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Coping with Business Relationships: Use of Mobile Solutions to Improve Inter-Organizational Business Processes

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ABSTRACT

Both practitioners and academics have been interested in business relationships for decades. However, the emergence of mobile business and the use of mobile solutions within relationships is a scarcely studied area. The purpose of this paper is to describe how mobile solutions can be deployed within relationships to enhance inter-organizational relationships. The empirical part of the paper employs a case study method which is selected from the steel industry. Findings show that a WLAN infrastructure based system that uses handheld devices like PDAs can be used to shorten and cut costs of internal and interfacing processes, especially related to steel hardness test report measurements and transmissions from one organization to another. The main limitation is the use of only one case and the resulting lack of generalizable results. Future studies could include further case studies and later a large scale quantitative study to validate and broaden findings.

INTRODUCTION

There are numerous research traditions with different and yet overlapping viewpoints or ways to conceptualize business relationships. Within business relationship discussions special attention is given to bonds and their understanding. However, bonding literature to date has been blind sighted as technological bonds are seen as manufacturing bonds while mobile and wireless communication devices and systems are today commonplace in everyday life. In this study the author suggests that the emergence of internet-based e-business tools and mobile solutions has created new types of bonds or sub-bonds that should be considered when creating and enhancing existing business relationships. These digital bonds and mobile bonds are seen as important ways to improve business relationships in order to compete and survive in today's digital and mobile economy.

This paper presents a brief overview of the bonding business and relationship discussion to justify research. After that, mobile business solutions are discussed to illustrate the importance of studying the deployment of mobile solutions to enhance relationships. The author then provides a discussion on methodology and illustrates changes brought by mobile solutions to the order-delivery process of the studied relationship between Gamma and Delta. Finally, the theoretical and managerial implications are presented together with limitations and future research areas.

BONDING AND BUSINESS RELATIONSHIPS

A bond is a building block of a relationship that is created through interaction between business parties. Literature has identified altogether 10 bonds that are pertinent in business relationships (Johanson and Mattsson, 1987; Buttle et al., 2002). These are technical, time, knowledge, legal, economic, geographic, social, cultural, ideological and psychological bonds that have an important role in value creation and reduction in business relationships.

To briefly illustrate, for example technical bonds play a crucial role when business parties are interacting. Usually, technical bonds refer to connection in manufacturing processes, an exception to this view is provided by Perry et al., (2002). More specifically, if company A produces mobile phones and company B is a supplier of components it is usually the case that over time company A and B create interfacing processes in which for example R&D teams meet to plan how new products can be produced in the most effective way. Hence it might be the case that company B adjusts its production so that it is most suitable to company A. Moreover, B can even buy some machinery that is needed specifically to deliver the new sub-assembly to company A. This type of adaptation and mutual planning of the manufacturing process within business relationship can be seen as one type of technical bonding that has a crucial role in the development of business relationships. In brief, bonding can have two opposing impacts depending on the context. First, it can have a positive impact on a business relationship as it may enhance interfacing processes or it can have a negative impact as it may hinder cooperation with other parties.

To continue with bonds, social bonds were the starting point of studies focusing on bonding (McCall, 1970). Social exchange episodes slowly lock two companies together and involve the exchange of emotions, feelings, and other social elements between business actors (Håkansson, 1982), which form social bonds. Therefore, social bonds are formed between people when they interact with each other and in groups.

Based on this, it is clear that different types of bonds play a crucial role in business relationships and that bonding is an important study area. In practice it is difficult to differentiate bonds that are based on social interaction as opposed to impersonal interaction. Here, the author has attempted to identify crucial acts and episodes in the studied relationship by first considering the totality of the relationship and then recognizing crucial episodes based on available material (e.g. interview transcripts and newspaper articles).

MOBILE BUSINESS SOLUTIONS

Mobile business (m-business) or mobile commerce (m-commerce) and mobile marketing (m-marketing) can be seen as subsets of e-business and face the same problems troubling e-business. M-business has been studied for a decade now (Okazaki, 2005; Scornavacca et al., 2005) and many conceptual papers exist that address the general business logic of m-commerce (Dholakia and Dholakia, 2003), describe applications employed (Varshney and Vetter, 2001), and discuss business models (Lee, 2001). M-business is often approached from the consumer's perspective and these studies have focused on the acceptance of mobile services like SMS, gaming, mobile payment (Nysveen et al., 2005).

