



Trust and New Technologies

Marketing and Management on the
Internet and Mobile Media



Edited by
Teemu Kautonen and Heikki Karjaluoto

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Preface

The body of academic literature on trust has expanded enormously over the past years and, in particular in the social sciences, trust has become a key concept in dealing with contingencies, uncertainty and the imponderables of people's attitudes and behaviour. At the same time, new technologies, including management information systems, the Internet and mobile communication technologies, have transformed many aspects of modern business management and marketing. It seems only natural that recent studies have begun to address the role of trust in the particular context of new technologies. Indeed, trust has been attributed a paramount role in this context, for example in reducing the perceived risk of Internet and mobile transactions and in facilitating long-term customer relationships. Even though significant advances have been made in understanding the role of trust in applying new technologies in business, the knowledge base is scattered and thus lacks transparency.

The idea behind this book was to collect a versatile sample of research articles that address and illuminate the different roles that trust plays in the context of new technologies and their business applications. The book consists of 16 chapters divided into three thematic sections. Part one contains seven chapters that address trust issues related to consumer marketing in online environments. The topic is addressed from a whole range of angles, including conceptual treatises of consumer trust in online environments, trust building in online auctions, online brand building, online banking, virtual identities and retailing, and grey market e-shopping in the growing Chinese market. Part two comprises four papers devoted to the very much under-researched topic of trust in mobile media. Here, the topics include the effects of trust on mobile advertising campaigns, the impact of trust and privacy, as well as different sources of trust, on the consumer's willingness to participate in mobile marketing initiatives in different countries, and the implications for interpersonal trust of the use of mobile communication technologies in distributed work teams. Part three focuses on the application of new technologies and its consequences on trust in relations within and between organizations. The five chapters in this section deal with such diverse issues as the role of trust in virtual teams and knowledge management, the development of pre-relational trust in technology service providers, how trust works in the information systems of globally operating

business enterprises, and the role that trust and uncertainty play in the introduction of new technologies in the market.

Before letting you delve into the actual content of the book, we would like to express our gratitude to a whole number of people without whom this book could not have been realized. First of all, we would like to thank the contributors for their hard work, expertise and enthusiasm in writing the chapters. In addition to the usual editorial review, all chapters have been reviewed by at least one external referee in a double-blind process. The contributors, the editors and you as readers have certainly benefited from the commitment of these people, without whom this extensive and fruitful feedback process would not have been possible (in alphabetical order): Maria Antikainen (VTT, the Technical Research Centre of Finland), Kirsimarja Blomqvist (Lappeenranta University of Technology, Finland), Astrid Dickinger (MODUL University Vienna, Austria), G. Scott Erickson (Ithaca College, USA), Chanaka Jayawardhena (Loughborough University, UK), Marko Kohtamäki (University of Vaasa, Finland), Andreas Kuckertz (University of Duisburg-Essen, Germany), Tommi Laukkanen (University of Joensuu, Finland), Guido Möllering (Max Planck Institute for the Study of Societies, Germany), Seppo Pahlila (University of Oulu, Finland), Jari Salo (University of Oulu, Finland), Craig Standing (Edith Cowan University, Australia), Kasia Zdunczyk (University of Newcastle upon Tyne, UK) and Roxanne Zolin (Queensland University of Technology, Australia). Further, we owe a bow to Andrew Mulley at BEH, for his rigorous work on proofreading each and every chapter and thereby enhancing the readability of the book. Finally, we are grateful to Ben Booth, Francine O'Sullivan and Jenny Wilcox at Edward Elgar Publishing for their help and commitment in making this book reality.

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PART ONE

Consumer trust in online environments

1. Consumer trust in electronic commerce: conceptualization and classification of trust building measures

**Sonja Grabner-Kräuter and
Ewald A. Kaluscha**

INTRODUCTION

Despite continued proliferation of commercial websites, many consumers perceive electronic commerce transactions to be riskier than traditional real-world purchases (Metzger, 2006). Lack of consumers' trust in online shopping in general and in many online vendors still represents a significant barrier for many Internet users, slowing down the e-commerce industry (Cheung and Lee, 2006; Consumer WebWatch, 2002; Dayal et al., 2001; Gefen and Straub, 2004; Kim et al., 2004; Koufaris and Hampton-Sosa, 2004; Lee and Turban, 2001; McKnight et al., 2002; Pavlou, 2003). Meanwhile a number of researchers have investigated the role of trust in the specific context of business-to-consumer electronic commerce, focusing on different aspects of this multi-dimensional construct. However, the phenomenon of trust and the process of its development in e-commerce transactions and relationships remain elusive in theory and practice and there is still a need for better conceptual trust definitions. Reviewing the trust literature in several academic fields should help to reach conceptual clarification and make it easier to compare and communicate results. A major objective of this chapter is to provide a synopsis of different conceptualizations of trust and to analyse the adequacy of these different perspectives in order to conceptualize and define online trust.

Trust in general is an important factor in many social interactions involving uncertainty and dependency. Trust is central to any commercial transaction, whether conducted in a retail outlet in the real offline world or over the Internet, by means of a website. However, trust is even more important in an online situation (Riegelsberger et al., 2005; Walczuch and

Lundgren, 2004). Buying on the Internet presents numerous risks for consumers over and above the transaction process itself being perceived as risky (Einwiller et al., 2000; Einwiller and Will, 2001). Online products and services typically are not immediately verifiable and there is still a paucity of rules and customs in regulating e-commerce (Gefen and Straub, 2004). Beyond that, in the online environment criminal acts can be performed at extremely high speed, and without any physical contact (Cheung and Lee, 2006).

The importance of initiating, building and maintaining trust between buyers and sellers as key facilitators of successful e-commerce is increasingly being recognized in academic as well as in practitioner communities. Meanwhile a number of studies have investigated the role of trust in the specific context of business-to-consumer electronic commerce, having their roots in different scholarly disciplines and focusing on different aspects of this multi-dimensional construct. However, empirical research in this area is beset by conflicting conceptualizations of the trust construct, inadequate understanding of the relationships between trust, its antecedents and consequences, and the frequent use of trust scales that are neither theoretically derived nor rigorously validated (Bhattacharjee, 2002). This is a significant barrier to the further development of the topic as the 'confusing potpourri' of trust definitions (Blomqvist, 1997) makes it difficult or even impossible to ensure that the theoretical formulations and the empirical results of different researchers build on each other.

In order to make progress in a scientific field, scholars need to find a consistent terminology to be able to test their hypotheses adequately, to communicate their results among each other and to build on each other's findings. In this chapter we first address current conceptual problems in online trust research. Our efforts focus on trust related to informational and transactional websites addressing online consumers. We propose a framework that facilitates a multi-level and multi-dimensional analysis of online trust, proposing a set of trust constructs that reflect both institutional phenomena (system trust) and personal and interpersonal forms of trust (dispositional trust, trusting beliefs, trusting intentions and trust-related behaviours). We then summarize recommendations for enhancing and maintaining online trust, building on numerous empirical studies that investigate determinants of online trust. In order to categorize these measures, they are classified into three different categories of instruments that can help to make transactions and cooperative relationships more efficient (Spremann, 1988): information policies, guarantee policies and reputation policies.

CONCEPTUALIZING ONLINE TRUST

The Difficulty of Defining Online Trust

As many types and views of trust as there are, there are also many fields which study the phenomenon. Researchers in different disciplines agree on the importance of trust in the conduct of human affairs, but there also appears to be equally widespread lack of agreement on a suitable definition of the concept (Hosmer, 1995; Rousseau et al., 1998). Personality psychologists traditionally have viewed trust as a belief, expectancy or feeling that is deeply rooted in the personality and has its origins in the individual's early psychological development. Rotter (1967, p. 652) defines interpersonal trust 'as an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon'. Social psychologists define trust 'as an expectation about the behaviour of others in transactions, focusing on the contextual factors that serve either to enhance or inhibit the development and maintenance of trust (Lewicki and Bunker, 1995). Economists (for example Williamson, 1993) and sociologists (for example Gambetta, 1988; Fukuyama, 1995; Zucker, 1986) have been interested in how social institutions and incentives are created to reduce the anxiety and uncertainty associated with transactions. According to Gambetta (1988, p. 217) trust 'is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action and in a context in which it affects his own action'. Fukuyama (1995, p. 26), on the other hand, focuses on collective norms and values and defines trust as 'the expectation that arises within a community of regular, honest, and cooperative behaviour, based on commonly shared norms, on the part of other members of that community'.

Furthermore, within business schools, there are different approaches to the study of trust across domains such as finance (for example Ferrary, 2002; Güth, 2001), marketing (for example Doney and Cannon, 1997; Ganesan, 1994; Geyskens et al., 1997; Moorman et al., 1992; Morgan and Hunt, 1994) and management (for example Inkpen and Currall, 1998; Mayer et al., 1995; McKnight et al., 1998; Wicks et al., 1999), partly drawing on trust constructs developed in other disciplines. The most frequently cited definition in the management literature is the interpersonal trust definition by Mayer et al., (1995, p. 712): 'Trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.'

All in all trust has been defined by researchers in many different ways, which often reflect the paradigms of the particular academic discipline of the researcher. Some definitions overlap, but more often each definition offers an explanation of a different aspect of trust. Thus there are literally dozens of definitions of trust, which many researchers find contradictory and confusing. These problems particularly apply to the e-commerce domain research (McKnight and Chervany, 2002). Drawing on the work of Luhmann (1989) trust can be seen as a mechanism to reduce the complexity of human conduct in situations where people have to cope with uncertainty. Without trust people would be confronted with the incomprehensible complexity of considering every possible eventuality before deciding what to do. Trust is a very effective complexity reduction method, although it does not really enable people to control or even anticipate the behaviour of others. But trust does make it possible for people to create a comprehensible organization of their activities. This functional perspective allows the integration of various perspectives of trust and trust types that have their roots in different disciplines.

Perspectives of Trust Definitions

Synthesizing all the different definitions of trust across various research disciplines it can be concluded that all trust definitions address one or more of the following perspectives (see Figure 1.1): 1) context characteristics; 2) trustor properties; and 3) characteristics of the trusted object (see also Goodall Powers, 2001). Many definitions also address the interaction or relationships either between two of these three perspectives – trustor–trustee, trustor–context, trustee–context – or all three perspectives – trustor–trustee–context. Drawing on the extensive literature on trust from several academic fields we briefly analyse the adequacy of these

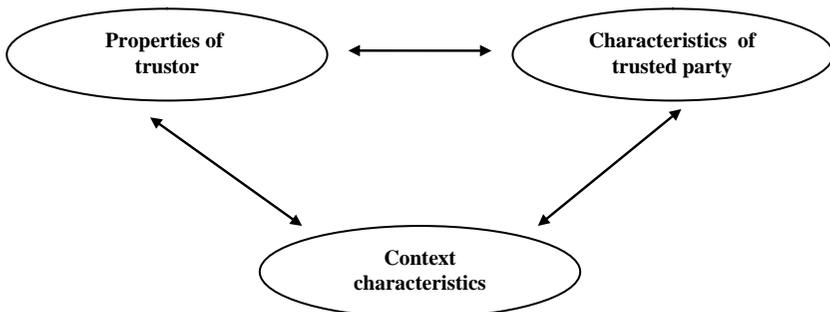


Figure 1.1 Elements of trust definitions

different perspectives and their relationships to define and conceptualize online trust.

Context Characteristics

The Internet, as the underlying transaction medium, forms the context for online trust, and several online trust definitions take this element into account. Across disciplines there is agreement that trust only exists in an uncertain and risky environment. 'The need for trust only arises in a risky situation' (Mayer et al., 1995, p. 711). Trust would not be needed if actions could be undertaken with complete certainty and no risk. The trustor must lack information regarding the behaviour or characteristics of the trusted party or object of trust (for example uncertainty) and there must be something that the trustor could lose if the trust is violated (for example risk). However, the relationship between risk and trust is reciprocal: risk creates an opportunity for trust, which leads to risk-taking (Rousseau et al., 1998).

One important reason for the importance of trust in e-commerce is the fact that in a virtual environment the degree of uncertainty of economic transactions is higher than in traditional settings. Internet-based commercial transactions can bring about several risks that are either caused by the implicit uncertainty of using open technological infrastructures for the exchange of information (system-dependent uncertainty) or can be explained by the conduct of actors who are involved in the online transaction (transaction-specific uncertainty) (Grabner-Kräuter and Kaluscha 2003). In the context of electronic commerce, system-dependent or exogenous uncertainty primarily relates to potential technological sources of errors and security gaps, or to put it economically, to technology-dependent risks that can not be avoided by an agreement or a contract with another actor who is involved in the transaction. Transaction-specific uncertainty can be seen as a kind of endogenous or market uncertainty that results from decisions of economic actors and is caused by an asymmetric distribution of information between the transaction partners (Weiber and Adler, 1995). From the perspective of the consumer, transaction-specific uncertainty relates to the Internet merchant and his or her potential behaviour in the transaction process.

Online transactions and exchange relationships are not only characterized by uncertainty, but also by anonymity, lack of control and potential opportunism, making risk and trust crucial elements of electronic commerce. Buying on the Internet presents numerous risks for consumers over and above the transaction process itself being perceived as risky. Consumers are required to share sensitive personal information (such as

mailing address, telephone number) and financial information (such as credit card numbers), although online firms often are located in different parts of the country or even in other countries and have limited history of prior online transactions (Bhattacharjee, 2002). The online consumer cannot personally inspect products or services and does not know what the retailer will do with the personal information that is collected during the shopping process. Having only limited cognitive resources available, consumers seek to reduce the uncertainty and complexity of transactions and relationships in electronic markets by applying mental shortcuts. One effective mental shortcut is trust, which can serve as a mechanism to reduce the complexity of human conduct in situations where people have to cope with uncertainty (Luhmann, 1989).

Properties of the Trustor

Properties of the trustor are elements of most trust definitions in the offline and the online world. From the perspective of the individual 'doing' the trusting, many trust definitions can be categorized into different conceptual types, such as attitudes, beliefs, intentions, behaviours and dispositions (McKnight and Chervany, 2002). The underlying psychological constructs are partly emotionally and cognitively determined (Lewis and Weigert, 1985; McAllister, 1995) and are embedded in a process which may result in trusting behaviour, which is the behavioural manifestation of trust (McKnight and Chervany, 2001).

Trust is mostly defined as a belief or expectation about the other (trusted) party, or as a behavioural intention or willingness to depend or rely on another party, coupled with a sense of vulnerability or risk if the trust is violated (for example Doney et al., 1998; Mayer et al., 1995; Rousseau et al., 1998). In online trust, the trustor is typically a consumer who is browsing an e-commerce website and searching for information and/or intending to purchase some good. Drawing on concepts and findings from social psychology (for example Rotter, 1971, 1980) a number of researchers have focused on trust as something akin to a personality trait of the individual trustor. Using different labels for this generalized form of trust (for example 'disposition to trust', 'propensity to trust', 'general(ized) trust', 'elementary trust') they argue that there is something like an individual's general propensity or disposition to trust other people across situations. Disposition or propensity to trust can be thought of as a person's general willingness to trust others. This stable within-party factor will influence how much trust one has for another party before information on that particular party is available (Mayer et al., 1995). Previous research has shown that dispositional trust is of special importance in the first phase of

building new relationships, but its importance may diminish with frequent interactions of the trustor with the trusted party (Chau et al., 2007; McKnight et al., 1998). The question regarding whether the psychological concept of generalized or dispositional trust is extendable towards expert or technical systems is discussed controversially and requires further research (Kaluscha, 2004).

In addition to dispositional trust, trusting beliefs and trusting intentions are based on the trustor's cognitive and affective perceptions of trust warranting attributes of the object of trust. In the context of e-commerce trusting beliefs include the online consumer's beliefs and expectations about trust-related characteristics of the Internet merchant or the website interface in the narrower sense, and the Internet as underlying transaction medium. Trusting intention then is the extent to which the online consumer is willing to depend on or intends to depend on, the selling party in a given situation on the Internet even though she/he cannot control the web vendor (McKnight and Chervany, 2002). Mayer et al. (1995) as well as McKnight and Chervany (2002) emphasize the difference between trust and trusting behaviours. 'Trust is the willingness to assume risk; behavioural trust is the assuming of risk' (Mayer et al., 1995, p. 724). Such 'behavioural forms of trust' already have other labels such as cooperation, information-sharing or risk-taking and have in common that, in each case, one party behaviourally depends on the other party. It makes sense to keep these constructs separate from, but related to, the concept of trust. These trust-related behaviours of online consumers include following advice offered by web vendors, sharing personal information with e-vendors, and making purchases over the Internet.

Characteristics of the Trusted Party

In recent years several scholars have offered trust definitions that highlight trust related attributes of the trusted party. Especially within the research disciplines of relationship marketing and organizational theory researchers have started to define trust as a multi-dimensional construct and included specific characteristics of the trusted party in their trust definitions such as ability, integrity, benevolence, predictability, credibility or dependability (for example Palmer and Bejou, 1994; Selnes, 1998). These characteristics or attributes of the trusted party (or trusted object) are often referred to interchangeably as elements, antecedents, underlying dimensions or determinants of (online) trust (Wang and Emurian, 2005). Basically, these attributes of the trustee reflect different components of trustworthiness, a concept that again is defined differently by a number of researchers (for example Riegelsberger et al., 2005). However, while trust is something

inherent in the trustor, trustworthiness is a feature of the trustee and forms a basis for trust (Hardin, 2002). If an object is perceived to be trustworthy, the trustor may place trust in this object. Based on a review of prior literature on factors contributing to trust, Mayer et al. (1995) proposed a pragmatic set of three specific characteristics which may be used to grasp the trustworthiness of a person: 1) ability; 2) benevolence; 3) integrity.

In line with a multi-dimensional idea of trust more commonly found in the marketing and organization theory literature (for example Morgan and Hunt, 1994) we propose to include specific characteristics of the trusted party in the definition of online trust (see Figure 1.2). Basically, two broad dimensions of online trust can be distinguished. The 'hard dimension' of online trust has a functionality-based nature, involving the ability, competence, and predictability of the trusted object. The trustor's judgement of the hard dimension is primarily based on cognition. This dimension is relevant for all objects of trust in the context of e-commerce: the e-commerce website, the merchant that the website represents, and the underlying technology.

The 'soft dimension' of trust comprises characteristics or attributes such as honesty, integrity, benevolence and credibility that refer to the intrinsic, value-based motivation of the trustee to act in the interest of the trustor. The trustor's perception of the soft dimension is mainly affect-based. The operationalization of this trust dimension respectively of its sub-dimensions makes sense only in interpersonal trust relationships, or more

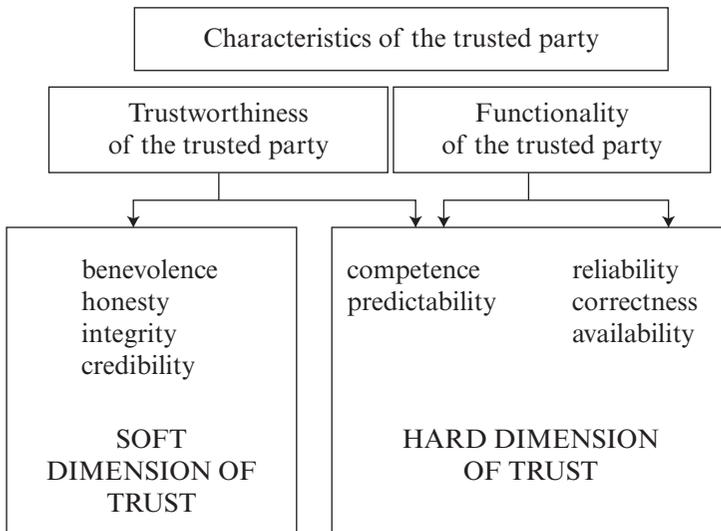


Figure 1.2 Dimensions of trust

specifically, when the trusted party is another individual person. We propose to conceptualize trust as an aggregate multi-dimensional construct, that is, as a composite formed from its dimensions.

The analysis of trust in the context of electronic commerce should not focus exclusively on interpersonal relationships but consider impersonal forms of trust as well, because in computer-mediated environments such as electronic markets personal trust is a rather limited mechanism to reduce uncertainty. The technology itself – serving as a transmission medium for conducting e-commerce and including security services and technical solutions embedded in e-commerce technologies – has to be considered as an object of trust (Shankar et al., 2002). When investigating the influence of technology trust in online purchasing decisions it makes sense to define this construct as a belief, for example about the reliability and security of the e-commerce infrastructure. Trust in technical systems is mainly based on the perceived functionality (for example reliability, correctness and availability) of a system (Lee and Turban, 2001). Luhmann (1989) speaks of system trust whereby a system is assumed to be operating in a predictable way (for instance legal systems or electronic commerce systems are expected to function).

Because the willingness to buy online and actual risk-taking depend both on the consumer's trust in a specific party (website or online merchant) and in the Internet as the underlying transaction medium, not only characteristics of the merchant but also characteristics of the website and the underlying technology infrastructure are factors that affect online trust. The investigation of trust-warranting attributes of web vendors can easily build on more general trust definitions that emphasize trust-warranting attributes of the trustee (for example Mayer et al., 1995; McKnight et al., 1998). Implications for the design of trust-inducing websites are mainly presented in the growing body of literature in the field of human computer interaction that focuses on how to implement graphical e-commerce interfaces that are perceived as trustworthy by online consumers (for example Wang and Emurian, 2005).

The Development of Online Trust

Addressing the question of how online trust develops can help researchers to derive practical implications. Trust may develop for a number of reasons and often for a variety of reasons working together. Drawing from the general trust literature this section briefly outlines some important bases of online trust. In the context of e-commerce it makes sense to combine the discussion of different grounds or bases of trust with the perspective of trust as a dynamic concept which can be divided into different

developmental stages or phases, each with specific characteristics. According to Rousseau et al., (1998) three different phases of trust can be distinguished: the phase of trust building, where trust is formed; the phase of stabilizing trust, where trust already exists; and the phase of dissolution, where trust declines.

Because online consumers often have to choose from innumerable similar offerings from web vendors, they are not familiar with the first developmental stage of trust, and here initial trust formation is of special importance. On the Internet, the web vendor is faceless, so the web interface can be regarded as the 'online storefront' upon which first impressions are formed (McKnight and Chervany, 2002). When online consumers visit and explore a vendor's website for the first time their initial trust is primarily based on cognition. Cognition-based trust relies on rapid, cognitive cues or first impressions, as opposed to personal interactions. Cognitive perceptions of website and merchant characteristics such as size of the vendor, reputation of the vendor, privacy and security, usefulness and ease of use of the website can be considered as the most important bases or antecedents of online trust in the phase of initial trust formation and trust building. In this first developmental stage online trust can also be based on rational calculation of potential costs and benefits. Lewicki and Bunker (1995) named this first stage calculus-based trust.

After some time and continuous interactions with a web vendor, the judgements of an online consumer about that specific vendor become more a function of the interactions themselves. For customers who already have purchase experiences with a web vendor, their trusting beliefs assume a definite shape, as they have accumulated evidence of the trustworthiness and functionality of the Internet store through direct experience (Kim et al., 2004). The trust relationship may then enter the second stage of trust development which is dominated by trust based on the trustor's knowledge and understanding about the trusted party resulting from past interactions (knowledge- or experience-based trust). In this phase of stabilizing trust, factors such as familiarity with the online firm or satisfaction with past online transactions are important antecedents of online trust.

The most mature level of trust is dominated by internalization of the other's preferences, mutual empathy and identification with each other (identification-based trust). Identification-based trust represents the highest and most solid level of trust which may be reached by the parties to the trust relationship. Trust is mainly formed and influenced by joint values, tasks and goals, by creating a collective identity (for example by creating a common logo or a common team-name and so on), and by physical proximity (Lewicki and Bunker, 1995). However, in the context of e-commerce, identification-based trust is only of marginal importance.

Implications for Research in Online Trust

A sound online trust definition 'should (a) specify the construct's conceptual theme, (b) in unambiguous terms, (c) in a manner that is consistent with prior research, and that (d) clearly distinguishes it from related constructs' (MacKenzie, 2003, p. 325). Only when the interrelations between a multi-dimensional construct and its dimensions are specified can clear research questions be defined and non-ambiguous and parsimonious conclusions be drawn (Law and Wong, 1998). However, recent reviews of online trust research (for example Grabner-Kräuter and Kaluscha, 2003) indicate that today's online trust definitions often fail to meet these criteria. As outlined in this chapter, for the time being, confusion in trust terminology is a problem still occurring frequently and trust is often mixed up by scholars with similar theoretical constructs such as reliance, confidence or cooperation.

According to Blomqvist (1997) reliance is a narrower concept than trust because in the case of reliance one merely relies on certain aspects or characteristics of another person or system, while trust is a more holistic and inclusive construct. Integrity, honesty, potential opportunism, credibility and benevolence are excluded when talking about situations of reliance. Scholars often use the notion of reliance in connection with impersonal objects. Legal or technical systems cannot be honest or benevolent; they either function properly or they do not. In the two-dimensional perspective of trust we presented in the section above, reliance is a specific characteristic of the trusted object that mainly addresses the functionality of an impersonal object of trust and can be assigned to the hard dimension of trust.

A conceptual distinction between trust and confidence is difficult because it depends on the subjective perception of a situation by the trustor. A confident person does not consider behavioural alternatives (Luhmann, 1989). Confidence is a reaction to the present uncertainty of life and does not involve the conscious consideration of alternatives and therefore is a passive concept (Blomqvist, 1997; Fladnitzer, 2006). Trust, on the other hand, is an active concept. It requires personal involvement and is a response to assumed risk, resulting from the trustor's decision in the face of alternatives (Mayer et al., 1995). In e-commerce the consumer usually evaluates the risky situation and only when he or she feels secure does an action follow. Therefore the decision to buy online is a consequence of trust and not a consequence of confidence (Grabner-Kräuter and Fladnitzer, 2006).

Cooperation and trust are another two constructs that frequently are not clearly distinguished from each other (for example by Gambetta, 1988). Cooperation in general describes the collaboration between individuals or

groups. In an economic sense cooperation means that parties will act in a mutually benevolent manner (James, 2002). Trust can frequently lead to cooperative behaviour, but trust is not a necessary condition for cooperation to occur, because cooperation does not necessarily put a party at risk (Fladnitzer, 2006; Mayer et al., 1995). In the context of online shopping, cooperation between consumer and online vendor (for example on a mass-customized product) can be seen as a consequence of trust (McKnight and Chervany, 2002).

The problem of not clearly defining and conceptualizing constructs in empirical research is manifold. In the case of poor online trust construct conceptualization it is first very difficult to develop measures and instruments that faithfully represent the construct; secondly, ambiguous trust conceptualizations may cause measurement misspecifications and incorrect measurement models (particularly in structural equation modelling, which is the most common technique of statistical analysis in online trust research) and thirdly, inadequate trust conceptualizations may lead to weak theoretical rationale for the trust researchers' hypotheses. As a consequence, coherent and efficient theory development is inhibited.

Trust evolves over time based on observations and interactions between the trustor and the trustee (Mayer et al., 1995). Therefore, besides taking special care in conceptualizing and defining the online trust construct, scholars may also need to regard the dynamic nature of trust and take the different developmental stages of trust into account in their research. More studies are needed that investigate the development of online consumer trust towards online merchants regarding e-commerce websites. Frequently the focus of empirical trust research lies on the phase of initial trust formation. While the phase of initial trust is clearly a crucial stage in any trust relationship, other stages of trust development are important too (for example situations of ongoing trust, situations of trust decline, situations where trust is re-built after a decline and so on). Future longitudinal studies could provide more conclusive evidence on the process of trust building and evolution (Kim et al., 2004). It would also be challenging for future research to study if and how the effects of different strategies and measures of the online vendor to enhance trust depend on the particular phase of the business relationship with the customer.

MANAGERIAL RECOMMENDATIONS TO ENHANCE ONLINE TRUST

In order to derive effective implications for enhancing consumer trust in e-commerce a number of empirical studies have attempted to identify the

elements that are pertinent to the formation of online trust (for an overview see Grabner-Kräuter and Kaluscha, 2003). Researchers propose a number of different instruments and measures Internet retailers can use to influence trusting beliefs, intentions and behaviours of online consumers. Basically, these instruments and measures can be seen as potential signals of trustworthiness as they aim at increasing the perceived trustworthiness of the website and the online vendor as well as the perceived functionality of the e-commerce system. In order to categorize these measures we apply an information economics-based framework that comprises three different categories of instruments that can help to make transactions and cooperative relationships more efficient (Spremann, 1988): information policies, guarantee policies and reputation policies.

Information policies aim at reducing information asymmetries between sellers and buyers by applying various communicative measures such as advertising, direct marketing and public relations (Grabner-Kräuter, 2002). In the Internet context, information policies can either relate to characteristics of the merchant or characteristics of the website and the underlying technology infrastructure. As the website mediates the relationship between the consumer and the merchant organization, the design of trust-inducing websites is of crucial importance. The website provides an essential clue for online consumers for their assessment of the efficiency and reliability of an online retailer, which is based on the quality of information on key issues such as delivery charges, order progress and on policies on privacy, returns and redress. Thus most empirical studies on online trust include recommendations for adequate and informative homepage design.

Jarvenpaa et al. (2000) for instance advise online companies to include information such as the number of staff or the number of physical outlets to help customers get an impression of the company's size. Chau et al. (2007) stress the importance of providing adequate search support (for example via a search engine) and making relevant recommendations in response to users' search. Several other authors suggest increasing the social presence of the website, for instance by adding virtual communities and testimonies from existing customers, or website features like toll-free numbers, 'click-to-talk'-buttons, responsive e-mail services, synchronous message boards and chats. These enable real-time interaction with the company's sales force in order to show the customers that the company is striving to provide good customer relationship management (Gefen and Straub, 2000; Kim and Prabhakar, 2000; Koufaris and Hampton-Sosa, 2002; de Ruyter et al., 2001; partly also Lee and Turban, 2001). Cheung and Lee (2006) advise Internet merchants to promote the perception of competence through delivering a 'professional' website with features such as easy navigation, correct grammar and spelling, full and accurate

information and good use of graphic design. Koufaris and Hampton-Sosa, (2004) and Hampton-Sosa and Koufaris (2005) recommend that companies pay attention to increasing the appeal of their websites, as the data in their study indicate that new customers are more likely to judge a website by its appeal rather than its usability. Website appeal was defined as usefulness in a specific task and perceived enjoyment of the visit. Going beyond issues of design and usability Gefen and Straub (2004) stress the importance of embodying a high degree of social presence in the website, for example through adding a 'social touch' to the interaction, such as welcoming the consumer by name as he or she enters the website.

In summary, an understandable and comprehensive homepage is necessary to assure positive customer experiences with the website, an important antecedent for building trust. Online companies should focus on creating homepages that are easy to navigate and provide positive challenges for the user (for instance usability aspects), and contain useful and valuable information (Chau et al., 2007; Gefen et al., 2003; Koufaris and Hampton-Sosa, 2002; de Ruyter et al., 2001). In addition to this, publishing a 'Privacy Policy' on a clearly visible place of the website, covering all aspects of data security (for example employed data encryption), data mining and data usage may further decrease information asymmetries.

In an agency-theoretical perspective, reputation is the second policy a business firm can apply to enhance trust. Through a reputation for non-opportunistic, trustworthy behaviour it is possible to reduce transaction costs. Reputation can be defined as a collective representation of a vendor's past actions that embraces the vendor's ability to deliver valued outcomes to multiple stakeholders (Kim et al., 2004). Because a seller's reputation is formed on the basis of past performance with buyers, it can help consumers to assess a vendor's likely behaviour in future transactions (Corritore et al., 2003; Metzger, 2006).

Reputation policies depend heavily on the nature and the situation of the web-company. A 'click-and-mortar' company using the Internet as an additional distribution channel can take advantage of its good reputation, references or image transfers from real-world brands. Well-known and reputable company names and brands can be seen as strong signals of competence and reliability (Lee et al., 2005). If a company and/or its brands already have a good reputation, then the vendor should try to capitalize on it by stressing it in the context of its e-commerce activities (Jarvenpaa et al., 2000; Lee et al., 2005; de Ruyter et al., 2001). In a recent study Metzger (2006) found that different forces may operate to affect trust for high- versus low-reputation e-tailers. For instance, strong privacy assurances only had a positive effect on trust for high-reputation online vendors, but not for low-reputation firms. This would mean that both pure-plays with a low reputation and not

well-known click-and-mortar companies have to compensate for their lack of good reputation by investing in different trust-developing measures and signalling activities other than strong privacy policies.

Publishing consumer testimonials on the website and maintaining virtual communities where customers can share their experiences are also considered as adequate means to increase the reputation of the online vendor (Cheung and Lee, 2006; Gefen and Straub, 2000; Jarvenpaa et al., 2000; Kim and Prabhakar, 2000). Companies should also state their history and development on the website, for example in the 'about us' section of the website showing the customers that they have already been operating for some time on the Internet (Gefen, 2000; Jarvenpaa et al., 2000) or by publishing best practices (de Ruyter et al., 2001). Another method to boost the reputation of the online company is to cross-link it with credible reference sites (de Ruyter et al., 2001) or by participating in well-known electronic marketplaces (Grabner-Kräuter, 2002).

Guarantee policies relate to promises to limit or compensate for damages that are caused by negative events that can not be completely ruled out by the parties (Grabner-Kräuter, 2002). The importance of providing evidence of adequate guarantee policies on the website is recognized by many authors (for example Cheung and Lee, 2006; Gefen et al., 2003; Jarvenpaa et al., 2000; Kim and Prabhakar, 2000; Lee and Turban, 2001; de Ruyter et al., 2001). Such guarantee policies can cover possible returns, refunds, security issues, credit card loss and so on. Providing consumers with the option of returns, refunds and money-back guarantees can help to reduce the perceived risk of online transactions. Money-back guarantees work better as signals of trustworthiness in online shops than in real-world stores (Lee et al., 2005). However, the credibility of guarantee policies depends heavily on the reputation as well as on the (perceived) resources of the company that determine the enforceability of the promise embodied in the guarantees. Therefore it is essential that the online vendor can back up its guarantee policies by adequate information and reputation policies.

Guarantee policies can be more effective for building trust in e-commerce if trusted third parties are included that focus on legal, technical and organizational factors of electronic markets and define rigorous standards for security, data protection, transparency of data use and so on. The online retailer can bind himself to meet these stringent requirements for data and delivery security, what is usually documented with an Internet-specific certificate or quality label. Such quality labels often include special guarantees. For example, the Trusted Shops certificate includes a money-back guarantee free of charge for the consumer, provided by Gerling, one of the leading industrial insurers worldwide. Extensive tests are performed to ensure that the criteria demanded by consumer protection organizations are

fulfilled (for more information see: <http://www.trustedshops.de>). Thus developing and maintaining consumer trust is easier if guarantee policies are combined with certificates of independent, trusted third parties. In a recent study on trust marks Aiken and Boush (2006) found that consumers viewed trust marks from independent expert sources more trustworthy than signals of implied investments in advertising or even consumer reports. However, Pavlou and Chellappa (2001) notice that such mechanisms are only effective for customers who are familiar with them and that these seals of approval need to be promoted among the customers to become more effective.

SUMMARY

In order to make progress in a scientific field, researchers need to be able to form a clear picture of the state of that progress. In this chapter we provided a synopsis of different conceptualizations of trust and analysed the adequacy of these different perspectives in order to conceptualize and define online trust. We proposed a set of trust constructs that facilitates a multi-level and multi-dimensional analysis of e-commerce trust. The analysis suggests that the willingness of online consumers to use the Internet for economic transactions and even more actual risk-taking behaviour require both system trust and transactional trust. The discussion of different trust perspectives and types points out that online trust is a complex and dynamic phenomenon that can not simply be 'produced' by applying some trust-enhancing instruments. Trusting beliefs, intentions and trusting behaviours result from a delicate, situational interplay of different factors, which only partly can be influenced by the online vendor. Notwithstanding these difficulties it is important for e-vendors to build websites that promote online trust. Hence we provided an overview of recommendations for developing and maintaining online trust, building on several empirical studies that investigate a number of different determinants of online trust.

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2. The importance of brand trust online

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INTRODUCTION

Nokia and Shell chairman, Jorma Ollila, made a strong argument: trusted brands will be the winners in the new media landscape (Passi, 2007). Similar sentiments have also been expressed in the academic literature. For example, recently Sääksjärvi and Samiee (2007) suggested that marketers should focus on making consumers aware of their brands and developing trust-based relationships in online environments. A familiar brand can thus be seen as a promise of future performance – something in which a consumer can trust (Delgado-Ballester and Munuera-Alemán, 2002).

Indeed, the unique business environment of the Internet puts pressure on Internet marketers to create trust that is stronger and more persistent than is normally demanded offline (Keen, 1997). For example, a recent Gartner survey from the US market suggested that retailers lost \$2 billion in 2006 because of consumer security fears (Schuman, 2006). In general, trust in an online environment is very difficult to influence or control directly because it may result from multiple interactions with a number of online providers, and from brand affect and personality attributes such as technology readiness (see for example Ribbink et al., 2004). Awareness of the name of the company operating websites should be considered an essential ingredient in gaining online trust (Yoon, 2002). In fact, consumers seem to depend on brands much more in the online than in the offline environment (McGovern, 2001).

Linking these two timely streams of discussion – brands and trust – brand trust as a concept captures a consumer's feelings of trust towards a particular brand. While brand trust evidently has managerial relevance, researchers have only lately started investigating the domain (for example Delgado-Ballester and Munuera-Alemán, 2001, 2005; Chaudhuri and Holbrook, 2002; Ha, 2004; Ha and Perks, 2005; Lau and Lee, 2000). The purpose of this chapter is to provide a review on concurrent brand trust research, and to explore the impact of brand trust in online environments. We first review prior research on brand trust, its definitions, antecedents and consequences.

Secondly, we discuss the special features of the online environment and link brand trust with three online concepts: website acceptance, consumer online involvement and website loyalty. We develop a model of these concepts and present three propositions. Finally, we discuss our model in terms of its managerial relevance and implications for further research.

BRAND TRUST

Brand trust as a concept could be most simply defined as trust towards a particular brand. Before moving on to review more profound and detailed definitions of the concept, we start by presenting what is meant by a brand. There are two basic approaches in defining a brand (see for example Ambler and Styles, 1997). The first is the product-plus approach, according to which the brand is an extra quality and identifies the product, and the second is more holistic and considers the brand to be the sum of all of the elements of the marketing mix. The American Marketing Association defines a brand as 'a name, term, sign, symbol, or design, or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of competitors' (Kotler, 1997, p. 443). It adds certain rational, tangible and/or emotional, intangible attributes to a product so that it is perceived to be different from an unbranded product (Chan-Olmsted, 2006).

In order to gain an understanding of the brand trust concept and its importance online we carried out a literature review on existing research. Our main sources of information were the ABI, Ebsco, Elsevier, Emerald and Springer databases. We conducted a further search for relevant refereed journal articles, conference contributions, edited volumes and working papers that were unavailable in electronic databases. We noted the lack of prior research operating with the concept of brand trust, as we found only 15 articles that were relevant for our purposes. Table 2.1 summarizes the results of our search.

Based on our review it seems that brand trust has only recently attracted the attention of researchers, and the concept therefore still lacks a common definition. Delgado-Ballester and Munuera-Alemán (2001, 2002, 2005) have been working to this end, initially defining it as 'a feeling of security that the brand will meet consumption expectations' (2001, p. 1242). Later (2002, p. 519), they included the reciprocal nature of the relationship between a consumer and the brand, and defined brand trust as 'a feeling of security held by the consumer in his/her interaction with the brand', and most recently as 'the confident expectations of the brand's reliability and intentions' (Delgado-Ballester and Munuera-Alemán, 2005, p. 188). Chaudhuri and Holbrook's (2001, p. 82) definition refers to 'the willingness of the average

Table 2.1 A summary of the research on brand trust

Authors and Year	Context	Results
Lau, G.T. & Lee, S.H. (2000)	Non-durable consumer goods	Brand trust contributes to the behavioural intention of brand loyalty. Brand predictability, brand competence and brand reputation appear to be important in developing consumers' trust in brand.
Delgado-Ballester, E. & Munuera-Alemán, J.L. (2001)	Disposable nappies	Brand trust has a significant effect on customer commitment, which in turn influences the customer's price tolerance towards the brand. Satisfaction is an antecedent of brand trust.
Chaudhuri, A. & Holbrook, M.B. (2001)	Brands in many categories from personal computers to candies	Brand trust and brand affect are separate constructs that combine to determine two different types of brand loyalty (purchase and attitudinal).
Chaudhuri, A. & Holbrook, M.B. (2002)	Brands in many categories from personal computers to candies	Brand trust and brand affect are separate constructs that combine to determine brand commitment, which in turn influences market share and advertising-to-sales ratio.
Busacca, B. & Castaldo, S. (2003)	General, conceptual paper	Brand trust plays a role as a mediator between brand knowledge and consumer responses.
Delgado-Ballester, E. (2004)	Deodorant and beer consumers (beer consumers over 18 years)	Introducing a brand trust scale in which invariance is supported in different product classes, i.e. consumers of different products interpreted brand trust items in the same way.
Ha, H.-Y. (2004)	E-bookstores (Amazon.com and Yes24.com)	Brand trust is affected by security, privacy, brand name, word-of-mouth, good online experience and quality of information.
Reast, J.D. (2005)	Grocery retail, coffee, tea, pens, internet retail (total 9 brands)	Brands with higher brand trust profiles will benefit in brand extension strategies relative to less trusted rivals.

