in strength. Some connections will be strong, i.e. one business relationship has a clear and direct impact on the other business relationship, whilst others will be weak which means that one business relationship will have little effect on the other.

INFORMATION SYSTEM PROVIDER

Information systems are integrated in the daily routines of companies' business and used to support the exchanges with companies' counterparts. To run these information systems the company often turn to third parties for support with managing the information systems, i.e. the company develop business relationships with IS-providers. It is the IS-providers that have the competences regarding the information systems that the company becomes dependent on and the IS-providers are therefore important to maintain the company's business performance (Goles and Chin, 2005). Some of the information systems will be the basis for the company's everyday operations, as ERP systems and intranets, which means that they are dependent on their information systems and thereby also on their IS-providers. There are studies that have addressed the business relationship between a company and its IS-provider and these include Gottschalk and Solli-Sæther (2006), Heckman (1999), Kern (1997), Kern and Willcocks (2000), Kern and Willcocks (2001), Kern and Willcocks (2002), Lacity and Willcocks (2009), and Willcocks *et al*. (2004). There have also been a great amount of studies on the use of information systems in business relationships as Damanpour (2001), Ekman and Thilenius (2005), Leek and Turnbull (2004), Leek, Turnbull, and Naudé (2003), and Lindh (2006). However, knowledge on how IS-providers influence a company's other business relationships is less explored. This study adds the element of connected business relationships in the context of IS-providers where the IS-provider relationship is considered a central element for how it impacts a company's customer relationships.

BUSINESS RELATIONSHIPS

Business relationships are formed by different exchanges and behaviours that occur in them. Over time the business relationship may grow and become organised structures that handle the business between two companies. The business relationship's fundament is the different exchanges that the two partners are involved in. The repeated exchanges mean that the business relationship becomes unique and long-termed. Hence, the business relationship will overtime be a resource that is difficult to replace. The exchanges are not only related to product/services versus finance means they can also be based upon information or have a social and interpersonal characteristic. The business relationship will also hold different behavioural aspects that are related to the social and interpersonal exchanges. The behavioural aspects can for example be manifested as adaptations, commitment activities, communication, cooperation, the development of interdependences, and levels of trust (Morgan and Hunt, 1994; Hallen *et al*., 1991).

Connected business relationships

Studies have shown that business relationship do not exist in isolation, they are connected indirectly or directly to other relationships (Anderson, Håkansson, and Johanson, 1994; Axelsson and Easton, 1992; Blankenburg Holm and Johanson, 1992; Havila, 1996; Holma, 2009; Laage-Hellman, 1989; Ritter, 1999). When a business relationship impacts another relationship the relationships are connected (Blankenburg Holm 1996). Connections to other business relationships can be numerous and can either be supporting or disturbing a company's other business relationships (Ritter, 2000). The interconnectedness of relationships illustrate that one business relationship may impact on another but also that it may be impacted by the other relationship. The impact of a connection might either be positive or negative in its nature (Ritter, 2000; Anderson, Håkansson and Johanson, 1994; Blankenburg Holm and Johanson, 1992; Cook

and Emerson, 1978). The impact may run either ways or only one way. Though, in this paper it is only one direction that is studied – how the business relationship with the IS-provider impacts a company's customer relationships (illustrated in figure 1), where the customer relationship is the focal business relationship. Thus, if and how the impact goes the other way is not part of the study. Similar approach, regarding studying one direction of the impact, has been made by Blankenburg and Johansson (1992). Hence, the effects from the focal relationships to the other relationships are not considered only the effects of other relationships on the focal relationship.

