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PERCEIVED BENEFITS OF INTER-ORGANIZATIONAL TRUST IN E-COMMERCE PARTICIPATION: A CASE STUDY IN THE TELECOMMUNICATION INDUSTRY

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Abstract

Business to business e-commerce hype has highlighted the importance of both, information and communications technologies and inter-organizational trust, for developing and maintaining trading partner relationships. While many studies focused on competitive advantages as the driver of e-commerce adoption, the objective of this paper is to examine the impact of trust on perceived benefits and subsequently e-commerce adoption. This study identifies antecedent trust factors that contribute to successful e-commerce participation (adoption, integration and use). The findings are based on a case study of an inter-organizational dyad in the telecommunications industry that underscores the salience of inter-organizational trust for e-commerce participation.

Keywords: Business-to-business e-commerce participation, inter-organizational-trust, perceived benefits

Introduction

The objective of this paper is to examine the importance of inter-organizational trust and its impact on perceived benefits of e-commerce, thereby affecting the adoption of and participation in business-to-business e-commerce. By e-commerce participation we mean the adoption, integration and use of e-commerce systems and applications. E-commerce has become a core element of business strategy and operations for most 21st century enterprises. For most organizations, the biggest challenge is not if or when to consider e-commerce solutions, but rather how to select the best strategies and tactics to develop and sustain competitive advantage. While Electronic Data Interchange (EDI), the forerunner of e-commerce, has provided business-to-business electronic communication of standardized business messages, it has been limited to a small set of selected transactions. Furthermore, telecommunications were typically based on dedicated lines and/or expensive value added networks (VANs). Consequently, the proliferation of EDI has been limited to a fairly small number of usually larger companies. Recently, the explosive growth of the Internet in the last few years has changed the cost and access equation for corporate communication. With its almost universal access and low costs, the Internet has significantly reduced the entry barriers for electronic business for all types and sizes of enterprises. Furthermore, e-commerce applications offer new opportunities such as novel business opportunities, global presence, shortened supply chains, substantial cost savings, and innovative customer value propositions to suppliers. Customers also benefit from global choice, better quality of services, and faster response to needs, substantial price reductions, new products and services. Most of the e-commerce opportunities imply profound changes in inter-organizational relationships.

There seems to be a perception by businesses, that e-commerce transactions may be both insecure and unreliable. Despite the assurances of technological security mechanisms, trading partners in business-to-business e-commerce do not seem to trust the 'people side' of the transactions (Marcella et al., 1998). Preliminary research suggests that a perceived lack of trust in e-commerce transactions sent by trading parties using the Internet could be a possible reason for this slow adoption rate (Keen, 1999). Lack of trust, and consequently barriers to participation in e-commerce activities arise due to uncertainties inherent in the current e-commerce environment. Uncertainties reduce confidence both in the reliability of electronic business-to-business transactions and, more importantly, in the trading parties themselves. Despite the importance of trust in e-commerce, there exists limited research in this area (Sako, 1998). It is only recently that IS literature has recognized the complementary, and at the same time, competing roles of technology and trust in inter-organizational business relationships (Kumar et al., 1998). It is important that we understand

the relative roles of technology and trust in e-commerce participation (Kraut & Steinfield, 1994). Furthermore, there can be a two way or cyclic relationship between participation in e-commerce and trust – on one hand trust as an antecedent of participation – and on the other hand participation in e-commerce is modifying the level of trust in the relationship. This study will investigate only the forward path of the cyclic relationship that is the role of inter-organizational trust in participation in e-commerce.

This paper focuses on the importance of trading partner relationship trust (inter-organizational trust), and perceived benefits (namely economic, personal and symbolic) derived from inter-organizational trust in e-commerce participation. The paper is organized as follows. Section two discusses the theoretical foundations that contribute to the development of a theoretical framework, research question and research propositions. While, section three, discusses the research method, and research process applied to test the theoretical framework, section four discusses the findings of the case studies. Finally, section five concludes the paper with lessons learnt and contributions made to this study.