Table 2.1 (continued)

Authors and Year	Context	Results
Delgado-Ballester, E. & Munuera-Alemán, J.L. (2005)	Shampoo and beer	Brand trust is rooted in the result of past experience with the brand, and it is also positively associated with brand loyalty, which in turn maintains a positive relationship with brand equity.
Ha, H.-Y. & Perks, H. (2005)	17 websites from the following categories: bookstores, malls, CDs and travel agencies	Brand trust is achieved through the following dimensions: brand experiences and the search for information, a high level of brand familiarity, and customer satisfaction based on cognitive and emotional factors.
Romaniuk, J. & Bogomolova, S. (2005)	110 brands in 13 markets (e.g. skincare products, personal banking and fruit drinks)	Brand trust has relevance to users. However it seems that all brands have to have a certain level of trust to be competitive in the market.
Zbojja, J.J. & Voorhes, C.M. (2006)	Computer and electronics product categories	Brand trust and satisfaction have an impact to repurchase intentions. The impact is mediated through retailer trust and satisfaction.
Esch, F.-R., Langner, T., Schmitt, B. & Geus, P. (2006)	Athletic shoes and chocolates	Brand satisfaction and brand trust are direct determinants of brand attachment which leads to both current and future consumer purchase behaviour.
Hartmann, P. & Apaolaza Ibáñez, V. (2007)	Spanish energy brands	Customer loyalty is influenced by customer satisfaction, brand trust and switching costs.
Okazaki, S., Katsukura, A. & Hishiyama, M. (2007)	A sophisticated portable audio player and a puffed corn snack	Brand trust affects directly and positively attitude towards brand.

consumer to rely on the ability of the brand to perform its stated function', while Lau and Lee (2000) include the aspect of perceived risk, which is often related to trust. They define brand trust as 'a consumer's willingness to rely on a brand in the face of risk because of expectations that the brand will cause positive outcomes' (Lau and Lee, 2000, p. 344).

We note that each of these definitions includes elements from common definitions of the nature of trust, which has commonly been conceptualized as belief, confidence, expectation and willingness. Concepts such as attitude, acceptance of risk and vulnerability in terms of the actions performed by the trustee have also been used (Castaldo, 2003). Expectation mostly refers to the trustee's willingness to keep promises and fulfil obligations (Dwyer et al., 1987), while willingness to rely refers to faith in another counterpart (Doney et al. 1998). Confidence has been mainly associated with the reliability and integrity of the partner involved in a relationship (Morgan and Hunt, 1994). Here we define brand trust as a consumer's feeling of security in his/her interaction with the brand, based on his or her confident expectations of its reliability and intentions. This definition includes both the reciprocal relationship between a consumer and a brand and the multi-dimensional nature of trust.

Several researchers have identified various antecedents of brand trust, including predictability, competence and reputation (Lau and Lee, 2000), brand familiarity (Ha and Perks, 2005), image (Esch et al., 2006) and overall satisfaction (Delgado-Ballester and Munuera-Alemán, 2001; Ha and Perks, 2005). Also functional brand-choice risk (Chaudhuri and Holbrook, 2002), web-purchase-related factors related to security, privacy, brand name, word-of-mouth, good online experience and quality of information (Ha, 2004), past experiences (Delgado-Ballester and Munuera-Alemán, 2005; Ha and Perks, 2005) have been noted to influence brand trust.

Brand trust, in turn, seems to have several consequences: Busacca and Castaldo (2003) propose in their conceptual framework that when brand trust increases, the consumer may be more willing to remain loyal, which is consistent with the empirical work carried out by Lau and Lee (2000), Chaudhuri and Holbrook (2001), Delgado-Ballester and Munuera-Alemán (2005) as well as Hartmann and Ibáñez (2007). Chaudhuri and Holbrook (2002) and Ha (2004) have also found out that brand trust has a positive impact on brand commitment (see Delgado-Ballester and Munuera-Alemán (2001) on the impact of brand trust on customer commitment). This is in line with Esch et al.'s (2006) findings on brand attachment.

Busacca and Castaldo also suggest that customers with higher levels of brand trust are more willing to pay a premium price for the brand (see also Delgado-Ballester and Munuera-Alemán, 2001), to buy new products introduced under it in its existing and new categories (see also Reast, 2005;

Zboja and Voorhees, 2006), and to share some information about their tastes, preferences and behaviour. Figure 2.1 summarizes the antecedents and consequences of brand trust based on the literature.

Most previous studies have been conducted in the context of consumer goods, and there has been less focus on services. Moreover, only three of these studies on brand trust (Ha, 2004; Ha and Perks, 2005; Reast, 2005) included an online aspect (different types of Internet services or e-tailers), yet these studies either focus on the antecedents of brand trust or aggregate the online data with offline data. Therefore, there is still a lack of studies focusing on the consequences of brand trust in the online context. The purpose of this study is to discuss the impact of brand trust in online environments. The following section elaborates on the special features of such environments in this regard.

Special Features of the Online Environment

The online environment affects the way in which consumers view their relationship with a brand (Wendkos, 2000). Given the anonymity of the Internet, branding is more crucial for companies operating online (Salzman, 2000). However, Hernandez (2002) reminds us that brands play the same role on the Internet as in conventional markets – that is to reduce consumers' perceived risk. A brand is therefore also an important indicator of service or product quality for the online consumer (Danaher et al., 2003). In fact, consumers seem to depend on brands much more in the online than in the offline environment (McGovern, 2001). One of the reasons for this is, of course, the fact that customers cannot touch, feel or smell tangible products online. They thus have less information and face a relatively higher risk. Brand names could therefore have an even bigger impact online than offline (Degeratu et al., 2000), and they may be a decisive factor in a purchasing decision.

Offline brand power is likely to be transferable to the online environment (Harvin, 2000), in which the significance of brand trust is therefore strong (Ha, 2004). Furthermore, Harvin (2000) argues that companies with well-known offline brands can benefit from the 'halo effect' when trying to establish a new presence on the web: consumers are likely to be more receptive to online offerings of brands that they already know and trust.

Anderson and Srinivasan (2003) and Gommans et al. (2001) studied loyalty in online environments. Their e-loyalty discussions are based on the brand-loyalty concept, and Anderson and Srinivasan (2001, p. 125) define e-loyalty as the 'consumer's favourable attitude toward an electronic business resulting in repeat buying behaviour'. Furthermore, Gommans et al. (2001) include both attitudinal and behavioural components in their conceptualization of e-loyalty, and incorporate attitude, behavioural intent

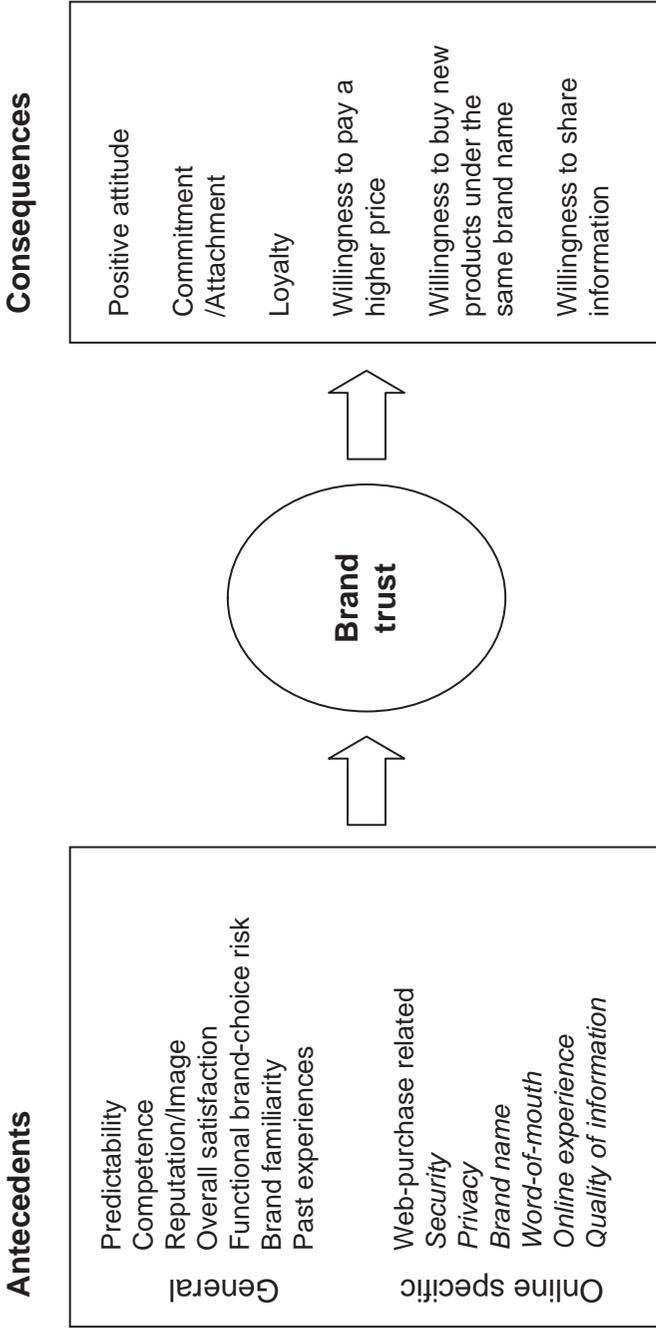


Figure 2.1 The antecedents and consequences of brand trust

and behaviour into their frameworks. Here we define website loyalty as the consumer's favourable attitude towards an online service resulting in behavioural intent. Anderson and Srinivasan found that e-satisfaction had an impact on e-loyalty, and that trust significantly accentuated this impact.

It has also been noted that brands have a social dimension, and that consumers actively participate in creating them (Muniz and O'Guinn 2001). Consumers exploring online environments can get involved in virtual communities (see Hagel and Armstrong, 1997), sometimes also called brand communities (McAlexander et al., 2002; Muniz and O'Guinn, 2001). In general terms, virtual communities are groups of people who use communication technologies (such as discussion forums, chat rooms and listserves) for repeated social interaction in order to meet certain needs (see Preece, 2000). An increasing number of such communities are being sponsored by commercial organizations (Porter, 2004). Here we use the expression 'consumer online involvement' specifically to describe reading and posting activities in virtual communities.

Virtual or brand communities matter to marketers as they may enhance the quality of the e-service or product by better catering for various customer needs and by improving responsiveness: on-line peers may even provide rapid assistance to other customers with problems, for example. The quality of the online service is an antecedent of trust, and consequently should lead to customer loyalty (Gummerus et al., 2004). There is some evidence that customers belonging to these communities may be more loyal (see for example Ellonen and Kuivalainen, 2008), although the research is not yet conclusive.

In the following we will link these concepts together in the form of a new research model.

Research model

Based on the reviewed brand trust studies and the discussion on the importance of brands on the Internet, we predict that brand trust will lead to positive outcomes in online environments. The rationale behind the choice of each research variable and the related propositions is explained below.

McKnight and Chervany (2001–2002) and McKnight et al. (2002) have found that a consumer's degree of trust toward an online service affects his/her adoption of the website. Ha (2004) also suggests that as consumers become more knowledgeable about the Internet they will choose online services provided by companies they trust. Furthermore, as already mentioned above, Degeratu et al. (2000) suggest that brand names have an even bigger impact online than offline: consumers are likely to be more receptive to trying online offerings from brands that they already know and trust (Harvin, 2000).

Busacca and Castaldo (2003) propose that brand trust increases consumers' willingness to try new products under the same brand name. Today,

most consumer brands spread their established offline image to the Internet, which could be seen as one example of brand extension (see Gommans et al., 2001; Ha and Chan-Olmsted, 2001). Prior research has identified brand trust as one of the key factors that affect consumer acceptance of brand extensions (for example Reast, 2005), and it also seems to be focal in terms of the acceptance of online services.

Hence it is posited that:

P1: Brand trust has a positive impact on consumer acceptance of online services.

Prior research has highlighted how critical a factor trust is in e-commerce (for example Corbitt et al., 2003; Quelch and Klein, 1996). However, we believe that it also has a broader significance beyond the transaction level and is, in fact, an antecedent of any kind of involving activity online: trust reduces the consumer's uncertainty and the related perceived risk in an environment in which he or she feels especially vulnerable. In that situation he or she can confidently rely on a trusted brand (Chaudhuri and Holbrook, 2001). According to Shneiderman (2000), users are more likely to enter into online relationships if they are assured that they are engaging in a trusting relationship.

Busacca and Castaldo (2003) suggest that brand trust will make consumers more willing to share information. This is consistent with Ridings et al. (2002) who found trust to be a significant predictor of a virtual community member's desire to give and get information in the community. Thus, we propose that:

P2: Brand trust has a positive impact on consumer of online services.

Several researchers have specified trust as a major driver of loyalty (for example Berry, 2002; Chaudhuri and Holbrook, 2001; Garbarino and Johnson, 1999; Lau and Lee, 2000). Busacca and Castaldo (2003) propose that when brand trust increases, the consumer may be more willing to remain loyal. Likewise, Delgado-Ballester and Munuera-Alemán (2005) found evidence that brand trust is positively related to brand loyalty. Chaudhuri and Holbrook (2001) emphasize that brand loyalty underlies the ongoing process of continuing and maintaining a valued and important customer relationship that has been created by trust. In other words, loyalty to a brand involves trusting in it (Lau and Lee, 2000).

Yoon (2002) found that in online environments website trust had a significant causal relationship with online-purchase intentions. Ribbink et al. (2004) investigated online book and CD stores and found that e-trust

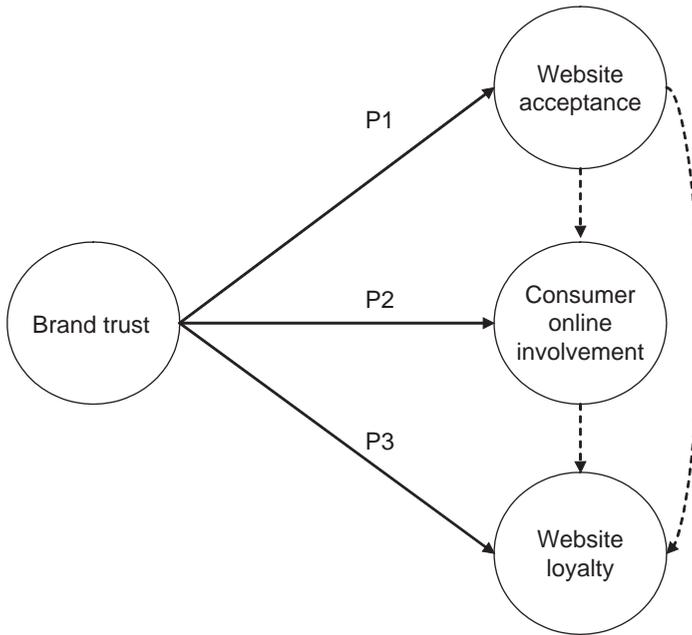


Figure 2.2 The proposed research model

directly affected e-loyalty. Correspondingly, Flavián et al. (2006) suggest that a higher level of trust in a website leads to increased loyalty to it. This brings us to the third proposition of this study, while Figure 2.2 summarizes the proposed model.

P3: Brand trust has a positive impact on website loyalty.

We thus propose that brand trust has a positive impact on website acceptance, consumer online involvement, and website loyalty. In our view, the three factors on the right-hand side of the figure roughly represent increasing and subsequent levels of online customer commitment. However, we note that website loyalty does not necessitate online consumer involvement, while online consumer involvement does seem to increase website loyalty.

Dick and Basu (1994) and Merisavo and Raulas (2004) maintain that when consumers spend time with a brand and process the information, positive affective responses are evoked in their minds. Delgado-Ballester and Munuera-Alemán (2001) found that brand trust affected brand loyalty especially in the case of high-involvement brands.

According to Shang et al. (2006), participating in a virtual community could be seen as an involving activity, motivated by consumer involvement and presenting a commitment to the brand or product, and thereby leading to increased brand loyalty. This is consistent with findings reported by Holland and Baker (2001) and Srinivasan et al. (2002) suggesting that community activities are antecedents of site brand loyalty, and with the belief of Munitz and O'Guinn (2001) that it is affected by both online and offline brand communities. Ha (2004) suggests that consumers who are active in virtual communities may help companies to generate positive word-of-mouth (WOM) and brand loyalty (see also Gruen et al. (2006) for a discussion on eWOM and loyalty).

DISCUSSION

Prior research findings thus give reason to assume that brand trust has a positive impact on website acceptance and adoption, on consumer online involvement in the website, and on website loyalty. We suggest that all these three factors have many and diverse business benefits (Figure 2.3).

Increasing website acceptance and adoption are directly evident in traditional website visitor statistics, and thus could constitute the whole online visitor base for marketers. For some consumer brands this means a mass of potential new customers for their own products, and for others a bigger audience that will also attract advertisers and partners. The brand website is a new channel through which brand managers can reinforce relationships with the customers that are most important in terms of brand equity (Thorbjornsen and Supphellen, 2004).

Increasing consumer online involvement also carries several business benefits. Community-integrated customers serve as word-of-mouth brand missionaries and constitute a strong market for brand extensions (McAlexander et al., 2002). Virtual communities may benefit from positive network effects and higher switching costs (Amit and Zott, 2001; Shapiro and Varian, 1998), meaning that popular communities are likely to attract more customers, and current customers are less likely to change to another community. Moreover, according to McWilliam (2000), virtual communities can act as the neural system of the brand, helping marketers to identify unmet needs. Travis (2001) follows the same lines of thought, suggesting that from the brand perspective the value of the Internet is that companies no longer have to guess what their customers want. Virtual or brand communities are therefore also a promising channel for market research (for example Catterall and Maclaran, 2002; Pitta and Fowler, 2005).

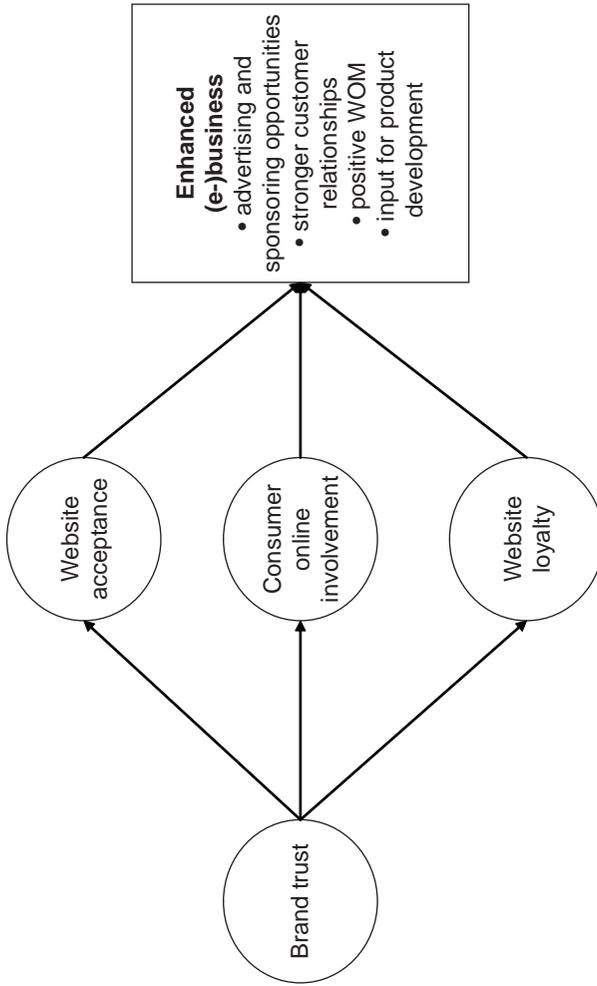


Figure 2.3 The business impacts of brand trust online

Brand loyalty is becoming more and more important in online environments (Holland and Baker, 2001; Ribbink et al., 2004; Semeijn et al., 2005) because of the fierce competition and the high costs of attracting new customers. Gummerus et al. (2004) also note that content-based service providers need a loyal customer base from which to attract advertisers and sponsors. Loyal consumers are the banner carriers for the brand (Thorbjornsen and Supphellen, 2004).

In summary, we believe that brand trust supports both e-business and traditional business via the following three factors: website acceptance, consumer online involvement in the website, and website loyalty. Therefore, and in line with Delgado-Ballester and Munuera-Alemán (2005), we suggest that companies should build up brand trust in order to enjoy the concomitant substantial competitive and economic advantages. In our view, its importance is more pronounced on the Internet than anywhere else.

CONCLUSIONS

Our aim in this chapter was to explore the importance of brand trust in online environments. We conducted a literature review, and particularly noted the scarcity of studies in this area. Relevant research seems to be at an early stage of development and the concept still lacks an established definition. We defined brand trust as a feeling of security held by the consumer in interaction with the brand, based on his or her confident expectations concerning its reliability and use. We noted that branding is becoming even more crucial in online environments, which nevertheless present more challenges in terms of trust as consumers have less information and face relatively higher levels of risk.

Given the results of prior research we proposed that brand trust plays an important role in online environments, and particularly that it has a positive impact on 1) consumer acceptance of online services; 2) consumer online involvement; and 3) consumer website loyalty. Each of these three factors carries various beneficial business implications, and thus brand loyalty may well result in enhanced business both online and offline.

This study makes an important contribution to the as yet scarce research on brand trust. Our state-of-the-art review of existing research has contributed to the conceptual development and has provided a basis for further empirical study. More specifically, we have derived three propositions for the next stage of the research process.

Our study also opens up several other interesting avenues for future research. We have noted the importance of brand trust online, yet we acknowledge that its management is a difficult task because of its complex

nature. Therefore we suggest that future studies should explore how its antecedents could be supported and how it could be enhanced. It would also be interesting to empirically test how offline brand trust transfers to online environments. In this, comparisons between different types of customers (for example regarding customers' relationship with the Internet) and brands should be encouraged.

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3. Trusting the consumer avatar: an examination of trust and risk factors in electronic and virtual retailing

Michael Bourlakis, Savvas Papagiannidis and Helen Fox

INTRODUCTION

Dramatic changes have occurred over the past years in the business and marketing fields, emanating from the increasing use, role and influence of technology. Specifically, most people have been experiencing the real, 'traditional' environment for purchasing products and connecting with other people. However, over the last decade, the emergence of both the Internet and virtual environments has brought an extra dynamism to an evolving business landscape.

The objective of this chapter is to introduce the element of trust and risk under alternative environments, and to analyse the electronic grocery and the virtual retail environments. Therefore, we provide the key findings from an empirical survey of UK grocery retail consumers purchasing from the Internet. In addition, the virtual retail environment is analysed via a secondary data examination of Second Life, a major virtual environment. The latter attempt is, to our knowledge, an original cross-examination of both environments resulting in a unique contribution to the literature. In terms of the chapter structure, the discussion starts by analysing the relevant literature on trust followed by a section illustrating empirical findings for the Internet grocery environment. Then, it will discuss trust issues and challenges in virtual environments, using Second Life as an example, and their similarities to and differences from related issues and challenges in the electronic environment. Finally, the last section provides the concluding remarks.

LITERATURE ON TRUST

Definition of Trust

Various definitions of trust in a marketing situation have been proposed. At the business-to-business interface, Bidault and Jarillo (1997) define trust as ‘believing that the other party will behave in our best interests’ and as noted by Dwyer et al. (1987) it is considered central to long-term buyer–seller relationships. Trust also increases security and is perceived as encouraging stability and similarity (Ward and Smith, 2003). In the relationship marketing scientific field, Moorman et al. (1993) define trust as the willingness to rely upon an exchange partner in whom one has confidence whilst according to Ring and Van de Ven (1994) trust can be defined as confidence or predictability in one’s expectations about another’s behaviour, and in another’s goodwill. Anderson and Narus (1990) consider trust as the belief that the partner will perform actions that will result in positive outcomes for the firm.

Relationships of Risk and Trust

In addition, trust has been examined in the social exchange literature in a range of aspects such as organizational behaviour (Morgan and Hunt, 1994). Considering that the modern business environment is full of risk from inter-firm and organizational exchanges, firms should consider the levels of trust in their relationships with other stakeholders including consumers, employees, regulatory bodies, suppliers etc and in our case, the avatars. For the latter link between trust and risk, trust researchers mention that trust entails cost and where there is cost there is an inherent risk. Cousins (2002) notes that trust and risk are related, especially when trust is associated with positive connotations whilst risk is associated with negative connotations. Also, trust has no specific environment to be nurtured although Ward and Smith (2003) point out that trust is normally formed gradually and is fostered relationship by relationship. They also confirm the previous points that trust and risk are interconnected and evolving.

Outcomes of Trust

Most of the literature considers trust as the outcome of gradual investments in an inter-firm relationship. Trust is a key element of a sustainable relationship (Dwyer et al., 1987). In a more holistic sense, trust denotes a firm’s belief that its requirements will be met through forthcoming actions

by another firm (Anderson and Weitz, 1990). Trust is also examined as an anticipation or forecast of future behaviour, emanating from satisfactory interaction and previous experience (Blomqvist, 2002). Blomqvist (2002) notes that fast trust is connected to uncertain and fast-moving markets. The latter is the case for the emerging virtual markets in metaverses (a term used to describe how a virtual reality-based Internet might evolve in the future) such as that of Second Life. In many respects the introduction of such markets and the trust issues they result in are reminiscent of the early days of the Internet when new mechanisms of building trust were sought. It could be argued that a decade of online experiences should have adequately prepared the users and businesses for the new environment.

On the other hand, the new level of interaction that the three-dimensional environment brought, coupled with the very recent advent of social networking software, suggests that it is not necessarily true that existing online experiences can be translated into metaverses and used to build relationships. In such fluid conditions there may not be much opportunity for the evolution of incremental trust, as most of the activities, at least for the time being, are only partially linked to the rest of the Internet and the real world, if they are linked at all. Instead of incremental trust, fast trust could help individuals tolerate the inherent uncertainty and vulnerability related to the dynamic nature of the environment itself. The uncertainty is further fuelled by the role-playing nature of many of the activities: is it the avatars (virtual characters) or the person behind them that are actually engaging in the trust building process?

Conceptualizing Trust

Blomqvist (2002) conceptualized a four-dimensional framework with trust consisting of four elements: capability, goodwill, behaviour and self-reference. The above conceptualization was synthesized following an examination of an evolving and knowledge-based environment where the technological pace is rapid and much uncertainty and turbulence is present. The aforementioned capability includes tenets such as technological capability, business capability, and the capability to cooperate. On the other hand, goodwill is seen as one of the key sub-elements such as moral responsibility, care, respect and concern (Blomqvist, 2002; Sako, 1992). The behavioural dimension of trust can be witnessed at the early stage of the trust building process. Blomqvist (2002, p. 179) noted that 'individuals make conclusions about others' trustworthiness by observing their behaviour either consciously or unconsciously'. The self-reference element of trust is a relevant concept in comprehending the nature of

trust. Strong self-reference provides a clear base for communication dissemination and knowledge development. A self-referential firm is knowledgeable about its past and identity and can capitalize on its organizational strengths. Hence, self-reference also supports the creation and development of partnerships. Blomqvist (2002) also proposed that individuals or corporate organizations enjoying a strong self-reference are capable of identifying, keeping and incorporating the relevant identity strength, thereby contributing to equal and fair partnerships with the other actors.

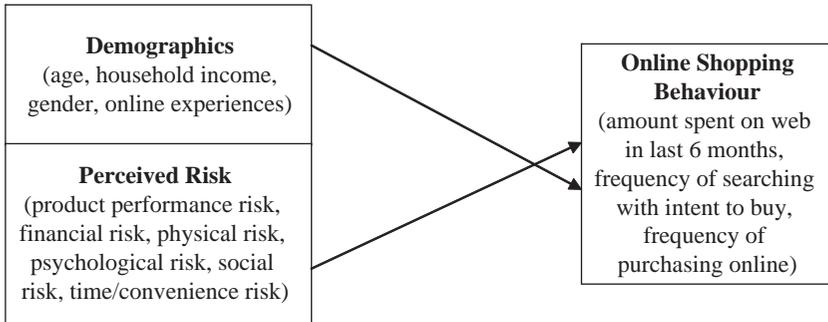
Concluding the above discussion, the next section provides further insights from relevant empirical work that has examined the association between trust and risk in the online environment. These insights are very beneficial and, to some extent, very relevant when dealing with virtual environments, in our case, Second Life considering the scarcity of relevant work.

INSIGHTS FROM THE INTERNET/ONLINE ENVIRONMENT

Literature

The current section examines the UK electronic grocery environment, where Tesco is the best placed retailer based on a survey of the fastest growing Internet companies in the world. Our primary research objective was to examine consumer perceptions during Internet food purchasing for specific issues including, *inter alia*, the demographics of Internet shopping, shopping preferences, reasons for shopping online, delivery, product availability and security.

In general, Anon. (2002) cites security problems, the lack of trust in Internet retailers, the lack of Internet knowledge and finally, the long delivery time for goods as the key issues emanating from the use of Internet shopping. Jones and Vijayarathy (1998) suggest that individuals have unfavourable perceptions of Internet shopping security as they are wary of giving credit card details over the Internet, and Rowley (1996, 1998) argues that businesses should provide alternative arrangements. For example, consumers should be able to make arrangements by phone, fax, or post, should use tokens on different sites, should apply encryption for their credit card numbers and should use electronic cash by withdrawing 'digital money' from an Internet bank and storing it on the hard disk. Aiming to synthesize the relevant literature, Forsythe and Shi (2003) develop a conceptual model for the types of perceived risk and demographics on online



Source: Forsythe and Shi (2003)

Figure 3.1 Conceptual model for the types of perceived risk and demographics on online shopping behaviour

shopping behaviour, which contains six types of perceived risk (Figure 3.1).

These are: the financial risk, the product performance risk, the social risk, the psychological risk, the physical risk and time/convenience risk (Forsythe and Shi, 2003). Product performance risk is defined as the loss incurred when a brand or product does not perform as expected. Financial risk is defined as a net loss of money to a customer. Psychological risk may refer to disappointment, frustration, and the experience of shame if one's personal information is disclosed. Time/convenience risk may refer to the loss of time and inconvenience incurred, due to difficulty of navigation and/or submitting orders, finding appropriate websites, or delays receiving products. Social risk involves fears of isolation from people and not receiving pleasure whilst shopping. Physical risk involves not being able to use the senses, such as touch and smell. In order to alleviate these risks, trust is required that will foster and nurture online shopping relationships. Aiming for that, Lee and Turban (2001) propose a model for developing consumer trust during Internet shopping and mention specific 'trust building' constructs. These include the following: trustworthiness of the Internet merchant (ability, integrity and benevolence), trustworthiness of the Internet shopping medium (technical competence, reliability and understanding of the medium) and other contextual factors (effectiveness of third party certification and effectiveness of security infrastructure). They also elucidate the key parameters that may affect consumer trust in Internet shopping, including credit card loss assurance policies, product warranty policies, merchandise returns policy, availability of escrow service, ability to schedule human customer service sessions and the provision of

user-friendly, reliable, efficient storefront interfaces with animated characteristics (Lee and Turban, 2001). Rowley (1998) also states that to attract the Internet shopper, the Internet retailer needs to focus on the speed of transaction, convenience, selection and price. Online shopping offers retailers the opportunity to gain new customers notwithstanding the given opportunities to improve customer loyalty (Roberts et al., 2003).

Insights from an Empirical Study

To shed further light on the above, an empirical work examined the factors that influence UK consumers when purchasing grocery products on the Internet and was undertaken as part of an undergraduate dissertation (see Fox, 2004). Taking into account that buying grocery products over the Internet is very popular in the UK, we concluded that that retail environment was very appropriate for our empirical work. In addition, we aimed to address both the trust and risk elements of the Internet environment and to provide an empirical viewpoint that will add further value to the arguments posed in earlier sections. Specifically, a questionnaire was developed for consumers who had access to the Internet. The next step of the data analysis was based on the principal factor method with varimax solution, resulting in a five factor solution. These factors encompassed ten key attributes identified during earlier stages of the empirical work such as Delivery, Product Availability, Convenience, Lack of Time, Family Commitments, Long Distance from Store, Ease of Navigation on Website, Speed for Transaction/Ordering, Price and Security.

The cumulative variance showed that 74.3 per cent of the variance is explained by the five factors, which is quite satisfactory. Most of the communalities are respectable, with 83.9 per cent of the variance being explained by the delivery attribute and, overall, the communalities have been explained, with the lowest percentage being 64.7 per cent for the speed for transaction/ordering attribute. The subsequent rotated factor matrix enabled the researchers to identify the variables that are the most strongly correlated with the five factors (Table 3.1).

The factors identified were 'Price, security & navigation' focus, 'Product availability & speed' focus, 'Personal aspects', 'Delivery' focus and 'Store distance' focus. In terms of the delivery element, the respondents reported that in 37.1 per cent of the total deliveries, incorrect products were delivered whilst in 19.6 per cent of total product deliveries, products were missing. Nevertheless, the delivery expectations are cited as satisfactory (58.4 per cent) and 30.7 per cent of the respondents believe that the product delivery is either above expectations or excellent. The most important reasons are convenience and the speed of transaction/ordering, which

Table 3.1 The resultant factors

Factor	Factor Name	Variable Name	Factor No.
1	'Price, security & navigation' focus	Price	0.822
		Security	0.743
		Ease of navigation on website	0.698
		Speed for transaction/ordering	0.391
		Convenience	-0.390
2	'Product availability & speed' focus	Product availability	0.808
		Speed for transaction/ordering	0.547
		Convenience	0.547
		Security	0.405
3	'Personal aspects'	Lack of time	0.729
		Family commitments	0.695
		Convenience	0.593
4	'Delivery' focus	Delivery	0.910
		Speed for transaction/ordering	-0.430
5	'Store distance' focus	Long distance from store	0.891
		Family commitments	0.395
		Lack of time	-0.324
		Ease of navigation on website	-0.307

confirms the majority of the literature. Security is cited as a key concern (Jones and Vijayasathy, 1998; Lee and Turban, 2001) but 91.9 per cent of the respondents stated that security while shopping is above average. Hence, online supermarkets need to concentrate on all aspects of the shopping experience and to start thinking and acting in a holistic manner. Rowley (1996) states that Internet shopping has a long way to go in developing the shopping experience, and these results reiterate this. Specifically, our survey illustrated five key elements ('Price, security & navigation' focus, 'Product availability & speed' focus, personal aspects, 'Delivery' focus and 'Store distance' focus) which need to be considered if online grocers aim to deliver a better consumer experience. These factors can be useful to research studies of virtual environments such as Second Life, which is discussed in detail in the following section.

TRUST IN VIRTUAL RETAIL ENVIRONMENTS: THE CASE OF SECOND LIFE

The term 'metaverse' was first used in Neal Stephenson's (1992) novel *Snow Crash*, in order to describe how a virtual reality-based Internet might

evolve in the future. Early examples of how such alternative worlds may look can be experienced in the form of Massively Multiplayer Online Role Playing Games (MMORPG). These games often evolve around a predefined goal set by the theme of the game, although in many cases this is left up to the participants to determine (for a comprehensive review of MMORPGs see Manninen and Kujanpaa, 2007).

Second Life is arguably the best example of the latter scenario. Launched in summer 2003 by Linden Labs, it took more than three years for Second Life to reach a user base of about 800 000 in autumn 2006, when it reached critical mass, and within only another six months its popularity skyrocketed to more than 4.3 million users, only to exceed the 10 million milestone by late 2007. Second Life is a continuous and persistent world that was designed to provide users with control over nearly all aspects of their world, in order to stimulate users' creativity and self-expression, which would translate into a vibrant and dynamic world full of interesting content (Ondrejka, 2004). The copyright of any content created by a user belongs to that user, who can benefit by selling the creation (for example virtual apparel, cars, musical instruments and so forth) to other users in exchange for Second Life's virtual currency, the Linden Dollar, which can be converted into real money easily. In fact there is a dynamic exchange rate between the Linden Dollar and the US dollar that is determined by the supply and demand for the currency. This direct relationship to a real currency has encouraged entrepreneurial users to seek commercial opportunities in Second Life. Various success stories, such as that of Anshe Chung, who became the first online personality to achieve a net worth exceeding one million US dollars from profits entirely earned inside Second Life (Anshechung.com, 2007), exist although they still appear to be the exception and not the norm. As users do not have to register as a business when trading in Second Life, estimating the number of business owners is very difficult. Linden Labs uses the number of unique users with positive month Linden Dollar flow (PMLF) to estimate those engaging in sales, as shown in Table 3.2. As can be clearly seen, this is only a fraction of those registered in Second Life and usually involves very small profits.

The majority of metaverse entrepreneurs run their businesses under virtual personas as projected by their avatars (that is, the character that represents them in the virtual world). Reputation building can be facilitated in two important ways when it comes to retailing. Firstly, each item in Second Life carries information about the designer and the owner. Hence, when a user comes across something that they like and would like to purchase for themselves, they can find out easily who created it and if and how they can buy it. The second one relies on social networking-like mechanisms. Users

Table 3.2 Assessing the number of Second Life business owners using Positive Monthly Linden Dollar Flow (PMLF)

USD Equivalent PMLF	05/2007	06/2007	07/2007	08/2007	09/2007	10/2007
< \$10 USD	21 006	23 159	24 292	22 185	23 336	24 132
\$10 to \$50 USD	10 638	11 544	12 540	12 281	12 811	15 213
\$50 to \$100 USD	2 613	2 697	3 006	2 929	3 001	3 528
\$100 to \$200 USD	1 840	2 040	2 149	2 089	2 131	2 477
\$200 to \$500 USD	1 628	1 685	1 788	1 711	1 814	1 984
\$500 to \$1000 USD	674	645	727	681	683	872
\$1000 to \$2000 USD	389	422	441	391	432	473
\$2000 to \$5000 USD	288	273	279	295	285	320
> \$5000 USD	139	132	145	129	138	157
Total Unique Users with PMLF	39 215	42 597	45 367	42 691	44 631	49 156

Source: http://www.secondlife.com/whatis/economy_stats.php

are encouraged to vote for and rate content and avatars for a number of categories, for example for their behaviour or their appearance. These ratings and endorsements can reassure potential customers that the creator or seller is a trustworthy individual.

Finally, not surprisingly, many real world companies (such as Dell, American Apparel and General Motors) can also be found in Second Life, although they are currently there mostly for promotion and advertising purposes.

TRANSACTING IN SECOND LIFE

In the previous sections we presented empirical work about Internet grocery shopping, one of the biggest and most popular retail sectors. An important emerging question is whether there is a difference between selling online via a website and when selling in a metaverse such as Second Life. For the former case a model such as the one used above for online grocery shopping could be applied and still be mostly valid. For example, although security issues are still present, the nature of delivery is fundamentally different and hence many of the associated risks and benefits may not be present any more. In this section, we will outline these similarities and differences by discussing them in the context of the variables listed in Table 3.1. Before delving into that, it is noteworthy to mention that with no reliable means of estimating the retail sizes in Second Life, one could use

the categorizations of web marketplaces that trade metaverse content, such as SLExchange.com to gain some insight into the offerings available and the sizes of virtual industries. Marketplaces such as SLExchange.com allow creators to post their content online, which can be purchased by users over the web and then delivered in real time in Second Life. As can be seen from the figure below, the most popular categories of product on offer are those of Apparel (for example virtual shoes and clothes) and Home and Garden (for example virtual furniture).

Many of the sellers have their own shops in Second Life that offer a more 'natural' shopping experience that is very similar to the shopper's experience in the real world. Users can browse these shops using their avatars and experience the content (for example sit on a couch) as they would normally do in real life, and when the shop owner is present they can ask any questions they may have about the products. Direct contact can often be the catalysing parameter when it comes to buying content that may require modifications, as the creator can help with them. Hence, establishing relationships is important not only when it comes to buying a product, but also when it comes to supporting it. We turn our analysis to the variables listed in Table 3.1 and analyse them within the Second Life environment and where appropriately bring in the Internet environment dimension.

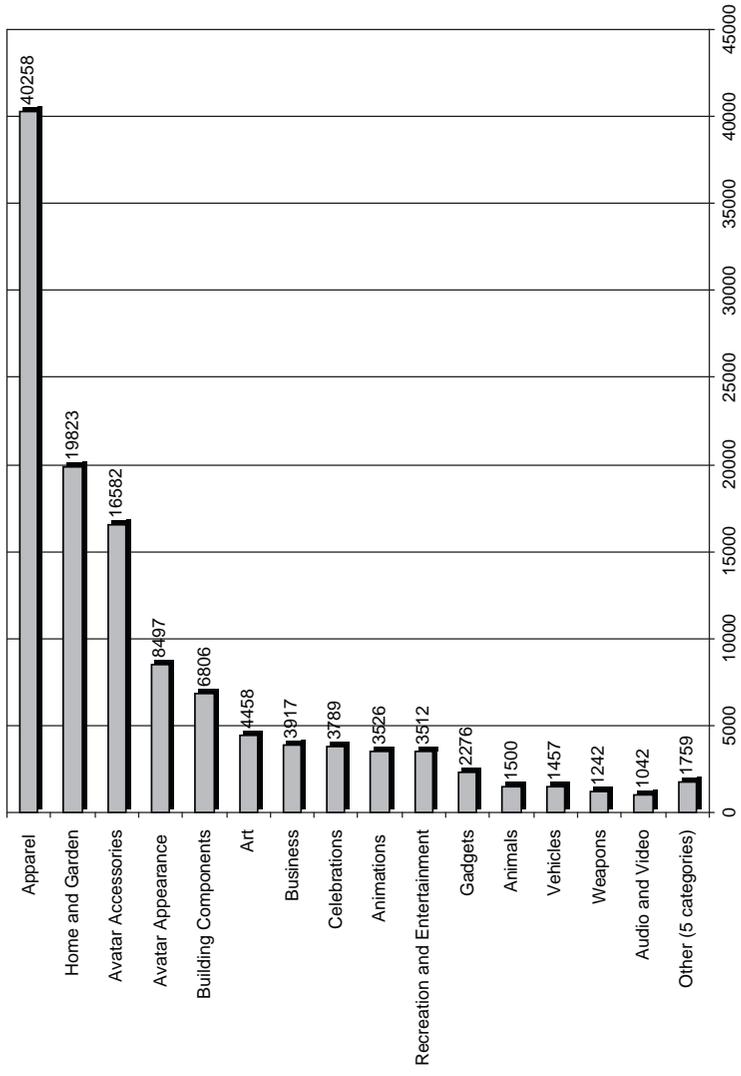
Price

Most transactions in Second Life involved small amounts, typically a few dollars. For example, in February 2007 more than 58 per cent of the resident transactions in Second Life were less than 20 Linden Dollars (www.secondlife.com/whatis/economy_stats.php).