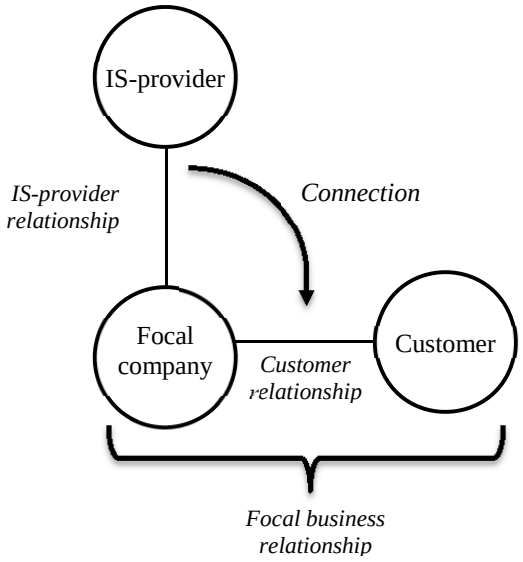

Figure 1 – Connection: this study's analytical level

The theoretical framework in this paper is focusing on the impact the connection has on the exchanges and behavioural aspects of the customer business relationship, i.e. how one individual business relationship impact other business relationships (Hadjikhani and Thilenius, 2005; Ford, 2004; Ritter, 2000; Blankenburg Holm, 1996; Håkansson, 1982). This study is delimited to the analytical level of an empirical setting of a focal company, its IS-providers and customers to understand to which degree one relationship is dependent on another, as shown in figure 1. The connection is studied in terms of how the IS-provider relationship impacts on the exchanges in the focal company's customer relationships. By using the concept of connections the knowledge of the IS-providers influence on business relationships is further developed as well as giving an empirical contribution to the research of connections. When a relationship is impacting on another relationship it is impacting on one or more of the exchanges in the other business relationship. If it is impacting on the social exchanges it can be impacting on one or more of the mentioned behavioural aspects – as for example communication, trust or commitment – in the focal business relationship. The impact in this study means whether the IS-provider supports or disturbs the ongoing exchanges or the behavioural aspects of the focal business relationship. When studying connections also aspects of triads have been addressed in earlier research. In the context of business networks triads are usually viewed as consisting of relationships between actors that are connected to one another by a third actor (Havila, Johanson and Thilenius, 2004; Khurana, 2002; Madhavan, Gnyawali and He, 2004). Blankenburg and Johansson (1992) discuss four different types of triads, in their article, from more weak to more strong triads. The strongest

is when both the focal company and its customer have a relationship with the third party – addressed as *closed triad*. Little less strong is called *semi-closed triad* ant that is when the customer has contact with the third actor at occasions. The third type of triad is when the focal relationship exchanges information about the third actor, called *open triad*. The weakest triad is called *implicit triad* and that is when the focal actor takes the impact from the connected relationship into consideration but does not explicitly refer to the third actor in the interaction with its customer. Though, in this study the focus is on the connection but by studying connections it becomes visible if the and how the focal business relationship may or may not have a business relationship with the third actor, in this study the IS-provider.

Connection strength and continuity

The analytical framework for this study consists of two parts, first the connection strength and the second connection continuity (see figure 2). The four different modes of connections that will be used for analysing the IS-provider relationship and customer relationship connection are presented in figure 2 below.