Development of the Theoretical Framework

The theoretical framework for this study is based on a set of theories from various disciplines. They include trust in business relationships that identifies antecedent trust factors in business relationships. For example, trading partner’s ability, competence, reliability, predictability, care and concern contribute to three types of trust shown in table 1. Inter-organizational-relationships theory focused on reasons and conditions for forming relationships (that is situational, structural, and procedural factors). They include socio-political, structural, behavioral, and procedural (that is interactions and behavioral) dimensions (Oliver, 1990). Formalization is the extent to which rules, procedures, instructions and communications are written to the degree to which roles are defined, of inter-organizational-relationships, perceived benefits, and uncertainties/ risks of e-commerce (Bensaou & Venkatraman, 1996). Transaction-cost-economics seek to explain the economic rationale of alternative forms of organization, that is their relative efficiency. Perceived risks derived from uncertainties, task complexities, partner specific assets and interdependencies of trading partners are leading to an increased exposure to opportunistic behaviors (Williamson, 1975). Resource dependency theory (Pfeffer & Salanick, 1978) focuses on interdependencies between trading partners. An imbalance of power might lead to conflicts. Organizational theory (Bensaou & Venkatraman, 1996) explains trust as a result of best business practices. Trust and security based provide security safeguards and protection services. They engender technology trust that enables timely, accurate and complete transmission and receipt of transactions, thus achieving transaction confidentiality, integrity, authentication, non-repudiation, availability, and access controls (Bhimani, 1996; Jamieson, 1996).

The above-mentioned theories’ help to determine the role of perceived benefits and risks for e-commerce participation and trading partner relationship development. The aim of the theoretical framework is to provide a structured approach to understanding the importance of inter-organizational trust in e-commerce participation. Figure 1, below summarizes the theoretical framework and the propositions.

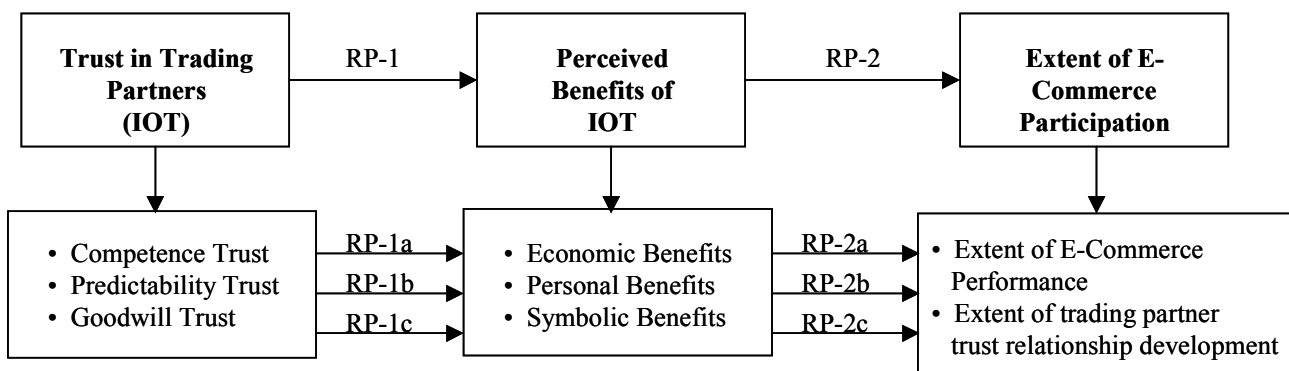


Figure 1. Theoretical Framework of Inter-Organizational trust and Perceived Benefits in E-Commerce Participation

The notion of trust

Sydow (1998) defines inter-organizational trust (IOT) as ‘the confidence of an organization in the reliability of other organizations regarding a given set of outcomes or events’ (p35). As the dimensions for trading partner relationship trust is measured from the extent of a trading partner’s competence, predictability and goodwill behaviors, we adapted the following definition of inter-organizational-trust. Inter-organizational trust for the purposes of this study is defined as ‘the confidence of an organization in the reliability of other organizations in a possibly risky situation regarding consistent competent, dutiful and honest actions’.

Trust in Trading Partner

Scholars who have examined business relationships have identified trust to be a key factor for successful long term trading partner relationships. Trust has been found to increase cooperation, thereby leading to communication openness and information sharing (Doney & Cannon, 1997; Ring & Van de Ven, 1994; Smith & Barclay, 1997). In addition, three types of trust in working and inter-organizational business relationships were identified from previous research: competence, predictability, and goodwill trust (see Table 2). For example, Hart & Saunders have applied these dimensions (as discussed by Mishra, 1996) to explain EDI adoption and use. The characteristics and behavioral patterns of these three types of trust have led to perceived benefits.

Perceived Benefits of E-commerce

Perceived benefits of e-commerce are gains received by organizations that have adopted e-commerce (Premkumar et al., 1994; Saunders & Clark, 1992; Riggins & Rhee, 1998; Scala & McGrath, 1993). Three types of perceived benefits identified from previous research were adapted in this study: perceived direct benefits, perceived indirect benefits, and perceived strategic benefits. This study integrates perceived benefits to suit trading partner trust and contributes to three types of perceived benefits derived from successful business relationships. They include; economic, personal and symbolic benefits.