Consequently, the risk involved is usually negligible compared to similar transactions in real life. The price, however, is not necessarily a reflection of the perceived value than the customers gain. For them a pair of virtual shoes may have the same or even more value than a real pair of shoes, even if they can not physically wear them and they cost less than a dollar. Nevertheless, the online transactions which are normally higher in monetary terms could result in higher consumer risk.

Security

All transactions within Second Life are facilitated by Linden Labs. Assuming that users do trust Linden Labs, as otherwise they would not have created a premium account (at least those that engage in monetary exchanges more frequently have), one could argue that they will trust the



Source: <http://www.slexchange.com>

Figure 3.2 Number of items on offer on SLExchange.com in November 2007

built-in transacting mechanism. Users must also trust Linden Labs when it comes to managing the in-world currency. This is of paramount importance for entrepreneurs who seriously think of investing in such worlds, especially as in their early days development firms such as Linden Labs are not regulated by the relevant governmental bodies. When users trade with third parties (for example depositing money in an ATM in order to transfer it to web shops) then trust issues similar to those in online shopping will apply. Still, as the vast majority of transactions involve very small amounts, the risk assumed is very small, which minimizes the effect of trust issues. For online environments, security is still a key concern although the situation has improved for consumers in the past few years.

Speed for Transaction and Ordering

To make a purchase or transfer money to another avatar, a user only has to right-click on the object or person, select the 'Pay' option and define the amount required for that transaction. All transactions in Second Life are in real time and take a couple of seconds to complete, assuming users have already uploaded funds into their accounts. Users can also set up their account so that uploading of new funds happens automatically when insufficient funds to complete a transaction exist. Similarly, most retailers have established a relevant infrastructure to support the need for quick and speedy transactions and orders.

Ease of Navigation and Convenience

Users need to familiarize themselves with moving in the virtual world, which is more difficult than browsing a two-dimensional website, as a new set of navigation principles has to be learned. When users enter Second Life for the very first time they are guided through a step-by-step introduction to assist them with navigating and help them start exploring the world as quickly as possible. Then, it is up to the designers of the in-world stores to provide easy to navigate places and stores that are intuitively laid out so that customers can browse and locate the products on sale easily. A number of issues need to be considered here that may affect trust issues. To start with, the location of the retail space may affect customers' perceptions of the retailer: if a retailer can afford to own their own island and invest in it they may appeal more to potential customers. For those who rent space in malls, the other nearby shops may also affect consumer perceptions. Being associated with well-known in-world brands can potentially reinforce the retailer's own brand. This is reflected by the number of SLExchange.com

ATMs that can be found throughout Second Life. In order for an ATM to be placed in a particular location the location owner must first make a request. If this is granted an ATM is placed in the selected location. More ATMs means more options for the SLExchange.com customers. At the same time though, nearby stores can benefit, not only from the additional traffic that the ATM will generate, but also from the fact that a well-known brand has selected the location in which to place their ATM.

Product Availability and Delivery

When it comes to information products, availability is not an issue, as their digital nature makes it possible to replicate them easily. However, virtual worlds such as Second Life can be used for buying real world product items, in which case product availability and delivery can become important issues. Such issues are no different from the usual supply chain management challenges faced by online retailers. Also, similar to the challenges posed by limited physical space, Second Life only supports up to 15000 prims (building blocks used to construct all other items) per island. Although various techniques exist to overcome this limitation, retailers have to adapt their strategies accordingly in order to maximize promotion of their products. If all products are not displayed, then customers can not experience them and hence may not want to make a purchase. One would expect that as technology improves, such limitations would become less of an issue, but for the early days of metaverses they can pose significant challenges in both the number of objects created per island and also the detail built into them. Accordingly, product availability and delivery is an area where UK retailers have invested heavily in the past few years by developing, for example, the relevant supply chain management infrastructure (for example warehouses, delivery vans) and information technology systems.

Other: Distance from Store, Lack of Time, Family Commitments

When comparing traditional to electronic retailing, variables such as the distance from store, family commitments and the lack of time were found to be important. These variables were more relevant to grocery shopping and hence may not apply to Second Life as such, unless they involve real-world products.

More specifically, when it comes to lack of time, and although without any cases to study one can only speculate about large-scale retailing in virtual worlds, one could argue that a web-based Tesco is better suited to meet consumers' willingness to minimize the time required to place an

order, compared to a virtual Tesco in Second Life. Browsing through the virtual aisles would still take significant time albeit it will put back the context (and even the fun) into the online shopping experience. A cross-over between real, electronic and virtual retailing in such a case may be welcomed by consumers as it would provide them with the option of selecting the most appropriate environment for their particular circumstances.

CONCLUDING REMARKS

The current chapter has examined a very dynamic and evolving situation and by cross-comparing the electronic with the virtual environment using Second Life we hope that we have illustrated a number of insights where further empirical work can be applied.

For example, further research avenues could encompass the empirical test of the variables analysed in the previous section for the Second Life environment or the cross-testing of them for both the Internet and the virtual environments. Another possible research avenue could be the examination of these variables in other non-grocery Internet retail environments and its cross-examination with the virtual environment. That examination could also be developed further by including other firms, not necessarily retailers, such as service companies (for example banks, insurance companies) where similar transactions are, or could soon be, taking place in both electronic and virtual environments.

The current analysis has examined the association between trust and risk in the electronic environment and provided further insights and implications from the virtual environment for retail managers. Specifically, retail managers should be aware of the similarities and differences of these environments when devising appropriate strategies for their firms, and they should consider Second Life as a very appropriate medium for developing and expanding their consumer and marketing strategies. It is worth pointing out that firms operating in both environments should apply an overarching strategy in their marketing strategies as they may face the same set of consumers in both. For the latter point, firms will need to comprehend how to extend their customer loyalty by operating in Second Life especially by taking into account the key issues outlined above.

To conclude, considering the scarcity of empirical work in this area, we envisage that our analysis will prove beneficial to, *inter alia*, researchers and practitioners and other stakeholders.

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4. Grey market e-shopping and trust building practices in China

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INTRODUCTION

In the last decade, the wide use of the Internet, particularly through the proliferation of broadband, has dramatically changed the behaviour and lifestyle of many people. China, as a fast-growing emerging economy with a different shopping culture, different ideology, very large population, increasingly industrial and high-tech society (Gong et al., 2004; Li et al., 2004) forms an interesting case. By the year 2004, there were 94 million Internet users in mainland China. In the most developed urban areas, such as Beijing and Shanghai, more than 25 per cent of the population are reported to be regular Internet users, a level almost equal to that of Spain or the Czech Republic. The China Internet Network Information Centre (CNNIC) (2005) survey indicated that about 62 per cent of Chinese Internet users frequently or sometimes access online shopping websites and about 40 per cent of Chinese Internet users have purchased goods or services through online shopping websites.

While searching online for products, one might be amazed by the enormous gap between the price offered by the online sellers and the retail price set by the manufacturers and offline retailers in China. These products might have been sold in small backstreet stores. The only marketing mechanism for their promotion to access potential consumers was word-of-mouth. In this context, trust is understood as a 'measure of belief in the benevolence and competence of the other party' (Mayer et al., 1995; Sako, 1992) and as 'moral and not directly observable' (Fukuyama, 1995). This is central as the traded goods often lack the usual referents in terms of warranties and standards (Suh and Han, 2003). Moreover, trust as a social practice perspective involves issues such as vendor history and integrity, the opportunity to test and touch the products, an over-reliance on visual display, a lack of formal shopping procedures, a dependence on 'other' consumers' feedback and the necessity of understanding a new online language and rituals (Wenger, 1998). A disposition to trust and a

trusting intention are expected to form the bulk of the consumer dynamic trust framework (McKnight et al., 2002). Trust appears to have fully permeated all aspects of the grey products shopping arrangements, their practices and processes as a function ranging from the appraisal of e-atmospherics, language, feedback and delivery modes. It assists in the choice of the right product/seller match and the building of the personal (self) confidence required to participate in the grey market. Grey market is defined as any parallel import or sale of Original Equipment Manufacturer's (OEM) goods other than those authorized or intended by the producer. Grey products, in turn, are sold by unofficial merchants, but were originally produced in official manufacturing facilities. Grey products are neither counterfeit nor re-manufactured items. Table 4.1 contextualizes the definition of the market, as trust needs to be evaluated within specific circumstances, online and often without a direct comparison construct from the offline world. The advent of the Internet and especially the

Table 4.1 Source of grey market products in China

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1. Unlawful
 - Smugglers can gain a competitive advantage over authorized distributors if they evade import tariffs (mostly low or zero for high-tech goods) and value-added tax (up to 17% in China);
 2. Breach of contract
 - A licensed manufacturer produces more than is agreed, and sells the surplus in the grey market;
 - Bulk sales of components at low prices to equipment assemblers, and unused units reach the retail market at prices below official distributors';
 3. Corporate strategy and capacity
 - The manufacturer sets discriminatory prices in different markets according to what each market can bear, creating an incentive to arbitrage between markets;
 - Official distributors fail to meet market demand, especially in less-developed markets;
 - Offloading of obsolete goods;
 4. Market forces
 - Current volatility precludes a uniform pricing policy between markets;
 - Availability of second-hand goods or distressed inventory from corporate liquidations;
 - Structural oversupply in the Chinese and international markets;
 - Extreme swings in the inventory cycle for high-tech products and components lead to gaps between supply and demand, giving rise to opportunities for grey market traders.
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Source: The Economist (2005, p. 11)

development of e-commerce, have fostered an unprecedented boom in the visibility of grey market shops, where trust needs to be re-conceptualized to fit consumers' expectations. Conventional trust in official distributors and manufacturers has been eroded due mainly to price discriminations in different markets, which create opportunities for arbitrage and re-definition of trust in this perspective mediated through the digital channel processing.

The focal objective in this chapter is, therefore, to explore the trust building factors that impact e-shopping for grey products. This chapter first provides a brief review of the literature covering two main areas of interest: consumers' online shopping behaviour regarding trust and Chinese consumers' decision-making style and trust. Very little research on the grey market has concentrated on the impact of trust from a consumer perspective in a developing country. Most accounts relate to the provision of prescriptive incentives to discourage grey market involvement, in line with licensed producers' views and the coverage of the media of counterfeited goods (Eagle et al., 2003; Hays, 2003; Stothers, 2007). The methodological design for our research is exploratory where we have preferred to use a series of telephone based semi-structured interviews. The study utilized a framework analysis in the first stage combined with grounded theory interpretations of the interviews in a second stage. The results are presented through the analysis of salient themes including trust building motivations that provide the basis for appreciating the impact of an online second sourcing model over the global commodity chain governance structure. The final section provides a synopsis and discussion linked to future research and strategic policy implications.

CONSUMERS' ONLINE SHOPPING BEHAVIOUR AND TRUST

Numerous antecedents perceived to affect online shopping decisions have been investigated by researchers. Chang et al. (2005) summarized that the empirical researches on online shopping behaviour generally fall into three main categories: (a) characteristics of the customers, (b) characteristics of the website or products and (c) perceived characteristics of the web as a sales channel, each of which contains several sub-categories. The first, 'consumer characteristics', usually includes consumer shopping orientations, consumer demographics, consumer computer technology experience, consumer innovativeness, and social psychological variables. The second general category regarding 'website and product characteristics' usually includes variables like risk reduction measures, website features and

product characteristics. Schneider (2003) notes that commodity items, an easy shipping profile and strong brand identity are elements suited to electronic commerce. On the other hand, products that require personal selling skills or personal inspections might be more suited to traditional commerce. Bhatnagar et al. (2000) claim that technologically complex products, ego-related products, products associated with high expenditure levels and perishable food have higher product risks and therefore have a negative effect on online purchase intent. Ranganathan and Ganapathy (2002) demonstrate that security and privacy conditions, information content and website design all positively affect purchase intention. Van den Poel and Leunis (1999) show that risk-reduction measures such as a money-back guarantee, offering a well-known brand or selling at a lower price, can significantly increase the likelihood of online purchasing. In the third category, 'channel characteristics', the popular variables identified are perceived risk, relative advantages (convenience, ease of use, transaction cost and price), service quality, and trust. Consumers' perceptions of risk has been shown to have a great impact on their decision to modify, postpone or avoid a purchase decision in both online shops and bricks-and-mortar stores (Bhatnagar et al., 2000; Gupta et al., 2004; Miyazaki and Fernandez, 2001; Ranganathan and Ganapathy, 2002). Bricks-and-mortar businesses operate only offline, brick-and-click businesses operate both offline and online, while pure-play businesses operate only online (Turban et al., 2006). Miyazaki and Fernandez's (2001) research shows that security of personal and financial information is the most predictive concern regarding the online purchase rate, whilst privacy issues and potential fraudulent behaviour by online retailers are key concerns for many Internet users. Burroughs and Sabherwal (2001) also suggest that system security is a disadvantageous attribute of Internet shopping. The five primary obstacles to online purchases in China, as shown by the CNNIC report (2005), are fear of fraud (62.4 per cent), product quality (47.4 per cent), online shopping security (42.3 per cent), after-sales service (36.8 per cent), and complex processes (30.5 per cent).

Ballantine (2005) suggests that there is a positive relationship between the level of interactivity in an online shopping environment and customer satisfaction. By modifying the SERVQUAL model in the online shopping context, Lee and Littrell (2005) found that consumers' trust in an online seller most strongly affects customer satisfaction and purchase intention, with reliability as a significant predictor, responsiveness as a mild factor and website design as a minor influencer. Burroughs and Sabherwal (2001) argue that perceived quality of web-vendor's sales activities is positively associated with the level of retail electronic purchase whilst the perceived quality of web-vendors' post-sales activities are not. They attribute this

surprising result to the fact that online purchasers perceive their relationship with web-vendors to be a one-time affair. Trust is an effective method for reducing social complexity, especially in the absence of rules and regulations (Gefen et al., 2003). Therefore, as also indicated above by Lee and Littrell (2005), trust is critical in an online environment where consumers usually need to depend upon unknown e-vendors who may resort to opportunistic behaviour. The social presence of the website may result in increased customer trust and, in turn, increased purchase intention (Gefen, 2000; Gefen and Straub, 2003). The research of Mahmood et al. (2004) models the impact of trust on a reduction in transaction costs and empirically confirms the importance of trust on Internet shopping in a global setting. Grabner-Kräuter and Kaluscha (2003) suggest that trust consists of both system trust and personal/interpersonal forms of trust. They further advise that the online merchant should pay attention to the design and functionality of the website to enhance both system and interpersonal trust. Virtual communities, independent consumer testimonials, assurance from trusted third parties are useful measures to build trust.

Indeed, the concept of trust is used in most academic disciplines (Kautonen and Kohtamäki, 2006); however, an all-encompassing definition has yet to emerge. According to Coleman (1990) trust needs to be seen in a dynamic situation where consumers have to be voluntarily ready to trust 'others', commit resources and accept delays in evaluating outcomes if any engagement is to take place. From a retail and consumer behaviour perspective, different types of drivers have also been identified. Two main categories exist. Firstly, the utilitarian/functional features involving design factors (layout, colour, borders and syntax); efficiency factors (payment methods, check-out procedures, delivery terms, and contact info/response rate); informative factors (product information, description and price comparator); reliability factors (secure connection, warranty policies and privacy). Secondly, hedonic attributes such as social elements (recommendations, published testimonials of other users, and brand); lifestyle cues (reputation, loyalty programmes, chat areas and entertainment); and emotional catalysts (control, flow of excitements, and being a good shopper feeling) (Merrilees and Fry, 2003) are entailed. Both elements are mediated by the trade off between immediate disclosure of often personal information with the long-term potential positive outcome (Hoffman et al., 1999).

In addition, models of e-trust have to be integrated within the context of the past and current off-line experiences. While trust models should not compete against each other, there should be a clear re-enforcing strategy between the retailer's different channels. Trust is often based on cognitive common sense, conventional views of the retail world, household routines (for example multitasking, number of individuals, local context) and conative

personal perspective (for example risk averse-lover, level of optimism, access) (Koehn, 2003). Moreover, e-trust, in our second sourcing context, particularly depends on the overall attitudes and motivations of the consumers. There seems to be an in-built inherent trust issue in buying (a) innovative heterogeneous new products not always available everywhere; (b) from a legal but parallel source without any clear regulatory framework; (c) using novel points of references; and (d) using third anonymous party certification. Here, we argue that trust depends on the idea of meriting respect, mutual gain and thrill (for example low price, beating government taxes, and being an innovator or somehow cool). The decision about the channel in our case is often taken before going online, diminishing the need for certain aspects/factors of trust described above. Trust is a dynamic concept evolving rapidly due to the nature of the channel and buyers' motivations. Grey market sellers seem to have developed models on the side of: (a) more rather than less; (b) their own testing and grading system; (c) an advanced tracking system of product origin including country or manufacturing site; (d) different search philosophies such as lowest price, reputable seller, product quality/uniqueness, delivery and placement method. Prior to purchase, front loading trust activities are undertaken. These often include multiple contacts, review of any changes in sellers' ratings over time and longer product information searches. The latter is often described as a proxy to consumption of the experience and initial trust building appraisal. Another emerging aspect, in our context, seems to be the realization and integration that at some point something will necessarily go wrong but should not necessarily discourage trust in the channel or even the seller (bad reviews do exist!).

CONSUMER BEHAVIOUR AND GREY MARKET E-SHOPPING

Very few studies have been found to examine the consumers' attitude towards purchasing grey market goods. We still contend that the overall perception will have an impact on trust sensitivity. Most, as KPMG reported in 2003, analyse the problem from an OEM perspective without the inclusion of consumer behaviour. However, there are a handful of studies focusing on consumers' attitudes and responses towards questionable shopping behaviours such as shoplifting, insurance fraud, piracy or counterfeit and what is known as the underground mall (Clarke III and Owens, 2004; Huang et al., 2004; Thomas and Peters, 2006).

Muncy and Vitell (1992) have investigated consumers' attitudes towards 27 different kinds of ethically questionable behaviours and identified four dimensions of consumer ethical judgements:

- actively benefiting from an illegal activity,
- passively benefiting at the expense of the seller,
- actively benefiting from a questionable action,
- no harm/no foul.

Influenced by their research, Fukukawa (2002) explored the underlying construct of ethically-questionable behaviour with the theory of planned behaviour and identified attitude, social influence, opportunity and perceived unfairness as the antecedents. Institutional trust perception is added to the debate as aspects of its legality have not been clearly approved/disapproved and it is often tolerated by the establishment in power (McKnight et al., 2002). In Albers-Miller's (1999) review of determinants of consumers' decisions to participate willingly in criminal behaviour, price advantage is found to motivate the consumers to engage in aberrant behaviour, whilst fear of criminal penalty is found to deter such behaviour. Situational elements may also affect the decision in illicit or unethical consuming behaviour; specifically, peer support of behaviour encourages participation whilst peer rejection of the behaviour serves as a deterrent. For a good overall review of the issues see Belk et al. (2005). The concepts of 'self trust' and perception by others seem quite important in this context. Here, trust will be taken in a historical context where future players are expected to settle the legal justification without contention. Chan et al. (1998) analyse the specific situation of Chinese consumers in Hong Kong while Al-Khatib and Vitell (1995) provide a wider analysis of the understanding of ethics in developing countries.

CHINESE CONSUMERS' DECISION-MAKING STYLES AND TRUST

Sproles and Kendall (1986) conceptualize eight basic characteristics of consumers' decision-making styles and develop the Consumer Style Inventory (CSI) to measure them empirically. The eight proposed decision-making style dimensions are: perfectionism/high-quality consciousness, brand consciousness, novelty-fashion consciousness, recreational shopping consciousness, price-value consciousness, impulsiveness, confusion from over-choice, and habitual and brand loyal shopping consciousness. The usage of CSI is generally confirmed by the findings from several cross-cultural or country-specific decision-making style studies (Tai, 2005) including Fan and Xiao's (1992) work in China. Four dimensions, namely quality conscious, brand conscious, fashion conscious and recreational, were proved to be more applicable in different countries (Hui et al., 2001).

Relating the above to our main trust concept, we expect the placing of trust in an 'other' to be undertaken with great caution and after a long trial period. According to Cheskin Research (Teo, 2004), mainland Chinese consumers have a higher experiential orientation, that is they prefer examining merchandise physically before purchasing; however, experiential oriented customers tend to avoid online shopping (Chang et al., 2005). Therefore, face-to-face transactions and cash on delivery are more welcomed in mainland China than online shopping (Teo, 2004). Here, online in the case of second sourcing, the distinction between trust(worthiness) as a moral attribute and trust(worthiness) as mere reliability will require further investigation.

The survey of Sternquist et al. (2004) on the dimensionality of price perceptions reveals that Chinese consumers have a very strong and negative perception of price, which could be partially explained by the cultural and historical setting. Typical factors include value consciousness, prestige sensitivity, price consciousness, sale proneness and price mavenism. Chinese consumers are also at a turning point in their history, which includes the dilemma of saving or spending (Lane and St Maurice, 2006). Li et al. (2004) suggest that at the current level of economic development and the limited marketing environment, Chinese consumers are more task-related, more rational, more conservative in their spending, and more utilitarian or functionally oriented in their buying decisions than those from more economically developed societies (Lane and St Maurice, 2006). A shift from the traditional social structure and rules needs to be undertaken to re-define trust in the context of one's own network and expected achievement. Besides, Chinese traditional culture cherishes the virtues of thrift, diligence and value consciousness and discourages a hedonic lifestyle. Therefore, it is socially desirable to save money, to be prudent and watchful in making a purchase, and to search for basic and functional alternatives whenever possible. However, Gong et al. (2004) indicate that the rapid economic modernization accompanied by the profound cultural transformation has brought young people a different set of values. They are now inspired by individuality and self-expression; they are becoming more pragmatic, educated and cosmopolitan; the new media habits and new information sources make the young people in China 'worship' the western brands and have an increasingly high brand consciousness and status consciousness. In summary, it can be said that while traditional Chinese conventions are not favourable to online trust, the situation seems to be changing rapidly as the new generation's access to e-information improves. This leads to trust being considered more as an objective measurable characteristic than as an emotion laden choice, involving conflicting goals of personal importance.

METHODOLOGY

For the purpose of the study, a small-scale empirical study was put into place. Ten in-depth telephone interviews were conducted with online shoppers of grey products. Here online shoppers refer to those who have searched for product information, browsed online stores' categories and completed the purchase of grey products at least once in their lives. Themes probed were designed to reflect overall online trust, the beliefs about or the value perceptions of the grey market, the consumer decision-making process and second sourcing trust building capacity. The usual themes covered in the literature such as integrity, competence, trust stance, situational normality, structural assurance, benevolence, competence, willingness to depend upon someone were explored (the full interview guide is available from the authors upon request). To recruit the respondents, notices were posted in the forums of IT168.com and Taobao.com. IT168 is one of the largest technical websites in China which provides a professional and comprehensive shopping guide for IT/digital products. Taobao is reported to be the second largest online auction website in China.

Shoppers were selected randomly from the pool of volunteers on the basis of different age groups, including one person of 18, four aged from 19 to 24, three from 25 to 30, and another two of over 30. Four interviewees were female whilst six were male, being selected to reflect the distribution of gender among online shoppers in China. Respondents were from five municipalities and provinces (Shanghai, Beijing, Fujian, Hubei and Hunan). For the analysis we preferred to use the traditional manual coding in that having the data coded by a computer programme did not fit our methodological strategy at the outset of the study. We read the transcripts several times and tried to code the data under general categories, making a few links and connections. We aimed to get an in-depth understanding of trust issues in online shopping practices, and for this purpose we needed to get familiar with each case. In this endeavour, the methodology of 'case study' research, as understood in educational research (Stake, 1995) was a heuristic tool. After the detailed analysis 'within case' (Huberman and Miles, 1994), we started the thematic analysis 'across cases' using 'framework analysis' and 'grounded theory'. Following the relevance of Jones' experience of analysing unsolicited experiences with 'framework analysis' (Jones, 2000), we decided to apply the key stages involved in this type of qualitative data analysis (Ritchie and Spencer, 1994) in the same way. It is important to mention that the identification of general themes started with discussions with all research team members in general meetings. Later, the final analysis involved re-reading data, and the re-working of the categories was a process of agreement achieved by different observers. This was a way

to review the reliability of our data (Goodwin and Goodwin, 1984; Punch, 1988; Silverman, 1993). One of the limitations of this study is the very dynamic and changing aspect of the grey market, linked to the fact that China has a very large and diverse population.

RESULTS AND DISCUSSION

While the common themes already identified in past research such as price, IT skills, access to online payment methods and the site's overall presentation were present, the results presented below only focus on specific aspects found in our second sourcing context that are linked to trust building practices.

Online Trust Building

Respondents have mixed feelings regarding traditional trust factor evaluations such as ease of product appraisal, time saving and convenience. Yet they recognize that it is faster and easier to get multiple objective or neutral product descriptions and more information from the Internet.

There are not only descriptions from the official websites, other people's comments and experiences can also be considered as a useful reference: you could never expect the manufacturers or salesperson to tell you the shortcomings of the product, but other users would. (Wang)

Time taken to select a reliable seller is an important aspect of the trust building evaluation process. But it is mentioned as fun, and the reward of possessing a relatively rare product is highly valued. Part of the trust evaluation is related to the intangible risk perception, which is still the major construct with a negative impact on consumers' decisions to buy grey products online or offline. The risks mostly mentioned by the respondents are functional product risks which include the quality of the product itself, accordance with expectation, warranty and resale value.

Talking about the colour 'blue', what kind of blue, is this 'blue' the blue you like, or is this some nasty blue you hate? (Wang)

The photos and descriptions sometimes do not match the item condition. (Debra)

What I am concerned most about on the bulletin board is the warranty and sincerity of information. (Victor)

Two respondents (Wang and Victor) have even spent up to two months evaluating trust and risk before purchasing. Respondents admit that if they do not receive the items after the money has been sent, they could do very little about it. They seem, however, to be generally happy to take the risk and feel that they are better prepared for deception. Privacy issues and system security were not yet significant trust concerns for our interviewees. Here, we see trust in a dynamic setting where iterative purchases lead to higher trust development understanding.

Two-way communications with the sellers helped the consumers to build trust in the reliability and sustainability of the online sellers and get a feel about possible post-purchase service if needed.

Their salespersons in the forums are not only selling the products, they are actually answering questions, giving advice, and testing new models for other users. (Victor)

The interaction with the virtual community was also presented as a key element of trust perception. Leaving feedback and being able to participate fully in forums was highly valued as being truly part of the global online community. Here, peer-to-peer sites and e-forums were particularly important, representing a new dynamic aspect in the definition of trust. Access to experts or people that have tested the product was a welcome function but also reassurance that respondents were doing the right thing. Here again, they felt that the site 'owners' were people like themselves or could be considered as 'trusted distant friends'. They were perceived to be using the same language, not hiding information or pushing for a sale but providing better product choice than authorized channels. Lastly, trust in the system was demonstrated by the fact that respondents were happy to buy 'grey products' as presents for a family member or when requested to do so by parents.

Trust Building in Online Second Sourcing Model

Respondents may not have much technological awareness about the particular grey products they bought but somehow have learned to identify cues to allow them to trust the web. Many respondents would refer to the feedback scores and comments left by other buyers. Some have built up their trust by observing the posts in the bulletin boards of the sellers, or of technical websites for a while. Some would need more communication with the sellers either by chat, email or telephone.

I chatted with salespersons from both forums, chose the one that seemed more reliable to me and then called him. (Jade)

As I said, they have three bricks-and-mortar shops in three cities. I called each store by phone to verify it. And in the forums, there are many users that went to their shops to buy products. The products, prices and services have been confirmed by most of the users. (Victor)

Recommendations from friends and by word-of-mouth were crucial trust influencers of purchase intention for grey products. Here the sharing of experiences was quite important and parallels to EBay's auction site were drawn – where you sometimes get caught paying too much due to lack of experience (for example including P&P and insurance, and country of origin of seller), because of the 'game excitement' side of auction sites or due to limited availability. Trust in oneself to say no or stop the transaction was revealed.

As for grey market-related financial risk, many of the respondents avoid it by a face-to-face final transaction or through a third-party payment tool. Here, overall Internet structural assurance is high and trust seems to be an important component of this market's dynamics.

I think when I decided to buy from grey market I was already prepared to take the risk. (Tong)

Responsiveness was important when consumers have to choose one grey seller from a full page of candidates, sometimes mixing with legitimate sellers. Some interviewees responded that a more personalized service is available from grey product sellers than from the authorized e-tailers and retailers (compatibility testing, software upgrade), as grey product sellers usually handle questions and orders on a one-to-one basis. Also, more advice and specific requirements could be asked of the sellers – such as a detailed comparison between the latest models, options on the specifications, and possible price negotiations.

The sellers are not just trying to sell their products, they, as active members of the forum, usually discuss the technical issues with other members, answer questions of others, provide useful information on topics of common interest topics. (Wang)

Sellers themselves had tested the quality before acquiring the goods (that they fully own) and advised the buyer of other options, or the risk with certain models, increasing trust leverage in their favour. This was also the reason why all products were not necessarily available on any given site.

CONCLUSION: BRINGING IT ALL TOGETHER

Chinese respondents appear to be brand conscious in their choice and trust evaluation. They either have one favourite brand or have several preferred

brands which are mostly well-known multinational enterprises (such as IBM, Nokia, Samsung, Sony, BenQ, Fuji, Sharp, Motorola and Clinique). Some believe that prestigious brands represent excellence and trust even if products are obtained through the grey market. When asked whether they have thought of buying a cheaper local brand, respondents gave the answer 'no'. Most grey products bought were the latest branded models, which shows that respondents may also be novelty-fashion conscious. Having the same product but from a better perceived country of origin also appear to be important in overall trust building perception. Taiwan and South Korea were often mentioned as preferred countries in that sense. Shoppers here display a clear global approach to shopping, access and information search that is not yet taken into account by most e-companies.

In addition, from mapping our Chinese respondents' trust building behaviour for grey products, four clear main comments that differ from traditional e-shopping models can be found. First, trust mediators are multifaceted and agent/interface dependent. Each of the stakeholders has developed a coping mechanism that enables a second best approximation of trustworthiness of the other actors. There is a need to assess trust in context. This is reflected in the importance of negative/contradictory reviews that allow, in effect, the development of a more objective perception, which could not be obtained similarly offline. There also seems to be a requirement for a relative win-win situation to be both sustainable at the channel level and to share power, trust and control with other participants. Second, trust does not take place in a vacuum. In our case, we have identified steps that each add precision to allow the completion of both practical and hedonic aspects of the transaction process. Some offline prerequisites are present, such as an awareness of the sourcing model, computer skills, and initial brand/product knowledge that need to be dimensionalized within the online channel and made explicit through the service offerings of the sellers. Each step of the trust building process needs to be clearly associated with an online action engagement and commitment. This is conducted in a non-linear fashion, allowing stakeholders to adapt to the market requirement. Implementation and delivery of cues depends mainly on the seller and consumer abilities to communicate clearly their definition of confidence. Here, e-atmospherics have a particular significance in enacting positive assurances. Third, in this context purchase failure is actually separated from overall trust failure. At some point, it is expected and already accepted that some of the trust steps will be overlooked or poorly assessed, leading to a fiasco that should not, however, have long-lasting effects. We situate ourselves here in the context of a multiple/re-purchase dynamic over time. Fourth, we also found emerging evidence of the importance for cognitive and affective models such as the stimulus organism response (SOR) model

and the theory of psychological reactance (Brehm and Brehm, 1981; Donovan and Rossiter, 1982; Russell, 1979) which could be applied to further unpack some of the deeper meanings of trust.

Many commentaries regarding grey market activities put their emphasis on teaching consumers to distrust grey products from officially sourced products. News and many media comments also emphasize the poor quality of grey products, lack of warranty, and/or support contact, which make some consumers flinch at the grey market. We have demonstrated that trust is a multifaceted concept which, in the case of grey products, reflects differently the usual online cues of trust. Consumers, through the information provided online, have developed ways of tracking trust dynamics. They have realized that nowadays goods are better made and have to pass rigorous quality standards before they leave the OEM's factory.

Important trust enhancing drivers have been identified as:

- tracing fully the provenance of goods
- informing/feedback of both pros and cons to customers through seller and person-to-person
- sourcing and testing goods from certain countries/factories that carry a premium
- being informed of real novelty such as marketing testing zones for newly-developed products, limited editions, personalization opportunities
- having access to stock where manufacturers underestimate demand or voluntarily ration the market (for example the Sony Playstation 2 console)
- sorting programming glitches or compatibility problems

An interesting phenomenon is in place whereby consumers use a global medium to source goods that are often in effect produced locally but not made available in the Chinese home market (this situation has applied in the past in Japan and other production-oriented societies). Many online sellers present themselves as expert service providers and to some extent are able to provide a warranty. They understand and use the medium much better than 'clicks and bricks' shops. They test and source products directly for consumers 'on demand' and lead consumers through the links – making the Internet a truly two-way communication channel.

These results can also be interpreted as indicating the regaining of consumer power and control over information that was not previously accessible. Trust in and confirmation of oneself as a good shopper is a rewarding and empowering position for many consumers. Moreover, Chinese culture and to some extent the new emerging Internet culture rests greatly on

kinship and relationships. People traditionally rely on word-of-mouth communication from in-group (online forums) and family members, therefore, whenever one consumer has a satisfactory experience of purchasing grey products online and subsequently using them, thousands of potential new purchasers will know of it and there is then a greater chance of them switching, and trusting grey products online. In effect these consumers are pioneers in forcing a shift in the global governance structure of the commodity chain. In so doing, they are re-conceptualizing and re-negotiating the meaning and remit of trust online.

NOTE

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5. Effect of gender on trust in online banking: a cross-national comparison

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INTRODUCTION

The growing use of the Internet has given rise to a variety of electronic commerce applications in business. Electronic banking is seen as one of the most successful business-to-consumer applications in electronic commerce (Pousttchi and Schurig, 2004). The Internet banking services currently available range from mere checking of one's account balance to a full range of banking services – from personalized financial information menus to online brokerage (Centeno, 2004). At its best, Internet banking creates benefits for both bank and customer, but 'the cost of introducing the new technologies, risk management, fraud, security measures and acquiring new customers are the main obstacles to achieving profitability in the short and even medium term' (Centeno, 2004, p. 300). Hence, Internet banking has also suffered from the lack of consumer acceptance (Liao and Cheung, 2003; Littler and Melanthiou, 2006).

Among the most significant factors both in consumer attitudes and behavioural intention to use Internet banking is the concept of trust (Aladwani, 2001; Suh and Han, 2002). Trust is a prerequisite in the creation and maintenance of long-lasting and profitable customer–firm relationships (Grönroos, 1999; Morgan and Hunt, 1994; Sirdeshmukh et al., 2001). Trust is even more important for e-commerce due to increased vulnerability, that is, higher risks in online transactions and a lack of consumer awareness of the actual risks (Gefen, 2000; Wang and Emurian, 2005). This is particularly the case in Internet banking, as the service compels customers to trust the web retailer with their personal financial information (Suh and Han, 2002), which could have dire consequences for the customer (Kim and Prabhakar, 2004). The reliability of Internet services remains a current issue and the increasing need to enforce trust building strategies calls for

continuous research on the determinants of consumer trust. Prior research has found that the use of online services is gender-bound so that women perceive online shopping to be more risky (Garbarino and Strahilevitz, 2004). Moreover it has been discovered that in online banking, the typical customer is male (Karjaluo et al., 2002; Cruz and Munos, 2004). These findings support the further examination of possible gender-based differences in consumer online trust in the Internet banking context. The possible identification of gender-based differences in the attitude toward Internet banking services may provide banks with valuable data that can easily be utilized in targeted marketing communications.

The focus of this research is to study the role of gender in trust formation as well as to provide a cross-national view on the determinants of consumer trust in Internet banking by examining consumer perceived trust among Finnish and Portuguese Internet banking customers. Portugal represents a Mediterranean late adopter of Internet banking, while Finland is a Nordic early adopter of new technologies. These countries are also quite asymmetric in terms of culture, and hence offer a representative sample of European consumers. Therefore they form a good base for cross-national comparison exploration concerning Internet banking.

Following Yousafzai et al. (2003) this study contemplates consumer trust in Internet banking from two perspectives: trust in the bank and trust in the integrity of the transaction medium, that is the Internet. Trust in the retailer is mediated through the website (Wang and Emurian, 2005), where the provision of information is in a key role (see for example Liu and Arnett, 2000). Thus, in this study, trust in the bank is formalized as trust in the information offered.

Next there follows a discussion on recent findings on consumer trust in online environments and Internet banking, with emphasis on trust in the information and the Internet channel. Additionally, the possible influences of gender anticipating differences between the sexes are discussed. The latter part of the chapter describes the empirical study and reports the results of the study. Finally, the research findings are discussed, and a consideration of the study limitations as well as future research interests are provided.

DETERMINANTS OF CONSUMER TRUST IN INTERNET BANKING

The Bank and Service Channel as Separate Objects of Trust

The definition of trust has two implicit dimensions: trust in a specific entity, in which the information provided is a central issue, and trust in the

reliability of the Internet infrastructure, indicating the co-existence of both behavioural and environmental perceptions about trust (Kim and Prabhakar, 2004; Yousafzai et al., 2003). Trust in electronic transactions relies heavily on customer-perceived reliability of the Internet infrastructure (Pavlou, 2001). Consumers feel trust towards a transaction when they believe that the Internet bank and the associated infrastructure are able to protect their personal information during transmission and storage. On the other hand, trust is a product of competence and trust-building processes (Doney and Cannon, 1997) in a specific entity. The information provided is related as a central issue in the success of electronic commerce (Liu and Arnett, 2000) and Internet banking as well (Jun and Cai, 2001).

Consumers' initial trust in the electronic channel has a mediating effect on the adoption of Internet banking (Kim and Prabhakar, 2004). Yousafzai et al. (2003) identify privacy and security as the main antecedents to consumer trust in electronic banking. Both are highly dependent on reliability of the Internet infrastructure. Privacy is often understood as control over secondary use of information (Hoffman et al., 1999), that is, it implies the perceived ability of the vendor to protect consumers' personal information, collected during the transaction, from disclosure or unauthorized use (Cheung and Lee, 2001).

Security on the other hand relates to environmental control, which in e-banking comprises customers' concerns with security threats such as hackers and information theft (Hoffman et al., 1999; Yousafzai et al., 2003). Liao and Cheung (2003, p. 249) claim that due to the open nature of the Internet, transaction security will emerge as 'the biggest concern among the e-bank's (actual and potential) account holders'. Adequate security measures are needed because if consumers doubt the online service provider's ability to guarantee a certain level of privacy and security, they may decline to engage in the transaction relationship (Hoffman et al., 1999; Mukherjee and Nath, 2003). Moreover, confidentiality is often linked to Internet banking security (Liao and Cheung, 2002). According to Gerrard and Cunningham (2003) the question of confidentiality arises when Internet banking customers doubt the privacy of their financial affairs and financial makeup. Sufficient confidentiality necessitates that the payment details, that is payer, payee, account numbers, amounts, date and time must not become known to electronic observers able to monitor network traffic (Tsiakis and Sthephanides, 2005).

With the absence of face-to-face interactions resulting from the role of the salesperson being replaced by the website (Järvenpää et al., 1999), customers of electronic commerce are mainly dependent on the website as the main source of information. This poses additional challenges to trust

building. If it is assumed that an Internet banking customer only communicates with his or her bank over the Internet, then the bank's website is the primary means of trust building. The website is a critical determinant of online trust and attractiveness of electronic commerce (Koufaris and Hampton-Sosa, 2002; Liu and Arnett, 2000; Wang and Emurian, 2005). A successful website in electronic commerce 'attracts customers, makes them feel the site is trustworthy, dependable and reliable and generates customer satisfaction' (Liu and Arnett, 2000, p. 24). The content of the web page also affects customer-perceived Internet banking service quality (Jun and Cai, 2001). In prior research, consumers' trust in the supplier has been linked to the honesty and accuracy of the information (Doney and Cannon, 1997; Koufaris and Hampton-Sosa, 2002). Another critical dimension of trust in the information is the completeness and relevance of the information provided. If consumers feel they are not able to obtain all the information needed about the service or product they may eschew the use of electronic commerce transactions (Ba, 2001). Hence trust-based marketing, that is, providing customers with accurate, up-to-date, complete and unbiased information will become the main determinant of success for businesses operating in the Internet (Urban et al., 2000). Relying on the earlier literature, consumer trust in Internet banking is operationalized in this study as a reflection of consumer *Trust in the medium* and *Trust in the information*.