Gradually, businesses are using mobile technologies like Blackberries and personal digital assistants (PDAs) to re-engineer and speed up internal and connecting business processes. This is possible since employees and strategic partners can connect to back-end applications needed to finalize purchases or sales. Besides being more convenient, this saves sales time and eliminates extra traveling and sales costs as well as other general administrative work.

More specifically, in a business context m-business can be deployed internally or inter-organizationally. Within an organization m-business can be used to enhance, for example selling activities in the form of sales force automation (SFA) (Aungst and Wilson, 2005). Inter-organizationally, m-business can be used to mobilize customer relationship management (Sinisalo et al., 2006) or it can be deployed with the help of wireless local area network (WLAN) or Wi-fi and smart devices (such as PDA, hybrid phones, Blackberries).

Business usage of m-business is a rarely studied area according to m-commerce literature reviews conducted by Okazaki (2005) and Scornavacca et al., (2005). The use of m-business in business relationships is even more scarcely studied and there are no studies, as far as the author knows, that employ empirical research. It is noted, however, that several studies have included mobile aspects while studying customer relationship management (CRM) systems (see e.g. Payne and Frow, 2005). In this paper the author focuses on m-business usage within a business relationship. Thus, it is essential to examine how mobile systems can be deployed to enhance order-delivery processes in a business relationship.

METHODOLOGY

Our methodological choices are guided by the basic aim of expanding existing knowledge on business relationships and how mobile solutions may be used to enhance costly and inactive relationships. This goal requires a case study method (Yin, 1989, Bonoma, 1985). More specifically, the case study i.e. the relationship is formed between two companies interacting. The perspective of both parties of the relationship needs to be studied to be sure of the value of findings (John and Reve, 1982). The particular relationships were chosen because the companies have intensively adopted e-business technologies (see e.g. Salo et al., 2004) and during 2004 a mobile solution was acquired to enhance business processes.

Several data collection techniques were employed. These include public and corporate archival research, academic literature research, participative observation and several in-depth interviews with semi-structured interview questions. In general terms, data was collected by interviewing key members of the relationship. Altogether 11 interviews (six in Gamma, five in Delta) were conducted in multiple hierarchical levels to ensure data validity. The interviews were personal interviews and were taped with permission. Qualitative data analysis was employed to thematize material (see Miles and Huberman, 1984).

The documents, minutes of meetings, industry reports, and plant visits were used to triangulate the respondent's answers in order to validate the research results (Yin, 1989) and increase the validity of the research. In practice, the author used data triangulation as opposed to other triangulation methods (Patton, 1987) between the numerous information sources mentioned above to validate observations and interpretations. The identities of the case study companies or the informants are not revealed in the study for confidentially reasons.

USE OF MOBILE SOLUTIONS TO IMPROVE ORDER-DELIVERY PROCESSES IN THE STEEL INDUSTRY BUSINESS RELATIONSHIP

Background

The steel processing industry was chosen as the empirical context since computerization has had a long tradition in the industry and new technologies have a central role in the steel industry (Chaffey, 2004 pp.15). Moreover, business relationships in the steel or steel processing industry are seldom examined from a relationship and bonding perspective and the steel industry relies on existing relationships between parties as an exchange model. Long-term relationships between workshops, mills, and steel wholesalers create the stability needed for steel processing.

Research on the usage of mobile solutions in the steel industry context is scarce. However, it is acknowledged that there are studies which focus on some influences of information technology and electronic commerce in the steel industry context (see Fuller-Love and Cooper, 1994; Chan and Swatman, 2000). Therefore, it can be argued that the steel business context is worthwhile to study especially when companies are employing novel mobile solutions to enhance their business.