E-commerce Participation

E-commerce participation is the extent to which an e-commerce organization engages itself in business-to-business e-commerce (Hart & Saunders, 1997; Smith & Barclay, 1997). E-commerce participation includes the extent of e-commerce activities (volume, nominal value, and types of business transactions) exchanged between trading partners, and the extent of trading partner trust relationship development. It is the degree to which both trading partners are satisfied. Participation is evaluated by

- the level of cooperation and commitment,
- how much information was shared,
- how they managed discrepancies and conflicts (Anderson & Narus, 1990; Dooney & Cannon, 1997; Ganesan, 1994; Morgan & Hunt 1994; Smith & Barclay, 1997).

Theoretical Development of the Research Propositions

Table 1 shows the characteristics of three types of trading partner trust discussed below.

Table 1. Different Types of Trading Partner Trust

| Types of Trust Source | Competence Trust (Economic Foundation) | Predictability Trust (Familiarity) | Goodwill Trust (Empathy) |
|---------------------------------|--|------------------------------------|----------------------------|
| Gabarro (1987) | Character Role competence | Judgment | Motives/ Intentions |
| Mayer, Davis & Schoorman (1995) | Ability | Integrity | Benevolence |
| McAllister (1995) | Cognitive | Cognitive → affective | Affective |
| Lewicki & Bunker (1996) | Deterrence/ Calculus | Knowledge | Identification |
| Mishra (1996) | Competence | Reliability | Openness, Care, Concern |

Competence trust is based on an economic evaluation and emphasizes on trading partners’ skills, technical knowledge, and ability to operate and interpret business-to-business e-commerce applications and transactions correctly. Trading partners’ who demonstrate skills in producing high quality goods, products, and services (such as timely delivery of accurate information to other trading partners’) help optimize supply chain management, and allow e-commerce operations to flow in an orderly manner. These competent trading partners’ thus enable other trading partners’ to make strategic decisions, thereby contributing to high levels of competence trust. For example, the findings provided evidence that competence trust was seen in trading partners’ ability to

transmit and receive e-commerce transactions correctly, thus saving a lot of time in re-sending and training trading partners to send e-commerce transactions correctly. Hence accurate, correct and complete information were received and acted upon the first time from the receiving trading partner. This saved a lot of time and costs, thus leading to direct economic benefits. **Research Proposition 1a: Competence trust in trading partners is positively associated with perceived economic benefits of e-commerce.**

Perceived economic benefits are derived from efficiencies of e-commerce technology. They reduce manual processing, and provide greater accuracies, thereby reducing errors. Perceived economic benefits include, cost savings from less administrative labor costs, time savings from speed and automation, and simplicity from structured business processes, that help reduce and eliminate uncertainties thereby contributing to increased e-commerce participation as in increased performance through continuing trading partner trust relationship development (Saunders & Clark, 1992; Scala & McGrath, 1993). **Research Proposition 2a: Perceived economic benefits of e-commerce are positively associated with e-commerce participation.**

Predictability trust is based on familiarity and emphasizes trust in a trading partner's consistent behavior thus providing sufficient knowledge for other trading partners' to make predictions and judgments due to past experiences. McAllister (1995) suggests that we choose whom to trust and under which circumstances. This choice is cognition based (interpersonal trust), and investigates past measures of trust such as reliability and dependability. For example, in business-to-business e-commerce, trading partner A (the supplier) is known to respond to queries in a timely manner. Although, there is a shortage of supplies, trading partner A is still capable of fulfilling trading partner B's (the buyer's) orders. Thus, by developing a chain of positive consistent behavior, trading partner A becomes more reliable, trustworthy, and therefore predictable. Familiarity and proven or perceived trustworthiness thus become antecedents of trust and consistent competence trust contributes to personal benefits, as trading partners were satisfied with the services they received. **Research Proposition 1b: Predictability trust in trading partners is positively associated with perceived personal benefits of e-commerce.**

Perceived personal benefits refer to the satisfaction that trading partners experience from economic benefits and trading partner relationships development. For example, quick response, just-in-time (JIT) e-commerce applications provide reliable communication and delivery of stock. Personal benefits include competitive advantage, reduced lead times from product ordering, customer satisfaction, increased productivity and effective cash management that was derived from consistent competence trust (Jamieson, 1996; Premkumar et al., 1994; Riggins & Rhee, 1998; Scala & McGrath, 1993). Similarly, perceived personal benefits arise from positive images and reputation that trading partners receive from participation in e-commerce thus encouraging closer ties, increased scale of applications (increased volume, value and additional types of e-commerce transactions), satisfaction, communication openness, and commitment to long term investments (Scala & McGrath, 1993; Smith & Barclay, 1997). **Research Proposition 2b: Perceived personal benefits of e-commerce are positively associated with e-commerce participation.**