The Role of Gender in Online Consumer Behaviour

Consumer online trust formation is also likely to be mediated by the personal characteristics of the customer. Prior research has studied the effect of consumer demographics in the acceptance and use of online services. One differentiating demographic factor in online consumer behaviour is gender. Studies have indicated that online usage is male-dominated (Karjaluoto et al., 2002; Shiu and Dawson, 2004) with men being dominant both in online usage and purchase (Shiu and Dawson, 2004). Moreover, a typical online banking user is a relatively young man with high income and good education (Cruz and Munos, 2004; Karjaluoto et al., 2002). Women have been found to perceive more risk in buying online than men (Garbarino and Strahilevitz, 2004), which might explain the gender differences in online buying behaviour. Earlier studies on consumer trust, however, have not been able to show any gender differences (Kolsaker and Payne, 2002). Yet, the existence of gender-based differences in other areas of consumer online behaviour also supports the study of gender issues in online trust perception. Based on earlier findings on consumer acceptance of electronic commerce the following hypotheses are made:

H1: Consumer trust is lower among women than men in regard to Trust in the medium

H2: Consumer trust is lower among women than men in regard to Trust in the information

H3: Consumer trust is lower among women than men in regard to Overall trust in Internet banking

METHODOLOGY AND RESULTS

In light of the earlier literature, consumer trust in Internet banking was measured in this study by *Trust in the medium* and *Trust in the information* (Kim and Prabhakar, 2004; Kivijärvi et al., 2007; Yousafzai et al., 2003). *Trust in the medium* is formulated using three items, namely privacy, security and confidentiality, based on the works of Cheung and Lee (2001), Liao and Cheung (2002) and Pavlou (2001). The measure for *Trust in the information* has two items: The first measures the accuracy of the information provided, based on the studies by Koufaris and Hampton-Sosa (2002), Doney and Cannon (1997), Liu and Arnett (2000), and Urban et al. (2000), and the second is related to the completeness and relevance of information based on the works of Liu and Arnett (2000), McCole (2002) and Urban et al. (2000).

The data was collected by using Internet questionnaires. The Portuguese questionnaire was online at a major Portuguese retail Internet bank from 15 April to 18 April 2003. The questionnaire was available to 10 029 active private customers on the condition that the customer had had at least 10 connections to the service during the previous three months. Altogether, 754 (without missing values) complete observations were collected. The Finnish questionnaire was placed in the log-out page of a major Scandinavian bank's online service in Finland. It was online from 30 May to 1 June 2005. The questionnaire was prearranged to open up for every fifth visitor (c. 88 000) during that time. However, due to the pop-up blocking function of several web browsers the questionnaire opened up for 23 995 customers of whom 2675 completed the questionnaire. Altogether 2167 (without missing values) responses were collected to the items related to Trust. Nine-point Likert-type questions were used in both the Portuguese and Finnish questionnaires (Appendix 5.1).

Sample Description

In the Portuguese sample the predominant sex was male (65.6 per cent), whereas the case was the opposite in the Finnish sample (37.2 per cent

male). The Portuguese sample included relatively younger users compared to the Finnish sample, the percentages of those under 40 years of age being 71.4 per cent and 50.6 per cent respectively. In spite of the differences, both groups represented relatively experienced users since nearly half (43.4 per cent) of the Portuguese respondents had more than two years' experience of using the service and in the Finnish sample nearly half (45.3 per cent) of the respondents had used the service for more than five years (Appendix 5.2). The difference might be partly due to the year of implementation of the study, since the Portuguese sample was collected in 2003, whereas the Finnish sample was collected in 2005. In both countries the majority of participants connect to the service at least once a week. In the Portuguese sample the most frequent user group by occupation was entrepreneurs, managers and executives (35.6 per cent) whereas in the Finnish sample the most frequent user group was the white-collar worker (30.4 per cent). The majority of both groups had secondary level education; the percentages being 58.6 per cent in the Portuguese sample and 52.7 per cent in the Finnish sample (Appendix 5.2).

Data Analysis

Using Lisrel software, a confirmatory factor analysis was carried out in order to verify the constructs unidimensionality, reliability and internal validity. The acceptable fit and the model validity (reliability, convergent and discriminant validity) reveal that a single model provides a reliable and parsimonious representation of the *Overall trust* in the Internet banking services for both countries.

From the confirmatory factor analysis we concluded that the constructs are free from multicollinearity (Tolerance = 0.79; VIF = 2.99) and that the reliability and validity analysis showed acceptable results: Cronbach's Alphas and Composite Reliability were greater than 0.7 and extracted variances greater than 0.5 (Hair et al., 1998). The convergent validity is guaranteed by significant t-tests (critical ratios greater than 2) and the discriminant validity was verified through Fornell and Larcker's (1981) test. The structural model shows a good fit (Chi-Sq = 241,125; df = 4; p = 0.000; CFI = 0.965; GFI = 0.967; RMR = 0.80; NFI=0.964) and the standardized direct effects coefficients are shown in Figure 5.1.

Trust is defined as a second order construct manifested in *Trust in the information* and *Trust in the medium*. The structural coefficients show that *Trust in the information* plays a central role in the trust structure (standardized structural path = 0.92). For consumers, trust in an electronic service like banking seems to be reflected directly and intensively by the accuracy and completeness and relevance of the information provided.

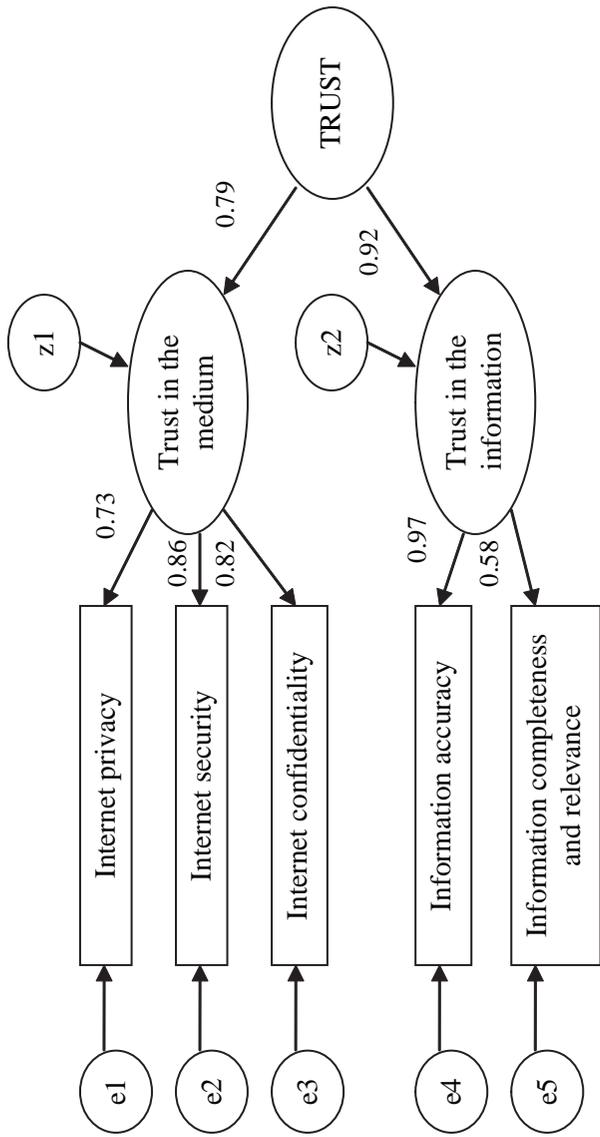


Figure 5.1 Structural model (standardized solution)

Table 5.1 Trust variables: descriptive statistics and difference tests between countries (non-parametric test)

	Country	N	Mean	Std. Deviation	Std. Error Mean	Mann-Whitney U (Sig. 2-tailed)
Internet privacy	Portugal	754	8.2003	1.53436	.05588	.000
	Finland	2167	7.9534	1.38090	.02966	
Internet security	Portugal	754	7.5796	1.54942	.05643	.000
	Finland	2167	7.9059	1.28181	.02754	
Internet confidentiality	Portugal	754	7.2613	1.83211	.06672	.000
	Finland	2167	7.8408	1.38553	.02976	
Information accuracy	Portugal	754	8.0279	1.34807	.04909	.000
	Finland	2167	7.8200	1.37478	.02953	
Information completeness and relevance	Portugal	754	7.4814	1.67959	.06117	.000
	Finland	2167	6.8772	1.79403	.03854	
Trust in the medium*	Portugal	754	1.0001	.02965	.00064	.672
	Finland	2167	.9998	.02862	.00104	
Trust in the information*	Portugal	754	.5760	.02890	.00062	.000
	Finland	2167	.5813	.02645	.00096	
Overall trust*	Portugal	754	-.0014	.02890	.00062	.000
	Finland	2167	.0039	.02645	.00096	

Note: * The structural scores of *Trust in the information*, *Trust in the medium* and *Overall trust* were obtained by structural latent scores using Lisrel 8.54.

Trust in the medium is determined, in order of importance, by security, confidentiality and privacy.

In order to compare the two countries, and additionally to explore the gender differences, some structural scores for *Trust in the information*, *Trust in the medium* and *Overall trust* were calculated using the software Lisrel 8.54. From Table 5.1 we can verify that for all variables and constructs, except for *Trust in the medium*, there is a significant difference between Finland and Portugal. *Internet Privacy*, *Information Accuracy* and *Information Completeness and Relevance* rate significantly higher for Portuguese respondents. On the other hand, *Internet Security*, *Internet Confidentiality*, *Trust in the Information* and *Overall Trust* rate significantly higher among Finnish respondents.

Assuming that the constructs are representative of the original variables, we have explored their differences by gender between these two European

Table 5.2 Construct differences within countries by gender (non-parametric test)

Country	Construct	Sex	N	Mean	Mann-Whitney U (Sig. 2-tailed)
Finland	Trust in the medium	Male	801	1.0005	.442
		Female	1309	.9998	
	Trust in the information	Male	801	.5757	.950
		Female	1309	.5764	
	Overall trust	Male	801	-.0017	.943
		Female	1309	-.0010	
Portugal	Trust in the medium	Male	495	.9981	.010
		Female	259	1.0030	
	Trust in the information	Male	495	.5791	.001
		Female	259	.5855	
	Overall trust	Male	495	.0017	.001
		Female	259	.0082	

countries. A Mann-Whitney U was computed and the significance levels revealed no significant differences for the Finnish male and female consumers. Portuguese women demonstrated systematically significantly higher levels for the three constructs (Tables 5.2 and 5.3).

Comparing directly all categories of gender and country with an ANOVA test, the *Trust in the medium* construct did not demonstrate significant differences. Female Portuguese registered higher levels for *Trust in the information* and *Overall trust*, confirmed by a post hoc inspection (Table 5.4).

Results

Regarding the perception variables of Trust, it can be seen that all responses revealed high levels for all variables. Respondents were active users of the Internet banking service, so the Trust threshold had already been achieved.

Some significant differences among the two countries were noted. The Portuguese participants showed a significantly higher level of trust for the two variables for *Trust in the information* but a lower level for *Trust in the medium* variables (except for privacy). However, for the overall construct of *Trust in the information*, the Portuguese had lower trust levels than their Finnish counterparts. Finns also exhibited higher *Overall trust*.

The structural model obtained for both countries fitted well and the reliability analysis showed acceptable values, revealing a common Trust structure

Table 5.3 Gender differences (one-way ANOVA test)

Constructs	Sex	N	Mean	ANOVA (sig.)
Trust in the medium	Finnish male	801	1.0005	.274
	Finnish female	1309	.9998	
	Portuguese male	495	.9981	
	Portuguese female	259	1.0030	
Trust in the information	Finnish male	801	.5757	.000
	Finnish female	1309	.5764	
	Portuguese male	495	.5791	
	Portuguese female	259	.5855	
Overall trust	Finnish male	801	-.0017	.000
	Finnish female	1309	-.0010	
	Portuguese male	495	.0017	
	Portuguese female	259	.0082	

Table 5.4 Gender difference test: multiple comparisons for Trust in the information and Overall trust (post-hoc Tukey HSD)

Gender differences	Sig.
Trust in the information	
Finnish male	Finnish female .982
	Portuguese male .215
	Portuguese female .000
Finnish female	Portuguese male .364
	Portuguese female .000
Portuguese male	Portuguese female .025*
Overall trust	
Finnish male	Finnish female .982
	Portuguese male .215
	Portuguese female .000
Finnish female	Portuguese male .364
	Portuguese female .000
Portuguese male	Portuguese female .025*

Note: * The mean difference is significant at the .05 level

formation, despite the fact that different levels accounted for most of the variables. None of the hypotheses are corroborated by the findings. First of all in Finland no gender differences were found in regard to any of the Trust constructs. In Portugal the findings were contrary to the hypotheses 2 and 3,

as women actually reported higher trust than men. For *Trust in the medium* there were no gender differences between Portuguese men and women.

CONCLUSIONS

Customer-perceived insecurity when shopping online has become one of the most important obstacles to the growth of electronic commerce (Korgaonkar and Wolin, 1999; Wang and Wang, 1998). Electronic banks operate with sensitive financial information but are a solid business success in electronic markets. This paradox proves that electronic banking has gained the users' trust and shows some tendencies to the rest of the electronic commerce forms. This chapter provides information on the determinants of consumer-perceived trust among the Internet banking customers in two nations and contributes to the changing role of gender in determining consumer behaviour online.

The data exposed a second-order structural model for Trust in the e-bank context, manifested in *Trust in the medium* and *Trust in the information*. For both countries Trust is reflected more in the information of the entity than in the medium. Information accuracy and security are crucial variables for their respective construct. Compared to the Finnish sample, Portuguese users reveal a significantly lower expression of security, indicating that some urgent communication strategies are needed. Since security technology available is a source of Trust, the banks must convince the user that it is so (Karjaluoto, 2002; Pardo, 1999; Rosenberg, 1998; Subias, 1999). Trust must be gained by education and marketing strategies (Karjaluoto, 2002). According to Karjaluoto et al., (2002), in Finland, due to a concerted communication strategy among banks, the Internet channel is considered safer than ATMs. This might be one reason for the differences on *Overall trust* registered among Finnish and Portuguese users.

The results also show that for Portugal, sex is an applicable segmentation variable given that it was discovered that Portuguese women registered higher levels for *Trust in the information* and *Overall trust*. A communication strategy should prioritize Portuguese men in order to enhance their intensity of *Trust in the information* provided by the bank. There are only a few studies focusing on gender-based differences in consumer online trust, and these propose somewhat contradictory results. For example Kolsaker and Payne (2002) found no differences between the sexes in their concerns for trust, defined as security, confidentiality and integrity. They suggest that one reason why there were no differences between sexes is that women are increasingly using the Internet and thus there is a convergence of attitude. The present study supports this view as women in the

Portuguese sample showed higher trust levels than men in regard to some items. The gender gap is constantly closing, and women are increasingly using the Internet through their participation in work activities outside home. The findings of this study partially indicated that the identification of gender-based differences in consumer online behaviour in prior studies may not hold true in regard to consumer online trust. The finding that gender differences are non-existent (in the Finnish sample) and with women being even more trusting of Internet banking than men in some respects (in the Portuguese sample), partially disproves earlier research findings, and suggests that the gender-based view should be updated. The results indicate that in Western societies the importance of gender roles is diminishing and the consumption behaviours of men and women are becoming more alike. This calls out for further studies to examine whether gender differences are also narrowing in other areas of online services.

There are some limitations evident in the study. The comparability and generalization of the results may be affected by the two-year time span between the data collections. The Portuguese data was collected in 2003 and by the time of the Finnish data collection in 2005, some development, both in technologies and general adoption of e-commerce, may have occurred. Furthermore, in this study current Internet banking users were used as reference groups, biasing the study vis-à-vis the banks' customer population as a whole. The results indicated rather high trust levels across respondents but, taking into account the reference group, it should be recognized that lack of trust could still be a critical barrier to those who have not yet adopted Internet banking services. To obtain a more comprehensive picture of the whole population, similar studies should in future be carried out with non-users in order to measure the trust levels of potential customers.

Hence future research is needed to maintain an updated record of customer perceptions regarding the trustworthiness of Internet banking. This is important because trust has been identified as a significant factor both in consumer attitudes toward, and behavioural intention in using, Internet banking (Suh and Han, 2002).

There is a need for future investigation of the role of culture in the propensity to trust. The results of this study suggest that some cultural differences may be found in consumer online behaviour. The banking sector provides an interesting area for studying cross-national differences in consumer trust in electronic services, as trust itself has been acknowledged as a major concern for electronic banking customers, and with banks increasingly operating in international markets, the need to understand cultural influences on consumer behaviour becomes salient for market success.

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APPENDIX 5.1 THE MEASUREMENT SCALES

Consumer trust	Sources
Trust in the medium: (1 – strongly disagree to 9 – strongly agree)	Cheung and Lee (2001) Liao and Cheung (2002)
Internet privacy: I trust that my bank doesn't allow any third party to access my personal information without permission.	Pavlou (2001)
Internet security: The banks implement Internet security measures that protect its clients.	
Internet confidentiality: The banks ensure that an information transaction is protected during a connection.	
Trust in the information: (1 – strongly disagree to 9 – strongly agree)	Doney and Cannon (1997) Koufaris and Hampton-
Information accuracy: I believe in the information offered by the bank.	Sosa (2002) Liu and Arnett (2000)
Information completeness and relevance: The bank's web page offers all the relevant information about all products and services.	McCole (2002) Urban et al. (2000)

APPENDIX 5.2 DEMOGRAPHIC PROFILE OF THE RESPONDENTS

Variable	Category	Portugal		Finland	
		Frequency	% from Total	Frequency	% from Total
Sex	Man	495	65.6	806	37.9
	Woman	259	34.4	1.318	62.1
	Total (valid)	754	100.0	2224	100.0
Age	18 – 29 years	267	35.5	530	24.3
	30 – 39 years	270	35.9	574	26.3
	40 – 49 years	126	16.8	494	22.7
	50 – 59 years	71	9.4	431	19.8
	> 60 years	18	2.4	151	6.9
	Total (valid)	752	100.0	2.180	100.0
Time using the service	6	78	10.3	41	1.9
	6–12	105	13.9	63	2.9
	12–24	244	32.4	208	9.5
	2–3 years	327	43.4	301	13.8
	3–5 years			581	26.6
	>5 years			988	45.3
	Total (valid)	754	100.0	2.182	100.0
Frequency of use	Few times a year	7	.9	10	.5
	1 – 3 times per month	10	1.3	892	40.9
	Once a week	654	86.7	992	45.5
	Daily	83	11.0	288	13.2
	Total (valid)	754	100.0	2.182	100.0
Occupation	1	100	13.3	487	22.9
	2	156	20.8	461	21.7
	3	228	30.4	648	30.4
	4	267	35.6	533	25.0
	Total (valid)	751	100.0	2.129	100.0
Education	1: Primary	21	3.7	193	8.9
	2: Secondary	332	58.6	1.138	52.7
	3: University	222	37.7	830	38.4
	Total (valid)	575	100.0	2.161	100.0

Note: Occupation: 1: housewives, students, unemployed, retired; 2: industry workers, services and commerce; 3: white-collar workers; 4: entrepreneurs, managers and executives

6. Online auctions: a review of literature on types of fraud and trust building

Fahri Unsal and G. Scott Erickson

INTRODUCTION

The number of global Internet users had reached 1.1 billion (17 per cent of the world population) by early 2007 with 207 per cent growth from 2000 to 2007 (Internet Usage, 2007). Given such growth rates, online activity will continue to increase dramatically in the next decade, and individuals will use the Internet for a variety of purposes including email, chat, research, video communication, online banking, electronic commerce and online auctions.

In the United States, where electronic commerce is most prevalent, the total value of online purchases in 2006 was estimated at \$109 billion US dollars by the Census Bureau (Retail EC, 2007). This was a 23.5 per cent increase from 2005, a much higher growth rate than the 5.8 per cent increase in retail sales in the bricks-and-mortar environment. One should note, however, that online sales still account for only 2.8 per cent of total sales. Still, rapid growth in Internet access and electronic commerce is also occurring in many developed countries such as Canada, Australia and many Western European countries. Although e-commerce activities are less common in developing countries because of culture, low credit card ownership and general distrust in online buying, rapid growth should occur during the next few decades, as affordable Internet technology becomes more readily available and users become more comfortable with the concept.

A common classification of electronic commerce is based on the relationship between participants. These include business-to-business (B2B), business-to-government (B2G), business-to-consumer (B2C), consumer-to-consumer (C2C) and several other variations. These business models, except C2C, can all be applied to online sales through electronic catalogues at fixed prices. But one can also apply them to online auctions of different

types. In reverse auctions, there is a single buyer and many potential sellers, with price decreasing throughout the bidding process. This model is very common in B2B auctions. Alternatively, a number of businesses catering to consumers, including the Disney Store and Hooked on Phonics, have realized that online auction is rapidly becoming a large sales channel for them. Others have found that online auctions can be a very cost effective way to 'recycle' returned goods. Recently Sears started selling returned merchandise on eBay and reported that it actually made more money listing items on the auction site than it did by discounting them in local stores.

In forward auctions of this sort, with a single seller and many potential buyers, the selling price increases through successive bids until the bidding time expires. This model is very common in B2C and C2C auctions, and it is sometimes used in B2B auctions as well. In recent years, there has been a merger of B2C, C2C and B2B auctions where anyone, whether business or individual, can list items for auction, and both can also bid to purchase products. The auction site acts only as an intermediary, offering neither fraud-prevention guarantee nor assurance of product quality for buyers. As a result, the possibility of fraud is higher in these types of auctions, as opposed to pure B2B or B2C auctions or selling through electronic catalogues, where the sellers can be certified. In spite of higher risks, online auctions are one of the most successful Internet business models. In fact, online auctions were estimated to account for 29 per cent of all electronic commerce in 2002 (Kaiser, 2003). In 2006, the most popular auction site, eBay, generated consolidated net revenues of 6 billion US dollars, a 31 per cent increase over the \$4.6 billion generated in 2005. Consolidated net income increased 4 per cent year over year to \$1.1 billion (eBay Financial, 2006).

This chapter will examine the forward auction model as it is applied to the consumer markets. Much of the analysis will apply to both B2C and C2C auctions but is often especially pertinent to the latter. We will evaluate the risks of participating in these types of auctions, as well as ways to minimize said risk. We will argue that consumer trust in both the auction site and individual sellers on the site is essential for success. Consequently, we will also discuss trust-building activities, especially those unique to the auction situation, those designed to build trust in individual participants.

ONLINE AUCTIONS: BACKGROUND

Electronic auctions started in 1995 when Pierre Omidyar created the world's first auction site, AuctionWeb, renamed eBay in 1996. His purpose was to create a marketplace for the sale of goods and services for individuals. eBay

took off immediately and remains the preeminent online B2C/C2C auction site in the US. The business model provides advantages to all parties involved in the exchange process. For the seller, the model created increased revenues, eliminated expensive intermediaries, lowered transaction and administrative costs, and created an environment for optimal price setting. For the buyers, the model created opportunities to find a greater number of unique items and collectibles at lower prices (Cameron and Galloway, 2005). Anonymity, convenience, and the entertainment value of participating in the bidding process were other advantages for the buyers. The e-auctioneers could also benefit through placement and other fees collected, higher repeat purchases, and through affiliate marketing (Turban et al., 2006).

After eBay established that demand existed, Amazon and Yahoo also entered the picture as did many other speciality auction sites. At these sites, consumers can benefit through access to a much more diversified product mix with potentially lower prices. But online auctions have their disadvantages too, in the form of potential fraud and other risks. Risk is a major reason why more people do not yet participate in online auctions. Trust in the seller becomes one of the most important issues in an online B2C/C2C auction site. Consequently, it is critical for businesses looking for a piece of this market to understand what it takes to be successful. Numerous competitors have failed. Many online auction sites have shut down or merged with others during the last few years, including SandCrawler.com, FirstAuction.com, and Auctions.com. Only those companies that create a unique model, gather a substantial network of users, know what buyers and sellers are looking for in an online auction, and establish trust are able to survive.

In spite of the obvious attractions, B2C/C2C auctions do have some issues. Initially, it is very difficult to bind one identity to one trader. In other words, the sellers in online auctions can remain anonymous or change their identities easily (Ba and Pavlou, 2002) since a freely available email address is a sufficient identifier at many sites. Despite some norms and regulations, there are few well-established institutional rules and contracts to control online auction transactions, giving rise to opportunism under the cloak of anonymity. One of the most common frauds is a seller collecting payment without intending to deliver the goods to the buyer. Unlike the traditional transaction environment in physical stores, this separation of payment and delivery in online auctions contains more perceived risk for buyers. Another potential problem with online auctions is the impossibility of inspecting goods before bidding, so consumers have to rely on electronic descriptions without physical access to the product (Macinnes, 2005). Hence, additional risks exist because of the potential for sellers to provide incomplete or distorted information. Consequently, earning and building

potential buyers' trust is one of the major issues in B2C/C2C auction activity (Strader and Ramaswami, 2002), similar to but even beyond what is faced in B2C e-commerce.

These risks are not just theoretical. In 2005, according to the National Consumer League's (NCL) National Fraud Information Center, online auctions were at the top of the fraud list with 42 per cent of the consumer complaints (Internet Fraud, 2005). Such complaints might have been much higher (an estimated 71 per cent of the total complaints) if eBay had not removed the link on its website to NCL's fraud centre in the autumn of 2003. These statistics clearly suggest that there is a huge need to study and understand the potential risks and remedies of online C2C auctions.

CONSUMER RISKS IN ONLINE AUCTIONS

Any online interaction poses certain risks, including deceptive identities and misrepresentation, failure to fulfil exchanges, and common computer-related mischief-making such as spamming, loading worms or trojans, and other such actions. As one moves into business transactions, however, there are usually protections, including the established reputation of branded firms, certifications of businesses by outside agencies, and customer feedback. The unique issue with online auctions, particularly those including a strong or exclusive C2C component, is that there are trust issues, not only with the website organization, usually a business that can be evaluated by standard means, but also with the individual buyers and sellers acting on their own behalf and in their own interest. Evaluating the trustworthiness of unknown individuals, especially without a face-to-face evaluation, is problematic.

Information asymmetry, two opposing parties without the same information, is probably the main reason for the fraud threat posed by online auctions. During C2C auctions, both buyers and sellers can take anonymous identities via email addresses easily obtained from multiple free sources. Moreover, the products sold may have uncertain quality. The lack of interpersonal interactions that one would find in traditional marketing such as face-to-face transactions, eye contact, and a handshake increase the chance of fraud (Ba et al., 2003). Neither side necessarily has full information about the identity of its counter-party or the quality of goods, and the check of face-to-face interaction limits the ability to personally assess trustworthiness.

For the purposes of risk analysis, one might study an online auction as a four-stage process with different types of risks at each stage. These stages are summarized in Table 6.1. During the first stage, the user enters an

Table 6.1 C2C auction process

Stage	Risks
Registration	<ul style="list-style-type: none"> • Turning over personal information • Allowing combination of surrendered information with collected information
Bidding	<ul style="list-style-type: none"> • Distribution and sharing of information with third parties • Misrepresentation of merchandise • Shilling • Additional charges • Buyers lured offsite • Triangulation (stolen merchandise)
Purchase	<ul style="list-style-type: none"> • Non-delivery of goods • Escrow service fraud
Feedback	<ul style="list-style-type: none"> • Manipulation by seller • Volume vs. value basis

auction site and registers. This registration turns over some information directly and allows the auction to add further data as the individual participates in auction activities. Amazon, for example, collects information on consumer payments, search terms, emails, items purchased, home address, credit card numbers and other types of information at various stages. The 'privacy notice' at the Amazon site states collected consumer information may also be used by affiliated businesses it does not control, third party service providers, for promotional offers and in business transfers. Privacy International recently investigated eBay and Amazon in the United Kingdom after complaints that they have either disabled or obstructed the deletion of customer accounts. After conducting its own research, Privacy International lodged a complaint with the UK Information Commissioner, requesting a formal investigation (Privacy International, 2007). The information provided by consumers may immediately create privacy risks for the individuals involved. Even when a consumer only visits an auction site (in fact any website), even without a purchase or bid activity, data can be automatically collected through cookies and other means, and such information may later be misused or distributed without their consent or knowledge.

Obviously, if actual bidding or purchase activity takes place, even more data is subject to collection and combination. Thus, it is important for consumers to carefully read and understand the privacy policy of the site that is visited. Many, of course, do not.

During the second stage of the auction process, the consumer faces additional risks. Initially, one might be attracted to an item with fake photos or

a misleading description. For low-cost/lower risk items, the buyers usually accept the information provided to be accurate and start bidding. When buying expensive art pieces or other pricey merchandise, the buyer is well advised to use authentication services and/or appraisal services to reduce the risk of outright fraud. When bidding on even higher ticket items such as land, property and antique cars, physical inspection is probably warranted. Secondly, buyers may face shilling activity, wherein a seller puts up an item for sale on an online auction and then bids up the price either by assuming a different identity or by employing associates. This practice lures the unknowing buyers into bidding higher than they would have. Even if buyers fail to respond, the sellers lose little, only the auction fees. They buy the item themselves and list it again at a later time. Under a similar scheme, the sellers could become subject to fraud as well. Through bid shielding, the buyer places a low opening bid followed by a phantom high bid, discouraging other bidders. At the last second, the high bid is retracted, and the low bid wins.

Thirdly, the winner of a bid is charged unexpectedly high shipping and handling charges, increasing the total cost of the item purchased. A variation occurs with the seller promising priority/express shipping, collecting the fees, but then shipping the product using regular mail. Fourthly, during a bidding process that might last several days, potential buyers might be lured via email (from the seller) into leaving the legitimate auction site by offering the same item at a lower price elsewhere. If the buyer accepts such offers, any protections provided by the auction site will be forfeited. Fifthly, a triangulation (Curry, 2007) scheme usually involves a seller auctioning a new brand name item much below normal price (for example a computer that normally sells for \$3000 is offered at \$1500) to the winning bidder. No payment is demanded until the buyer receives the product and approves it. The buyer is instructed to send the money via Western Union or similar money order service if s/he likes the product. Otherwise, the buyer is advised to return the product, no questions asked. How fair and how safe can you get? The bidder happily agrees, receives the product (a new brand name computer in original packaging) and sends payment. Having made a great purchase, the buyer enjoys the new computer for a few days until the police come knocking on his/her door! S/he then realizes that the seller ordered the computer from a company with a stolen credit card and had it shipped to the winning bidder's address. The buyer is now charged for credit card fraud. So, one also has to worry about buying stolen goods, pirated or counterfeit goods (such as music CDs, videos and computer programs), facing false identities, receiving incorrect contact information and a number of other types of deception. Even so, the risks continue to mount at the next stage, after one wins the bidding.

During the third stage of the auction process, the payments are made and products are shipped. The obvious risk from a consumer's point of view is making the payment and not receiving the product. At eBay, the buyer is encouraged to use the in-house system, PayPal, to make payments, taking advantage of PayPal's dispute resolution mechanism and insurance. Standard eBay transactions paid with PayPal are fully covered up to \$200 US dollars, with certain qualifying eBay transactions covered up to \$2000. This protection program helps the buyer recover funds if a seller does not deliver or significantly misrepresents an eBay item (PayPal, 2007). In some instances, when the item purchased is rather expensive, the buyer might want to spend even more and use an escrow service (Antony et al., 2006) for protection. When using an escrow service, the buyer mails the payment to the agency, then the service notifies the seller to ship the product. Once the buyer receives the item and is satisfied with it, s/he will inform the escrow service to release payment to the seller. Currently, almost all major online C2C auction sites either provide their own escrow services or have alliances with companies such as escrow.com and safebuyer.com (Hu et al., 2004). But even here, in a seemingly straightforward activity, some potential fraud exists. Once the item is won at the end of the bidding period, a buyer might be approached by fake escrow companies that promise better service/lower cost than the ones listed on the auction site. The buyer can be lured by the fake service, send payment, then lose both the funds and products purchased.

The fourth stage of the auction process is when the buyers rate the sellers and provide feedback for future buyers specific to the seller. Here, too, there is room for fraud. Some sellers will create very high, though inaccurate ratings for themselves, providing a false sense of trust for potential buyers. The basis for feedback may also not include all pertinent information. This topic will be discussed in more detail concerning feedback and customer opinions.

In conclusion, note once again that there is lots of room for fraud during and after online auctions. Buyers can be taken advantage of during registration and follow-on data collection, during the bidding process, during purchase and delivery, and during after-sale service. Buyers must read the details and not to jump into offers that seem to be too good to be true. Buyers should also take advantage of the trust-building mechanisms available to them.

MECHANISMS FOR BUILDING TRUST

As mentioned earlier, many online auction sites were created after 1995 and only a few remain as major players. A partial listing of the remaining auction

sites for the United States (US Auction, 2007) and a similar list for the UK can be obtained at the links provided (UK Auction 2007). Net Top 20.com, on the other hand, lists the most successful auction sites in the United States, with eBay top-ranked, as expected, followed by uBid, Bidz.com, Yahoo auctions, MSN auctions, and Amazon auctions (Top 20, 2007). Research indicates that, in general, an auction site is better off when it offers many items rather than a few. This might be one of the reasons why eBay is so successful, the network effects accruing to a site that has the most buyers and the most sellers. Sites that specialize in a particular product, however, might be successful as well if the uniqueness of their offerings, their perceived service quality and their trustworthiness is high. The auction site uBid, founded in 1997 and specializing in electronic products, is a good example of this. It operates one of the largest online auction sites in the United States, offering new, closeout, overstock and refurbished merchandise to both consumers and businesses through a trusted auction style and fixed price format. The company claims 'uBid.com offers consumers a trusted buying environment, eliminating potential fraud by certifying all its merchants and processing 100% of all transactions between buyers and sellers' (uBid, 2007). Unlike eBay, uBid operates in a B2C environment and has the luxury of certifying every merchant that sells on its site. Trust, then, might be the competitive advantage for uBid. Consumers, however, will normally evaluate an auction site in terms of several other variables beyond trust including the availability of a wide range of products, a large network of users, informative pages, interactivity, ease of participation, search and navigation functions, on-time delivery, shipping fees and other costs, notification services, customer service, dispute resolution mechanisms, payment options and security, and sense of community. Even so, trust in the organization remains the most important factor in attracting and retaining participants.

As noted earlier, trust may take on an elevated importance in electronic commerce due to the spatial and temporal separation imposed between buyers and sellers, as noted earlier (Luo, 2002). An Internet transaction typically does not involve the simultaneous exchange of money and goods like a traditional brick-and-mortar transaction. Instead, product and payment are transmitted from different locations at different times. This situation creates a lack of faith reported as the main reason why more consumers do not yet shop online (Hoffman et al., 1999). Many consumers remain unwilling to engage in online relationships involving exchanges of money and personal information. Only when dealing with a trusted e-business will consumers experience less concern about improper access to their private data, improper information collection or improper monitoring (Wang and Emurian, 2005), and they are more likely to participate on those auction sites, in particular, in which they have trust (Park et al., 2004).

Some researchers (Strader and Ramaswami, 2002) have argued that buyers should have more confidence that they will safely receive the products purchased through an online auction. C2C sellers can help consumers develop trust, and it is one of the most important factors influencing whether the seller is chosen. A buyer's trust is positively related to the buyer's length of relationship with the auction site (Kim and Ahn, 2006). Due to the fact that members never see a physical store, it is critical that the site itself fosters trust from the beginning. Online members need to be assured that their personal information will be kept private and that they will receive the product purchased. Concerning the former, there are various encryption techniques in use in the online marketplaces to protect customers' information. Thus, building trust in e-commerce requires a clear definition of trust (Koehn, 2003), rigorous standards for security, data protection and transparency of data use (Grabner-Kraeuter, 2002).

Traditional marketing has shown the importance of user interactivity. Customers who perceive recognition, responsiveness, and other interactive factors are more likely to become loyal buyers. Relationships begin the moment the customer enters the parking lot and include interaction with other customers and employees. Face-to-face interaction with the customers is the main factor in establishing interactivity in traditional marketing. Since an online auction site does not include face-to-face interaction, other methods of interaction need to be utilized. These include the web address being simple to remember, ease of use at the site, appealing design of the website, and interaction with other members and employees. Consequently, it is important for the online auction site to facilitate interactivity through recognition, responsiveness, feedback mechanisms, online forums, online chats, and other methods that enable communication between all parties involved. In addition, the auction site should provide an infrastructure that allows the buyers to use other third party services such as escrow services, product evaluation and authentication services, and payment services (Pavlou and Gefen, 2004).

Trust Seals

The website design itself can communicate trustworthiness in a number of ways. The design quality, professional appearance, and navigational clarity convey respect for customers and an implied promise of good service. Typographical errors, misspellings or difficult navigation communicate an unprofessional approach and disregard for users. In addition, up-front disclosure of all aspects of the customer relationship including shipping charges, insurance policies, payment methods and dispute settlement

mechanisms also help. Finally, links connecting the buyer to the rest of the web for information, for locating certified appraisal and authentication services, and escrow services are also desirable.

Satisfied with the appearance, an informed consumer might then read the site's privacy statement. What kind of user information is being collected? How does the firm use it? Does it share its consumer databases with others? What happens to the database if the firm ceases its operation? What happens to the database if the firm is purchased by another firm? These are important questions for all consumers. Only a small number of consumers actually read and try to understand privacy statements, however, and might instead simply look for third party certification. Online seal programs help to build consumer confidence regarding privacy and security. Examples include TRUSTe, MasterCard, Visa and BBBOnLine. If an online business adheres to certain principles mandated by the seal organization, it is allowed to display a special seal of approval on its website. TRUSTe is dedicated to building consumers' trust and confidence on the Internet and, by doing so, to accelerating the growth of electronic commerce (TRUSTe, 2007). A similar approach is Better Business Bureau OnLine, designed to affirm to consumers that participating online companies will safeguard their personal information (BBBOnLine, 2007).

An examination of the eBay homepage indicates that none of these seals are displayed perhaps because of its status as the market leader and its brand recognition. A similar examination of uBid.com, on the other hand, reveals the presence of 'BBBOnLine', 'TRUSTe', 'Verisign Secured', 'Bizratecom', and 'Trust uBid' seals at the bottom of the entry page. Each can add to the perceived trustworthiness of the auction site. If the site visitor clicks on the BBBOnLine seal, s/he is taken back to the BBBOnLine site with the following note: 'UBID, Inc. meets all BBBOnLine Reliability participation and Better Business Bureau membership standards and is authorized to display the BBBOnLine Reliability seal. This company has been in business since 12/01/1997. This company was approved for BBBOnLine Reliability on 12/21/1998' (BBBVerification, 2007).

VeriSign takes a slightly different approach, guaranteeing that transactions are completed in a secure environment and verifying the identity of the seller as shown below: 'This Web site can secure your private information using a VeriSign SSL Certificate. Information exchanged with any address beginning with https is encrypted using SSL before transmission. UBID INC has been verified as the owner or operator of the Web site located at www.ubid.com. Official records confirm UBID INC as a valid business.' (VeriSign Verification, 2007).

The BizRate.com seal on the page provides the users with uBid's third party customer satisfaction statistics based on a ten-point scale. Finally, the

Trust uBid seal takes the user to 'uBid's Promise of Trust for Our Customers' page where it explains all of its security measures. A potential user visiting the uBid site develops a pretty good feeling regarding privacy and security after reviewing these seals. Research evidence exists, however, that many online consumers are not knowledgeable about privacy and security seals or how online companies qualify for them. Thus, their online activity may not be much influenced by the display or lack of display of such seals (Kimery and McCord, 2006; Moores, 2005).

Payment Methods

At most sites, successful bidders can choose from many options to pay for an item they have bought in an Internet auction. These options include credit cards, online payment services (which often accept credit card payments), debit cards, personal cheques, cashier's cheques, money orders, or escrow services. Whatever the site policies, individual sellers can further limit the types of payment accepted. Many sellers require receipt of a cashier's cheque or money order before they send an item. Higher volume sellers often accept credit cards directly. To protect both buyers and sellers, some auction sites now prohibit the use of wire transfers as a method of payment. Credit cards are a safe option for consumers to use when paying for items bought on an Internet auction; they allow buyers to seek a credit from the credit card issuer if the product is not delivered or is not what they ordered. Online payment services are popular with both buyers and sellers. They allow buyers to use a credit card or electronic bank transfer to pay sellers. They may also protect buyers from unlawful use of their credit cards or bank accounts because the online payment service holds the account information, not the seller. Many sellers prefer online payment services because the services tend to provide more security than other methods.

To use an online payment service such as PayPal, the buyer and seller generally set up accounts that allow them to make or accept payments. Buyers provide payment information, such as bank account or credit card numbers, while sellers can give information about where payments should be deposited. To complete a transaction, the buyer pays the online service (usually by credit card) and instructs it to direct appropriate funds to the seller. The seller then gets immediate access to the funds. Most online payment services charge the seller to receive the funds; some payment services also charge the buyer. As was mentioned earlier, purchases made on eBay are protected up to \$200 (up to \$2000 for some qualified products) if paid via PayPal, providing enhanced security to the buyer.

Some small sellers accept forms of payment that are cash equivalents such as debit cards, personal cheques, cashier's cheques, or money orders.

These sellers often wait to receive the payment (and may wait for a personal cheque to clear) before shipping an item. Buyers should use this type of payment only when they know and trust the seller. Otherwise, given the time/place disconnect discussed earlier, they could lose their money and receive no products in return. Unlike credit cards or some online payment services, cash equivalents and wire transfers cannot be reversed if something goes wrong. That is why FTC recommends that buyers do not transfer money directly to the seller's bank account or transfer funds through money transmitters such as Western Union. Of course, for big-ticket items like computers, cars or jewellery, buyers should consider using an escrow service or purchasing from a bonded or insured seller to protect their transaction.