Gamma-Delta Relationship

The Gamma-Delta relationship was based on and developed from the earlier 40 year old business relationship that still exists between Gamma and Beta. Gamma is a relatively large steel mill operating in Europe while Delta is a subsidiary of Beta, which is a large Finnish steel workshop focusing on the heavy steel objects and welding competencies. Delta provides hardening services to Gamma. After individual steel plates and components, from five mm up to 60mm, are hardened they are further processed by Gamma and then sold to their customers as part of their steel solutions. These solutions can vary from part of an oil rig to steel plates manufactured for military usage in mine clearance vehicles. Here after, the author focuses on the interfacing processes between Gamma and Delta and attempts to identify the changes made in the processes that enabled both parties to work more efficiently and effectively.

When the relationship was initiated, the order to delivery process was fully manual. Documents related to orders made by phone or fax were handled manually and inputted to hardening machines. The production employee then provided verbal notification of the new order to the manufacturing manager. The pricing process was manual along with sending the bill. All the documents delivered to the financial department for billing purposes were paper based and manually delivered. Additionally, scheduling of transportation from Gamma to Delta and back where ordered via phone or fax. Figure 1 depicts how the order to delivery process was handled in the relationship when it was initiated.

Figure 1 shows that the order to delivery process was extremely laborious with multiple manual phases involving many information gaps. Therefore, it took days, which turned into weeks, to deliver hardened products. After problems and inefficiencies were noted by the managers of both organizations, issues were addressed with a sequential development program. As a result many of the difficulties were solved.

The first step taken was that the orders made by Gamma were digitized with the help of Gamma's existing first generation enterprise resource planning (ERP1) system and the internet. Orders were made by the manager of subcontracting with ERP while the internet based secure connection assisted in delivering information from Gamma to Delta. However, before this was possible Delta adopted a small scale ERP1 system that would transform paper to bits. This adoption of novel technology and adaptation made by Delta signaled to Gamma that Delta was willing to help in every way possible to make the business relationship even more profitable. Similarly, Gamma signaled to Delta through increasing orders that the relationship was worth continuing. After an order arrives at Delta's ERP system it informs production employees via e-mail of the new order. A similar email is received by Delta's production manager. At the end of 2004, Delta adapted to a new pricing module for ERP along with changes to pricing policies. Based on this

Figure 1. Order to delivery process in the beginning of the relationship

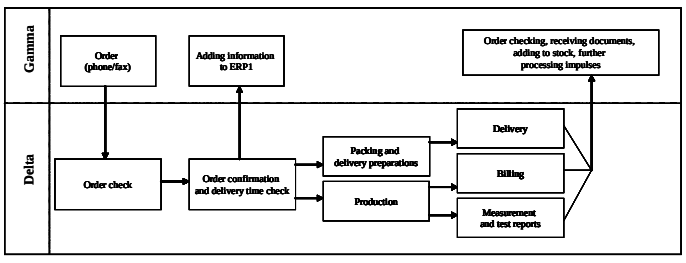
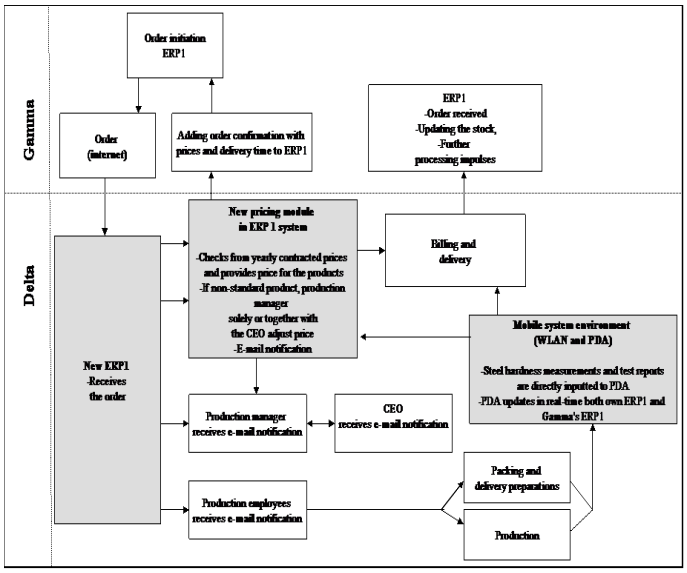


Figure 2. Order delivery process after implementing the internet based and mobile solutions



change, products that already had early based prices are now priced and checked automatically. When an order arrives that contains products that are non-standardized, the order e-mail is sent to the production manager who, depending on the order size, solely or together with the CEO defines and inputs the price information required.