Goodwill trust is based on an empathic foundation and emphasizes on the trust in a trading partner's care, concern, honesty, intentions and benevolence that allow other trading partners' to further invest in their trading partner relationships. Thus, when reliability and dependability expectations are met, trust moves to affective foundations that include emotional bonds such as care and concern. As there are fewer discrepancies, time is spent on future strategic planning and investments thereby leading to symbolic benefits. **Research Proposition 1c – Goodwill trust in trading partner is positively associated with perceived symbolic benefits of e-commerce.**

Perceived symbolic benefits are benefits that trading partners' experience from satisfaction in their trading partner relationship. Trading partners are willing to cooperate, communicate openly, and share information, thus leading to increased commitment, long term trading partner relationship and business continuity which enables them to be in the competitive edge and in a strategic direction (Bensaou & Venkatraman, 1996; Cummings & Bromiley, 1996; Ganesan, 1994; Morgan & Hunt; Ring & Van de Ven, 1994; Smith & Barclay, 1997). **Research Proposition 2c: Perceived symbolic benefits of e-commerce are positively associated with e-commerce participation.**

Research Question and Propositions

The research question developed for this study is: *How and why does inter-organizational trust (trading partner relationship trust) influence the perception of benefits of e-commerce thereby leading to the extent of e-commerce participation?* The following subsidiary research propositions in table 2, were derived from the theoretical framework.

Table 2. Research Propositions Derived from the Theoretical Framework

| | |
|--------------------------------------|--|
| <p>Research Proposition 1</p> | <p>Research Proposition 1: Trading partner trust is positively associated with perceived benefits of e-commerce.</p> <p>Research Proposition 1a: Competence trust in trading partners is positively associated with perceived economic benefits of e-commerce.</p> <p>Research Proposition 1b: Predictability trust in trading partners is positively associated with perceived personal benefits of e-commerce.</p> <p>Research Proposition 1c: Goodwill trust in trading partners is positively associated with perceived symbolic benefits of e-commerce.</p> |
| <p>Research Proposition 2</p> | <p>Research Proposition 2: Perceived benefits of e-commerce are positively associated with e-commerce participation.</p> <p>Research Proposition 2a: Perceived economic benefits of e-commerce are positively associated with e-commerce participation.</p> <p>Research Proposition 2b: Perceived personal benefits of e-commerce are positively associated with e-commerce participation.</p> <p>Research Proposition 2c: Perceived symbolic benefits of e-commerce are positively associated with e-commerce participation.</p> |

Table 3 below provides a definition of the constructs and sub-concepts/dimensions applied in the theoretical framework.

Research Method

Studying inter-organizational trust in business-to-business e-commerce participation phenomenon requires the context of real organizations using e-commerce systems or operating in an e-commerce environment (Yin, 1994). A case study approach was seen appropriate, particularly in an area where limited research was carried out in inter-organizational-trust in business-to-business e-commerce participation (Sako, 1998; Smeltzer, 1997). The case study was initially carried out in order to investigate and examine trading partner trust in e-commerce participation.

Case Study Design

Based on Yin (1994), the case study was designed around a lead question and further ‘how’ and ‘why’ types of questions: How and why does inter-organizational trust influences the perception of e-commerce benefits, thereby leading to the extent of its participation? The research propositions shown in Table 2, help to focus the study. The primary unit of analysis that formed the main source of data collection came from the case study participants (that is the e-commerce coordinators and managers involved in e-commerce participation). They were able to provide an account of their day-to-day interactions with their trading partners. Secondary data sources contributed to internal validity. They include existing documents and standards that were observed and examined to determine the extent of business practices in the cases. These documents, such as web sites, trading partner agreements, security policies, paved the way for additional questions during the interviews and provided background information about the organizations. Reliability was achieved by using the same semi-structured questionnaire protocol in all four cases. Close-ended questions were structured to give respondents several fixed responses from which to choose. In addition, a three level, 10 point Likert scale was used to determine the relative importance of the questions and permission was obtained to use organizations’ names when reporting the findings.

Background Information on the Siemens - Telecom NZ Inter-Organizational Dyad

Siemens NZ consists of Siemens Communication Systems, Siemens Nixdorf and Siemens Building Technologies Ltd. Siemens NZ has learnt that success requires relationship marketing, up-to-date design and attention to costs. Siemens NZ is one of the world’s leading providers of end-to-end solutions for voice, data and mobile communication networks. Although, the NZ branch only consists of twenty employees it receives directions from its head office in Europe (Germany). For example, Siemens NZ products include keyphone systems, PABX systems, call center applications, voice mail, integrated cordless phones, computer telephony integration (CTI), interactive voice response and video conferencing equipments.