Feedback

Feedback is emerging as a promising approach for building trust in online auction environments because it allows other potential buyers to review the seller's past transactions to assist trustworthiness (Weinberg and Davis, 2005). Previous buyers submit evaluations of their personal experience with sellers, building up a database reflecting product quality, service quality, and other aspects of the transaction. Buyers pay attention to these seller ratings even when a transaction is insured since the dispute process is not costless (Bruce et al., 2004). Feedback and the resulting email contacts can result in high user interactivity between buyers and sellers, further strengthening trust. Another way to increase interactivity is through the use of community bulletin boards offering participants the opportunity to create relationships with other members. In many cases, community boards assist the participants with problems. For example, if one auction seller posts a question, other sellers can answer the question (Gelb and Sundaram, 2002). This is beneficial to participants and also the auction site, as community members, not employees, take the time to answer the questions. In addition, some companies use the chat rooms and bulletin boards to aid in collecting marketing research, helping to design offerings. Content analysis of the discussions can be used to create more customized offerings. The sites work best when left to members, as auction sites interfering with the discussion might be seen as an intrusion (Siegel, 2004).

Currently, the most popular online auction site is eBay. It dominates the auction industry, with 135 million registered users having listed more than 1.4 billion items in 2004 alone (Brown and Morgan, 2006). Such success probably accrues from its model incorporating all of the key variables that we discussed earlier. These include high user interactivity, networking, broad product offerings, a high level of trust, rapid growth and adoption,

high commitment, and a large number of payment options. Among these, the feedback system it has designed is probably most significant in establishing trust and customer retention (Reichheld and Schefer, 2000). By allowing buyers and sellers of completed transactions to provide observable feedback to one another, eBay enables the good sellers to establish a positive public track record. Such records will attract customers to these sellers; sellers with negative feedback will be ignored. Eventually, sellers with bad records will be weeded out. The sellers with good records, on the other hand, gain repeat customers, and can often charge premium prices because of established trust.

The feedback system at eBay also functions as a tool of buyer and seller retention because of switching costs. An eBay seller with a large number of positive feedback points and the attendant pricing flexibility will be reluctant to move to a competitor site since switching would mean rebuilding its entire reputation. The same argument could apply to the buyers as well, but to a lesser extent, and pertaining more to the system. It is a lot easier for them to buy at multiple sites, but building an understanding of, and confidence in, a competitor system requires some effort.

Although eBay's feedback mechanism served a very useful purpose in the past, there are some challenges ahead as the share of high-ticket items such as vehicles, artwork and real estate sold on its site increases. During 2004, 33 per cent of all transaction value accrued from eBay Motors division, and annual growth was 50 per cent (Brown and Morgan, 2006). When one considers the higher fees earned from such products, it is not surprising that eBay is interested in expanding in this direction. In fact, the 2005 acquisition of Skype, an online voice/video communication service, might signal that this transition is already taking place, since expensive transactions may require more personal communication. As noted earlier, sellers with good reputations would not want to harm their reputation through a bad, low-value transaction since the gains are rather small. However, for a high-price item, even if a seller ruins its reputation after only a single large transaction, the gains from a successful scam might be well worth the cost. This implies that eBay will have to supplement its feedback system with additional methods of trust building in the future if it continues to pursue high-margin items.

A related issue with the eBay feedback system is that it is based on the number of transactions rather than the value of these transactions. After each transaction, the sellers and the buyers may rate each other as 'positive, neutral or negative' where a positive rating results in +1 score while the negative rating results in a -1 score (zero for neutral). These scores are added up for unique users to obtain an average score for the seller (or buyer). There might be a short verbal description regarding the quality of the

transaction as well. Assume a seller has 50 transactions with unique buyers and has received 40 positive, 5 neutral and 5 negative feedbacks. His overall score will be 35 (40–5). One can get this score by selling very minor products (for example 50 postcards at 25 cents each). If that was the case, could one view this person as a very trustworthy seller? When a seller's overall score is viewed, it is difficult to tell how that score was obtained. It is true that one can get a listing of his/her transactions with product descriptions and value of the transaction for the last 90 days. This might provide some additional information to the buyer, but only for the transactions completed within this period. There seems to be a market forming on eBay to increase a seller's feedback points. If this becomes widespread, the feedback system to rate sellers will be much less reliable, reducing trust. As a result, it is important for eBay to assess its feedback system continuously, incorporating new information, such as transaction value, as it becomes pertinent.

CONCLUSIONS AND RECOMMENDATIONS

Like all websites, online auction sites have specific issues with the trustworthiness of the organization behind the site. And like many websites, these issues can be addressed with professionalism, strong track records, user feedback, and third party certification. What are really unique about auction sites, however, are the trust considerations that go beyond the site operator. Individuals buy and sell on the site, so a second level of trust exists, often well beyond the ability of the site owner to control or influence.

From this perspective, what we see in the most successful auction sites are attempts to use not only broad trust indicators relating to the site, but also more specific indicators concerning the specific participants. So, again, the professionalism of the page of a particular seller, strong track records demonstrated through user feedback and statistics (provided by the site operator), and, if possible, third party certification establish credibility for individual participants, and are perhaps even more important. Some auction sites have gone even further. eBay's acquisition and use of PayPal as a means of limiting potential losses by buyers is one example. Others are found in the attempts made by some auction sites to patrol and uncover fraud themselves, effectively certifying the trustworthiness of those listing on their sites.

While government attention is always a possibility when consumer vulnerability exists, the early evidence concerning auction sites suggests that market mechanisms are doing a fairly effective job of letting users patrol themselves. Given the growth of some sites, those that are doing a better

job of establishing their own trustworthiness and that of participants, it seems that users are gravitating to those being proactive and effective concerning trust. Those doing a poor job are being weeded out. With auctions, users at both ends are going to go where they can find the most action (sellers look for the site with the most buyers, buyers look for the site with the most sellers). With the element of trust added to this mix, the most likely future trend will be that the biggest and most trustworthy sites will get bigger until some other means of attracting users and establishing trust comes along.

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7. Consumers' views on trust, risk, privacy and security in e-commerce: a qualitative analysis

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INTRODUCTION

E-commerce has gained popularity among consumers since the 1990s. The domain area is studied in many alternative ways and by multiple disciplines. One of the concepts emphasized in the literature is consumer e-trust (consumer trust in e-commerce). The lack of consumer e-trust is seen to be one of the main reasons inhibiting e-commerce adoption as a part of consumers' everyday life (see for example Jarvenpaa and Tractinsky, 1999; Lee and Turban, 2001; McKnight et al., 2002; Merrilees and Frye, 2003).

Alongside e-trust, several other concepts have emerged in the literature. For example, the concept of perceived risk is associated with trust and some attempts to understand the relationship between the two concepts have been conducted (for example Mayer et al., 1995; Gefen et al., 2003b). Furthermore, the concepts of privacy and security are seen to have a link with the concept of e-trust. For example, Cheung and Lee (2006) stress that Internet merchants should emphasize perceived privacy and security control in order to reassure consumers about their trustworthiness. However, problems exist with the current research. Firstly, some technologically driven concepts related to e-trust, such as privacy and security, are strongly emphasized in the literature. Indeed, privacy and security are important for consumers, but one could raise the question as to why literature emphasizes these concepts so strongly? Are they considered to be so important in explaining e-trust-related phenomena that their considerable position in e-trust research is justified? If so, we argue that a situation like that generates a risk that e-trust research will become too narrow-minded due to missing some other possible aspects, such as consumer-specific issues.

Secondly, although many researchers claim to be interested in consumer e-trust they still focus more on some given features of technology, or on an e-vendor, and then ask consumers' opinions about the trustworthiness of the features, instead of approaching consumers without presumptions. The lack of a consumers' viewpoint may result in too technology- or e-vendor-oriented research, although there is some prior evidence that consumer-related issues such as consumers' personal values (Pennanen et al., 2007) and personality (Tan and Sutherland, 2004) influence consumer e-trust. Thus, we argue that understanding consumer views on e-trust, risk, privacy and security would be beneficial for e-trust research in order to understand the phenomena more broadly.

The aim of our study is to generate an understanding of what meanings consumers give to the concepts of trust, risk, privacy and security and the relationship between the concepts. The aim will be reached through three goals. The first goal is to perform a literature review concerning the four concepts. The second goal is to investigate empirically what meanings consumers give to the four concepts. The third goal is to provide implications for further research based on the integration of our empirical findings and current literature. Achieving these three goals will result in an advanced understanding of the four concepts, which will provide researchers with opportunities for further research.

The chapter is structured as follows. Firstly, the concepts of trust, risk, privacy and security are discussed. Secondly, data collection, methodology, and the analytical approach are introduced. Thirdly, the findings of our study are presented. The chapter concludes with a theoretical discussion and indications for further research.

CONCEPTS OF TRUST, RISK, PRIVACY AND SECURITY

In this chapter a literature review related to the concepts of trust, risk, privacy and security is conducted. Starting with the concept of trust, the four concepts are defined and then discussed in terms of how they are treated in current e-commerce research.

Trust

The concept of trust has been heterogeneously defined by many authors in the fields of economics, social psychology, sociology, management, marketing and information systems (Blomqvist, 1997; Garbarino and Lee, 2003). Perhaps the most widely accepted definition of trust is stated as follows:

The willingness of a party to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party (Mayer et al., 1995, p. 712).

Literature concerning consumer e-trust treats trust as a multi-dimensional construct including three elements: 1) institutional; 2) interpersonal; and 3) dispositional trust (Tan and Sutherland, 2004). Institutional trust refers to an individual's trust in institutions, like the laws in a society or in the case of e-commerce, the technology itself (McKnight et al., 2002). Interpersonal trust refers to an individual's trust in another specific party like an e-vendor or in some third party such as a friend who gives recommendations about an e-vendor (Lee and Turban, 2001; Tan and Sutherland, 2004; Tan and Thoen, 2000–2001). The concept of dispositional trust is based on the research in the area of psychology (Rotter, 1971). Dispositional trust means an individual's ability to trust in general, and is based on an individual's belief that other people are well meaning and reliable (Gefen et al., 2003a; Tan and Sutherland, 2004). The disposition to trust is usually considered to be a personality-driven feature of an individual. That is, an individual's personality determines his/her propensity to trust in general. Furthermore, an individual's disposition to trust may be endogenous or it may develop during life experiences (McKnight and Chervany, 2001–2002).

Consumer Perceived Risks

Consumer perceived risk is defined as a consumer's subjective experience of an uncertain consequence regarding an action the consumer took (Dowling and Staelin, 1994). The concept of risk is multi-dimensional. Traditionally the dimensions of risk include social-, time-, financial- and performance risk (Cox and Rich, 1964). Later, psychological and technological dimensions have been added to the concept (for example Liebermann and Stashevsky, 2002).

The definition of trust starts with the notion that trust is 'the willingness of a party to be vulnerable to the actions of another party' (Mayer et al., 1995, p. 712). This willingness to be vulnerable means willingness to engage in a relationship that includes an element of uncertainty, that is, to take a risk. That willingness ties the two concepts closely together.

According to the literature, trust and risk have three different relationships; 1) a mediating relationship; 2) a moderating relationship; and 3) a threshold model (Gefen et al., 2003b). The mediating relationship means, 'the existence of trust reduces the perception of risk'. On the other hand

the moderating relationship means, 'trust on behaviour is different when the level of risk is low versus when the level of risk is high' (Gefen et al., 2003b, p. 6). More specifically, when the risk is high, trust is relevant. Conversely, when the risk is low, trust is not relevant. The threshold model stresses that 'if the level of trust surpasses the threshold of perceived risks, then the trustor will engage in a risky relationship' (Gefen et al., 2003b, p. 6). This approach is based on the model of Mayer et al. (1995) and implies that when the level of trust surpasses the level of perceived risks then the trustor can engage in a risky relationship.

The main difference between the three approaches is that the first two, the mediating and the moderating relationship, indicate that the relationship between trustor and trustee is already developed and the level of trust and risk varies during the relationship. In contrast, the threshold model indicates that the relationship does not yet exist and the trustor has to exceed the threshold of perceived risk in order to trust. Thus, a threshold model is suitable in terms of initial trust, where the other two explain the variation of risk and trust in developing or mature relationships.

Privacy

The literature includes several definitions of privacy. Privacy can be understood as a legal concept and as the right to be left alone (Warren and Brandeis 1890). Privacy can also mean:

The claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others' (Westin, 1967, p. 83).

Literature offers four basic categories of privacy: information privacy, bodily privacy, communications privacy, and territorial privacy (Davies, 1996). Internet privacy is mostly information privacy. Information privacy means the ability of the individual to control information about themselves. Invasions of privacy occur when individuals cannot maintain a substantial degree of control over their personal information and its use. Privacy protection literature distinguishes two different extremes, which do not appear as such in reality. The first view is to see personal information registers as risks, and the aim is to limit the use of the personal information (Muttillainen, 2006). This approach is the prevailing one at the moment, the threat being higher profile when handling personal information (for example Graeff and Harmon, 2002; Liu et al., 2005) and consumers' continuous online surveillance (for example Kruck et al., 2002; McRobb and Rogerson, 2004; Smith, 2004). The second view is to regard the collection of personal

information in a positive way, the aim being to develop the use of personal information (Muttillainen, 2006). For example, the freedom of movement of information and its benefits to the general public has been emphasized (for example Bergkamp, 2002; Rubin and Lenard, 2002). From the viewpoint of consumer e-trust, privacy can be viewed as the consumer's expectation that an e-vendor will treat the consumer's information fairly (Shankar et al., 2002).

Security

Different threats in e-commerce, like data transaction attacks and misuse of financial and personal information, generate security threats (Cheung and Lee, 2006). Thus, security is protection against such threats (Belanger et al., 2002). Information security consists of three main parts: confidentiality, integrity and availability (CIA) (Parker, 1998). Confidentiality refers to limitations of information access and disclosure to authorized users and preventing access by or disclosure to unauthorized users (ISO/IEC, 2004; Parker, 1998). In other words, confidentiality is an assurance that information is shared only among authorized persons or organizations.

The concept of integrity relates to the trustworthiness of information resources. It is used to ensure that information is sufficiently accurate for its purposes (Parker, 1998). For example, forwarding copies of sensitive email threatens both the confidentiality and integrity of the information, and the idea of security is to secure the information. Availability refers to the availability of information resources. The system is responsible for delivering, processing and storing information that is accessible when needed, by those who need it. An information system that is not available when needed is at least as bad as no system at all. It may be much worse if the system is the only way to take care of a certain matter. Thus, the property has to be accessible and usable upon demand by an authorized entity (ISO/IEC, 2004).

METHOD, DATA COLLECTION AND ANALYTICAL APPROACH

The aim of our empirical study is to investigate what meanings consumers give to the concepts of e-trust, risk, privacy and security. We will especially concentrate on risk, privacy and security from the viewpoint of e-trust. In other words, we will not concentrate on describing how different elements of e-trust manifest themselves in consumers' thoughts but rather how risk, privacy and security express themselves in terms of e-trust.

We decided to adopt a qualitative method, namely a semi-structured theme interview to reach the aim. Furthermore, our decision to adopt a qualitative method is supported by the fact that a qualitative method is useful in a situation where a rich amount of data is needed to generate possibilities to understand the phenomenon as broadly as possible, and to generate new insights (Denzin and Lincoln, 1994; Tuomi and Sarajärvi, 2002). Since electronic commerce includes many different contexts, we decided to conduct the interviews in three different contexts: electronic grocery shopping, electronic health care services and electronic media. The reason for choosing these contexts was that we expected that e-trust, risk, privacy and security would attain different meanings in different contexts. For example, electronic health care services can be assumed to be services where consumers' privacy and data security concerns could emerge more than in the context of electronic media. By conducting the interviews in different contexts, we wanted to gain a wider point of view concerning the four concepts than would be possible by only interviewing consumers in one context.

The data for the analysis was collected during the summer of 2004. Three interview sets altogether included 30 informants. Eighteen of the informants were women and twelve were men. Six were under 30 years old, 20 were between 30–50 years and four were over 50. All of the informants were actual users of the e-service the interviews dealt with; that is, all of the informants in the context of electronic grocery shopping had experience of using an electronic grocery shop. Interviews were held in Finland and the informants were Finnish. All of the informants were ordinary consumers with greater or lesser degrees of experience with ICT.

The informants were recruited by advertising on the websites of a newspaper and an electronic grocery shop, through the mailing list of a local health care district and in one seminar. The duration of the interviews varied from 30 minutes to two hours. The interviews were conducted in the interviewees' workplaces, homes and public places such as cafeterias. The interviews started from a general discussion about the interviewee's background as an e-commerce consumer and continued to a discussion about e-services in the specific area (grocery, health, media). All the interviews were tape recorded and fully transcribed.

The analysis of the empirical material was conducted as follows. First, the transcriptions were read several times. Secondly, the empirical material was sorted according to the themes (concepts of e-trust, risk, privacy and security). Thirdly, in order to clarify the concepts from a consumer viewpoint, we compared the literature and our findings from the interviews. Fourthly, the quotations and our analysis were sent to the informants in order to confirm that we had interpreted their thoughts correctly (see for example Miles and Huberman, 1984).

FINDINGS

In this section the findings of our study are introduced. Starting with consumer perceived risks in e-commerce, we will discuss what meanings consumers gave to the theoretical concepts in terms of e-trust.

Consumer Perceived Risk

In the theoretical part of this chapter, risk was seen as antecedent to e-trust. Next, informants' views on risk in e-commerce are discussed. Also the relationship with e-trust will be discussed. The following quotation illustrates a high risk in e-commerce in general excepting the informant's trust in banks as institution.

Researcher: 'Have you any experience in using e-commerce? Have you ordered or paid for anything via the Net?'

Informant: 'I have not ordered anything . . . paid mostly via the e-bank . . . well, of course it is not the same as ordering products . . .' (female, 43)

As seen in the quotation, the informant has only used bank services via electronic channels. As familiar institutions, banks are perceived as being trustworthy among consumers. It seems that the informant perceives high risks related to e-commerce in general because she has not used any other e-services. Thus, the quotation illustrates the threshold of perceived risks; in the case of a bank, the threshold is exceeded which is not the case in the rest of e-commerce.

Compared to the preceding informant, who used only e-services offered by a trustworthy institution, the next quotation from another informant offers a quite different point of view in terms of risk perception and e-trust.

Researcher: 'Mmm . . . well . . . What is your opinion about e-services that gather your information?'

Informant: 'I do not know. . . I do not really care. It does not stress me, you know . . . If someone knows what I use and has my information.' (male, 30)

What is interesting in the informant's view is that he is not interested in the possible risks included in e-services. The informant is not stressed if his information is available to someone. One possible explanation for the informant's opinion could be high dispositional trust. In other words, the informant does not perceive the risk related to e-service as strongly as some other informants, due to his personality. Furthermore, the informant said that he is 'not stressed' if someone knows what e-services he uses, which refers to a low perception of social risk. More specifically, the informant

does not perceive as risk what other people might think if they knew what e-services he uses.

The next quotation illustrates how one informant perceives risks associated with registration. The informant does not understand why some e-services demand registration. It is interesting that, although she understands that registration is not a bad thing, there still remain some thoughts that something harmful could happen if she registers with the e-service. This could be interpreted as psychological risk, because the informant displays some inexplicable and perhaps irrational fears concerning registration. She mentions that even a domestic e-vendor with a strong brand (Keltainen Pörssi) does not convince her about the trustworthiness of the e-vendor.

Informant: 'I do not generally, I do not know . . . if a service demands registration. In such cases I do not understand why, but I just do not want to register, even if it is the Yellow Pages or Keltainen Pörssi or something like that . . . Then I feel that in some way I am noticed . . . and even though it would not be so horrible if they notice me . . . but somehow I just feel that if I register, then I am attached to that service in some way. And I feel much more comfortable if I can just check the service without joining it . . . And in some services I do not understand what the registration means . . .' (female, 27)

This informant's view is quite interesting from the viewpoint of e-trust. She perceives some risks she cannot explain. In terms of e-trust (and especially e-trust research) this kind of risk perception has been neglected. It seems that the risks of losing money or personal information are not the only worries consumers might perceive in e-commerce, but that other worries exist, such as the one in the previous quotation.

The next quotation illustrates financial risk from one informant's point of view. Due to the risk of losing money, the informant does not want to give her credit card number to foreign companies.

Informant: 'No, I do not want to give my credit card number to foreign companies in any case. It is never a good thing. From a customer's point of view it is always better to charge with an invoice . . . you know, then you can pay it later . . . but I don't know what is the companies' attitude towards the matter . . .' (female, 39)

Furthermore, the informant's thoughts reveal the relationship between institutional trust and perceived risks. It is logical to interpret her unwillingness to use foreign e-services as a perception of high risks (for example, the financial risk as in the quotation) related to foreign e-services. In other words, the informant is not willing to engage in a risky relationship with a foreign e-vendor, that is, the threshold of perceived risk is not exceeded. The next quotation serves as evidence of technological risk.

Informant: 'But I am concerned about how it functions (the e-service) in practice. Is it just like that, you check a box and then the bill comes home or . . .? Then you have to give your personal information . . . addresses and everything . . . You could also put someone else's address . . . That concerns me. . . you know, how it really works in practice. And how trustworthy it is . . . but if I want to buy something, then of course you have to believe that the product will come home in some way . . . you know . . . And when you get the product, then you pay. That is a fair deal.' (female, 27)

The informant perceives risk related to technology. She is not convinced that the ordering system will function properly and she is concerned that someone else could use the technology in some harmful way, such as ordering products using someone else's address. Furthermore, the quotation illustrates the relationship between institutional trust and risk; the informant perceives many risks related to the technology and for that reason she is not willing to use technology to order products.

In terms of time-loss risk, one informant found that she does not have energy to fill in complicated registration forms.

Informant: 'There are many forms for registration: fill in this area, fill in this area, fill in this area, then I don't. I think, let it be. However, I don't have the energy to write my whole curriculum vitae in some registration.' (female, 29)

The previous quotation illustrates the informant's frustration related to the e-vendor's incompetence regarding offering a practical registration form. Her thoughts reveal not only the risk of losing time but also manifest a psychological risk in the form of frustration. In terms of e-trust continuous frustration related to the technology may result in lower institutional trust and interpersonal trust.

Privacy

The third theoretical concept we discussed earlier was privacy. In this chapter, informants' views on privacy are discussed. Furthermore, the relationship between privacy and e-trust is addressed.

Our findings indicate that informants feel strongly about protecting their privacy and are afraid of having it invaded. The invasion of privacy seems to be a serious and frightening concept for many. The following quotation illustrates a common privacy concern: e-mail addresses and personal information can be used for marketing or other purposes without the informant's permission.

Researcher: 'What did you think about this kind of registration?'

Informant: 'Of course, there are always risks . . . Those ads come after that, but few . . .'

 (male, 42)

In general, the informants are reluctant to give their information and they are afraid that their personal information may be used if they do not know the e-vendor beforehand. Nevertheless, the informants also see benefits when they can have more personalized offers from the e-vendors. The next quotation illustrates informants' feelings on the right to be left alone.

Informant: 'Well, I really do not like to visit these sites . . . sometimes, when this kind of mail comes that I have not ordered, I just delete them without opening . . .' (female, 51)

The informant said she does not open email that she has not ordered. Although the informant does not explain why, one could interpret her response as indicating that she perceives some risks related to the unwanted emails. This raises a question; what is the relationship between privacy and risk? For example, if a consumer were to open an unwanted email it could possibly result in a technological risk (virus), a time-loss risk (time is wasted due to the email), a psychological risk (frustration, hurt feelings due to the content of the email), a social risk (due to the socially uncomfortable content of email) or a financial risk (money lost due to some unwanted program in the computer). According to the former examples, privacy could be seen as an antecedent of perceived risk. That is, the lack of privacy may lead to different perceived risks.

The informants were concerned about giving personal information to e-vendors and almost all of them said they sometimes gave incorrect personal information. The following quotation represents one way to ensure privacy.

Researcher: 'Do you give your personal information?'

Informant: 'I cheat.'

Researcher: 'Ok, can you tell me more?'

Informant: 'Well, I write wrong dates of birth and so on. I do not know how long they allow that . . . I have that Hotmail, I use . . .' (female, 45)

The previous quotation is quite interesting. The informant said that she consciously does something to ensure privacy (or to avoid risks). From the viewpoint of e-trust this means that, not only e-vendors, but also consumers may do something to build e-trust. The next quotation also serves as evidence of consumers' actions to build e-trust.

Informant: 'I take this somehow very carefully, for example this bank matter. By the way, I looked at that . . . yeah, it was on the Finnish Broadcasting Network's (YLE) pages. I looked at a kind of manuscript of a program where they tell you precisely about the cheating on the Internet, from everything I have read, so I have understood that you cannot very easily give your personal information out just anywhere.' (female, 57)

The informant's thoughts reveal that she has extended her knowledge related to privacy hazards related to e-commerce by searching for knowledge from YLE's homepage. Thus, one could interpret that the privacy concerns led this informant to do something to alleviate the concerns and build trust in e-commerce. As discussed earlier, e-trust research misses the consumers' viewpoint of the issue, and concentrates more on technologies and e-vendors' features that may increase consumers' perceptions of trustworthiness. However, our findings indicate that consumers also do something to evaluate the trustworthiness of e-commerce, which makes the one-sided view on e-trust questionable.

Security

In the theoretical part of this chapter the concept of security was divided into confidentiality, integrity and availability. In the interviews, confidentiality is mainly a problem when the consumer is afraid of using a credit card due to the risk of intercepting the credit card number. The next quotation illustrates how one informant relies on a familiar brand and her banking systems (not a credit card) in her homeland.

Researcher: 'In this Anttila's (Finnish e-shop for clothes and home goods) order, how does this (payment) happen?'

Informant: 'Well, there is a link to bank services and you can pay it there'

Researcher: 'What do you think about it?'

Informant: 'It is really convenient . . . I like this. However, Finnish services are secure. I would not go to really strange foreign shops. Of course, there are also known shops but . . . everyone cannot give there all of their personal information . . .' (female, 29)

According to the informant, domestic shops handle security more efficiently than foreign ones, which allows the informant to trust domestic vendors. This reveals the relationship between security and e-trust. Security is one way to build e-trust and alleviate risks. What is interesting is that the informant does not consider the security as a strictly technological issue but rather as a concept including emotions (domestic vs. foreign). This raises questions about the real nature of security for consumers. As seen in the literature review, security is obviously considered as a technological construct. But is that the case with consumers? Do they evaluate the security of e-vendor by technology or are their evaluations based on something else? Do they even know about the existence of different standards behind the security systems? As an example, we can consider two e-vendors: one is domestic and does not advertise how they guarantee security. The other is foreign and promotes superior technology related to security. In this kind of situation the

consumer has to make a decision on which e-vendor is the more trustworthy. According to the previous quotation, the emotion related to an e-vendor's nationality seems to be the basis for the informant's decision about security. In terms of e-trust research this contradicts the purely technological view on the relationship between consumer e-trust and security. Although security is related to technology, consumers' emotions, not only the technological constructs to ensure security, may play a role in the perception of security.

According to the informants, viruses generate integrity problems with e-services. The next quotation presents one opinion about information leaking to suspicious third parties.

Informant: 'For some reason, I got e-mail from somebody I have never met, but that happens. There is this risk when there are these viruses and . . . they can come and when many of them are classified documents . . . it is somehow risky . . .' (female, 51)

The informant's thoughts can be interpreted as a manifestation of the relationship between security and perceived risks. More specifically, the informant is not sure about the security of her system in a situation where a virus attacks on her computer. This illustrates a similar situation as discussed earlier. The security aspect is important for consumers but they do not understand it as a purely technological concept. It seems that different emotions are closely tied to consumers' perceptions of security. Security (or perhaps the lack of it) is something that may generate some undefined risks, as seen in the previous quotation, or it could be source of frustration, as our next quotation related to availability illustrates.

Informant: 'I have not been very frustrated with these, but I know many others who are. For example, when you cannot submit some registration or if there is something wrong with the server or your own computer. And the second is: when that Messenger has an update, you cannot go on the net for some time. And when a Windows Update comes to these controls, there are many days when it doesn't work . . .' (female, 45)

The preceding quotations in this chapter illustrated different ways to perceive security. We found that security can be one way to build e-trust and alleviate risks. What is more interesting is that consumers do not seem to perceive the concept of security solely as a technological construct but a concept including different emotions.

CONCLUSION

The above sections have presented consumers' views on concepts of risk, privacy and security in terms of e-trust. The literature considers trust and

risk as human-related concepts, but security and privacy mainly as technical concepts (Furnell, 2004; Siponen and Oinas-Kukkonen, 2007). However, our findings indicate that from the consumer's viewpoint, all these concepts are, at least to some extent, human-related concepts.

In terms of risk, we found several risks that consumers perceived in e-commerce. For example, social, psychological and time-loss risks emerged in our interviews. Although the research conducted in the field of consumer research offers several dimensions of risk (Cox and Rich, 1964; Dekimpe et al., 2000; Loudon and Della Bitta, 1988; Sjöberg, 2002), current e-trust literature does not take these risks into account; the risks related to e-commerce are mainly considered to be a financial risk such as losing one's credit card number or technological risks like viruses. Thus, our findings expand the understanding related to perceived risks and e-trust. Further research could take into account the role of, for example, psychological risk in e-trust.

In terms of privacy, we found that privacy is close to the concept of perceived risk. Our findings indicate that consumers do not perceive privacy as, for example, the right to be left alone but rather as some undefined risk. Thus, we argue that privacy can be antecedent to several risks. For example, giving personal information to some e-vendor may result in losing money or hurt feelings. Some literature from fields other than e-trust indicates similar results. For example, Forsythe and Shi (2003) consider privacy as a dimension of psychological risk.

The fourth concept in this chapter is security. Our findings indicate that consumers do not consider security as a solely technological concept. For example, one informant considered that domestic e-vendors are more secure than foreign ones. Thus the perception of security originated emotionally without technological grounds. Security (or the lack of it) was also perceived as a source of some undefined risk. Thus, it should be understood that consumers' perceptions of security could be the result of emotions, not just the technology or the e-vendor. In terms of e-trust, this means that consumer-related security issues should also be studied more broadly.

Although the aim of our chapter was not to explore consumers' e-trust-related behaviour, our findings indicate that consumers also build e-trust. Some informants reported that they consciously do something to reduce risks and build e-trust. This means that consumers also build e-trust, which makes e-trust a two-sided issue. Previous research reveals some attempts to approach the issue (Pennanen, 2006) but we argue that more interest should be concentrated on the consumers' side of the issue.

At the beginning of this chapter we criticized the position of privacy and security in e-trust research. At this moment it is obvious that security and privacy in e-commerce are important for consumers and that they contribute

to consumer e-trust. What is not obvious is how consumers' perceptions of these concepts are developed (the case with emotions and security) and what kind of consequences the perceptions of these concepts have (the case with privacy and perceived risks). In a nutshell, our findings indicate that there are many more issues that influence consumer e-trust than just security or privacy as understood in the current literature. Furthermore, we found several different risks that consumers perceive in e-commerce. These risks also contribute to e-trust. Thus further e-trust research should widen the focus from technological issues into these human-related concepts.

At the beginning of the chapter, we also raised the criticism that e-trust research is too technology- and e-vendor-specific. Although the aim of our paper was not to explore consumers' e-trust-related behaviour, our findings suggest that consumers also build e-trust. They may consciously evaluate the trustworthiness of an e-vendor or reduce risks they associate with e-commerce in order to trust. Thus, further research should treat consumer e-trust as a two-sided issue; both consumers and e-vendors may build trust.

More qualitative research is needed. At this moment in time, most of the e-trust research is quantitative or conceptual in nature. At the current stage of e-trust research, qualitative research could be used to elicit more issues related to the phenomenon of consumer e-trust. Qualitative research methods may help researchers to understand the variety of concepts related to e-trust. When the nature is understood, the outcomes of future quantitative studies may also be divergent. In addition, qualitative research has particular value when used to investigate complex and sensitive issues. For example, our study indicates that e-trust is not a homogeneous context to consumers. Instead, to reach the concepts which are connected to consumers' everyday practices, e-trust needs to be discussed with concrete practical cases in restricted contexts – such as e-banking, e-transactions with a long-standing vendor, and casual internet purchasing.

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PART TWO

Trust and mobile media

8. The mediating effects of privacy and preference management on trust and consumer participation in a mobile marketing initiative: a proposed conceptual model

Michael Becker and Michael Hanley

INTRODUCTION

In recent years the adoption of mobile phones and associated voice and data wireless services has swelled, a trend that does not seem to be slowing. Today, there are more than 227 million mobile subscribers in the United States (75 per cent of the population), up from 208 million in 2005 and 182 million in 2004 (CTIA, 2006), and more than 2.5 billion mobile subscribers worldwide. In many industrial countries it is commonplace to see mobile penetration rates exceeding 100 per cent. Current predictions estimate mobile subscriptions to surpass 3.5 billion worldwide by 2008, with much of the growth coming from emerging markets.

The growth trend of mobile services adoption has not been overlooked by marketers. Many marketers have recognized that engaging consumers through the mobile channel with personalized, informative and entertaining mobile and mobile-enhanced, traditional media marketing initiatives (Bauer et al., 2005; Becker, 2005; Leppäniemi et al., 2006) can be an effective means of increasing brand awareness, lead generation and revenue. Mobile marketing is no longer a fad; it is here to stay. Mobile marketing programmes will proliferate as more marketers employ mobile and mobile-enhanced traditional media programmes (Becker, 2005) to engage their target audiences. Gerry Purdy, a leading mobile industry analyst, notes that ‘the most important medium for advertising in the 21st century is going to be the cell phone, not print media, not billboards . . .’ (Purdy, 2006).

Marketers are also beginning to recognize that the mobile channel far surpasses any other marketing channel’s ability to capture consumer data for the purposes for marketing and consumer profiling. As Fish (2007) points out:

our mobile device is not only with us, it is increasingly part of us; it has become for many users the most personal thing. The mobile device . . . can capture your 'Digital Footprint,' which is our daily actions and activities – when we start moving in the morning, what information was searched, requested or delivered, where we have been, where we stayed and for how long. Relationship analysis using our contact base would detail who we were with and who was nearby. Other 'Screens of Life' will be unable to repeat this data collection feat, at best a fixed access Web model may get 10 per cent of the available data of your daily pattern, TV maybe 1 per cent, but the mobile device opens the possibility of 90 per cent.

Consumers are increasingly demonstrating a willingness to use their mobile phone for a broad range of mobile services, such as TV voting, polling, and alert services; however, there is increasing evidence that consumers, in part due to a realization that an extensive amount of their personal data may be collected through the mobile channel and potentially misused by marketers, are showing a concern for their privacy when it comes to engaging or being engaged through their phone (Hanley and Becker, 2007; Mobile Marketing Association, 2006). This then raises many questions. For instance, how might marketers alleviate consumer privacy concerns in order to increase consumer participation in mobile marketing initiatives? In turn, should this participation lead to increases in brand awareness, initial and repeat sales and customer loyalty?

This chapter will attempt to answer these questions, provide an overview of mobile marketing, review the four primary tenets of privacy and preferences management, and explore the concept of trust. A conceptual model will be presented that proposes a possible relationship between the constructs of trust, consumer acceptance and participation in mobile marketing, and privacy and preferences management. Implicit within this proposed conceptual model is the hypothesis that consumer participation in a firm's mobile marketing programme may be increased when consumer trust in the firm is enhanced through the firm's offering of a clearly communicated and industry best practices-compliant privacy and preferences management programme. The model further stipulates that increased consumer acceptance of and participation in a firm's mobile marketing programmes will lead to increased consumer brand awareness, customer loyalty, and initial and repeat sales of the firm's products and services.

AN OVERVIEW OF MOBILE MARKETING

The Mobile Marketing Association (MMA) defines mobile marketing as 'the use of wireless media as an integrated content delivery and direct response vehicle within cross-media marketing communications programs'

(MMA Glossary, 2006). Becker (2005) takes this definition further and explains how mobile marketing is used in two modes. First, in a purely mobile mode, marketing is conducted through on-device carrier and 3rd party portals, the mobile Internet, and situations where consumers have opted in and given permission to have information automatically pushed to them. Second, a more prominent method of mobile marketing is the mobile enhancement of traditional media, where the mobile marketing initiative call-to-action is placed in traditional media (web, email, print, TV, radio, word of mouth, and so on) in order to encourage consumers to respond to and participate in the marketing campaign via the mobile phone. Both mobile and mobile-enhanced traditional media marketing initiatives take the form of ad hoc or one-off programmes (quizzes, trivia, polls and voting, on-pack/off-pack promotions), information and entertainment alert services, and mobile commerce (both for binary content consumed on the phone and non-binary content and services).

As noted, the practice of mobile marketing is on the rise. A Forrester Research 'Interactive Marketing Channels to Watch in 2006' study reported that of the 259 US marketers questioned, 43 per cent have begun or plan to begin employing mobile marketing within their marketing mix during the next 12 months (Marriott, 2006). A Q1 2006 study commissioned by Airwide Solutions of 50 United Kingdom brands found that 89 per cent of brands are planning to employ mobile marketing within the next two years, and that within the next five years 52 per cent of the brands will allocate up to 25 per cent of their marketing budgets on mobile marketing (Airwide, 2006). By 2011 marketing spend on mobile marketing and wireless advertising is expected to range from \$3.5–\$11 billion US dollars (Gauntt, 2007; The Shostek Group, 2006), and the mobile content market is expected to generate more than \$35.3 billion, up from \$16.3 billion in 2006 (iSuppli, 2007).

According to Marshall McLuhan and Quentin Fiore (1967), the method of communicating information has more influence on the public than the information itself. This raises questions as to how various mobile marketing methods versus traditional marketing methods may influence consumers' receptiveness of mobile marketing initiatives. The mobile device is not a simple product; it is composed of numerous converging technologies that marketers and consumers can use to engage each other in interactive communication and commerce, including through SMS, MMS, email, voice/IVR, Bluetooth, mobile Internet, device resident portals, and near-field communications. The idea that marketing through the mobile channel may influence consumer acceptance and interpretation of mobile marketing messages is an important one, especially given the fact that marketing through the mobile channel is unique and unlike

any other marketing channel. Mobile marketing is personal (Barnes and Scornavacca, 2004; Karnell, 2005; Koskinen et al., 2006; SkyGo, 2001; Swilley and Hofacker, 2006), interactive (Buckley, 2003; SkyGo, 2001), time relevant (Barnes and Scornavacca, 2004; Buckley, 2003; SkyGo, 2001) and location independent (Barnes and Scornavacca, 2004). With mobile marketing, marketers can deliver highly personalized and relevant information and calls-to-action to consumers. 'Because wireless data incorporates mobility, time sensitivity, interactivity and advanced personalization, it is vastly different from any other communications or marketing channels. It presents an opportunity for marketers to literally place a brand in a consumer's hand' (SkyGo, 2001). According to the 2001 SkyGo study,

[m]obile devices, unlike PCs, usually belong to one person and are seldom shared, thus marketing messages can be targeted and customized for a particular user with a high level of confidence that it will reach its target. As a result, mobile marketing is an extremely personalized communications medium that commands the immediate attention of the consumer (SkyGo, 2001).

The concept that the mobile phone is personal and singularly important to individuals is further substantiated in the MMA 2006 Mobile Attitudes and Usage Study, a longitudinal research effort conducted by the MMA to profile consumer mobile phone usage patterns and attitudes toward mobile marketing. The study found that across all age groups, the mobile phone has become an important part of the survey respondents' lifestyle, with many respondents stating that they have become dependent on their mobile device. The study found that 82 per cent of the sample reported that their mobile phone is highly to moderately important to their daily life, and 79 per cent say that they are highly to moderately dependent on their mobile phone (MMA, 2006). The MMA study also found that individuals keep their mobile phone number over a long period of time, and people are finding more use for their mobile phone beyond simple voice communications. m:metrics reports that 57 per cent of US subscribers and 80–90 per cent of European mobile subscribers use data services (Hodgman, 2006). The personal ties between the consumer and the mobile phone seem likely to increase.

Mobile Marketing and Privacy

With the expanding variety and use of mobile marketing and the unique nature of the mobile channel, marketers must take special precautions to protect consumer privacy (Byron, 2006; Chowdhury et al., 2006; Karnell, 2005; Roussos et al., 2003). Many mirror this sentiment:

People are sensitive and privacy is an issue. An unsolicited commercial message could harm forever the relationship between your brand and your audience (Zavagno, 2004).

If mobile marketing is to be an effective and lucrative industry, it has to deliver relevant, requested, and interactive content to the customer. End-user privacy must be respected, and therefore permission marketing for opt-in, with clear opt-out instructions, is the efficient way to proceed (Kavassalis et al., 2003).

Mobile marketing presents many platform challenges that do not exist in other channels. Because mobile devices are viewed as being very personal, many are still trying to understand how to deliver relevant and timely messages without seeming intrusive or creating privacy violations (Karnell, 2005).

Procter & Gamble's CMO Jim Stengel has similar thoughts on mobile marketing: 'It's all here, it's just a matter of scaling it [mobile marketing], respecting privacy and doing it in a way that puts the consumers at the center' (Byron, 2006).