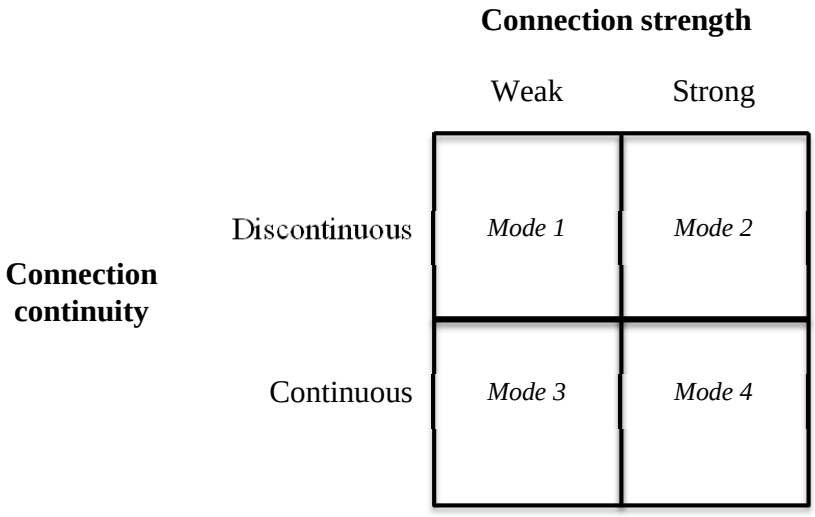

Figure 2 – The analytical framework

The strength of the connections is viewed as weak or strong, i.e. to which degree one relationship makes an impact on the other relationship. *Weak* implies that the business relationship may be seen as two separated dyads with no or only a minor impact from the IS provider relationship on the focal relationship. *Strong* involves that the IS-provider relationship has a major impact on the focal business relationship. Thus, there is a clear connection between the two business relationships. It is also important to consider that the impact can vary in character. The business relationship with the IS-provider may, for example, impact several of the exchanges and behavioural aspects of the customer relationship, but in an unimportant way, thus the connection is weak. The IS-provider relationship may also impact on only one exchange in the customer relationship but that exchange is of great importance for the relationship, thus the connection is strong. Thus, just studying if a connection is impacting several or few exchanges is not enough, the quantity of impacts do not entirely decide the strength of the connection. If for instance trust (social exchange) in one business relationship is immensely impacted by another business relationship, the connection can be seen as a strong even though it does not impact on any of the

other exchanges or behavioural aspects. Blankenburg Holm (1996) stresses that it can be assumed that the greater the dependence there is between two business relationships, the greater their impact is on each other's business relationships. Hence, the strength of the connection can be identified in relation to the amount of exchanges and behavioural aspects it is impacting in a combination with whether the impact is significant for the exchanges and behavioural aspects of the focal business relationship.

Business networks are not necessarily stable and business relationships do not automatically last (Kamp, 2005). Furthermore, continuity is often seen as an indication of stability (Corsaro and Snehota, 2012). A company's customer might at some point need to reduce its investments in the business relationship and this is generating a moment of discontinuity in a relationship. Thus, many business relationships are not being developed and are not running in an even and smooth way. Instead, a business relationship may be interrupted and it is thereby characterised by intermittent interaction and periods of little or no business exchanges (Hadjikhani, Lindh, and Thilenius, 2012; Hadjikhani, 1996). Researchers like Coughland *et al.* (2003) and Easton and Araujo (1992) express the importance of continuity and discontinuity when studying business relationships. Hence, the degree of continuity should also be of interest when studying connections between business relationships. By applying the concept of continuity on connections new aspects regarding business relationship connection can be reviled, as the study in this paper will show. If the connection is *continuous* it is constantly impacting the connected business relationship (in some way) and if it is *discontinuous* it will only have an impact at occasions. Thus, when a connection exists between two business relationships it may or may not be stable but independently it has an impact on the other relationship.

CASE STUDY APPROACH

To get a better understanding of the nuances of business relationship connectedness, a case study holding multiple interviews has been carried out (Erixon, 2012). Case studies have been argued to be especially proper to use when studying business relationships due to time delimitation, definition of boundaries and the dynamic nature of relationships embedded in networks (Dubois and Araujo, 2007; Easton, 1995). Thus, it has been considered a suitable research method for this study. The study has been structured as a single case study of how a focal company's IS-providers impact a focal company's customer relationships (illustrated in figure 1). The single case study involves five customer relationships and four IS-provider relationships, creating twenty within-cases (Yin, 2009), illustrated in figure 3.

The focal company in the study is ABB Process Automation (will in the following text be referred to as only ABB) and five of its customers; LKAB (mining industry), Boliden (minding industry), Korsnäs AB (paper industry), Sandvik (steel industry) and SSAB (steel industry). The IS-providers are Telia (managing the IP-telephony), Acando (managing QlikView a decision support system), IBM (managing the information system infrastructure and Lotus Notes that includes the email system) and ABConsult (managing the ERP system, SAP). ABConsult is the only company that wanted to be anonymous and has therefore been given the fictive name of ABConsult (only referred to as ABC in figure 3).