Table 3. Definitions of the Constructs/Sub-concepts in the Theoretical Framework

| Constructs | Sub-concepts/ Dimensions | Definition | Evaluation Pointers |
|--|---|---|--|
| Trust in Trading Partners (IOT) | | antecedent trust behavior that determines competence, predictability and goodwill types of trust in trading partners | |
| | <i>Competence trading partner trust</i> | ability, skills, knowledge and competence of trading partners to perform business-to-business e-commerce correctly and completely | examines the ability and skills of the trading partner, dependence on trading partner |
| | <i>Predictability trading partner trust</i> | Consistent behavior of trading partners that allows another trading partner to make predictions and judgments due to past experiences | examines consistent behavior trading partner's reliability in keeping business promises trading partner's adherence to policies, and terms of contract predictability |
| | <i>Goodwill trading partner trust</i> | care, concern, honesty, and benevolence shown by trading partners that allow the other trading partner to further invest in their trading partner relationship | examines trading partner's willingness to share information demonstrate care, cooperation commitment, and being honest |
| Perceived Benefits of IOT | | gains received by organizations that have adopted e-commerce | |
| | <i>Perceived economic benefits of IOT</i> | benefits derived from direct savings in costs and time | examines reduction in transaction, and administrative costs |
| | <i>Perceived personal benefits of IOT</i> | benefits derived from accuracy and quality of the messages thus leading to competitive advantage benefits derived from closer trading partner relationship such as; open communications, information sharing, cooperation, and commitment | examines improved customer service, product quality, improved productivity, profitability increased sales, sharing of risks, and competitive advantage examines improved communication, cooperation, sharing of information, and commitment between trading partners |
| | <i>Perceived symbolic benefits of IOT</i> | benefits derived from of the trading partners long term business investments and improved reputation | examines organization's image, increased long term investments, and continued trading partner relationship |
| Participation in E-Commerce | | the extent to which organizations have engaged themselves in business to business e-commerce | |
| | <i>Extent of e-commerce performance</i> | the volume, dollar value, and types of business transactions exchanged between trading partners | examines the importance of e-commerce for trading partner, percentage of e-commerce business, volume of e-commerce transactions, and dollar value of e-commerce transactions |
| | <i>Extent of trading partner trust relationship development</i> | the extent of trading partner satisfaction and commitment | examines trading partner relationship in a long term business investment, increases level of open communication, increase level of cooperation, increases level of commitment |

Telecom NZ is Siemens NZ established trading partner. Telecom NZ is totally dependent on us because their staff do not have the necessary technical skills to know about our products. Telecom NZ forms the backbone of the telecommunication system for New Zealand and they obtain the telecommunication parts and products from Siemens NZ. The manager of transport development in Telecom NZ is responsible for the behind the scenes events like cross over wireless resource from the business that relates to the transport. Telecom NZ is a large international organization with five hundred employees in the Wellington branch. Telecom is a private provider, mobile phones, Internet access, and Telco service provider. Telecom NZ product lines include phone and all forms of telecommunications, mobile, Internet services that is we provide full service. Telecom obtains the technology from Siemens NZ and manufactures what products for their customers. The Logistics group and network delivery section of Telecom NZ does the operation of applications. Telecom NZ has an intranet web site with Siemens NZ.

Table 4 summarizes the demographic background information of the organizations that participated in this study.

Table 4. Background Information on the Siemens - Telecom NZ Inter-organizational Dyad

| Demographic Items | Siemens NZ | Telecom NZ |
|--|--|--|
| Interviewees | Customer marketing manager Key accounting manager Sales consultant Customer service manager | Manager of Transport Accounting Manager |
| Number of Participant | 4 | 6 |
| Size of Organization | Small Enterprise in NZ | Large |
| Number of Employees | 20 | 700 |
| Main role of Organization | Supplier and manufacturer of telecommunication products | Buyer and manufacturer of telecommunication products |
| Type of Industry | Private – telecommunications industry | Private – Telecommunication Industry |
| Type of E-Commerce Application | Extranet application | Uses Siemens Extranet application |
| Name of E-commerce application | Mainstream Express | Uses Siemens Extranet application called Mainstream Express |
| Number of years of using E-Commerce application | 15 years but Mainstream Express for the last 5 years | 5 years |
| Types of business to business transactions | Purchase order, order tracking information | Purchase order, order tracking information |
| Number of Trading Partners | One in Wellington (NZ) | Hundreds of trading partners distributing telecommunication products, but only one trading partner using an extranet application (that is with Siemens NZ) |

Findings and Discussion

The findings will be presented in the sequence of the research propositions. Quotes from the interviews (in italics) illustrate the situational embeddedness and details of the emergence and perception of trust.