Marketing professionals and academics are not alone in their call to protect consumer privacy when interacting with consumers through the mobile channel. In the 2005 and 2006 MMA attitude and usage studies, across all age groups, consumers reported the concern for their potential loss of privacy as a primary barrier to their acceptance and participation in mobile marketing initiatives (Mobile Marketing Association, 2005; 2006). MMA studies questioned consumers about what they may not like about mobile marketing, as well as the barriers that would inhibit their opting in for mobile marketing initiatives. The 2005 study notes that 28 per cent of consumers reported that they dislike the concept of mobile marketing since they believe that they may find mobile advertising intrusive, an invasion of privacy, and a waste of their personal time; in 2006, 21 per cent found this to be the case. Furthermore, the study looked at the likelihood of opting in to mobile marketing initiatives. In 2005, 36 per cent of consumers reported being bothered, invasion of privacy, time consumption, and misuse of personal time as a reason not to opt in to mobile marketing initiatives, while 35 per cent reported these reasons in 2006 (Mobile Marketing Association, 2005; 2006). Moreover, a recent study by Hanley and Becker (2007) found that 12 per cent of their sample of college students would not accept text message notification of coupons or discounts via the cell phone due to privacy concerns.

Mobile marketing is a very powerful marketing tool and marketers have demonstrated that they can cut through the fog and cacophony of traditional media with its use. However, if marketers are to protect this growing, interactive channel of communication, they must take great strides in protecting the privacy, generating and maintaining consumer trust, and respecting the preferences of mobile device consumers.

THE FOUR TENETS OF PRIVACY AND PREFERENCES MANAGEMENT

There are four common and generally accepted core elements of privacy and preference management: choice, notice, value and access.

Choice

Choice is a fundamental construct in marketing and privacy and preferences management. Bettman et al. (1998) describe, in their seminal paper on the consumer choice process, that

consumers sometimes face emotion-laden choices. Such choices arise when there are choice conflicts between goals that are very important to the individual. In such cases, trade-offs are required that the individual does not want to make, since trade-offs in such situations involve giving up attainment of some goal on which the individual does not wish to accept a loss.

In the context of mobile marketing, these choices could include whether to participate in a mobile marketing programme that may provide economic or social value, but also potentially put at risk the consumer's identity and 'control' of access to the consumer's mobile device. For some consumers, choice-enabling processes may include emotion-focused coping, which often involves avoidant behaviours. One way in which emotion-focused coping may be brought to bear on emotion-laden choices is avoidance of those aspects of the decision that are particularly emotion-provoking (that is, control of access to their mobile device). The aspect of emotion-laden choices that is most taxing is making the difficult trade-offs required, because trade-offs call attention to losses. Many researchers have argued that trade-offs are uncomfortable and are avoided when possible (Hogarth, 1987; Tetlock, 1992; Tversky and Shafir, 1992), and Bettman et al. (1998) believe this tendency is exacerbated when choices are emotion laden.

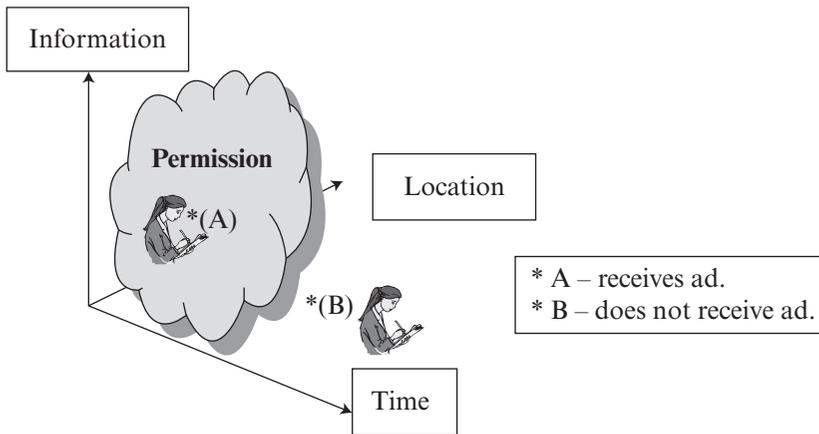
Offering choice to mobile device consumers as it pertains to privacy and preferences management is often required by government regulation, by industry best practices, and it simply makes good sense. As Barnes and Scornavacca (2004) point out, 'the idea of a message being sent directly to an individual's phone is not without legislative concerns. Indeed, all over the world, privacy and consumer rights issues lead to the promotion of "opt-in" schemes.' The idea of voluntary choice, or opt-in schemes, refers to the fact that the mobile marketer is giving the consumer the opportunity to opt in or choose to participate in the marketer's initiatives, or opt out and choose to leave and revoke their participation in the marketing initiative at any time.

The rhetoric used with opt-in call-to-action, at least on the Internet, appears to affect consumer response. For instance, in online marketing the rhetoric of choice has been found to make a difference. Johnson et al. (2002) found that ‘almost twice as many people (96.3 per cent) agree to be contacted for future promotions when the question is posed with an opt-out format than an opt-in format (48.2 per cent).’ It is also worthy to note that the information consumers provide is often dictated by the situation at hand (Phelps et al., 2000). For instance, during a financial transaction or interchange with a physician, a consumer may be willing to provide information that they would not typically offer in other situations, such as when opting in to a marketing promotion. Therefore, marketers must take the situational context into consideration when working with consumer choice and use the information gathered appropriately. Furthermore, Bettman et al. (1998) note that one difference between their analysis of decisions involving emotion-laden consumer choices and their analysis of the effects of accuracy and effort is that they ‘have to date no easy measure for the amount of emotion characterizing a decision’. Rather,

the degree of emotion will depend in a complex fashion on the content of the decision (i.e., the specific attributes involved and their properties), characteristics of the consumer (since what is emotion laden for one person may not be for another), properties of the decision task such as the amount of the conflict, and the type of processing carried out.

The element of choice is especially important with mobile marketing given that the mobile phone and network is a personal space and marketers must be invited or given permission before entering it. The idea of choice is also one of the first elements of Godin’s (1999) permissions marketing arguments. Barnes and Scornavacca (2004) define permission as ‘the dynamic boundary produced by the combination of one’s personal preferences, i.e. personalization of time, location and information’. The individual, they note, should be able to indicate when, where and what information he/she would like to receive. Within the mobile realm, Barnes and Scornavacca (2004) add three dimensions that must be taken into consideration when considering elements of choice: the type of programme or information that the consumer is requesting, the location of the consumer when requesting the information, and the time the opt-in is captured. The interaction between these three dimensions is depicted in Figure 8.1.

Other issues exist around choice. For instance, companies with multiple brands within multiple geographies around the world may not be able to have one global choice policy. The rules, regulations, guidelines and social norms used by marketers around the world differ significantly. With many multi-brand consumer goods companies, an opt-in to one brand in a



Source: Barnes and Scornavacca (2004)

Figure 8.1 Concept for permissions in mobile marketing

specific geography does not necessarily give the company the right to market a different brand or offering to the consumer. These arguments show that there are many dimensions of choice that must be considered within the mobile marketing mix.

The mechanics of providing choice to mobile device consumers is fairly straightforward. There are three options: the opt-in, the opt-out, and the renewal management process.

Opt-in process

Consumers can initiate their opt-in by text messaging into a service via the mobile phone, by texting alerts to 47467, or through alternative methods such as posting a phone number into the mobile service via a web form, IVR service, Bluetooth alert, image recognition, quick response code (QR), or related service. Through the opt-in process the consumer can communicate and demonstrate their choice to interact with the marketer. In many situations, however, when alternative methods are used to gain the initial opt-in, or the programme is a premium service (that is, fee service) or sensitive in nature (that is, financial, medical, or with youth), the marketer must confirm the initial opt-in. To do this, the marketer's mobile marketing application should be configured to send a second message to the consumer upon the receipt of the first message asking the consumer to reply and confirm their choice to opt in to the service and participate in the mobile programme. This second opt-in or confirmation opt-in is commonly referred to as the double opt-in process. In some age-sensitive programmes

and when marketing to youth, an additional opt-in may be required above and beyond the double opt-in. For instance, with age-sensitive programmes age verification may be needed, or when marketing to youth, parental consent may be needed per the Children's Online Privacy Protection Act (COPPA).

Opt-out process

The other half of the opt-in process is opt-out. When marketers give a consumer the opportunity to opt in they must also give the consumer the opportunity to opt out of a service and suspend all interactions with the marketer. The most common method given to consumers to opt out is to have them text message a designated or reserved keyword into a service, such as Stop, End, Quit, or Cancel (for example by texting STOP to 47467) or have them submit their STOP command via a web form or related alternative opt-out method. When the mobile marketing application service receives a text message from a consumer containing one of these opt-out commands the application and marketer must send a confirmation message to the consumer and then immediately cease sending future messages.

Automatic renewal process

The last element of choice is the automatic renewal process. Consumers should not be expected to remember when or how they opted in to a service or how to opt out; moreover, as Barnes and Scornavacca (2004) point out, the opt-in should be constrained within time, location and campaign contextual boundaries. In other words, opt-in approval should expire after a certain period of time (for example mBlox (2005) requires that if the consumer has no activity on their account within a six-month period then the consumer's opt-in should expire); if the user's location changes (if or when location is pertinent to the programme); or if the information content of the programme changes. These are standards that marketers must establish and follow. On a regular basis (daily, weekly, monthly, quarterly, or annually depending on the nature of the service and the operator network requirements) marketers should extend the courtesy of inviting the consumer to renew their opt-in consent to allow the marketer to engage them. With many services, like premium-for-fee, this renewal process is not simply a courtesy, but an industry requirement.

There are two types of renewal process models: explicit opt-out and explicit opt-in. In the explicit opt-out model, a few days before the end of the renewal period the mobile marketing alert service will message and inform a subscriber that he will automatically be re-instated, and charged in the case of premium programmes, into the mobile marketing service if he does not send a message to stop the service. This message may take the

form of an SMS, MMS, voice call, on other mobile response type. An explicit opt-in renewal model is the opposite; the subscriber is notified that they will automatically be taken out of the service if they do not reply and choose to continue the service. A few points worthy of note regarding automatic renewals: industry guidelines only require explicit opt-out renewal notifications, and most US operators only allow monthly automated services, not services that require or support daily, weekly, quarterly, or annual renewal. By respecting the consent process, marketers can achieve their objective of maintaining a long-lasting and profitable consumer relationship.

Notice

The second element of privacy and preferences management is notice. Simply providing the mechanism to facilitate choice (opt-in, opt-out or renewal) is not enough; the marketer must also provide the consumer with notice, a stated privacy policy that explains exactly what types of personally-identifiable information (PII) and non-personally-identifiable information (non-PII) the marketer is collecting. In addition, the marketer must, as part of notice, inform the consumer about how this information is to be stored, secured and used or combined with other online and offline PII and non-PII, and shared or sold, for the purposes of marketing to the consumer.

An abbreviated notice of PII and non-PII use must be prominently displayed in traditional media advertising alongside the call-to-action for the mobile opt-in. The following is a sample abbreviated mobile privacy statement:

We will respect your privacy. We obtain only the minimum amount of information needed to support billing and delivering your purchases. Your personal information will only be used for the purposes of delivering you the service you have requested and for providing customer support. At no time will your personal information be used to promote unrelated services, or shared, rented, or sold to any third party service. We will send you promotional messages only with your agreement. We comply with all state and federal information privacy regulations (iLoop Mobile, 2007).

Notice is a key element in the privacy and preferences management process for establishing trust since it is the first line of communication with the consumer. In mobile marketing, marketers can provide notice by placing their privacy and preference management policy on the Internet, by providing a text trigger (for example enabling it so that consumers can text PRIVACY to a short code so they can receive the company's privacy policy in the form

of a text message or a mobile Internet link), and providing the consumer with alternative and other traditional and mobile lines of communication. Notice, like choice, is not a static situation but an ongoing dialogue between the marketer and consumer. The key to notice is for marketers to realize that notice is not simply a placebo communication tool. Marketers must act and execute on their promises and obligations to the mobile device consumer.

Value

Value is another critical element of the privacy and preferences management process. Deighton (2004) points out that consumer PII and non-PII is a tangible asset, and consumers should be given value for sharing this with firms. 'Unless your offer is compelling and contains an incentive or reward, people will opt-out in droves and your brand will be tarnished' (Air 2Web, 2003). Typical forms of value include the offering of a coupon (although in the mobile world they are difficult to redeem), free minutes, free or discounted binary (data) content and monetary incentives.

Hanley et al. (2005) found in a mobile marketing study of college students that 'students are becoming more receptive to cell phone ads, but are not ready to give up their wireless privacy, unless of course they are rewarded, but the reward model seems to be changing'. Hanley et al. (2005) found that nearly 29 per cent of the surveyed students would accept mobile advertising if they received something free (ringtone, wallpaper, game, free minutes, free access to the mobile Internet, and so on) or monetary compensation per mobile ad delivered; 16.5 per cent would accept a quarter per ad, 20.8 per cent wanted \$1.00 per ad. In a 2006 follow-up study, 29.3 per cent of students reported that they would not accept ads at any price; however, 28.8 per cent would accept ads for \$1.00, 10.7 per cent for 50 cents, and 10.9 per cent for 25 cents or lower (Hanley et al., 2005). While the Hanley et al. study is interesting, a key flaw in the work is the lack of a definition in what constitutes mobile advertising versus mobile promotional interactive marketing. Without these key definitions it is unclear as to exactly what frame students are in when they are responding. The MMA 2005 and 2006 Mobile Attitudes and Usage studies have similar mobile marketing definition flaws.

As to exactly what value consumers should receive for opening themselves up to mobile marketing, the answer is unclear. On one spectrum the marketer may offer fixed value and consumers can choose to participate in the marketing initiative or not, depending on their interest in the offer. Conversely, Funk and Ayres (2002) and Deighton (2004) propose that an

infrastructure be built allowing consumers to auction off their privacy and set their own value based on the context of the offering, timing, location and any number of other attributes.

Access and Control

The final consumer element of the privacy and preferences management programme is access. Hann et al. (2005) found that users have a higher regard for websites when given the ability to access and update their personal information. In simple terms, the idea of access is to give consumers access and control over their PII and non-PII so that they can know what information is being collected, correct any errors in the information, or revoke access permanently to parts or all of the information. Providing access is a simple idea, but as Loyle (2006) notes, it is not an easy one to execute. Loyle (2006) raises a number of important questions when it comes to offering access to information gathered by an organization:

- What data should be accessible?
- Who should have the right to access it, and how are the rules determined which authenticate the person or machine accessing the data?
- What can be done with the data?
- What constitutes public versus private data? What one person considers private, another does not care about; how do you distinguish between the two?
- What happens with this information if it is mixed, that is PII, with non-PII, with third party data?
- What are the consequences of breaches of rules governing access to the data? Who cares?

An additional and important point also relates to ownership of the information. Deighton (2002) points out that PII and non-PII consumer information is owned by the collector of the information. Therefore, what rights do consumers really have over the information? The answer is none.

Deighton (2004) provides an account of how a user may manage their personal information as an asset, since this asset has value. The researcher argues that consumer preferences and behaviour is a particular form of self-presentation and that the consumer has their own brand or identity that they represent to the market. As Deighton observes, 'the challenge is to give people a claim on their identities while protecting them from mistreatment . . . the solution is to create institutions that allow consumers to

build and claim the value of their marketplace identities, and that give producers the incentive to respect them’.

TRUST

Trust is a common construct that appears in the privacy literature, since trust is a key factor in establishing and maintaining a healthy relationship between two parties, such as a consumer and marketer (Chellappa and Sin, 2005; O’Malley et al., 1997). Milne and Boza (1999) note that ‘improving trust and reducing concerns are two distinct approaches to managing consumer information. Contrary to existing self-regulation efforts, it is argued that when managing consumer information, the improvement of trust is more effective than efforts to reduce concern.’ Moreover, according to the privacy manager of a Fortune 500 consumer goods company, ‘the key with privacy is not to simply create a privacy policy, but rather one must use this policy to create trust, establish credibility, and enhance brand image.’

Hurley (2006) defines trust ‘as confident reliance on someone when you are in a position of vulnerability’. Since consumers put their personal data in the hands of the marketer, the consumer is vulnerable. Nah et al. (2003) counted trust in mobile technology as a primary factor affecting consumers’ intentions of using a mobile system for enjoyment, as represented by hedonic outcomes. Siau and Shen (2003) divided the trust concept of mobile commerce into two parts: toward the mobile information comprising mobile technology, and toward the mobile service vendor. Simultaneously, they suggested that at the early stage the trust of mobile technology plays a more important role than the trust of the mobile vendors. Mitchell et al. (2006) tells us, ‘the most significant damage from poor use of data lies in the damage done to consumer trust and confidence’

Many factors have been found to influence one’s ability to trust. Leveraging the work of Hurley (2006) and Chellappa and Sin (2005), a number of factors can be identified that may affect and contribute to trust between the marketer and consumer. These factors may be grouped into two primary clusters: Decision Maker and Situational.

Decision Maker factors include:

- Risk Tolerance: a personality factor that considers what is being put at risk if the trusted entity breaches the trust and what tolerance does the trustee have for this risk (Hurley, 2006).
- Level of Adjustment: a variable that determines how much time it takes a person to trust. Well adjusted people tend to be more

confident and trust, while poorly adjusted people see threats and distrust (Hurley, 2006).

- Past Experience: consumers will base their trust on past experiences with the brand or vendor (Chellappa and Sin, 2005).
- Relative Power: a variable that evaluates the power one individual or firm has over another (Hurley, 2006).

Situational factors (Hurley, 2006) include:

- Security: how secure do the parties feel within the relationship; that is are they comfortable with the relationship and do they not feel at risk of being violated.
- Number of Similarities: how similar is a group's experiences to one's personal values and experience.
- Alignment of Interest: are the interests between both parties aligned.
- Level of Communication: the quality and amount of communication between the parties to help solidify trust.
- Capability: the demonstrable capability of the trusted party; the more capable the party, the higher the expectation of trust.
- Predictability and Integrity: we tend to trust those that are predictable and consistently demonstrate integrity.
- Benevolent Concern: does the trusted party demonstrate concern for the trustee; and are they looking out for the trustee's best interests.

It is worth noting, however, that the consumer is not the only one vulnerable within the consumer–marketer relationship. Marketers are also at some risk, in that marketers that tarnish the trust they have built with a consumer may face a number of problems, including (Bloom et al., 1994; Fletcher, 2003; O'Malley et al., 1997):

- Irreparable damage to brand reputation and user retention levels
- Loss of revenue and new business
- Interruption of cross-border data flows
- Government enforcement actions
- Litigation from consumers and privacy advocates
- Civil and criminal penalties for wrongful disclosure

Trust is the cornerstone of relationships, including those between the customer and mobile marketer. Park and Yang (2006) found that mobile trust is a moderator of the perceived value of mobile use.

While those who have high levels of trust related to mobile technology tend to focus on the utilitarian or utility-based value of mobile technology, consumers with a low level of mobile trust tend to concentrate on the hedonic or pleasure-based value when creating their attitude toward mobile technology.

Mobile technology has highly relevant relationships with trust based on naturally caused uncertainty and with Internet skill or experience, because the basis of mobile technology is primarily the wireless Internet.

A key tool marketers have at their disposal to facilitate the management of trust between themselves and their customer is their privacy and preferences management programme, which can be used to set the ground rules for how they will interact with their customer and their collection and use of consumer PII and non-PII. The management of a privacy and preference management programme is not a simple issue, especially given the global nature of business today and the applicability of mobile marketing. Marketers must build their privacy and preferences programmes so that they are structured enough to be managed consistently, but flexible enough to allow local regulations, business practices and customs to sometimes dictate modification of the firm's privacy policy in order to accommodate a particular situation.

CONCEPTUAL MODEL

Studies have shown that marketing, and in particular mobile marketing, can be a very effective tool for generating high response rates, sales, brand awareness, and customer loyalty (Bauer et al., 2005; Enpocket, 2005; Kavassalis et al., 2003; Leppäniemi et al., 2006; Rettie et al., 2005). And, when consumers have trust in a brand or marketer they may be more inclined to engage in the marketer's programmes and share more of their PII to enrich the experience. The conceptual model in Figure 8.2 provides a visual representation of the proposed interaction between trust, privacy and preference management programmes, and consumer acceptance and participation in mobile marketing programmes.

This model is unique in that it is the first time these three constructs have been hypothesized to interact in such a detailed way, and it establishes a framework for future studies into the interactions between trust, mobile marketing, and consumer/brand identity management and its various elements. This model should help support the direction of future qualitative and quantitative research in the field of mobile marketing, and future research can help refine each construct and propose ways to operationalize each variable.

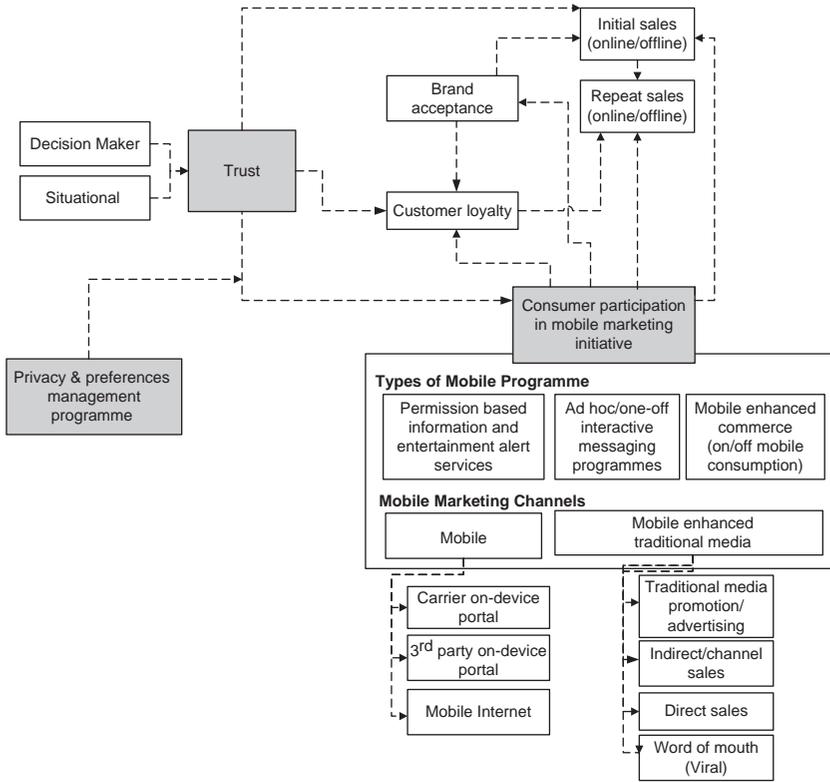


Figure 8.2 Conceptual model

CONCLUSIONS

This chapter may be used as a foundation for future research into the relationships between trust, privacy and consumer acceptance of and participation in mobile marketing initiatives. It is important for marketers to recognize that a relationship with a customer is not a static event, but an ongoing process. Mobile marketing, when properly used, can be an effective tool within the marketer’s arsenal to nurture this relationship. Through mobile marketing practices marketers can entertain, inform, build brand awareness, create brand loyalty, and drive purchase decisions among their target consumers; however, to ensure continued success and long-term longevity of mobile marketing as a viable medium, consumer trust must be established and rigorously maintained.

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9. Assessing the effects of trust on mobile advertising campaigns: the Japanese case

Shintaro Okazaki

INTRODUCTION

The new media of the Internet-enabled multi-function mobile phone have revolutionized many aspects of contemporary marketing. The shift from conventional PC Internet to wireless Internet has enabled consumers to stay connected online, regardless of time and place. As more and more firms adopt mobile communication as a quick and spontaneous response tool, an increasing number of promotional messages are sent to users who have granted prior consent or permission. For example, global brands, such as Adidas, Volvo and Dove, have adopted text messaging in their promotional campaigns (Sultan and Rohm, 2005). Such permission-based mobile marketing fits the spirit of customer relationship management, because its value-added content can be personalized with context and location specificity.

Customer relationship management is a business strategy designed to identify and maximize customer value, and it requires a customer-centric business philosophy and culture (Spiller and Baier, 2005). It begins with prospecting for new customers with timely information at the right place, to foster top-of-mind brand awareness. These characteristics match those of the mobile phone: a highly portable communication device with ubiquitous data transmission capability. Because of this unique nature, this device quickly attracts consumers' attention, while stimulating spontaneous information exchange. However, prior research in mobile advertising has left one important question still unanswered: do consumers trust the message and the advertised brand?

Trust plays an important role in many social and economic interactions, including electronic commerce (Wingreen and Baglione, 2005). In an online environment, trust is crucial because it affects a number of psychological factors, especially security and privacy. In a context of mobile advertising,

the relationship between emitters and receptors is episodic and unforeseeable, while advertised goods or services are not physically available. Because of this uncertainty, firms must develop a trustworthy relationship to foster customer acceptance.

Our primary objective is to address the role of trust in mobile advertising acceptance. Specifically, the study attempts to explore how trust affects consumers' attitudes toward the ad and the advertised brand. In doing so, an empirical study of mobile advertising campaigns is conducted by transmitting 'pseudo' mobile ads of popular Japanese brands. The respondents are randomly chosen from the firm's opt-in users. One week after sending the ads, we sent a structured questionnaire to the same users with an attempt to examine their level of acceptance. The study set out to examine four primary constructs: trust in mobile advertising, trust in the brand, attitude toward the ad, and attitude toward the advertised brand.

In what follows, we first provide an overview of our research domain on mobile advertising research, and then establish the theoretical framework of the study. On this base, a research model and hypotheses are proposed. A detailed explanation of the methodology follows. After presenting the study results in detail, we discuss the implications of the study, while recognizing important limitations.

RESEARCH DOMAIN: MOBILE ADVERTISING RESEARCH

Interests in the effectiveness of mobile-based campaigns have begun to swell. The first published study of mobile advertising was conducted by Barwise and Strong (2002). They examined consumers' perceptions on a trial of permission-based SMS message advertising in the UK. On recruitment, respondents were paid cash incentives and received more than 100 messages in the six-week trial period. Almost all respondents were satisfied or very satisfied. The study found that 81 per cent read all messages, 63 per cent responded or took action, and 17 per cent forwarded at least one message. Surprisingly, as many as 84 per cent of respondents were likely to recommend the service to their friends, whereas only 7 per cent were likely to abandon the service.

Rettie et al. (2005) conducted a study based on 'real' mobile advertising campaigns that took place between October 2001 and January 2002. In total, the researchers conducted 5401 telephone interviews regarding 26 different campaigns and found that the overall acceptability of SMS advertising was 44 per cent, with an average response rate of 31 per cent – much higher than email marketing. Acceptability was also significantly correlated

with campaign interest, campaign relevance and monetary incentives. Similarly, sporadic industry surveys report a rather optimistic blueprint.

In contrast, a study conducted by Tsang et al. (2004) reveals more realistic attitudes toward mobile advertising among Taiwanese. Their structural model included both high-involvement and experiential factors affecting consumers' attitudes toward permission-based SMS advertising. Surprisingly, it was found that (1) consumers generally have negative attitudes toward mobile advertising unless they have already been informed and have consented (that is, opted-in) to the ads; and (2) there seems to be a direct and positive relationship between consumers' attitudes and behaviour. The authors noted further that a consumer's intention to accept mobile ads is affected by incentives. The use of sophisticated statistical analysis distinguishes this study from other empirical studies carried out in recent years.

Much less attention has been paid to web-based 'pull' advertising. Okazaki (2004) examined the factors influencing consumers' motives to click text banner ads in the i-mode mobile advertising platform known as 'Tokusuru Menu'. This platform is included in an official i-mode menu, which enables subscribers to freely access the promotional information delivered by various companies. He found that three constructs – content credibility, infotainment and irritation – affected the formation of attitudes toward wireless ads, which in turn determined the level of intention to click the ads. Interestingly, the demographic analysis revealed that the unmarried working youth segment has a higher propensity to access such pull mobile ads.

More recently, research tends to focus on mobile commerce, rather than advertising itself, and a series of studies tested the 'revised' technology acceptance model (Wu and Wang, 2005), customer loyalty (Lin and Wang, 2006), and user satisfaction (Wang and Liao, 2006). Still, new insights into mobile advertising have been offered in terms of the extended theory of planned behaviour (Karjaluoto and Alatalo, 2007) and cross-media strategy issue (Trappey III and Woodside, 2005).

THEORETICAL FOUNDATIONS

Trust in Interactive Advertising

Consumer trust in electronic commerce has received considerable attention from both academics and practitioners. In terms of interactive advertising research, the relevance and credibility of ads have traditionally been considered important mediators of advertising effects (Andersson and Nilsson, 2000). Compared with an offline environment, trust is even more

important in an online environment, where consumers must make decisions or take action under conditions of great uncertainty, without any physical location to visit or a product to touch (Gefen et al., 2003; Wingreen and Baglione, 2005). Trust can be seen as consumer feedback, reflecting individuals' determination of whether uncertainty is reduced and expectations of opportunistic behaviour are ensured (Pavlou and Gefen, 2004).

Furthermore, on the Internet, it is even more difficult to distinguish between more and less trustworthy information because, as is not the case with traditional media, much of the content of online information is not subject to governmental or ethical regulation (Eastin, 2001). In this light, Hoffman et al. (1999) claim that a fundamental mistrust between customers and online business lends support to the view of some dislocation between brand identity and brand experience. This lack of faith in the unregulated flow of information presents a similar problem for those seeking information via mobile devices.

In this vein, Sadeh (2002) points out that the success factors associated with the i-mode m-commerce portal are precursors of future Internet business models, in which value will be created through convenience, ease of use, and compelling content that users will be willing to pay for. Mobile users are likely to choose to open mobile ads out of curiosity, but they must then decide whether to further access mobile campaign sites. Such a decision must be made mainly on the basis of trust in the ad and in the advertised brand. Therefore, trust should be conceptualized as two different constructs, brand trust and mobile advertising trust, which affect users' choice to open push mobile advertising. The users are likely to do so only when they perceive both the medium and the content to be non-deceptive and trustworthy.

Mylonopoulos and Doukidis (2003) argue that mobile advertising via email or SMS is effective in enhancing brand awareness and customer loyalty. Hence, there is strong evidence that many firms actually use mobile advertising for branding purposes. Okazaki (2005) interviewed 53 senior executives of multinationals operating in European markets and found that the creation and enhancement of brands are the most important motives for multinational corporations to adopt mobile advertising in international markets. This is consistent with Sultan and Rohm (2005), who argue, 'Mobile marketing creates new opportunities for companies to form or shift consumer attitudes toward a brand through the use of value-added content' (p. 85).

There is evidence that a growing number of firms actually use mobile advertising in brand promotion. For example, McDonald's offers three different types of mobile coupons on three different platforms, from the basic text-only SMS version to the graphically rich version – that is, fully traceable

and redeemable, all without any POS hardware or software requirements (iMedia Connection, 2005a). DreamWorks Home Entertainment used a viral campaign for the DVD of the film *The Ring 2* that operated on mobile phones and email accounts. Visitors to the campaign site were invited to 'scare their friends' by entering their email address and mobile telephone number. The site then sent them an email, inviting them to click on a link and watch the video (iMedia Connection, 2005b). Adidas enables consumers to download popular athletes' photos on a mobile site and digitally superimpose their own photos on those images (Sultan and Rohm, 2005). In Japan, Kirin MC Danon Waters Co. has launched a campaign for Volvic mineral water in which consumers enter a sweepstake contest in mobile phones with a bottle serial number (Senden Kaigi, 2004). P&G sends a sample of Pantene brand shampoo to users who respond to pull mobile advertising in i-mode (Senden Kaigi, 2004). However, the success of these branding examples appears to depend on the distance between brand identity and brand reputation (Lee and Turban, 2001). That is, the more consumers trust the brand, the smaller the difference between what firms intend to establish and what consumers identify with the brand (Jevons and Gabbott, 2000). Hence, the role trust plays in mobile campaigns is crucial in obtaining effective consumer responses.

Attitudes Toward the Ad and the Brand

An attitude toward an object can be defined as an individual's internal evaluation of it on the basis of his or her beliefs (Fishbein and Ajzen, 1975). In other words, beliefs determine the basic form of the attitude, which in turn triggers behavioural intentions (Davis, 1993). Thus, exposure to an advertising message for a specific product first influences one's beliefs, which then mediate the attitude toward the product. Subsequently, behavioural intention is formed as a consequence of this attitude formation (Fishbein and Ajzen, 1975).

A mobile advertisement can be seen as a marketing stimulus in an interaction between an advertiser and a consumer that is mediated by mobile Internet communication. The level of exposure to mobile devices varies according to consumers' needs and wants, but it is likely that they have formed favourable or unfavourable attitudes, irrespective of their prior knowledge (Lu et al., 2003). Research suggests that when consumers perceive a higher level of credibility in the ad, they are more likely to form more positive attitudes toward the ad (MacKenzie and Lutz, 1989). A company's ultimate goal of mobile advertising, however, should not be the formation of favourable attitudes toward the ad, but the formulation of an attitude toward the advertised brand.

In this vein, Delgado and Munuera (2001) have pointed out that trust is one of the most important factors affecting the creation of brand value. The literature has long neglected the importance of ‘brand trust’, despite empirical and theoretical evidence (Hess, 1995; Selnes, 1998), but researchers have become increasingly interested in establishing interactions between a consumer and a brand as a long-term relationship (Delgado and Munuera, 2001). Other research views trust as a determining factor in developing positive or favourable attitudes, resulting in a commitment to a certain brand as the maximum expression of a successful relationship between it and the consumer (Fournier, 1998). Moreover, trust leading to favourable attitudes could, in turn, influence the intention to engage in repeat purchases in Internet commerce (Gefen et al., 2003; Kim and Benbasat, 2003), including m-commerce (Lin and Wang, 2006).

RESEARCH MODEL AND HYPOTHESES

Figure 9.1 shows our research model, which is essentially based on MacKenzie and Lutz’s (1989) core attitudinal model. They proposed and tested structural antecedents of attitude toward the ad and the brand, incorporating the role of advertising credibility. In our model, the credibility construct is replaced with trust, which is divided into two parts: trust in mobile advertising and trust in the brand. Both types of trust are hypothesized to affect positively favourable attitudes toward the ad.

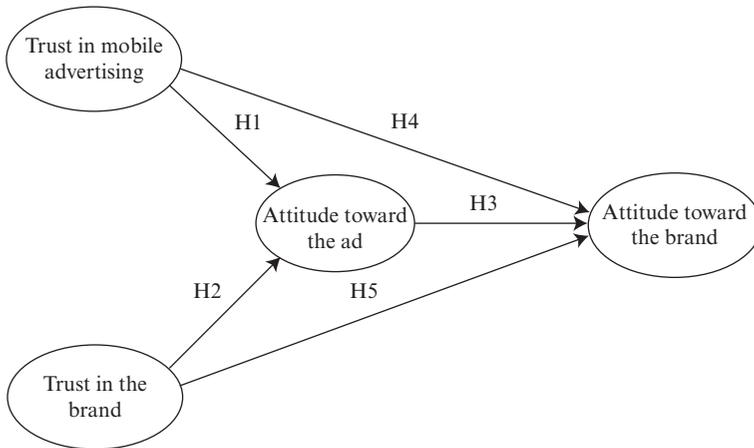


Figure 9.1 Research model

Based on the preceding discussion, we posit trust as a structural antecedent of attitudes toward the ad, which in turn determines attitudes toward the brand. Thus, the following hypotheses are contemplated:

H1: Trust in mobile advertising directly and positively affects attitudes toward the ad.

H2: Trust in the brand directly and positively affects attitudes toward the ad.

In the light of Mackenzie and Lutz (1989), the attitude toward the ad serves as a primary determinant of the attitude toward the brand. Thus:

H3: The attitude toward the ad directly and positively affects the attitude toward the brand.

At the same time, we posit that the attitude toward the ad would act as a mediating variable in linking both trust variables and the attitude toward the brand. That is, we posit the direct effects from the trust variables to the attitude toward the brand, while the indirect effects are recognized as mediating effects of attitudes toward the ad. This suggests the following and final hypotheses:

H4: Trust in mobile advertising directly and positively affects attitudes toward the brand.

H5: Trust in the brand directly and positively affects attitudes toward the brand.

Finally, the literature suggests that the level of product involvement has an important influence in trust and attitude formation. Thus, the following research question is suggested:

RQ: Are there any differences in the model effects between high-involvement and low-involvement products?

METHOD

Research Stimulus

This study was organized into two phases: (1) transmission of the pseudo mobile campaign, and (2) questionnaire survey via mobile device. In the

first phase, we sent mobile ads that contained pseudo-campaign messages with hyperlinks to access further campaign information on the mobile site. D2 Communications (2005), the largest mobile advertising agency in Japan, collaborated in this study by creating the pseudo ads. It offered its 'Message F', a push service that delivers textual and visual information from advertisers to opt-in users only. This service has been successfully used as a campaign tool by many firms, such as P&G, Sapporo Beer and Panasonic (Senden Kaigi, 2004).

Two large Japanese manufacturers, both listed in the first section of the Tokyo Stock Exchange, agreed to collaborate in the experiment and allow us to use their most popular brands as real stimuli in the campaign. One company manufactures sophisticated portable audio players (that is, high-involvement products), whereas the other makes puffed corn snacks (that is, low-involvement products). Both brands are firmly established in the Japanese market. After designing textual and visual information for the mobile ads, we created a promotional mobile site to which respondents could jump by clicking a banner saying 'Please click here for further information' in the ads. Again, as an incentive to participate in the campaign, we offered a free ring-tone and a present (a book coupon).

Research Instrument

The second phase took place approximately one week after that transmission, in which we contacted the customers by sending another mobile message containing a structured questionnaire that asked for their impressions and perceptions of mobile campaigns. As an incentive, we offered free ring-tone and screen-image downloads. The questionnaire consisted of two parts. In the first, we asked questions about the respondent's demographic information, such as gender, age and occupation using a categorical scale. Respondents were asked to tick the appropriate box to indicate their answer. In the second part, we included questions that corresponded to the four constructs: trust in mobile advertising, trust in the (advertised) brand, attitude toward the ad, and attitude toward the (advertised) brand. The majority of the scale items were adopted from existent e-commerce literature and modified into a mobile context. All constructs were assessed using a multiple-item measure of five-point semantic differential scales, with 3 ('cannot answer/determine') as an anchoring point.

Respondents' Characteristics

For each product, a total of 40 000 campaign messages were sent to the opt-in users, who were randomly chosen from the firm's customer database that

covers Tokyo Metropolitan District and three nearby prefectures. We received 1335 usable responses for the high-involvement product and 1899 for the low-involvement product, which made the response rate, based on the total clicks, approximately 19.6 and 35.5 per cent, respectively.

Generally speaking, the respondents of both samples exhibited very similar characteristics (Table 9.1). The proportion of female respondents outweighed their male counterparts, while the differences across the samples were not statistically significant ($p = 0.423$). Neither did the occupational patterns differ across the samples ($p = 0.071$). However, for age, a chi-square test detected significant differences between the two brands ($p = 0.004$). Participants under 19 years old responded more for the high-involvement product, while those between 30 and 34 years old responded more for the low-involvement product. Although the sample was not stratified according to age, it was somewhat expected to receive a 'reasonable' number of responses from older age groups. However, our results were consistent with prior research in that people over 40 years old rarely replied to our survey invitations.

Table 9.1 Characteristics of the respondents (%)

	High-involvement Product (N = 1335)	Low-involvement product (N = 1899)
Gender		
Male	43.6	42.2
Female	56.4	57.8
Age		
>19 years old	29.2	25.6
20–29	47.5	44.8
30–39	22.8	29.1
40 years old<	.4	.4
Occupation		
Junior high/high school	17.2	14.4
University	18.1	16.0
Clerical/research	10.4	9.8
Administrative	10.9	10.3
Sales/service	19.1	20.9
Managerial	1.9	1.7
Skilled professional	9.2	10.7
Self-employed	.4	.9
Housewives	6.4	7.8
Unemployed	6.3	7.5

RESULTS

Analysis Procedure

The proposed model and its associated hypotheses were tested using partial least square (PLS). PLS was preferred over covariance-based structural equation modelling, because it uses a least-squares estimation procedure, thereby avoiding many of the restrictive assumptions such as multivariate normality and residual distributions (Chin, 1998). In addition, PLS is more appropriate for this study because it is primarily intended for predictive analysis in which (1) the problems explored are complex; and (2) there is a considerable knowledge gap between the research topic and existent literature. Essentially, this is one of the first academic studies that uses 'real' mobile campaign stimuli since the first empirical research on mobile advertising in 2002 (Barwise and Strong, 2002), while the effect of trust on the ad and the advertised brand has seldom been studied in the past. For these reasons, we decided to employ the PLS technique.

Measurement Model Assessment

Chin (2000) recommends that a model based on PLS should be analysed in two stages of assessment: the measurement model and the structural model. First, the measurement model consists of the relationships between the constructs and the indicators used to measure them. This involves the assessment of reliability, and convergent and discriminant validity. The bootstrap sampling procedure was used to test the magnitude and significance of the loadings (Chin, 2001). Unlike structural equation modelling, PLS produces no specific fit index. Instead, the model fit is analysed by examining the loadings of the items with their respective constructs. This procedure was repeated separately for each model: high-involvement product (hereafter, model 1) and low-involvement product (model 2). Tables 9.2 and 9.3 summarize the results.

After the first run of bootstrap sampling, all the items loaded significantly and directly onto the respective constructs. As clearly seen in Tables 9.2 and 9.3, all the loadings exceeded 0.7, and all the loadings were statistically significant at $p < 0.001$ in both models. Therefore, the individual item reliability was thus considered to be sufficiently established for both models 1 and 2.