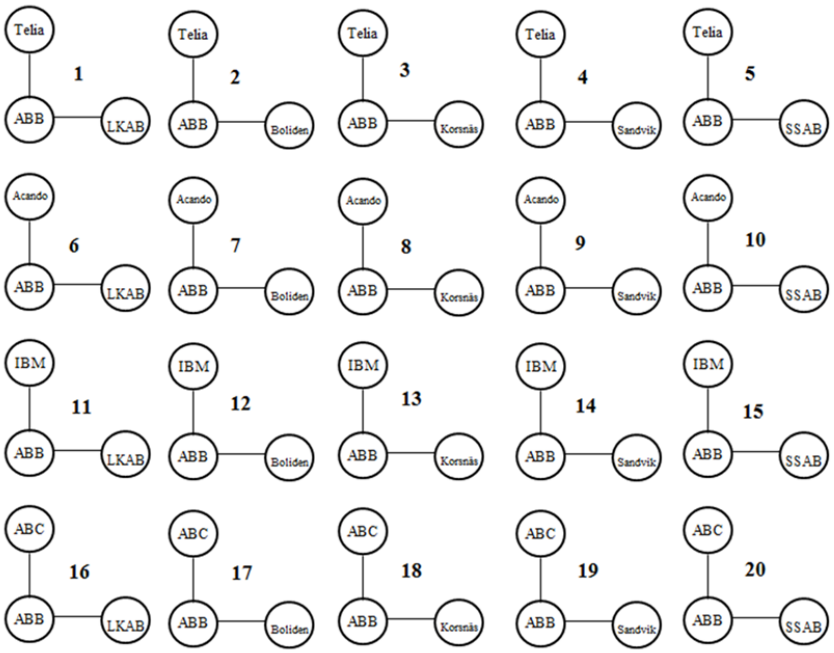

Figure 3 – Illustration of the twenty within-cases

The within-cases are mainly based on 30 interviews but also data from non-participatory observations of information system use and reviewing archival material and business documents were used to support the findings from the interviews. The interviews were guided by a semi-structured interview protocol and the 30 interviews involved 28 different respondents. The respondents titles were for example: CEO, IT (information technology) managers, business relationship managers, key account managers, supply chain managers, service managers for IS, controller, procurement and production manager and client executive. The questions addressed to ABB were regarding their information system usage in customer relationships and their business relationships with the mentioned customers and IS-providers. The business relationship to ABB was in focus when interviewing ABB's customers but also the customers view on the information systems that were used in the business relationship with ABB. The IS-providers business relationships with ABB were in focus when interviewing IS-provider representatives, as well as addressing the information systems they maintained and managed for ABB. Each interview lasted between 30-120 minutes. To promote openness all interviewees were assured anonymity. The interviews were recorded, transcribed and then posted to the interviewees for validation. First each of the different customer relationships were analysed separately and how the information systems were used in them. Then the IS-provider relationships were analysed. Thus, the activities performed within each business relationships (both with customers and IS-providers) with focus on the exchanges and behavioural aspects of the relationships were analysed before moving on to analyse the twenty within-cases in relation to the analytical framework using the theoretical concepts of continuity and strength of the connection. Findings were also further verified by collection of secondary data (as documents and other archival material). Both similarities and dissimilarities in the within-cases (i.e. each connection) were analysed. Hence, a cross-case analysis was used as a method for analysing the twenty within-cases. Comparison allows the researchers to become familiar with the data and allows the patterns of each case to emerge (Eisenhardt, 1998).

EMPIRICAL FINDINGS

Putting the degree of continuity (identified as continuous or discontinuous) in relation to the connection strength (identified as weak or strong) there is four different modes that can be addressed. These four modes of connections will be discussed using some illustrative empirical findings below. The connection in one mode is not unchangeable; one connection defined in one mode may over time and depending on events change to another mode. Thus, a connection does not need to stay in one mode over time. By applying the analytical framework on empirical data from twenty possible connections patterns have emerged. The patterns indicate how the IS-provider relationships may impact the customer relationships, in the exchanges and behavioural aspects, in relation to the connections degree of strength and continuity.