Research Proposition 1: Trading Partner Trust and Perceived Benefits of E-commerce

Trading Partner Trust in the Siemens - Telecom NZ inter-organizational dyad

It was found that trading partner trust was important within the Siemens - Telecom inter-organizational dyad, as there was a need for honest, timely delivery of accurate information in order to cooperate, collaborate and communicate timely and relevant information that facilitated e-commerce. This entails not only technological proficiencies, but also trust between trading parties, so that business transactions are sent and received in an orderly fashion.

Competence Trading Partner Trust

Siemens NZ rated competence trust of their trading partner to be medium. *'Although Telecom staff were competent to undertake business-to-business e-commerce operations, they do send us incomplete purchase orders.'* For example, there were (human) errors in calculating exchange rates. Hence, Siemens NZ staff had to check and verify every order that came in. *'If the order was incomplete Siemens staff informed Telecom staff via email that the order cannot be accepted explaining the reasons.'* *'Siemens staff educate Telecom staff so that Telecom end customers will have confidence in them.'* For example, *'there was one instance in the beginning when Siemens was caught as Telecom customers were unhappy'*. *'Siemens delivered exactly what Telecom had ordered and within the time frame requested, but it did not do the job correctly. Since then, Siemens takes on this additional supporting role of correcting their orders thus, exhibiting care and concern. In this respect Telecom is dependent on us.'* *'Siemens staff do give seminar presentations to Telecom's sales team about the orders, in terms of its functionality and its added value (key benefits).'*

Telecom staff indicated that *'we need to understand the technology and that Siemens NZ staff are competent, reliable, and do provide Telecom with adequate operational support in the form of training. Information sharing occurs when there is early identification of problems and trading partners take a proactive role in not reacting, but rather finding ways to solve the problem, within a reasonable time scale that fit their needs and operations.'* *'Telecom staff indicated that they do trust Siemens and the continuation of that trust is based on the continuation of correct behavior.'*

Technology is only a mechanism for achieving end goals. Outcomes that a customer wants and a supplier needs will require trust. At the end of the day it is the business relationship that matters, not the technology.

Thus, Siemens NZ staff defined trust (or rather trustworthiness) as *'being predictable derived from consistent behaviors'*. *'There should be no surprises to either trading party. There should be an open dialog, as customers provide benefits (as in placing orders) that are regarded important to suppliers'*.

Predictability Trading Partner Trust

Siemens NZ rated predictability trust of their trading partner to be low when exhibiting consistent behaviors. One possible explanation for this is due to the high *'turnover of staff at Telecom'*. Siemens staff indicated that they developed trust and goodwill with certain key people in Telecom and the next thing you know they have left the company. Telecom staff do adhere to policies, terms of contract and trading partner agreements. Contracts are about risk management which identifies and quantifies risks. There should be a clear mutual understanding between the two trading partners, which can be emotional, practical and sometimes mechanical. Therefore, contracts can act as a positive influence in maintaining good business relationships. They cover what needs to be done rather than how things had to be done. If contracts were done properly, they can enhance trading partner relationships and provide a framework for clear initiations.

The Telecom participant stated that *'Siemens had access to Telecom forecasting processes, business development, and Telecom staff do know what price they were charged for their goods, as it was pre-arranged in the contract'*.

Goodwill Trading Partner trust

Siemens NZ rated goodwill trust of their trading partners to be high. This is due to positive experiences with Telecom staff who were open and honest. The reputation of Siemens NZ was based on their solutions that assist customers in maintaining their competitive advantage in a fluid and increasingly challenging environment.

Siemens NZ staff indicated that *'we try to be positive to our trading partners'*. *'We write an email news service which Telecom obtains three times a week, in addition to our newsletters'*. *'This is not a reciprocal arrangement. Having a contract means nothing even if it spells out the procedures because it does not mean that an order will come in. Sometimes we move into a loss situation, and we feel whether it is worth doing the business.'* *'Telecom participants on the other hand stated 'we are interested in solutions not individual items of sale, and encourage our trading partners to think outside the box with sound knowledge'*. Furthermore, *'we are in a competitive global environment, hence we have to abide to our contract to maintain confidential information, intellectual property, and full confidentiality agreement, which allows us to disclose information, and protect our network from being abused and that they can be trusted to solve our problems'*.