The newest addition to this is the mobile system. The idea is to use the mobile system to speed up inventory control, test-report transmissions, and other communications. It is based on WLAN infrastructure and employs handheld computers like PDAs as wireless devices. The mobile solution renders paper based and manual strength measurement reports obsolete and transforms them into digital ones. Before this new system was adopted, reports were first conducted by writing required information down on paper, inputting this information to a system, printing the report and then sending it to Gamma's administration who filed it. Now the mobile system enables information to be input directly to a PDA which updates Delta's ERP system and provides, for example, e-mail notification to Gamma about the new reports, which are essential for the documentation of the steel solutions delivered to customers. Moreover, now Gamma can receive information about Delta's hardening capacity, which is vital for generating new sales. Previously, a hardening capacity check was manual and information received by Gamma's sales department was usually too outdated to reliably act upon and thus information needed to be re-checked. Today, Gamma's employees, with access codes to Delta's system, can retrieve information from the real-time database updated by Delta's employees and the mobile system. Figure 2 depicts the order to delivery process after implementing the internet based and mobile solutions. It can be seen from Figure 2 that the order to delivery process has changed considerably and moved business relationship toward digitized business relationship with automatic and digital processes (see e.g. Salo, 2005).

To sum up, each party of the relationship made changes to existing procedures and routines by making the information gaps smaller and even forcing them to close. This would have not been possible without the warm and trustful relationship between the parties. Most importantly, adoption of the internet and mobile technologies has made the relationship more effective and efficient ("doing right things" and "doing things right").

DISCUSSION AND CONCLUSION

It is imaginable that this transformation has not been cheap and easy, as Delta has had to acquire a lot of technology; however, both parties in the business relationship have gained from the implementation of these systems including the mobile system. These gains include access to real-time information that enables to complete sales faster as well as predict future capacity usage even better. Technology bonds may emerge naturally in the business relationship or they can be created through intentional development and management of technological bonds. Here, it is visible that besides traditional technological bonds based on manufacturing, new ones emerged that were based on the internet-based and mobile communication and transaction systems.

Therefore, it is suggested that successful adoption of the internet-based system and mobile communication and transaction systems, and adaptations made to business relationships to accommodate these changes create new types of sub-bonding that are labeled here digital bonds and mobile bonds. The digital bond refers to a bond created while interacting digitally with the help of the internet-based system such as the extranet while the mobile bond refers to a bond created while interacting wirelessly and digitally with the help of mobile communications and transaction systems such as WLAN and PDA. Thus, elaboration and crystallization of the bonding discussion within business relationships forms the theoretical contribution of this study.

Managerially this study has opened up a discussion on the possible usage of mobile systems other than traditional e-business tools. This case illustrates how a WLAN based system was used to effectively cut costs and streamline the order-delivery process as well as interfacing parts of that process. For managers interested in mobile solutions and how to proceed with ideas, a good reference point is an article by Aungst and Wilson (2005) in which they suggest 11 issues that should be covered when planning to adopt and use mobile solution. The five most important ones are the coverage (WLAN or longer distance), the mobile device platform, the upgrade path, the mobile application and issues with integration. Mobile systems such as m-ERP, mobile supply chain management and WLAN based internal system provide novel tools to create leaner and meaner machines of any organization that has the wisdom to grasp and hold onto mobile systems that create the mobile future. Of course not all problems require a mobile system but managers ought to understand and more importantly recognize their problems and ponder if mobile systems might provide a solution for their problems.

The main limitation of this paper is the exploratory and qualitative nature of the study. The second limitation is that only one business relationships in the steel industry context was studied. However, this study indicates that future studies should focus on how mobile business and mobile systems are changing the logic of business relationships and how business relationships can excel in today's hypercompetitive landscape with the help of mobile systems. Future studies should include further in-depth cases in different and similar industries before conducting a large scale survey about the usage of mobile systems in business relationships to validate and broaden earlier findings.

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