Mode 1 – Weak and discontinuous connection

A weak and discontinuous connection indicates that the business relationship with the IS-provider has a minor impact on the exchanges and behaviours in ABB's customer relationships. This impact, which may vary from none to limited, is intermittent in its character. An example of this is ABB's use of the decision support system QlikView in the management of one of their customer relationships, Korsnäs. Since ABB use QlikView for internal use it might at first seem that there is no connection between ABB's relationship to the IS-provider, Acando, and ABB's relationships to its customers. It is only on a few occasions that QlikView is utilized in a way that it influences this customer relationship. QlikView is used as a support to identify delivery quality for this customer. If the report from QlikView shows that the delivery quality is dissatisfactory, ABB makes changes in the customer relationship activities to enhance the delivery quality and thereby keeping the customer pleased. ABB has also used the information regarding delivery quality from QlikView the other way around. When they saw that they had very high delivery quality to Korsnäs they showed that positive information to the customer. Thus, QlikView is indirectly used to support trust in the customer relationship given that is delimits disruptions and makes the customer pleased. Especially since the customer, Korsnäs, has expressed that high delivery quality is one of the most important aspects of trust in their business relationship with ABB. As a procurement and project manager at Korsnäs says regarding the importance of high delivery quality:

> *If the deliveries are delayed, it would cause severe difficulties since it is only at predetermined stops in our production that ABB has the opportunity to implement larger updates or change in their systems and equipment.*

Consequently, QlikView is indirectly supporting trust. The connections impact is also delayed since the change (i.e. enhancing the delivery quality) is not immediate. Thus, it will take a while before the impact is visible in the customer business relationship. This connection is weak since ABB is not contingent on the exchanges in the business relationship with Acando to manage their trust in their relationship with Korsnäs, but it helps enhance it at occasions.

Summing up mode 1 there is one of the within-cases that was weak and discontinous. The information system in this mode is of *moderate complexity* and the IS-provider has *litte or no impact* on the social and product/service exchanges in the customer relationship. The characteristics of the connection are *overall positive*, not impeding any exchanges, it is *weak* and

the impact is infrequent, i.e *discontinous*. Furthermore, the chracter of the connection can be seen as *hidden*, since it is not obvious at a first glance that this information systems can support the *trust* in the relationship with the customer. The impact of the connections is *delayed* in character, this meanst that it takes time for things that happen in the relationship with the IS-provider to impact on the business relationship. The connection in mode 1 can be seen as a weak connection that emerges on occations.

Mode 2 – Strong and discontinuous connection

A strong and discontinuous connection indicates that the connection occurs at times but does not exist constantly. When the connection occurs it has a strong impact on the customer relationship. Example of a strong and discontinuous connection is how the business relationship ABB has with Telia impacts all five studied customer relationships (LKAB, Boliden, Korsnäs, Sandvik and SSAB). Telia manage ABB's use of IP-telephony. The IP-system can be seen as moderate complex, especially if you compare it to the ERP system, SAP. The business relationships ABB has to Telia and all the five customers are on a daily basis managed quite separately which indicates a discontinuity of the connection. The exchanges in the business relationship with Telia is not impacting on a continuous basis since the IP-telephone system does not need frequent changes to support the business exchanges in the customer relationships. The IP-telephone system, per se, supports the exchanges with the customer relationships but it is not that dependent on the exchanges in the relationship with Telia to do that. The IP-telephone system is frequently used in the customer relationships and the telephone is stressed as an important bearer of social and information exchange with the customers. The telephone is used to support ABB's cooperation with all customers holding elements of trust, commitment, involvement in procedural adaptations, and so forth. As a procurement and project manager at Korsnäs stressed regarding telephone and commitment:

> *A phone call shows a sort of commitment from the other party since it is very easy to send emails everywhere. A phone call indicates a deeper commitment regarding the errand at hand.*