Telecom's staff indicated that *'Siemens NZ is not totally the driving force for e-commerce'*. *'Of course we look for speed, simplicity, and cost which meets our purpose of undertaking e-commerce among other things that can be online purchasing and the provision of invoices'*. *'Our end customers do not know where the technology came from. All they are interested is that the phone line works when it needs to'*.

Hence, the participants’ statements indicated a high rate of innovation and the search for system solutions rather than separate building blocks required a certain amount of trust in order to compensate for non-contractible issues (Bakos & Brynjolfsson, 1993). The different roles of the companies were partly reflected in the different, i.e. asymmetric – although overall astonishing similar - levels of trust. Table 5 below provides the findings of trading partner trust in the Siemens and Telecom NZ inter-organizational dyad.

Table 5. Trading Partner Trust in the Siemens - Telecom NZ Inter-organizational Dyad
(information in brackets indicates importance on a 10 point Likert scale: Low-L = (0-3),
Medium-M = (4-6), and High-H = (7-10)).

| Types of Trading Partner Trust | Siemens NZ | Telecom NZ | Impact on Perceived Benefits |
|---|------------|------------|------------------------------|
| <i>Competence Trading Partner Trust</i> | | | |
| 1. Ability, skills, knowledge | Y (M-6) | Y (H-7) | Economic Benefits |
| 2. Dependability | Y (H-8) | Y (H-7) | Economic Benefits |
| <i>Predictability Trading Partner Trust</i> | | | |
| 3. Consistent behavior | Y (L-3) | Y (H-7) | Personal Benefits |
| 4. Reliability | Y (M-5) | Y (H-7) | Personal Benefits |
| 5. Adherence to policies, terms of contract | Y (H-8) | Y (H-9) | Economic Benefits |
| 6. Predictability of trading partner | Y (H-7) | Y (H-7) | Personal Benefits |
| <i>Goodwill TradingPartner Trust</i> | | | |
| 7. Willingness to share information and provide support | Y (H-7) | Y (H-8) | Personal Benefits |
| 8. Care and concern | Y (H-8) | Y (H-8) | Personal Benefits |
| 9. Commitment and cooperation | Y (M-6) | Y (H-7) | Symbolic Benefits |
| 10. Positive feelings | Y (M-5) | Y (M-5) | Symbolic Benefits |
| 11. Long term trading relationships | Y (H-7) | Y (H-8) | Symbolic Benefits |
| 12. Effort and investment in the relationship | Y (H-7) | Y (H-7) | Personal Benefits |
| 13. Honesty | Y (H-7) | Y (M-6) | Personal Benefits |
| 14. Conflict and handling discrepancies | Y (M-6) | Y (L-3) | Personal Benefits |
| 15. Situation of pressure | Y (M-6) | Y (L-3) | Personal Benefits |
| 16. Security concerns | Y (L-3) | Y (L-3) | Symbolic Benefits |
| 17. Driving force | Y (H-7) | Y (M-6) | Symbolic Benefits |
| 18. Explicit agreements roles/responsibilities | Y (H-7) | Y (H-8) | Symbolic Benefits |
| Others | N | N | |

Research Proposition 2: Perceived Benefits and the Extent of E-commerce Participation

The impact of trading partner trust on perceived benefits of inter-organizational-trust was found to be important for e-commerce participation.

Perceived Benefits of Inter-organizational-trust in the Siemens - Telecom Inter-organizational Dyad

Perceived Economic Benefits

Siemens NZ rated perceived economic benefits to be high, as costs savings were seen and derived from placing online orders. Our key benefit was seen in the reduction of phone calls, as extranet applications provided one source of information, thus contributing to savings in time and costs (economic benefits) from phone calls and emails about product information. Hence, Siemens staff do not obtain many phone calls and email requesting order information, products, prices or placement of orders as all this information is automatically updated in the extranet site.

Perceived Personal Benefits

Siemens NZ rated most of the perceived personal benefits to be high. Perceived personal benefits were derived from improved customer service and product quality, which was the result of information accuracy, as the order had to be verified before confirmation thereby contributing to personal benefits in the form of trading partner satisfaction.

Perceived Symbolic Benefits

Both Siemens and Telecom NZ rated perceived symbolic benefits to be high. One possible explanation for this is that the buyers’ only look for trading partners that are easy to do business with and when problems arise, trading partners are expected to be quick, reliable and efficient in fixing the problem.