Next, we assessed construct reliability by calculating the composite reliability (CR), which is considered superior to Cronbach's alpha (Hair et al., 2006). All the scores exceeded a generally recommended benchmark of 0.70 in both models: ranging from 0.64 to 0.93 in model 1, and from 0.68 to 0.92

Table 9.2 Loadings, construct reliability and convergent validity for model 1 (high-involvement product)

Constructs/ Indicators	Standardized loadings	Standard error	<i>t</i> -statistics	Composite reliability	Average variance extracted
Trust in mobile advertising				0.92	0.84
– TIMA 1	0.93	0.02	41.73***		
– TIMA 2	0.91	0.03	31.01***		
Trust in the brand				0.86	0.74
– TIB 1	0.88	0.04	24.65***		
– TIB 2	0.86	0.04	22.13***		
Attitude toward the ad				0.83	0.56
– ATTA 1	0.73	0.08	9.74***		
– ATTA 2	0.78	0.06	12.42***		
– ATTA 3	0.81	0.05	16.36***		
– ATTA 4	0.64	0.08	7.60***		
Attitude toward the brand				0.82	0.60
– ATTB 1	0.78	0.06	13.52***		
– ATTB 2	0.75	0.06	11.63***		
– ATTB 3	0.80	0.05	14.68***		

Note: *** $p < 0.001$ (based on two-tailed test)

in model 2. Convergent and discriminant validity was assessed by comparing the square root of the average variance extracted (AVE) with the latent constructs' correlations. If measures of a construct differ substantially from measures of neighbouring constructs, then the square root of AVE should be larger than 0.70, while exceeding the construct's correlations with other constructs. As Tables 9.2 and 9.3 show, all the latent constructs met this condition in both models.

Structural Model Assessment

The structural model was assessed separately for high-involvement product and low-involvement product, by examining the paths' coefficients, and the variance explained (R-squared) in the endogenous variables. Following Chin's (1998) recommendation, bootstrapping with 500 sub-samples was performed to test the statistical significance of each path coefficient, using *t*-tests. To complement the analysis of path coefficients, the variance

Table 9.3 Loadings, construct reliability and convergent validity for model 2 (low-involvement product)

Constructs/ Indicators	Standardized loadings	Standard error	<i>t</i> -statistics	Composite reliability	Average variance extracted
Trust in mobile advertising				0.86	0.76
– TIMA 1	0.92	0.04	25.13***		
– TIMA 2	0.82	0.07	12.41***		
Trust in the brand				0.87	0.76
– TIB 1	0.87	0.04	24.17***		
– TIB 2	0.88	0.03	26.74***		
Attitude toward the ad				0.80	0.51
– ATTA 1	0.72	0.07	10.01***		
– ATTA 2	0.70	0.12	5.63***		
– ATTA 3	0.75	0.11	6.70***		
– ATTA 4	0.68	0.09	7.81***		
Attitude toward the brand				0.82	0.60
– ATTB 1	0.79	0.05	16.44***		
– ATTB 2	0.76	0.07	11.28***		
– ATTB 3	0.77	0.06	13.65***		

Note: *** $p < 0.001$ (based on two-tailed test)

Table 9.4 R-squared

Constructs	Model 1 (High-involvement product)	Model 2 (Low-involvement product)
Attitude toward the ad	0.31	0.30
Attitude toward the brand	0.44	0.45

explained (R-squared) in the endogenous variables (that is, attitude toward the ad and attitude toward the brand) was calculated as indicators of a model's performance (Table 9.4). In both models, the size of R-squared was fairly modest for both attitude toward the ad and attitude toward the brand.

The coefficients, standard errors, and *T*-values of the two models (that is, the high-involvement product model and the low-involvement product model) are shown in Table 9.5. For both types of product, all the paths were

Table 9.5 Structural model results

Hypotheses	Paths	Model 1 (High-involvement product)		Model 2 (Low-involvement product)		T-value
		Standardized β	Standard error	Standardized β	Standard error	
H1	Trust in mobile advertising toward the ad \rightarrow Attitude	0.43***	0.08	0.37**	0.10	25.44***
H2	Trust in the brand \rightarrow Attitude toward the ad	0.25*	0.08	0.29*	0.11	-16.96***
H3	Attitude toward the ad toward the brand \rightarrow Attitude	0.26*	0.10	0.25*	0.10	3.39***
H4	Trust in mobile advertising toward the brand \rightarrow Attitude	-0.04	0.09	0.01	0.09	n.a.
H5	Trust in the brand \rightarrow Attitude toward the brand	0.54***	0.08	0.53***	0.08	4.24***

Notes:

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ (based on two-tailed test), n.s. = non-significant (based on one-tailed test), n.a. = not applicable.
The T-value was calculated according to the procedure suggested by Chin (2000)

statistically significant, except one: the path from trust in mobile advertising to attitude toward the brand.

In H1, we posit that trust in mobile advertising will directly and positively affect attitude toward the ad. Our data corroborate our proposition, and the effect is reasonably solid: 0.43 and 0.37 for models 1 and 2, respectively. Therefore, H1 was supported. Next, H2 posits a direct and positive effect of trust in the brand on attitude toward the ad. The standardized coefficients are marginally significant in both models. H2 was thus supported. Similarly, as hypothesized in H3, the path from attitude toward the ad to attitude toward the brand was significant but with modest effects for both models. This rings true to H3.

H4 contemplates the direct and positive relationship between trust in mobile advertising and attitude toward the brand. In this regard, the two models exhibit different results. In model 1, the effect was negative, while in model 2, the effect was positive. However, both coefficients were statistically non-significant. This leads us to conclude that H4 was rejected by our data. Finally, H5 addresses the path from trust in the brand to attitude toward the brand. This effect was the strongest among the paths. In both models, the effect exceeds 0.50, while being statistically significant. Therefore, H5 was supported.

Mediation of Attitude Toward the Ad

Mediation represents an intervening relationship where the presence or absence of a variable influences the relationship between one or more independent variables and a dependent variable. Our model implicitly assumes the mediating role of attitude towards an ad for the effects of trust in mobile advertising and trust in the brand on attitude toward the brand.

To test this mediation, we followed the procedure recommended by Baron and Kenny (1986). Specifically, the following conditions were examined: (1) the predictor variable (trust) must affect the mediator (attitude toward the ad) in the predicted direction (positive); (2) the mediator (attitude toward the ad) must affect the dependent variable (attitude toward the brand) in the predicted direction (positive); (3) the predictor variable (trust) must affect the dependent variable (attitude toward the brand) in the predicted direction (negative); and (4) the impact or effect of the predictor (trust) on the dependent variable (attitude toward the brand) must not be significant (full mediation) or reduced (partial mediation) after controlling for the mediator (attitude toward the ad).

With regard to trust in mobile advertising, the third condition was not met in either model 1 or 2, because the path from trust in mobile advertising to

attitude toward the brand was not statistically significant. Therefore, there is no mediating effect of attitude toward the ad for trust in mobile advertising in general. Next, as for trust in the brand, we found that the first three conditions are largely satisfied in both models. However, the fourth condition is satisfied in neither model 1 nor 2, because the effect of trust in the brand on attitude toward the brand was neither non-significant nor reduced when controlling the mediator.

Multi-group Analysis

Finally, the statistical comparison between two models was performed, according to the procedures suggested by Chin (2000). The following equations were used to calculate T -values, and their significance was examined to reveal whether any statistical differences existed between the two models:

$$T = \frac{\beta_{High} - \beta_{Low}}{S_p \times \sqrt{\frac{1}{m} + \frac{1}{n}}} \quad (9.1)$$

$$S_p = \sqrt{\frac{(m-1)^2}{(m+n-2)} \times SE_{High}^2 + \frac{(n-1)^2}{(m+n-2)} \times SE_{Low}^2} \quad (9.2)$$

Here, m and n represent the sample size of model 1 and model 2, respectively, while SE stands for the standard error of path in the structural model. The results, shown in Table 9.5, indicate that the majority of the path estimates between the two models differ significantly. Please note that this equation takes into account the sample size as an important factor of effect difference.

To our surprise, trust in mobile advertising affects attitude toward the ad more strongly in model 1 than in model 2, in that the difference in the coefficients between the two models was statistically significant at $p < 0.001$. This indicates that the mobile campaign promoting a high-involvement product produced a stronger positive influence of trust in mobile advertising on the attitude toward the ad. On the other hand, the opposite pattern was observed in H2. Trust in the brand affects the attitude toward the ad more strongly in model 2 than in model 1. The difference was statistically different, indicating that the mobile campaign promoting a low-involvement product produced a stronger positive effect of trust in the brand on attitudes toward the ad. With regard to H3 and H5, the effects were stronger in model 1 than in model 2.

Limitations

To make our following discussions more objective, a few limitations should be recognized. First, this is basically an exploratory study in nature with a limited number of constructs. Our research model is rather basic, and consists of only trust and attitudinal factors. Future research should expand this framework by including more complex issues, such as perceived risk, intrinsic and extrinsic gratifiers, and personal values, among others. Second, we examined only two types of products, that is, high-involvement product and low-involvement product, and the results should by no means be over-generalized. Last, while the sample size was large, the final response rate was limited. We believe that the response rate based on the click-through rate was reasonably justifiable. However, more efforts should be made in the future to increase the response rate by improving the questionnaire format, response interface, and incentive systems.

IMPLICATIONS

This study aims to address a fundamental question in contemporary mobile-based advertising campaigns: whether and how trust affects consumers' attitudes toward the ad and toward the advertised brand. We proposed and tested a research model by conducting a survey via mobile messaging with two different product types: high-involvement product (portable audio players) and low-involvement product (puffed corn snacks).

Our findings provide several important implications to the existent literature on mobile advertising research. First, our data demonstrate that trust in mobile advertising and in the brand both directly and positively affect attitude toward the ad, which in turn determines attitude toward the brand. This appears to be indicative that, even if consumers do not trust the advertised brand itself, if consumers consider mobile advertising to be trustworthy and relevant to their interest, they tend to form a favourable attitude toward the ad, and subsequently, attitude toward the brand. This finding seems to corroborate prior research, in that mobile advertising is indeed effective in brand promotion in terms of the attitude formation. This especially rings true when we take into account a fact that the magnitude of R-squared for attitude toward the brand was reasonably robust for both the high-involvement product (0.44) and the low-involvement product (0.45).

Second, our mediation analysis indicates that attitude toward the ad does not mediate the effects of either trust in mobile advertising or trust in the brand. On the one hand, it is surprising that the formation of attitude toward the ad hardly intervenes in the relationship between trust and attitude toward

the brand. This may be due to the limited capacity of mobile advertising, in that small letters and visuals on a micro-browser screen may not foster much attention as 'advertising'. On the other hand, due to this limited capacity of mobile devices, the role of trust may be even greater in mobile advertising than in, for example, Internet advertising, surpassing the mediating power of attitude toward the ad. As a result, it acts as a direct determinant of attitude toward the brand. Although improving attitude toward the brand is the ultimate goal of a firm's campaign, more effort should be made to enhance the formation of favourable attitude toward the ad.

Third, there are important differences in the model effects between the high-involvement and low-involvement product. In particular, the effect of trust in the brand on attitude toward the ad was significantly greater on the low-involvement product than on the high-involvement product. In addition, it should be noted that, while the coefficient of the path from trust in mobile advertising to attitude toward the brand was not statistically significant, the effect was negative in the high-involvement product.

Taken together, these results appear to indicate, at least indirectly, that mobile advertising may not be so effective for high-involvement consumer goods. A possible reason for this is that high-involvement products usually require an attractive product display with a detailed description along with a specific price offer, which may be neither available nor practical in a mobile advertising campaign. Accepting the danger of oversimplification, practitioners especially need to take into account this implication, since many famous brands have started incorporating mobile marketing as a part of integrated marketing communications.

Finally, through the use of 'real' mobile campaigns as stimuli, we tested the effect of trust on attitudes toward the ad and the brand. Unlike prior research in mobile advertising, the data collection was carried out directly via the mobile messaging system. This study can be also regarded as a useful case of mobile-based survey research. As mobile telecommunication advances at a rapid pace, this mode of survey may provide a clear advantage, in that we can ensure that (1) the respondents are actual mobile Internet users, and thus, (2) the self-report answers reflect their 'true' experience in a mobile-based campaign. Until now, little research has paid attention to these issues, and therefore, this should be recognized as an important contribution of this study.

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10. Sources of trust in permission-based mobile marketing: a cross-country comparison

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MOBILE MARKETING AND THE ROLE OF TRUST

The development of new mobile technologies including advanced mobile handsets and network technologies such as 3G, opens up new opportunities in managing customer relationships. This chapter focuses on mobile marketing in the form of text messages as an active direct marketing medium. Particular strengths of the mobile medium include its personal nature and ubiquity, given that for instance in Germany, Europe's largest economy, the number of mobile phones recently exceeded the total German population (FDA, 2006). Additional benefits of mobile marketing include a high rate of personalization, interactivity and a low cost of reaching large target audiences at the right time and in the right place (Anckar and D'Incau, 2002; Facchetti et al., 2005). These strengths and characteristics of mobile marketing present marketers with many opportunities: for instance, a marketer can send a mobile message that may be able to influence a recipient mobile user's imminent purchase.

Mobile marketing literature has mainly focused on consumer perceptions of mobile marketing (for example Bauer et al., 2005; Dickinger et al., 2004; Lewis, 2001; Okazaki, 2004), and its effectiveness (for example Barwise and Strong, 2002; Kavassalis et al., 2003; Nysveen et al., 2005). Other areas such as the role of mobile marketing in the integrated marketing communications mix (Karjaluoto et al., 2004; Leppäniemi et al., 2006) and brand building (Rettie et al., 2005; Sultan and Rohm, 2005) are receiving more and more attention in the literature. The role of trust in the context of mobile marketing also belongs to these emerging, yet under-researched areas (Bauer et al., 2005; Karjaluoto, and Kautonen, 2006; Kautonen et al., 2007).

Trust has become a central topic in both marketing and management research especially in the past ten years. The issue of trust has been raised

in different contexts in business literature, including business relationships (for example Ganesan and Hess, 1997; Sako, 1992; Zaheer et al., 1998), organizational issues (for example Creed and Miles, 1996; Six, 2005) and electronic business (for example Ba et al., 2003; McKnight and Chervany, 2002; Shen and Siau, 2003; Yang et al., 2006). However, the literature on the role of trust in mobile marketing is still at an early stage.

Management and marketing literature attributes a number of positive characteristics and consequences to trust such as facilitation of open communication and flexibility, reduction of transaction costs and enhancement of commitment in customer relationships (Ba, 2001; Ganesan and Hess, 1997; Sako, 1992; Zaheer et al., 1998). While many of these apply equally to mobile marketing, there is an additional function of trust in this context which relates to the permission-based nature of mobile marketing. In many countries, government regulation dictates that prior permission be sought from the customer before a mobile marketing message can be sent (Barnes and Scornavacca, 2004; Barwise and Strong, 2002; Leppäniemi and Karjaluo, 2005). In addition to the mobile phone number, the information collected from the customer granting their permission may include background and location information. The more companies can utilize various kinds of customer data, the more personalized and effective their mobile marketing messaging is likely to be (Yunos et al., 2003). Moreover, data on customer preferences enables the companies to make their messages relevant to the customer, whereby the messages also become more welcome (Ho and Kwok, 2003).

The need to provide permission and personal data raises trust issues which distinguish mobile marketing from many other consumer marketing situations. A relevant concern from the consumer perspective is how companies use these data. Previous studies have associated trust with the consumer's decision to provide personal information to marketers (Gordon and Schoenbachler, 2002; Shen and Siau, 2003). A recent UK-based study found that companies are reluctant to adopt mobile marketing mostly because they fear that the consumers are reluctant to participate, as consumers are thought to be concerned about the problems of email spamming being paralleled on their mobiles (Greenville, 2005). In the context of Internet sites, Hoffman et al. (1999) found that nearly 63 per cent of the customers who refuse to provide personal information base their decision on a lack of trust. A feeling of lack of control over how companies use the personal data was the main reason behind this lack of trust, and it is conceivable that similar concerns may exist in the context of mobile marketing. Therefore trust is an important factor affecting the customer's decision whether to permit mobile marketing, and to provide personal information in addition to the mobile phone number for mobile marketing purposes.

While trust is likely to have a number of functions in the mobile marketing context, the present treatise focuses on its role as a factor affecting permission.

While a considerable stream of research has examined the effects and different dimensions of trust – such as benevolence, integrity and competence (see Ganesan and Hess, 1997; Mayer et al., 1995; Nooteboom, 2002; Sako, 1992) – few studies have focused on the antecedents or sources of trust (Bachmann, 2001; Welter and Kautonen, 2005; Zucker, 1986). Understanding the sources of trust is a key question both for strengthening the effectiveness of specific mobile advertising campaigns, products and services, and for developing the legitimacy of mobile marketing in general. This chapter investigates the different sources of trust by adopting a broad ‘embedded’ perspective, which has been developed in recent literature to address not only the sources of trust which are internal to the relationship between individuals and/or organizations, but also factors in the surrounding legal, social and cultural environment that affect the emergence and development of trust (Bachmann, 2001; Kautonen and Kohtamäki, 2006; Zucker, 1986). From this perspective, the bases of trust are likely to vary across countries due to differences in their legal, political and cultural frameworks (Bachmann, 2001; Doney et al., 1998; Järvenpää and Tractinsky, 1999; North, 1990). In order to take this into account and thereby contribute to a more robust understanding of the requirements of mobile marketing in different European markets, we collected data from three countries (Finland, Germany and the UK) by means of a standardized survey.

The next section of the chapter examines four different sources of trust, grouped under the more general constructs of personal and institutionally based trust, as factors affecting willingness to engage in mobile marketing. This is followed by the study methodology, results of the empirical cross-country analysis and discussion of the findings and implications. The concluding section summarizes our contribution to the theoretical understanding of mobile trust, highlighting implications for practitioners and discussing avenues for potential future research.

SOURCES OF TRUST IN THE CONTEXT OF MOBILE MARKETING

Trust refers to a belief that one party (the trustor) expects the other party (the trustee) to behave in a manner that is ‘beneficial or at least not detrimental’ to the trustor’s best interests when the trustee’s behaviour cannot be controlled (Gambetta, 1988, p. 217). This expectation is based on what

Nooteboom (2002) calls reflected trustworthiness – the reasons why the trustee would behave in a trustworthy manner as perceived by the trustor. The trustor, of course, may perceive these reasons correctly or incorrectly depending on the accuracy of their information regarding the trustee, the situation in which trust is to be placed, and the surrounding environment. Hence information becomes a central concept in analysing trust. Information in the form of external stimuli becomes knowledge through interpretation, which is based on the cognitive schemata of the individual (Koch, 1998). Since the cognitive schemata are a product of the individual's cumulative knowledge to date, the interpretation of new information is path-dependent. Thus, it is the trustor's current knowledge about the trustee, the situation and the surrounding environment that forms the foundation for their trusting behaviour. Since knowledge is both explicit and tacit, (Nelson and Winter, 1982), trust research must consider the fact that a large share of trust and trusting behaviour is actually based upon routine.

Trust-related information has many sources, which cumulatively shape the trustor's perception of the trustee's trustworthiness (see also the concept of the 'pyramid of trust' in Sztompka, 1999). Two general categories can be used to group the sources of information based upon which individuals assess trust in the context of permission-based mobile marketing: personal trust and institutionally-based trust (Welter and Kautonen, 2005; Zucker, 1986). Each of these categories comprises two sub-categories, which are described below and illustrated in Figure 10.1. The acronyms used in the following discussion refer to the constructs in our empirical study and will be used throughout the empirical analysis.

Personal trust assumes direct or indirect experiences with the trustee, which shape the trustor's perception as to the trustee's trustworthiness. In the case of mobile marketing, experiences can accumulate when the customer uses the company's products and services (mobile or otherwise) or encounters its service personnel. Experience shapes the customer's perception of the company including its perceived trustworthiness. Direct experiences refer to the customer's own past experiences (EXP) with the company (Kautonen and Kohtamäki, 2006; Sztompka, 1999; Yamagishi and Yamagishi, 1994). Some authors argue that this is the strongest source of trust (Kautonen and Welter, 2005; Lewis and Weigert, 1985; Sztompka, 1999). Indirect experiences refer to social influence (SOS), which is based on the experiences friends, family members, colleagues and other acquaintances in the customer's social network have had with the company, which they pass on to the customer in the form of recommendations and anecdotes (Bauer et al., 2005; Sztompka, 1999; Welter and Kautonen, 2005).

Institutionally-based trust (Zucker, 1986) refers to those sources of trust that are a product of the environment in which the trust relationship is

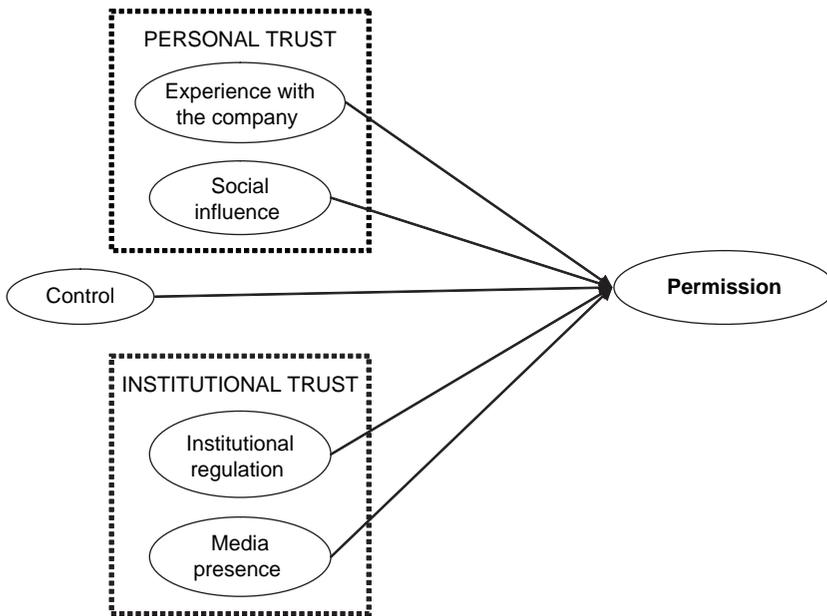


Figure 10.1 Conceptual model of the factors affecting the consumer's willingness to participate in mobile marketing

embedded. Other similar concepts used in the literature include impersonal trust (Shapiro, 1987), system trust (Luhmann, 1979) and extended trust (Raiser, 1999). Related sources of trust include, for example, legal, cultural and political institutions, civil societal organizations such as clubs and associations, and the media (North, 1990; Raiser, 1999; Sztompka, 1999; Zucker, 1986). We argue that the media and institutional regulation consisting of formal legal rules and informal, socio-culturally-based norms and codes of conduct are particularly relevant in the context of mobile marketing.

Individuals have limited access to information via personal experience and social networks, which is why they also rely on news reporting and advertising presented in the media (Shapiro, 1987). Thus, we propose that the company's media presence (MED) affects the way the consumer perceives the trustworthiness of the company in general, and the trustworthiness of its mobile marketing communications in particular. For example, continuous advertising and a general presence in major media communicates a certain seriousness and stability of the company, and increases the consumer's familiarity with the company and its products, thereby constituting a source of trust. The results of Li and Miniard's (2006) experimental study indicated

that advertising enhanced a brand's perceived trustworthiness – even if the advertisements did not contain any overt claims to trust. Moreover, news reporting and articles in the media concerning mobile marketing affect its general legitimacy in the market either favourably or unfavourably.

Institutional regulation (INS) refers in particular to the formal components of the institutional framework – legal norms, regulations and their enforcement (North, 1990). On the other hand, formal institutions alone are insufficient. They must be supported and complemented by appropriate informal institutions, which according to North (1990) comprise values, norms and codes of conduct that are deeply embedded in culture. Informal institutions may support or contradict formal rules. A simple example would be pedestrian traffic lights: while jaywalking is illegal in most countries (formal institution), it might be considered appropriate by most people to neglect this rule in some countries (informal norm contradicts the formal rule) and inappropriate in others (informal norm validates the formal rule). Here the informal institution provides 'a culture-specific interpretation of formal rules' (Welter and Smallbone, 2003, p. 98). As a whole, formal and informal institutions define the 'rules' of appropriate behaviour in a social entity (Kautonen and Kohtamäki, 2006). Given its rather abstract nature, institutionally-based trust in general can be assumed to be largely based on tacit knowledge.

The sources of institutional regulation that provide safeguards against the misuse of customer information include national governments, the EU and trade associations such as the Mobile Marketing Association. For example, the European Union, approved a new directive (Directive/58/EC) which established standards for the processing of personal data and the protection of privacy in the electronic communications sector (European Union, 2002). However, customers need not only to be informed about the rules, but also have to be convinced that the rules are credibly enforced if these are to affect their decision-making (North, 1990). This may be difficult because in order for legal sanctions to be imposed, the misuse of customer data, or any other breach, must not only be noticed, but also credibly proven. The Mobile Marketing Association (2007) can provide a source of trust by establishing a universal Code of Conduct. However, in order for the Code of Conduct to influence the customers' decision-making, the association must establish its legitimacy and convince the customers of its value. Moreover the criterion of credible enforcement may be difficult to achieve and communicate convincingly in the market.

In addition to the trust-related variables, we examined the customer's control (CON) over the number and type of mobile messages and the continuation/discontinuation of the mobile service as a potential substitute for trust (Blomqvist et al., 2005; Nooteboom, 2002).

We tested the impact of the different sources of trust and control on the customer's willingness to provide permission and personal information for mobile marketing purposes in a previous paper (Kautonen et al., 2007). The test was performed based on data from Finland, Germany and the UK (see below for details) utilizing structural equation modelling with LISREL8.7. The main finding was that the company's presence in the media in the form of advertisements, is clearly the most important factor in this context. Experience and institutional regulation were also statistically significant, although both clearly play lesser roles compared to media presence. While media presence was statistically significant in all three countries, the other factors that play a role in this context differed considerably with regard to country. This chapter looks more closely into the cross-country differences.

METHODS

While there is an abundance of measurement scales for trust in the previous literature (for example Cummings and Bromiley, 1996; Ganesan, 1994; Gillespie, 2003; Morgan and Hunt, 1994), none of them measure the sources of trust as intended in the present study. Therefore we developed new scales based on the literature reviewed in the previous section. The individual items enquired about people's attitudes towards the range of factors identified in the conceptual framework by employing a seven-point Likert scale. The full research instrument is available from the authors upon request. Given the cross-cultural nature of our study, particular care had to be taken in translating the measures used in the survey, in order to secure that all respondents from Finland, Germany and the UK perceived the questionnaire in a similar manner. Based on the Finnish questionnaire, German and English versions were developed following the standard procedures recommended by Brislin et al. (1973) allowing the identification and elimination of perceived differences between the various versions of the questionnaire.

The data collection for this study was carried out by means of a survey questionnaire in Finland, Germany and the UK in 2005–2006. The national samples comprised of 200 respondents in Finland, 207 in Germany and 260 in the UK. All samples consisted of university students. We decided to focus on this particular target group because a largely student-based sample suits a study of mobile marketing very well: this particular demographic group is in general more familiar with mobile services and uses them more than the population on average (Karjaluoto et al., 2005; Wilksa, 2003). Moreover young people can be regarded as one of the

major target groups of mobile marketing campaigns. These samples also ensured that we had respondents in the international sample that had experience of giving permission and personal information to mobile marketers.

RESULTS

Sample Characteristics

The gender distribution of the combined three-country dataset shows that 55 per cent of the respondents are male. Most are single (71 per cent) and fall into the 16–25-year-old age bracket (86 per cent). The German data is male dominated (68 per cent) and, because of the different system of higher education in this country, the German respondents are somewhat older on average (69 per cent being between 21 and 25 years old and 25 per cent between 26 and 35 years old). The Finnish data is slightly female dominated (59 per cent) with most respondents belonging to the 21–25-year-old age group (55 per cent). The UK data is slightly male dominated (55 per cent) and represents the youngest group among the three country samples (97 per cent being aged between 16 and 20).

With respect to the respondents' experience of mobile marketing, 60 per cent of the respondents across the combined data had received at least one marketing text message during the last month, and around 9 per cent had received more than five marketing text messages. Additionally close to 30 per cent reported having received at least one marketing text message in the previous month from a source whom they could not remember having given permission to. In terms of participating in mobile marketing, around 30 per cent had more than once requested information such as phone numbers, news, weather forecasts and sports news by text message during the last six months. A total of 22 per cent reported having ordered ring tones, screen savers or logos during the last month at least once. Less than 10 per cent had responded to a marketing text message by replying to the message (for example by ordering a product or service or requesting more information) during the last six months. Close to 13 per cent had responded to a mobile marketing message either by visiting a website or by phoning the company. Around 20 per cent of the respondents reported having participated in a lottery, TV programme or having voted by using text messages.

Table 10.1 compares the respondents' experience of mobile services in Finland, Germany and the UK by means of an analysis of variance test in which the dependent variable was country of origin and the independent variable a particular use of mobile services. The results show that there are statistically significant differences ($p < 0.001$) in all cases except in how many

Table 10.1 Use of mobile services in Germany (GER), Finland (FIN) and the UK: results of the one-way analysis of variance test (ANOVA)

Variable	Group	N	Mean	s.d.	Mean square between groups	F value	Sig.
Messages last month	GER	206	2.11	10.73	77.214	1.237	.291
	FIN	199	2.44	3.03			
	UK	256	3.23	7.84			
Messages last month without permission	GER	204	0.71	1.64	61.725	10.324	.000
	FIN	198	0.40	1.15			
	UK	250	1.42	3.51			
Information requested	GER	205	0.39	1.44	2110.627	39.008	.000
	FIN	200	6.52	9.61			
	UK	253	1.77	8.13			
Services requested	GER	204	0.16	.68	81.006	13.197	.000
	FIN	200	1.37	3.97			
	UK	253	0.44	1.77			
Responses to messages directly	GER	204	0.02	.17	5.225	12.691	.000
	FIN	200	0.34	.94			
	UK	256	0.13	.59			
Responses to messages by web/call	GER	206	0.09	.35	3.786	7.871	.000
	FIN	200	0.36	.99			
	UK	255	0.21	.61			
TV participation by SMS	GER	206	0.19	.39	7.381	12.646	.000
	FIN	200	0.51	1.26			
	UK	255	0.17	.39			
Participation in sweepstakes	GER	204	0.66	1.53	31.884	18.939	.000
	FIN	199	0.81	1.65			
	UK	255	0.11	.58			

Note: Scales from 1 ('strongly disagree') to 7 ('strongly agree')

text or multimedia marketing messages the respondents had received during the preceding month.

It appears that consumers in the UK receive more unsolicited mobile marketing messages than the other groups. Unwanted marketing messages arrive on British consumers' mobile phones twice as often as on the average German consumer's device and almost three times as often as in the Finnish case. Interestingly Finns have requested over three times more information such as phone numbers, news, weather forecasts and sports news by text message during the last six months than the UK group, and over 16 times more than the Germans. Similarly the Finns have been most

active in ordering mobile services such as ring tones, logos and screen savers. While the German market for such services seems to be still in its infancy, the British consumer appears to have already accepted these services and the Finnish market is clearly in the lead compared to these two other European markets.

It is also obvious from the table that Finnish respondents have reacted most positively to mobile marketing campaigns through a variety of means: by replying to the message directly, by visiting a website, by calling or by participating in TV programmes and sweepstakes. Whereas marketers can reach only early-adopters and people quite attuned to technology and new marketing formats in Germany and the UK, mobile marketing in Finland has already developed to a level that can be considered mainstream.

Sources of Trust

Individual differences between the respondents in terms of the sources of trust were examined by the use of an analysis of variance test in which the dependent variable was country of origin and the independent variable a trust dimension (Table 10.2). Before the variance test, we created composite variables of the individual items hypothesized to belong to the respective construct. Against this background, it is important to demonstrate that the scales used in the survey instrument were sound. Cronbach's alpha was utilized for this purpose. Cronbach's alpha measures how well a set of items (or variables) reflects a single unidimensional latent construct. It was ascertained that the scales were internally consistent with high construct validity. The alphas for the study constructs ranged from .70 to .92, which exceeds recommended thresholds (Nunnally, 1978, p. 245).

As can be seen, the differences in means are statistically significant ($p < 0.001$) in all cases between the three countries under investigation. A general trend in the results is that the German respondents provide consistently lower ratings in all categories. A likely interpretation, as supported by the results in Table 10.1, is that the German sample is the least experienced in using mobile services in general, which might reflect in a lower general legitimacy of mobile marketing, which in turn affects the ratings. The willingness to provide permission and personal information to mobile marketers is fairly low in all countries, with a mean value of below three for the combined three-country dataset. Probably as a result of their lesser experience with mobile marketing, the German consumers are less willing to permit mobile marketing than their Finnish and UK counterparts. Next, we discuss the differences related to each of the four sources of trust, starting with the largest differences and drawing comparisons with our previous

Table 10.2 Results of the one-way analysis of variance test (ANOVA) for the composite variables measuring the factors affecting general willingness to permit mobile marketing: Germany (GER), Finland (FIN), the UK and the combined data from all three countries (ALL)

Variable	Group	n	Mean	s.d.	alpha	Mean square between groups	F value	Sig.
Permission (PER)	GER	203	2.55	1.24	.89	15.687	10.553	.000
	FIN	186	2.99	1.26	.84			
	UK	222	3.06	1.17	.80			
	ALL	611	2.87	1.24	.85			
Experience with the company (EXP)	GER	205	3.46	1.61	.91	63.239	25.892	.000
	FIN	184	4.57	1.55	.88			
	UK	241	4.22	1.53	.86			
	ALL	630	4.08	1.62	.89			
Social influences (SOS)	GER	207	3.44	1.56	.91	47.459	20.310	.000
	FIN	186	4.23	1.57	.86			
	UK	248	4.28	1.47	.86			
	ALL	641	4.00	1.57	.88			
Media presence (MED)	GER	206	2.72	1.32	.93	45.243	24.852	.000
	FIN	185	3.28	1.38	.89			
	UK	236	3.62	1.35	.92			
	ALL	627	3.23	1.40	.92			
Institutional regulations (INS)	GER	205	3.71	1.19	.81	18.784	11.692	.000
	FIN	179	4.26	1.39	.84			
	UK	206	4.21	1.23	.83			
	ALL	590	4.05	1.29	.83			
Control (CON)	GER	205	4.04	1.62	.90	23.418	9.344	.000
	FIN	171	4.58	1.54	.71			
	UK	232	4.66	1.58	.85			
	ALL	608	4.43	1.60	.83			

Note: Scales from 1 ('strongly disagree') to 7 ('strongly agree')

paper (Kautonen et al., 2007) in which we examined the actual impact of the various sources of trust and control on the customer's willingness to permit mobile marketing.

The largest difference was found in the construct measuring the importance of personal experience of the company's products and services, direct marketing campaigns or customer relationship duration ($F=25.9$). Finnish consumers regarded their personal experience with the company as more

important than the other two groups, which is interesting because in our previous analysis, experience was not a significant factor influencing permission in Finland. In fact, experience was only significant amongst the UK group. Thus, while Finnish consumers value experience with the company as such slightly higher, the more important decision for the UK consumers is whether to give permission and personal information to mobile marketers. With respect to the company's advertising presence in media, the mean difference was slightly smaller than with personal experience with the company ($F=24.9$). The UK group seemed to value a company's media presence more than the other groups. However, in our previous study, media presence clearly influenced the Finnish consumers' decision to permit mobile marketing more than it did the UK or German consumers. So once again, the value placed on a factor in itself, does not equate to its role in the consumer's decision making.

In terms of the impact of social influence, the mean differences were the third highest ($F=20.3$). The German group in particular differed from the other two considerably in terms of its low mean value, which is interesting given that social influence was one of the strongest predictors of permission in the German sample in our previous study. The differences in terms of institutional regulation were clearly the smallest among the four sources of trust ($F=11.7$). Again the German consumers rate the factor as less important than the Finnish and UK consumers, between whom there is little difference. In our previous study, institutional regulation was not a significant predictor of permission in any single-country model.

Taking the survey respondents in the countries individually, and as a collective group across the three countries, a consumer's control over the mobile marketing process displays a mean value of above four, but shows the smallest mean difference ($F=9.34$), which is still statistically significant. This appears to be due to the comparatively high rating given to control by the German consumers. Interestingly, while the Finnish consumers give high ratings to the importance of control, based on our previous study this does not seem to affect their decision whether to permit mobile marketing per se. In Germany and the UK, on the other hand, having control over mobile marketing was a significant predictor of permission.

CONCLUSION

The sources of a consumer's trust in mobile marketing have not been known until now. This chapter shed light on this issue by examining survey data from young consumers in Finland, Germany and the UK by means of analyses of variance. Experience with the company, social influence, media

presence and institutional regulation were explored as sources of trust, and contrasted with the customer's control over mobile marketing. The analysis shows that scales used in the survey instrument were sound, internally consistent and with a high construct validity.

The results demonstrated that the respondents did have experience in giving permission and requesting mobile services, and that there were significant differences among countries. Finnish consumers were the most likely to request information such as news, weather forecasts and sports news by text message, and German consumers were least likely to make such requests. This order of Finns, British and Germans is found in ordering mobile services, and also with respect to responding most positively to text message marketing. An explanation for this specific behaviour might be attributed to the different stages of market development in the three surveyed countries – both for the mobile business environment in general and for the mobile marketing environment in particular. The favourable disposition of Finns towards the aforementioned characteristics is a direct consequence of their higher level of experience, and the opposite is true for German consumers.

Consumers in the UK are more likely to receive unsolicited mobile marketing messages than the other groups. Somewhat understandably, UK consumers therefore expressed the strongest desire to have the most amount of control over their ability to give permission and personal information to mobile marketers. In fact, taking consumers in the countries individually, and as a collective group across the three countries, control was found to receive fairly high mean values as a factor influencing the consumers' willingness to permit mobile marketing. In other words, consumers seem quite keen to ensure that companies should only use personal information when explicit permission is given by the owner of the information, and that the owner retains the right to withdraw this permission at any given time. However, our previous analysis based on structural equation modelling, reported in Kautonen et al. (2007), showed that while control had a significant impact on the German and UK consumers' willingness to permit mobile marketing, it had no effect whatsoever for Finnish consumers.

In terms of the sources of trust, the differences between Finnish and UK consumers were fairly small, while the German respondents provided consistently lower ratings in each category. This might be due to them being less experienced with mobile marketing in general. Interestingly, there were only minor differences in the mean values attributed to experience with the company, social influence and institutional regulation as sources of trust in each country sample. Media presence, on the other hand, was rated the lowest in each country. This is rather interesting given that in our previous

analysis of the impact of the different sources of trust on the consumer's willingness to permit mobile marketing (Kautonen et al., 2007), we concluded that media presence was the strongest predictor of permission in Finland and the UK and a statistically significant one in Germany too.

In conclusion, it is safe to assume that the three countries under investigation not only differ in terms of the adoption of mobile marketing technologies, but also in terms of the possible antecedents of the willingness to permit mobile marketing campaigns. Mobile marketers would be well advised to pay attention to these differences when planning both international and national campaigns.

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11. Interpersonal trust and mobile communication: a social network approach

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INTRODUCTION

Mobile communication technologies, such as mobile phones, Personal Digital Assistants (PDAs) and handheld computers, have during the last decade been widely adopted by private users as well as by business professionals. For many European countries the average penetration rate for mobile phones has reached, and even surpassed, 100 per cent, indicating that the large majority of inhabitants have access to mobile speech communication, as well as the exchange of text messages (SMS) (ITU, 2006). For the increasing number of people who have access to broadband mobile networks, more advanced services are accessible, such as multimedia messages, email services and mobile video-conferences.

The high availability of basic mobile communication technologies and services has created a new situation for regular users, with almost immediate access to friends, families and colleagues whenever needed. The norms for how social relations should be supported by mediated communication have changed, and there are several indicators of new and innovative ways of using communication technologies to support individual and group-based social networks (Katz and Aakhus, 2002; Katz and Rice, 2002; Ling, 2004). Some researchers have called the emerging situation a 'connected presence' (Licoppe and Smoreda, 2004), or a situation of 'perpetual contact' (Katz and Aakhus, 2002), indicating how mobile technology has created an opportunity to be always in touch with the important relations in your private life or at work. This motivates the emergence of new criteria for how social relations are established, sustained and terminated: new norms and rules for how trust is expressed and enhanced are emerging, not determined by any technological logic, but intertwined with the opportunities provided by the affordances of the technologies (Gaver, 1991; Norman, 1998; Wellman et al., 2003). As a

vital element in many relations, interpersonal trust is strongly involved in these changes.

Within workplace settings, the proliferation of knowledge work makes considerations of interpersonal trust ever more important, since knowledge sharing depends on trust to a large extent. Distributed work settings may challenge the development of trust relations, whereas information and communication technologies both facilitate and change the potentials for the development and maintenance of interpersonal trust.

The objective of this chapter is twofold: first we will propose a framework for discussing trust as embedded in social relations and networks within a work group, closely related to (but not constituted by) the flow of mediated interaction. Based on a cognitive network approach we argue that trust can be seen as a 'perceived network' existing on various levels within a social group, and supported in different ways by available communication media. Secondly, we will use this framework to explore how cognitive and affective trust networks were interrelated to the use of SMS and mobile phone dialogues as well as to email interaction. Based on a quantitative and qualitative study of distributed workers in a Nordic engineering company, we present findings that explore and explain interrelationships between interpersonal trust and mobile phone dialogues, SMS and email messages. The case presented here involves a group of technical experts working together across national as well as institutional boundaries in the wake of a company acquisition.

INTERPERSONAL TRUST AND THE USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN WORK SITUATIONS

Trust can be defined as 'a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of others' (Rousseau et al., 1998, p. 395). This widely used definition emphasizes that trust is a subjective perception of others' intentions and potential future actions. Even though it denotes trust as a psychological state, it by no means follows that trust is unrelated to social settings – such as work environments. On the contrary, the perceived vulnerability and the expectations of others, will to a high degree depend on the actors' position in a social system, the risks and dangers they experience, and the possibility of observing or controlling the actions of others. Therefore, trust is at the same time an individual state of mind, but also strongly constrained, created or supported by social factors.