Thus, ABB is dependent on Telia for these customer exchanges which illustrates that there is a strong connection. This strength becomes even more visible when there is a system failure. At a system failure the customer communication and exchanges is instantly disturbed. At such an occasion the effects of the actions in the IS-provider relationship have direct impact on the customer relationships. The exchanges in the customer relationship become dependent on the exchanges in the IS-provider relationship. An account manager at ABB stresses:

> *If for example the telephones did not work there would be sever difficulties regarding our relationship with our customers. It is primarily telephone and email that are the most important IT [information technology] tools.*

The affect that a system failure would have also enhances the discontinuous characteristics of this connection, it becomes more apparent (i.e. the customer relationship exchanges are impacted and dependent on the exchanges in the relationships with Telia) at a system failure than on a daily basis. This makes the connection characteristic strong and discontinuous.

Summing up mode 2 there are five of the within-cases that were strong and discontinuous. The information system in this mode is of *moderate complexity* and the IS-provider impacts the *social and information exchanges* in the customer relationship. The IS-provider relationship also impacts the behavioural aspects of *communication, cooperation, trust and commitment* in the customer relationships. The characteristics of the connection are *overall positive* since they do not hinder any exchanges in the customer relationships. On occasions, for example system failure, the *impact is negative*; the IS-provider connection hinders exchanges in the customer relationship. The impact is *strong*, but becomes *extra strong* when the impact on occasions is negative, making the connection *discontinuous* in character. The connection to the customer relationship is *obvious* and the impact on the customer relationships exchanges is immediate making it *instantaneous* in character. The connections in mode 2 can be seen as strong connections that are especially apparent when there is an interruption in the information system.

Mode 3 – Weak and continuous connection

When the connection is illustrated as weak and continuous the information systems has no or little to do with the exchanges in the customer relationships. Thus, the two business relationships are more seen as two separated dyads than connected to each other. An illustration of this is how ABB uses QlikView in four of their customer relationships (LKAB, Boliden, Sandvik and SSAB) in this study. The QlikView system is not used in a way that it can influences customers, indicating no connection. Thus, in this case there is no connection between the relationship with Acando, which is the IS-provider of QlikView, and the relationships with LKAB, Boliden, Sandvik and SSAB in this study. An account manager at ABB stresses:

> *I do not use QlikView in the direct customer relationship I use it more as an overview of the entire business unit and not for data on a specific customer.*

The study indicates that the utilisation of QlikView has no or little impact on the customer relationships' exchanges or behavioural aspects, i.e. there is no connection. The non-existing connection is non-existing on continuous basis since for example when there is a system failure there is still no impact on the customer relationships. This illustrates that how the information system is *used* is of importance when studying the IS-provider relationships' impact on customer relationships. Thus, QlikView was used in another way in the example that illustrates weak and discontinuous (mode 1). This indicates that the impact of the Acando business relationship on customer relationships varies depending on how the information system is utilized. Thus, if QlikView should also be used in the same way as illustrated in mode 1 in the later four customer relationships the connection could easily transform to a weak and continuous connection. This shows that there can be movement between the different modes in the analytical framework.

Summing up mode 3 there are four of the within-cases that were weak and continuous.The information system in this mode is of moderate complexity. Exchanges in the customer relationships is not contingent on the exchanges in the IS-provider relationship. Thus, the IS-provider has *no impact* on the exchanges in the relationship with the customer, making the connection weak and continuous. The connections in mode 3 consists of non existing impact on a continous basis.

Mode 4 – Strong and continuous connection

When the connection is strong and continuous it means that there is great strength in the connection between the two business relationships and that the focal relationship is clearly contingent on the relationship with the IS-provider on a continuous basis. ABB's business relationships with the IS-providers IBM and ABConsult are examples of relationships that impact all five ABB's customer relationships (LKAB, Boliden, Korsnäs, Sandvik and SSAB) in this study on a continuous basis. In these cases the interaction and exchanges with the IS-providers is extensive and on a daily basis since the information systems can be seen as highly complex. The IS-provider IBM manages the entire IS infrastructure as well as the, for ABB stressed, important email-system. The IS infrastructure supports all of ABB's other information systems and the email-system supports the information exchange in the five customer relationships presented in this study. It is furthermore stressed that email supports the social exchanges in the customer relationships. The email also supports ABB's communication as well as customer and supplier cooperation. Hence, the exchanges in the IS-provider relationship are required for ABB to be able to manage their business with the five customers in this study. The information exchanges in the customer relationships are contingent on the high levels of exchanges in the IS-provider relationship. An account manager at ABB says:

> *We have high levels of mail correspondence with all of our customers to exchange information regarding products, projects etc. and we also take decisions through email correspondence.*

The IS-provider ABConsult manages ABB's ERP system (SAP) and the ERP system is a critical and very complex information system in comparison to for example QlikView. SAP is a cross-functional and company-wide information system that supports the monetary transactions and product exchanges within all the studied customer relationships. The SAP system does to a high extent support ABB to secure their delivery quality which in return helps strengthen the trust in the customer relationships. All the studied customer relationships showed high levels of mutual trust and the respondents was rather explicit about this mutual oriented trust. Several respondents also stressed the importance of high delivery quality as one of the most important aspect of creating trust in a business relationship. This implies that the information exchanges ABB have with ABConsult impacts the exchanges (product and monetary) and also behavioural aspects (trust) in the studied customer relationships, indicating a strong connection. Thus, the connection is also strong on a continuous basis – the impact from the IS-provider relationship is always present.

Summing up the last mode, mode 4, there are ten of the within-cases that were strong and continuous. The information system in this mode is of *high complexity*. The connections illustrated in this mode impacts on *product, monetary,information and social exchanges* in the customer relationships. It also impacts the behavioural aspects of *cooperation, trust, and communication.* The characteristics of the impact are *overall positive*, i.e. the exchanges in the IS-provider relationship supprts the exchanges in the customer relationship. Though, on occasions the IS-provider relationship is *hindering* the exchanges in the customer relationship, for example when there is a system failure. The connection is *strong* on a regular basis, i.e. *continous*. The impact can be both *obvious* or *hidden* in the use of the information systems. The impact can have both an *instantanious* impact, the impact is immidiate, as well as a *delayed* impact, i.e. that it takes time for the change to occur in the customer relationships.

CONCLUSIONS AND DISCUSSION

The connections are analysed, in this paper, by the strength of the connection and the degree of continuity of the connection. The study shows that in the greater part of the twenty within-cases the focal relationship is contingent on the information and social exchanges in the IS-provider relationship for several of the exchanges and behavioural aspects in the relationship. The study indicates that the strength of the connection depends on how the information system is used and which of the IS-providers that are connected. The impact from different IS-provider relationships on the focal business relationship is *heterogeneous*, meaning that different IS-providers impact on different exchanges and behavioural aspects in the focal business relationship. While the impact from one and the same IS-provider is *homogenous* meaning that one IS-provider has a similar impact on all customer relationships in this study. Though, Acando was an exception as being in two different connection modes. This indicates that a company with more than one IS-provider needs to manage each IS-provider relationship differently from the others. Furthermore, the findings indicate that a greater strength in the connection and a higher degree of continuity ("Mode 4") reveals a more complex information system and hence also a more complex and influential IS-provider relationship.

As stressed in earlier literature (Ritter, 2000; Andersson, Håkansson and Johanson, 1994; Blankenburg Holm and Johanson, 1992; Cook and Emerson, 1978) a connection might be positive or negative. By also addressing the degree of continuity of the connection time periods where the connection impact changes from negative to positive and vice versa becomes visible. The study illustrates that an overall a positive connection might change to a negative connection for a short period of time, when for example the IS-providers fail to keep the information system up and running. The consequences can be devastating for a company's business when there is a system failure, for example it can cause delivery delays or missed orders. Thus, the time perspective of the impact of a connection on a focal business relationship is important to consider for more detailed insights regarding how the connection impact a company's business relationships.