Telecom staff indicated that improved communication and cooperation with Siemens staff developed their trading partner trust relationships. In addition, they shared information that was accurate, timely, speedy, complete and relevant. Furthermore, Telecom staff was able to receive accurate tracking information of the goods they ordered.

Telecom staff stated that ‘most large organizations do know who their suppliers are’. Siemens NZ does add credibility to us, as they are our significant supplier for our technology parts. Table 6, below shows the findings related to perceived benefits of inter-organizational-trust for the Siemens-Telecom NZ inter-organizational dyad.

Table 6. Perceived Benefits of Inter-organizational-trust for Siemens - Telecom NZ Inter-organizational Dyad
 (information in brackets indicates importance on a 10 point Likert scale:
 Low-L = (0-3), Medium-M = (4-6), and High-H = (7-10))

| Perceived Benefits of Inter-Organizational-Trust | Siemens NZ | Telecom NZ | Impact on the Extent of E-Commerce Participation |
|--|------------|------------|--|
| Perceived Economic Benefits | | | |
| 1. Reduced operation, transaction and administrative costs | Y (H-9) | Y (M-6) | E-commerce performance |
| 2. Reduced error rates and accuracy of information exchanged | N | Y (H-7) | E-commerce performance |
| 3. Faster response to orders and reduced lead time | Y (H-9) | Y (H-7) | E-commerce performance |
| 4. Reduced inventory levels and optimized supply chain | Y (L-2) | Y (H-7) | E-commerce performance |
| Perceived Personal Benefits | | | |
| 5. Improved customer service and product quality | Y (H-8) | Y (H-8) | Trading partner trust relationship development |
| 6. Improved productivity, profitability and increased sales | Y (H-9) | Y (H-9) | E-commerce performance |
| 7. Gaining competitive advantage | Y (H-7) | Y (H-8) | E-commerce performance |
| 8. Sharing of risks with your trading partner | Y (H-8) | N | Trading partner trust relationship development |
| 9. Improved communication and cooperation with your trading partners | Y (H-9) | Y (H-7) | Trading partner trust relationship development |
| 10. Sharing of information that is, accurate, timely, speedy, complete, and relevant | Y (H-9) | Y (H-7) | Trading partner trust relationship development |
| 11. Increased level of commitment with your trading partners | Y (H-9) | Y (H-7) | Trading partner trust relationship development |
| Perceived Symbolic Benefits | | | |
| 12. Improved organization’s image and reputation | | Y (H-7) | Trading partner trust relationship development |
| 13. Increased long term investments, and continued trading partner relationships | Y (H-8) | Y (H-8) | Trading partner trust relationship development |
| Other factors | N | N | |

Conclusions

This study differs from previous research in two important respects. First, rather than inferring the level of e-commerce adoption from technical and economic features, the theoretical framework examines behavioral characteristics of trading partners in business-to-business e-commerce. Secondly, the primary emphasis of prior research was on transaction economics and/or external pressure (socio-political). In contrast, the attention in this study was on the importance of inter-organizational trust in e-commerce participation.

The case study is pretty much a story about the necessary embedding of e-commerce solutions into inter-organizational relationships, which may function as antecedents for an electronic linkage or will need to be developed concurrently with the implementation of e-commerce. The different dimensions of trust highlight the complexity of inter-organizational relationships and remind us how powerful - and vulnerable at times – trust can be. Organizations that want to establish successful e-commerce solutions with their business partners will have to build and maintain trust high on the agenda of their managers and staff.

The importance of this study is three fold. Firstly, the study contributes to theory by extending existing theory and building an integrated framework of inter-organizational trust in business-to-business e-commerce participation by incorporating theories from a multi-disciplinary literature. The framework not only uses an economic perspective, but also political, behavioral and organizational perspectives. Secondly, the study contributes to practice by increasing the awareness of e-commerce practitioners, and implementers who will be checking for antecedent trust behaviors in their trading partners. Trading partners will be in a better position to select and evaluate trust and security based mechanisms, and screens other trading partners, in order to protect themselves against opportunistic behaviors. Thirdly, this study contributes to research, as inter-organizational trust in e-commerce is just beginning to be studied. Furthermore, although the study only took a micro perspective of inter-organizational trust in dyadic relationships, it does provide an avenue for a longitudinal study.

As the study examined only two cases, our findings are limited in their generalization. Although, the complete study on this topic examined ten organizations that formed six inter-organizational dyads, and the two organizations in this paper had a strong focus on telecommunication products, their findings would not necessarily hold true for the entire industry. The findings provide evidence that e-commerce technology alone is insufficient for successful e-commerce participation. It is therefore important to build and maintain positive trading partner trust relationships in order to increase e-commerce participation.

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