By studying the degree of continuity of the connection in relation to the strength of the connection some other characteristics of the connection emerged. For instance; the study shows that the impact from a connection can; be *instantaneous* or be *delayed*. Again a time perspective is involved, thus studying when the impact from the IS-provider relationship is notices in the focal business relationship. An example is the use of QlikView to support trust; the impact of trust is not instant but will be enhanced over time. Thus the impact has a delayed effect. Another characteristic to consider is if the impact is *obvious* or *hidden* depending on how the information system is being used. For example that an internal information system as QlikView has impact on social exchanges, in this case trust, in a customer relationship is not obvious as in the case of SAP supporting product exchanges in a customer relationship. The connection between an IS-provider relationship and a customer relationship can be characterised by the concepts of, strength, degree of continuity, negative or positive, obvious or hidden and instantaneous or delayed.

From a theoretical standpoint, by using the degree of continuity of a connection the connections that only occur over time becomes more visible. Thus, continuity (Hadjikhani, Lindh and Thilenius, 2012) is a concept to consider when studying connections. Studying the degree of continuity of connections impact on business relationships contributes to the understanding of the

interconnectedness between business relationships. The analytical framework used in this study can be applied on other settings of two business relationships in order to study and understand their connection. The different characteristics that emerged by the use of the analytical framework, such as the time perspective regarding the change between positive and negative in time periods, that the impact can be instantaneous or delayed and if the connection is obvious or hidden, can be useful to consider in other studies of connections to get a deeper understanding of connections.

Furthermore, the findings indicate that the nature of the information system is a strong determinant of what in the focal business relationship that is influenced whereas upholding trust seems to be a central factor. Though, communication and the possibility for mutual adaptations in the focal business relationship may be hampered if the IS-provider relationship gets strained. The IS-provider is a facilitator for the information systems to support exchanges in the company's business relationships.

MANAGERIAL IMPLICATIONS

The study contributes to business professionals understanding of the complex situation of using IS-providers for management of a company's information systems. The study show how the connection to the IS-provider relationship impacts on a company's other business relationships. Thus, it is important for a company and its IS-providers to understand that a connection may exist and not always in an obvious way and furthermore it can exist only occasionally. From a managerial standpoint the applied framework based upon connection strength and the continuity of the connection (see figure 2) is a good starting point when evaluating potential IS-provider partners. The proactive company may require that an IS-provider in "Mode 4", i.e. an IS-provider that can be considered having a continuous and strong connection to a company' customer relationships, has a deep insight in the company's customer relationship. Thus, the framework can be used for IS-provider evaluations. This also means that a proactive company can outline key performance indicators (KPIs) based upon what the information system (and hence the IS-provider) are expected to do in the customer relationships rather than focusing external measures that is the dominant KPIs today. From a managerial point of view the challenges with the connections in "Mode 4" are that they need specific attention and the information system managers must also address the fact that the connections impact on the business relationships of the company. This means that the IS-provider ought to meet a company's customers to get a greater understanding of how the information systems influence and supports the exchanges in these customer relationships. In none of the within-cases was it apparent that the IS-provider had any contact with the focal company's customers, making them implicit triads according to the different types of triads identified by Blankenburg and Johanson (1992).

The analysis showed that there is a homogenous impact and this indicates that a relationship with an IS-provider can be managed independently of which customer relationship the information system is used in. Though, this may become a limitation of the information system use in some customer relationships that would benefit from more adaptation of the information system to be more customer specific. The homogenous impact assumes that all of the company's customer relationships can be managed and supported in the same way which hinders adaptations in the customer relationships.

A managerial consequence of the connections illustrated in this study is that a company ought to manage both the IS-provider relationship and customer relationship together rather than separately. Managing the IS-provider and the business relationships separately seems to be common for companies. The information system department in a company has the knowledge regarding the relationship with the IS-providers whiles managers and employees involved in the customer relationships has the knowledge about the company's customers. The managerial challenges are to understand that these two business relationships are connected and also find ways to get the knowledge about the company's customers to the IS-providers. The analysis in this study reveals that the externalisation of information system is a complex matter that requires the company to consider the IS-provider as an important part of a company's business relationships.

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