In organization studies, trust is believed to have a positive effect by enabling cooperative behaviour (Gambetta, 1988), promoting adaptive organizational forms (Miles and Snow, 1992), reducing conflicts and decreasing transaction costs (Bradach and Eccles, 1989). According to Dirks and Ferrin (2001), however, the most important impact of trust is that it seems to *moderate* the effects of primary determinants on outcomes, by affecting how one interprets other individuals' intentions and actions. It affects how individuals interpret and assess other parties' past behaviour, and shapes expectations of future behaviour.

Trust may have a general form, as in the form of dispositional trust (Mayer et al., 1995) or may be embedded in norms and values within a particular society. Yet in many situations this is a positive attitude directed towards particular people at the workplace, neighbourhood or in the family. This is often denoted 'interpersonal trust', and this article draws particular attention to this type of trust within a group of professionals. Empirical investigations of interpersonal trust usually make a distinction between cognitive and affective dimensions of interpersonal trust (Boon and Holmes, 1991; Lewis and Weigert, 1985; McAllister, 1995). The *cognitive dimension* refers to the calculative and rational characteristics demonstrated by trustees, such as reliability, integrity, competence and responsibility. The *affective dimension*, on the other hand, involves emotional elements and social skills of trustees. The affective aspects of trust have in particular been studied in close relationships, but they have also been found to be important in work-related relationships (McAllister, 1995). Later in this chapter we will use this distinction in the study of interpersonal trust and the use of mediated communication in a small, distributed work group.

Trust, Interaction and Time

A crucial issue in any discussion about the use of communication media and interpersonal trust is how the latter is related to interaction. This is a point where divergent answers are given by trust researchers, emphasizing either interaction or trust as the crucial 'driving factor'. On the one hand, there is a widely held belief that regular interaction over time leads to relational trust, at least in most cases (Ring and Van de Ven, 1992). In analyses of development of trust in political movements, for instance, Tilly (2005) sees trust as developing through interaction over time. On the other hand, there is a group of researchers who argue that trust is a mental motive that *generates* interaction and cohesiveness (Bradach and Eccles, 1989; Johansen and Selart, 2006; McEvily et al., 2003).

The trust/interaction relation may seem to be a typical chicken and egg problem, where it is difficult to account for the causal direction in a

satisfactory way. What is clear, however, is that trusting someone depends on some form of information about the potential trustee. This information does not necessarily derive from personal experience; reputations and rumours are also important, along with cultural stereotypes or 'images' (Burt and Knez, 1996; McKnight et al., 1995). Also, a high level of trust in the other's role or professionalism can help to establish cognitive trust quickly, with little or no former interaction (Meyerson et al., 1996). For the more affective forms of trust, however, in-depth knowledge about the trustor through face-to-face communication seems to be a precondition. Such ties will also need some sort of recurring communication so as not to fade away. In general, one may say that affective trust takes a longer time to build up than cognitive trust, while it is also more durable and robust (Boon and Holmes, 1991; Lewicki and Bunker, 1996). As captured in the concept of social capital, trusting relations can be seen as a resource, available only after sufficient 'investments' in the relations over time (Burt, 2005; Fukuyama, 2001; Lin, 2001; Monge and Eisenberg, 1987; Nahapiet and Ghoshal, 1998).

Emerging transformations in post-bureaucratic organizations may be challenging for the development of interpersonal trust (Grey and Garsten, 2001). Lack of routines and procedures may create uncertainty in what is proper behaviour, and fast organizational changes may prevent the establishment of longer and 'deeper' relations (Sennett, 1998). Simultaneously, new sets of personal media have been widely adapted in organizations and workplaces in the last decades, including email, instant messaging, and mobile communication services. These tools offer new ways to conduct work tasks but also new ways to handle social relations across time and space. The different media have, however, different qualities as well as symbolic values for users. The choice of a particular medium over another to sustain relations is thus hardly random, but must be seen in relation to the user's and receiver's experience of the particular relation.

Trust as Networks: a Conceptual Framework

Within sociology, social psychology and anthropology a central paradigm for studies of relational structures is *social network analysis* (Erickson, 1988; Scott, 2000; Wasserman and Faust, 1994; Wellman, 1988). A central idea underlying this paradigm is that structural aspects of social relations have impacts on individuals, on groups and on organizations. While acknowledging the importance of the attributes of the individuals, social network studies direct their attention to relations and social structures in explaining social phenomena, rather than focusing on the individual. According to this perspective, trust can be seen as a quality of a social

relation, and there will be structured patterns of trust within a group, together with other forms of relations (Julsrud and Bakke, 2007).

But what kind of network is a trust network? As is evident from the definition above, the essential feature of trust is that it is based on 'positive expectations of the intentions or behaviour of others'. Like relations based on friendship, trusting ties represent *perceived relationships* that exist largely as a mental attitude towards others in a network. Analytically, trust relations can be distinguished from *interaction-based relations*, that is, relations based on observed communication patterns – the number of phone calls or frequency of face-to-face interaction. This is not to say that trust and interaction are non-related, but that the relationship is difficult to anticipate a priori. Social networks are usually snapshots of interaction at a given time and the trust relations might, or might not, be evident in a network structure.

Secondly, both trust networks and interaction networks should be distinguished from *formal organizational networks*. In most workplaces, for individuals there is a considerable degree of choice in selecting communication partners, and in deciding whom to trust in work settings (Kadushin, 2005). Whereas formal roles and job descriptions prescribe certain types of interaction and communication in organizations, actual interaction is usually shaped by these other constraints. This is important to remember when analysing relational trust in organizations, where taking frequent interaction between two individuals as an indicator of high interpersonal trust may be problematic.

In the field of social network studies, the connections between networks as observed interactions and networks as mental constructs touch on important ontological questions, regarding what should be seen to constitute the 'real' manifestations of social networks; observable interactions and/or psychological attractions. We will here rely on a framework outlined by Corman and Scott (1994) to clarify this issue. These authors apply elements from structuration theory developed by Anthony Giddens and argue that different modalities explain the recursive relationships between cognitive social structure and interaction (Giddens, 1984). From their perspective, social networks are basically mental constructs that are continually reproduced through interaction. In line with the basic ideas of structuration theory, they argue that: 'the network is an abstract structure of rules and resources of communicative actors in a given social collective, instantiated in communication systems, but having only a "virtual existence"' (Corman and Scott, 1994, p. 174).

Social networks, then, may be seen as a *cognitive resource* embedded in a particular social community or culture, not an observable social reality. Trust relations are cognitive resources that are activated or enacted by

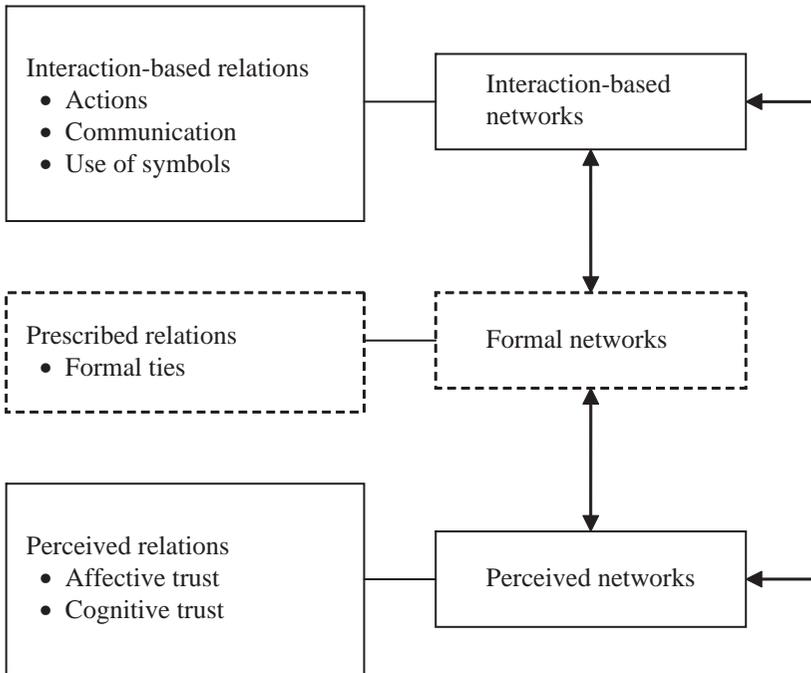


Figure 11.1 Conceptual model of central types of relations and networks in professional groups and teams

communication face-to-face or through communication media. As such they are distinguished from interaction-based relations (such as mediated communication) and prescribed relations (such as formal relations). The relationship between these relations is indicated in Figure 11.1. This model does not intend to capture all kinds of social relations or networks, but to sketch out some central types of relations and networks in organizations and groups.

The model is useful because it draws a clear distinction between interaction-based relations and perceived relations, and as such it permits the option of systematically analysing and comparing these networks in groups. In this chapter we are particularly interested in how the perceived relations of trust are linked to the use of mobile communication. The case in this study is a group of distributed workers working across distance, although in a non-hierarchical setting. As the difference between work-related and informal interaction was highly blurred in this group, we will in the following focus on the relationship between perceived and interaction-based ties.

METHODOLOGY

Although there has been a renewed interest in applying a network approach to small organizational groups, this is so far mostly done on larger samples, and mainly by analysing interaction-based ties (Ahuja and Carley, 1999; Cummings and Cross, 2003; Hinds and McGrath, 2006; Sparrowe et al., 2001). The design of the current study is a combination of different methodological strategies, including qualitative interviews with individuals and quantitative studies of group-based social networks. The data gathering included an explorative qualitative study, followed up by a quantitative enquiry, targeted at issues evolving out of the explorative phase. Together with other distributed work groups (not reported here), Delta was observed during a period of approximately 15 months. The qualitative results will in this chapter be used to supplement and explain central findings from the network study. (Note that all names of individuals and groups used in this chapter are pseudonyms, whereas information about gender and nationality is correct).

The case investigated is a group of technical experts working in a Nordic engineering company. As part of the implementation of a new and mobile workplace design, mobile phones had replaced traditional fixed-line telephones for all employees in Delta (fixed-line phones were only installed in some smaller rooms at the headquarters, mainly intended for telephone conferences). Therefore, we focused in this study on two of the mobile applications that we assumed to be the most important ones; SMS and mobile phone dialogues. In addition we included what we believed was the other most important communication medium in the group; email interaction through PCs.

Qualitative Interviews

Prior to the main quantitative network study, semi-structured interviews were conducted with employees and managers in order to get a better understanding of their work situation. The interviews followed an interview guide focusing on the respondents' main work tasks, social relations, identity in group/organization, and trust issues, and lasted 30–40 minutes. Eleven of the 13 employees in Delta were interviewed (two of the employees in the group were unavailable for interviews due to a shift in job assignments and absence due to sickness). In addition, interviews were conducted with individuals outside the group, including the leader's superior executive and other managers in the company. The rationale was to get a better understanding of the group's tasks and position in the company by including 'outside perspectives'.

During the qualitative study intermediate reports and preliminary analyses were made. The interviews were coded as text files (using NUD*IST software) and the main issues and topics from the interviews were classified.

Social Network Study

In the social network part of the study, interactions were registered through a web-based questionnaire and coded in a case-by-case social network matrix. All network data were gathered through retrospective reports of the frequency of communication during a week, together with assessments of trustworthiness. The data were gathered after the group had existed for a period of 19 months as a distributed group. Before the distributed work was established, no ties existed between the two national units.

The group members were asked to indicate interaction-based as well as trust-based relations. A traditional 'roster' design was used for the network study, whereby each group member received a list of the other members of the group (Wasserman and Faust, 1994). The response to the survey was good, and after two reminders, all the employees in the groups save one had completed their questionnaires. The data were coded as regular 1-mode social network data in socio-matrices for valued data, and analysed by UCINET and NetDraw software packages. As described above, the study intended to include both cognitive and affective aspects of trust. Table 11.1 shows the questions that were used to capture these dimensions.

The idea behind the affective trust formulation is that a discussion of a potential job shift would imply trustfulness, as disclosure of such plans would be negative for the reputation of the individual in question. These types of indirect questions are the most usual way to analyse trust-based relations in organizations within the network research tradition (Burt and Knez, 1996; Krackhardt and Hanson, 1993). The cognitive trust question tried to capture the knowledge-based ties in the group, based on professionalism and expertise. In more extensive organizational studies of affective and cognitive dimensions of trust, several items may be deployed in order to construct multi-dimensional indicators (see McAllister, 1995, p. 37). Our rationale for choosing two single item indicators in this study are twofold: first it is much more complex to use multiple indicators when applying a network study, because the recipient must indicate his/her perceived relationship to every other person in the group for each item. Secondly, our main goal for this study is not to measure trustfulness in the group per se, but to get some indicators that could reflect different trust-dimensions within the group. A more extended design would therefore go beyond the scope of the study.

Table 11.1 Questions used to track trust flows and interaction in Delta

Type	Relation/network	Indicator
Perceived	Cognitive trust	Whom in your group would you talk to if you needed professional advice in your daily work?
	Affective trust	If you were planning to apply for a job similar to the one you have today, but in another company; whom in your group would you prefer to discuss this with?
Interaction based	Mobile phone dialogues	Whom in your group have you talked to on the mobile phone during the last seven days?
	SMS	Whom in your group have you sent SMS messages to during the last seven days?
	Email	Whom in your group have you sent email messages to during the last seven days?
	FTF	Whom in your group have you talked to face-to-face during the last seven days

A measure of mediated interaction was established, based on questions asking about interaction between the respondents in the group in the last seven days, using mobile phone dialogues, SMS and email messages. In addition we asked for the frequency of physical meetings between individuals and the group in general (formal and informal). The network study relied on certain general concepts and terms including density, degree of centralization, core-periphery measures and E-I index, which will be further explained in the next section.

EMPIRICAL STUDY

Delta – a Group of Experts Working across Boundaries

Delta was a group of 13 technical experts working as a team across the boundaries of two units, situated in Norway and Denmark. The group was established after a Norwegian engineering company bought a smaller Danish company within the same business sector. In the new company, Delta acquired an important role in building up a united line of technical products that could be used in both markets. As such, the group was central in the work involving the integration of former technical products into a new set of technical products developed for the business consumer market.

The group was having monthly face-to-face meetings when we investigated them, and their regular interaction took place by the use of emails, audio-meetings, telephone calls and occasional video conferences.

Our early qualitative study of the communication and interaction in the group revealed that they had experienced significant problems in the group during the first year. Many employees found the collaboration in the group inadequate and that there was a sense of 'local orientation' in the group. In particular there were often problems agreeing on the right technical products and applications. One Norwegian Delta employee told us that:

There has been several conflicts here. Discussions go on and on and never end. Decisions that you think are made, keep coming back again and again. In the end, the result is a lack of trust between the employees in Denmark and here . . . (Female Delta employee)

These problems had brought issues of 'cultural differences', 'organizational identities' and 'trust' to the surface. Still, most participants felt that the group had taken important steps forward over the recent months in creating a better understanding of their work ahead.

Network Structures

Applying a network approach to a small group means that the individuals are seen as nodes in a network, integrated through a web of stronger and weaker relations (Kadushin, 2005; Katz et al., 2005). To capture the relations and networks in Delta, a limited number of measures were used, briefly described in the following.

The *density* of a network is measured as the number of actual connections as a proportion of the maximum possible connections, going from 0 to 1. For a directed graph the density is calculated as the number of arcs (L) divided by the possible number of arcs. *Freeman's centralization measure* describes how centralized a network is based on their incoming and outgoing ties (arcs). More precisely; it indicates the extent to which the network resembles the shape of a 'star', the most centralized structure, of either ingoing or outgoing ties (Freeman, 1979). (Note that for valued graphs, as used here, the percentage may be larger than 100 per cent). A high *core-periphery structure* of a network indicates that there is a dense cohesive core with a sparse unconnected periphery (Borgatti and Everett, 1999). The coreness measure indicates the extent to which the network correlates to an ideal core-periphery model. For relations describing a distributed work group there is usually a particular need to describe relations that cross boundaries between two places. For this purpose the *E-I index*, as

Table 11.2 General network indicators for cognitive trust (*C-Trust*), affective trust (*A-Trust*), mobile phone dialogues, SMS, emails and face-to-face interaction

	Ties	Density	Network centralization (In-degree) %	Network centralization (Out-degree) %	Coreness (continuous)	E-I Index
C-trust	62	0.429	45.833	18.750	0.353	-0.290
A-trust	16	0.064	20.139	11.111	0.437	-0.500
Mobile phone dialogues	68	0.403	28.472	127.778	0.523	-0.118
SMS	30	0.109	42.361	24.306	0.462	-0.467
Emails	80	0.570	64.583	154.861	0.624	-0.263
FTF	106	0.645	29.861	93.056	0.596	-0.520

developed by Krackhardt and Stern (1988), will be used. This indicator compares the external ties with the internal ties for groups within a network, ranging from -1 to $+1$. Given a partition of a network into a number of mutually exclusive groups, the E-I index is the number of ties external to the group, minus the number of ties that are internal to the group, divided by the total number of ties. Maximum collaboration across the boundaries is then $+1$ (all links are external), while equally divided links will give an index equal to zero. For the purpose of this part of the study, the Danish employees are described as 'external' and the Norwegians as 'internal'.

As can be seen in Table 11.2, the *cognitive trust network* is much more widespread than the affective one. The high density of the cognitive network – compared to the affective trust network – suggests that the participants in Delta were confident that the others in the group could help them solve difficult work-related issues. As indicated by the low E-I index, this network is much more boundary-crossing than the affective trust network, suggesting that there is an acknowledgment of the remote individuals' knowledge and competence. The in-degree centralization index is, however, also relatively high for cognitive trust, indicating that the competencies are not equally distributed in the network, which would be unlikely in this type of knowledge-based community. The structure of the cognitive network is presented in Figure 11.2.

The *affective trust networks*, based on personal dimensions of trust and personal oriented risks are more sparsely distributed. As one would expect,

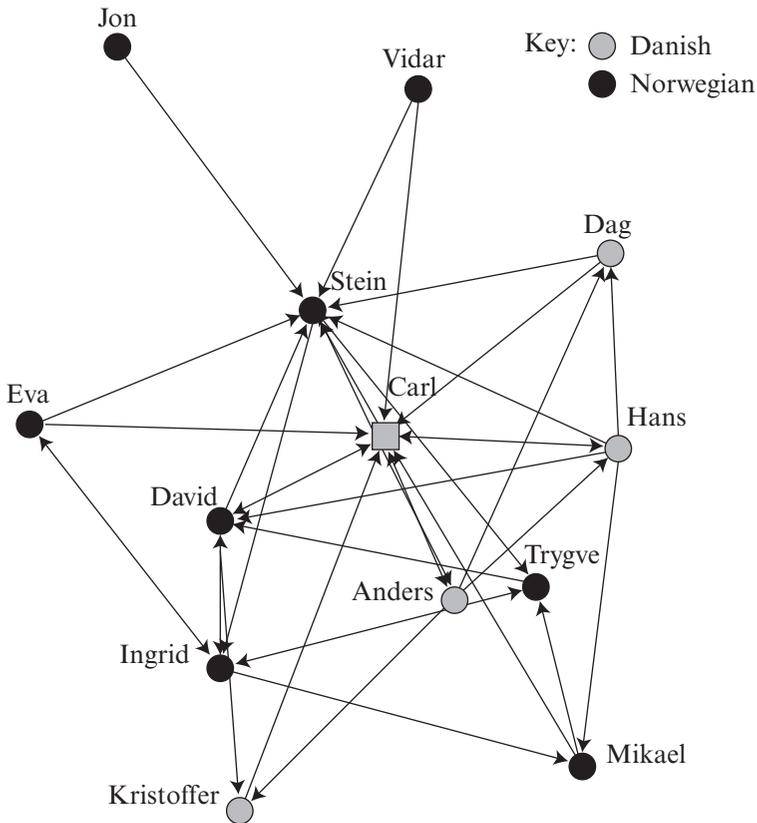


Figure 11.2 Cognitive trust network

this trust is more locally oriented than cognitive trust (as indicated by the high negative E-I index); there is only one boundary-crossing tie. The affective network is displayed in Figure 11.3.

The *mediated networks* had different qualities according to the network indicators in Table 11.2. First, the email network had the highest density, indicating that this was the most frequently used medium in the group, followed by mobile phone dialogues. Both these networks had high out-degree centralization indexes, indicating that they were widely used to distribute information in the group. The email network also had high in-degree centralization and a high coreness value, indicating that it was used to connect a central core in the group. The mobile phone network on the other hand had more ties that spanned the national boundaries (as indicated by the low E-I index) and a lower in-degree centralization. Second, the SMS network

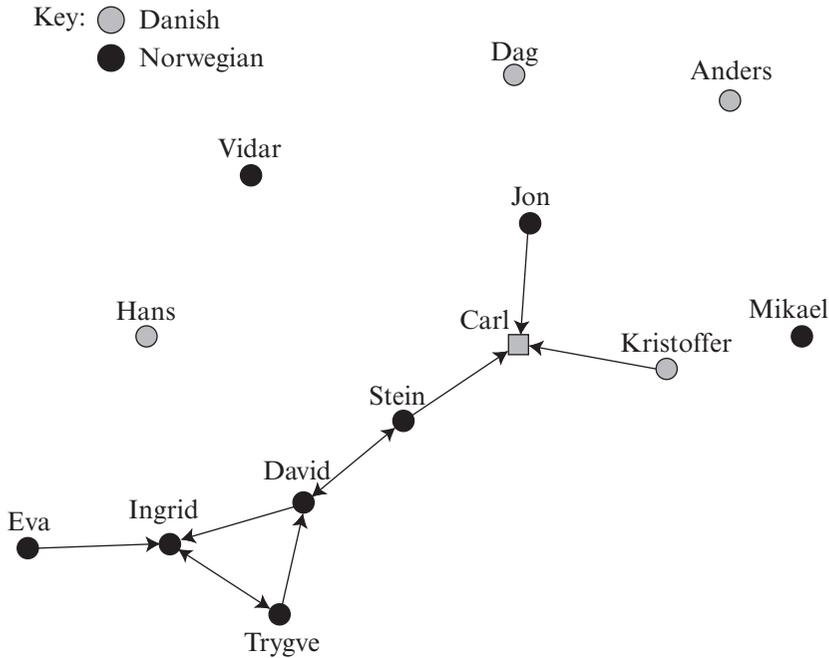


Figure 11.3 Affective trust network

was much more sparsely connected than the email and mobile phone dialogue networks, and the high E-I index indicates a local orientation. As such it had a structure that was very similar to the face-to-face interaction patterns, although less dense.

Trust Relations and Mobile Communication Networks

In our conceptual model, we argued that trust relations in general could be seen as cognitive structures based on positive expectations toward others in a group. An interesting question is whether these structures are related to the mediated interaction in the group. A regular QAP correlation procedure displayed interesting differences between the two trust networks and the three mediated networks (see Table 11.3). This is a technique that investigates whether one or more network values may predict a dependent network structure. More precisely it uses an algorithm that analyses the matrix data in two steps. In the first step, it computes Pearson's correlation coefficient (as well as simple matching coefficient) between corresponding cells of the two data matrices. In the second step, it randomly permutes

Table 11.3 QAP correlations of perceived and interaction based relations in Delta

Relations	C-trust	A-trust	Mobile phone dialogues	SMS	Emails
Perceived					
C-trust	–				
A-trust	0.278*	–			
Interaction based					
Mobile phone dialogues	0.396*	0.165	–		
SMS	0.281*	0.328*	0.397*	–	
Emails	0.504*	0.170	0.681*	0.363*	–
Face-to-face	0.312*	0.342*	0.121	0.282*	0.165

Note: * $p < .05$: A low p-value (< 0.05) suggests a strong relationship between the matrices that is unlikely to have occurred by chance

rows and columns of one matrix and re-computes the correlation (Borgatti et al., 2002).

First, we found that the two trust networks displayed high structural similarities, and the high correlation score indicated that the relation between them was not random ($r = 0.278$). Secondly, the cognitive trust network bears strong similarities to all the mediated interaction, indicating that much of this communication was related to conducting work tasks. All the three media channels are closely interrelated and in particular the email and the mobile phone dialogue networks ($r = 0.681$). Thirdly, and perhaps most interestingly, the correlation analysis indicates that the affective network is strongly related to the SMS and the face-to-face network, although not to the email and mobile phone dialogue networks. Thus, in Delta the available media seemed to be used differently in the work of establishing, sustaining and activating the two trust dimensions: affective trust networks followed similar patterns to the narrowband SMS interaction, while the more task-oriented cognitive trust network seemed to follow the same patterns as (in particular) email interaction and mobile phone dialogues.

DISCUSSION

The integrated network analysis of Delta indicated that the affective and the cognitive trust networks were related to different media. Having affective relations correlated positively with the likelihood of using SMS,

while cognitive trust relations correlated positively with the likelihood of using email messages and mobile phone dialogues. Moreover, media usage showed different patterns of proximity, where affective ties and SMS were more locally oriented. In the following, we will discuss further some potential explanations for these differences, coming out of the qualitative interviews.

The Risk of 'Narrow-band' Communication

Our interviews with Delta employees left little doubt that email and mobile phone were by far the most important communication tools, together with speech communication via mobile phones. The use of email messages was the main channel for job-related formal communication, and for the distribution of official information within the company, as there were few other options for longer written communication. The central role of email as a channel for work-related communication was probably an important reason why this channel was so much used among partners with high cognitive, or task-oriented trust. The language differences within Delta may have strengthened the use of email communication, since the two languages spoken in the group (Norwegian and Danish) are quite similar in their vocabulary (although with some differences in spelling), whereas pronunciation is quite different. Employees in both countries found that telephone dialogues in particular were challenging, and that written language was often easier to comprehend.

I prefer to use email in my work. It can be difficult to understand what they are saying, and when I use email I avoid misunderstandings (Female employee in Delta)

To ensure that messages were correctly understood many employees said that they used to follow up phone conversations and audio meetings with email messages. This might have been one reason for the close connection that we found between mobile phone dialogues and emails. There was, however, an important aspect of risk and uncertainty related to the telephone-mediated communication, as addressed by several Delta employees. The newly established group had, as mentioned earlier in this chapter, experienced significant difficulties in their first phase of collaboration. This might have been an important reason for their awareness of potential sources of conflict:

You cannot avoid sending emails, but it is important also to talk together and listen to the tone in the voice. The optimal is to meet each other face-to-face every now and then. When you don't know the other well enough it is often

difficult to interpret the email message correctly. To avoid misunderstandings due to irony, mood and so on, I believe it is crucial to have regular group meetings . . . (Female employee, Delta)

Several of the informants argued that group-internal communication should involve more face-to-face meetings to avoid further misunderstandings. In this perspective, text messages appear as a 'risky' communication channel as they usually contain short and context-specific messages with a relatively high degree of ambiguity. SMS were mainly used for last-minute coordination, ad hoc information, and more private messages. The less developed use of SMS suggests that the norms for using this technology were weaker than for email and mobile phone dialogues, and this could have made it difficult to interpret, for instance, a lack of immediate response. A receiver with high affective trust might be a safeguard against such misunderstandings, as they would probably interpret the message in a positive way. Thus, the risk surrounding the use of SMS might call for another level of trust in this group. In addition, short messages on the mobile phone seemed to have a slightly stronger symbolic meaning than email and dialogues. In Scandinavian culture SMS has always been most frequently used by adolescents and students, and as such it may symbolize a more private relationship than the other channels (Ling, 2004).

Local and Distant Zones of Trust

Several earlier studies of trust in distributed groups have found that cognitive trust is more easily established than affective trust (Kanawattanachai and Yoo, 2002; Jarvenpaa and Leidner, 1999; Meyerson et al., 1996). The current study corroborates these findings, suggesting that the affective trust is mainly situated within local ties, although occasionally also crossing organizational boundaries and distances. In Delta this was the case for the affective trust tie between Stein and Carl (see Figure 11.3). The local core of affective trust in the Norwegian sub-unit illustrates how the pattern of affective trust in Delta was embedded in cohesive sub-units of employees, often based on long-term relations. Many of the Norwegian Delta employees had been working together for several years and had therefore developed a richer network of affective ties.

Interestingly, the local trust zone was closely associated with face-to-face communication and with SMS. The remote, and more task-oriented relations within the group were dominated by email in combination with mobile phone dialogues. This suggests that narrow-band technologies, such as SMS, fulfil a dual role in distributed groups. On the one hand to conduct

micro-coordination of ad hoc tasks; on the other hand to sustain and activate the affective trusting ties.

One would perhaps expect closer and more affective ties to use *all* available communication media more intensively than more task-oriented ties. A finding coming out of earlier studies of media use in distributed networks has been that stronger ties are usually supported by the use of multiple media channels (Haythornthwaite, 2002; Haythornthwaite and Wellman, 1998). Yet, the physical proximity among the group with high affective trust, as well as the long history of collaboration between many of those employees, seemed to have moderated the need for instant mobile phone dialogues and email interaction.

CONCLUDING REMARKS

A network approach to interpersonal trust approaches trust as a 'flow' following particular relations and nodes within an organization or a group. This represents a distinct and novel way of understanding trustfulness in organizations and groups, in business and private life. It also opens the way for a closer analysis of how trust dimensions are interrelated to the use of available communication technologies. The results from this study suggest that affective and cognitive 'trust flows' were related to the use of mobile ICT in different ways: while email appeared as a channel for work-related communication and cognitive trust, SMS was more closely related to the flow of affective trust. Mobile phone dialogues, on the other hand, appeared to be closely affected by both email and SMS interaction, but most closely to the cognitive trust dimension.

This study has explored two aspects of trust; affective and cognitive 'trust flows'. This extended scope has been achieved by making certain delimitations: being based on a single case study and with the mapping of the trust relations based on single indicators, the study can be seen as an exploratory study of how aspects of trust relate to multi-dimensional ICT usage. The findings that central dimensions of interpersonal trust showed different patterns within a distributed group, and that different communication technologies affect trust in different ways, are two strong arguments for this kind of detailed and disaggregated study of trust and ICT.

A promising implication for managers of distributed work is that the cognitive trust network – which is important for solving work-related issues – proved to be widespread, in spite of a presumably difficult constellation of geographical distances and cultural differences related to the acquisition or merger of the two units. The affective trust networks were, however, less developed, and they showed stronger dependency on proximity and common

history. This is an indicator that the development of a common identity is a longer-term project, in need of more elaborate strategies than simply having access to a range of information and communication technologies, where regular face-to-face-meetings may be one element in the strategy. The fact that trust tended to go through particular nodes in the networks, also suggests that attention should be given to employees acting as connectors or brokers for trust in distributed groups (Julsrud and Bakke, 2007).

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PART THREE

New technologies and trust within and
between organizations

12. Who is on the other side of the screen? The role of trust in virtual teams

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INTRODUCTION

One of the consequences of globalization and of the rapid development of new technologies is that virtual team working is becoming more and more commonplace: wireless and mobile devices, together with the booming of the Internet, are providing the infrastructure necessary to support the development of new organizational forms as they create opportunities for organizations to set up and manage virtual teams more easily. Moreover, the birth of new organizational structures such as network organizations and new linkages, across company boundaries, time and distance, have also led to the adoption of virtual teaming (Birchall and Lyons, 1995). Although virtual teams have attracted the attention of many researchers (Lipnack and Stamps, 2000; Lurey and Raisinghani, 2001; Powell et al., 2004; Townsend et al., 2000) until recently (Zolin and Hinds, 2004; Zolin et al., 2004) little investigation has been carried out specifically on what impact trust has on the performance of such teams.

From the perspective of managers, virtual teams imply less hierarchical structures, more self-direction, less direct supervision and more diversity (Stough et al., 2000). However, for all of this to work, there is the need for a culture of trust and cooperation within the team. Hence, although virtual teams have the potential to carry unique strategic flexibility by enabling the swift formation and disbanding of groups made up of the best talent available (Lipnack and Stamps, 2000; Townsend et al., 2000), they also have a 'dark side' (Victor and Stephens, 1994): the fact that team members are often geographically dispersed and rarely meet face-to-face can potentially lead to low levels of trust and cooperation (Handy, 1995), which would certainly limit team performance.

Trust is a key element in aiding cooperation among team members as it avoids suspicions of opportunism and the occurrence of egotistic behaviour. Hence an investigation of the role of trust in the specific field of setting up and maintaining virtual teams would be of great benefit in an age where global working is becoming the norm.

This chapter sets out to answer many of the questions left unanswered by previous research, such as ‘what is the nature of trust in virtual teams?’, ‘to what extent is trust important in virtual team performance?’, and ‘how can trust be developed and maintained in virtual teams?’ First, the authors will examine the nature of virtual teams and then that of trust generally and in virtual teams specifically. An investigation of the applications of virtual teaming and the drivers for its introduction will then follow. The impact of technology on the functioning of virtual teams will also be examined together with a consideration of the impact of contextual factors such as language barriers. This will lead to a framework presenting characteristics of virtual teams and their influence on the need for trust development. The chapter will then close with an examination of managerial implications.

THE DISTINCTIVENESS OF VIRTUAL TEAMS

Torrington et al. (2002) point out that team working is not a new concept: self-managed working groups were already quite common in the 1960s and 1970s (Birchall, 1975). These authors add that in the 1990s team working was offered as a means of empowering employees, improving work–life balance and increasing their responsibility for a more fulfilling work experience. This view is reinforced by Kirkman et al. (2002, p. 67) who state that

while work teams were used in the US as early as the 1960s, the widespread use of teams . . . began in the Total Quality Management of the 1980s. In the late 1980s and early 1990s, many companies implemented self-managed or empowered work teams. To cut bureaucracy, reduce cycle time and improve service, line-level employees took on decision-making and problem-solving responsibilities traditionally reserved for management.

Torrington et al. (2002) also add that generating openness and trust, essential factors for a team to work, is difficult.

Virtual teams are a phenomenon which has emerged thanks to rapid developing technologies which have played a particularly important role in the development of novel organizational work structures and virtual team working (Zakaria et al., 2004). There is no agreement on a single definition of what virtual teams are. According to some researchers, virtual teams are groups of people working interdependently across space, time and

organization boundaries to achieve a common goal and who use technology to communicate and collaborate (see for example Lipnack and Stamps, 2000). Virtual team members may be located across the same country or across the world, they rarely meet face-to-face and often come from different countries (Maznevski and Chudoba, 2000).

Jarvenpaa et al. (2004) offer a slightly different definition as they see virtual teams as a knowledge work team, often self-managed and with distributed expertise, which can be formed and/or dismantled to respond to the organization's specific goals. However, according to Alper et al. (2000) those who propose self-management and those who instead see socio-technical characteristics as the main distinctive feature of virtual teams agree on a minimum critical specification which is based on the assumption that employees work better when they can control their internal mechanisms and coordination with minimal external supervision. Ultimately, peer control within the team ensures the application of internal control systems. Indeed, team members are expected to respect the team's norms and rules as their violation would result in sanctioning by the other members of the team (Wright and Barker, 2000). All this means that teams can have various degrees of autonomy when it comes to the different aspects of decision making.

To be seen as such, virtual teams must possess three basic attributes (Gibson and Manuel, 2003):

1. they must be functioning teams, that is members must be interdependent in task management and must have shared responsibility with regard to outcomes;
2. team members must be geographically dispersed;
3. team members must rely on technology-mediated communication to carry out their tasks.

The mere use of technology to communicate does not make a team 'virtual' as even collocated teams rely on technology to work together. Hence, we do agree with Zakaria et al. (2004, p. 16) when they say that 'what is paramount is the degree of reliance on electronic communication . . . as virtual teams have no option as to whether or not to use it, since they depend on virtuality.' More often than not, virtual team members never meet face-to-face.

Virtual teams are often created as a response to changes in the organizational environment. One example of such changes is globalization, which has exponentially increased the need for faster knowledge transfer and e-collaboration (Kayworth and Leidner, 2000; Overholt, 2002). Virtual teams can also be created to respond to organizational needs for flexibility (Jarvenpaa et al., 2004) as they can allow organizations to expand their

workforce as members may be working in several teams at the same time (Cascio, 2000). Also, virtual team working lets organizations combine their best expertise regardless of geographic location (Gibson and Manuel, 2003).

Global teams are seen as a special category within virtual team working (Massey et al., 2003; Maznevski and Chudoba, 2000). According to Maznevski and Chudoba (2000) these teams work on projects which usually have international components and repercussions. Also, there is a good chance that these teams will never have face-to-face meetings and they just rely on technology to cement their relationships. As noted by Zakaria et al. (2004, p. 19) an 'area of potential conflict in information technology-mediated communication is the language itself'. For example, in the case of global virtual teams who communicate in English, research has demonstrated that native and non-native English speakers have culture-based differences (Ulijn et al., 2000). However, these same language and cultural barriers can be one of the reasons why global virtual teams are set up, that is to work on how best to solve them. In these cases more than ever an atmosphere of trust is vital. Moreover, as these teams usually deal with complex issues lacking clearly defined processes and procedures, trust between virtual team members is vital to achieve effective knowledge generation and transfer.

What we have been discussing so far demonstrates that there is no single definition of what a virtual team is or can be. The characteristics of virtual teams identified by different investigators are summarized in Table 12.1.

As we can see, most researchers agree that geographical dispersion and shared tasks and purposes are fundamental characteristics of virtual teams. Geographical dispersion means that individuals have to act more independently due to the fact that they are physically separated from each other and the parent organization. Of course, the extent of this independence depends upon the organizational structure and the type of management.

Also, the temporary lifespan of virtual groups seems to be recognized by most investigators. However, other researchers (Duarte and Tennant-Snyder, 1999; Hoyt, 2000) see the development of technology as the main factor contributing to the rise of virtual team working. Due to both globalization and the fast-improving technological tools we have now virtual teams working across boundaries, with time and place no longer being obstacles.

For the purposes of this chapter we will adopt Cohen and Gibson's (2003) definition of virtual teams, that is to say functioning teams where team members must be geographically dispersed and rely on technology-mediated communication to carry out their tasks, with a stress on their reliance on technology-mediated communication to carry out tasks as the most defining characteristic.

Table 12.1 Main characteristics of virtual teams as identified by different researchers

Researcher(s)	Geographical location	Cross-organizational boundaries	Use of computers and new technology to communicate	Temporary	Shared or common tasks and purposes	Self-managed	Network
Cohen and Gibson (2003)	X		X		X		
Duarte and Tennant-Snyder (1999)	X	S	X	X			
Ishaya and Macaulay (1999)	X	S	X				
Jarvenpaa and Shaw (1998)				X	X	X	
Jarvenpaa and Leidner (1999)	X		X	X			
Jarvenpaa et al. (2004)	X			X	X		
Kayworth and Leidner (2000)	X		X		X		
Lipnack and Stamps (2000)	X	X	X		X		
Meyerson et al. (1996)				X	X		
Torrington et al. (2002)				X			X
Townsend et al. (2000)	X	S	X		X		

Note: S = sometimes present

THE NATURE OF TRUST IN VIRTUAL TEAMS

Much has been written about the nature of trust and many definitions are offered. It is recognized that trust is at the basis of human relationships (Barber, 1983; Mayer and Davis, 1999; Rempel et al., 1985). In the management world in particular, trust seems to be an important factor in successful leadership (Mayer and Davis, 1999), innovation (Clegg et al., 2002; Ruppel and Harrington, 2000) and effective decision-making processes (Driscoll, 1978; Spreitzer and Mishra, 1999). Although authors like Lewis and Weigert (1985) comment that most empirical studies fail to agree on a common working definition of trust, recently a more commonly agreed concept seems to be emerging in the literature (Rousseau et al., 1998). However, it should be borne in mind that context is critical to the creation of trust and that such a specific field as virtual relationships requires a somewhat higher level of trust (Jarvenpaa et al., 2004).

As people are mainly used to building work relationships thanks to face-to-face encounters and informal chats over a coffee, the physical barriers which come with a virtual environment, the lack of human contact and media richness, and the asynchronous nature of much of the communication within the virtual community are likely to generate uncertainty and ambiguity which, in turn, can easily jeopardize interactions and task achievement. Trust, by its own nature, erodes these barriers. Hence, understanding how trust is engendered and maintained in virtual communities is paramount in order to design virtual teams better and ensure they work effectively.

A number of key elements seem to be recognized as standing at the basis of trust:

1. *Risk*: Trust always involves an element of risk and doubt (Lewis and Weigert, 1985).
2. *Expectation*: Trust implies that one party expects another one to be honest, reliable, competent and, based on such expectations, is willing to become 'vulnerable' (Ishaya and Macaulay, 1999; Mishra, 1996).
3. *Inability to monitor another party and need to act despite uncertainties*: If trust exists, the lack of constant monitoring must be accepted, even when the other party's actions have a bearing on one's own choices (McEvily et al., 2003).

Lewicki and Bunker (1996) affirm that these three types of trust are interdependent, while Jarvenpaa and Leidner (1999) maintain that deterrence- and knowledge-based trust are difficult in virtual environments due to the lack of social interaction. Many researchers (Becerra and Gupta, 2003;

Jarvenpaa and Shaw, 1998; Mayer et al., 1995) also suggest that embedded predisposition to trust or propensity to trust can be added to the process of trust production.

Lewis and Weigert (1985) list four rules which govern trust development:

1. The greater the homogeneity of the group, the higher the level of trust.
2. The greater the connectedness of a social network, the greater the level of trust.
3. The greater the size and complexity of a community, the lower the level of trust.
4. The greater the social change, the lower the level of trust.

These rules seem to suggest that teams within one organization are likely to develop trust in a different way and in different forms to teams made up of members from different organizations. Moreover, many virtual teams are likely to experience rapid change as well as feeling apart from the main organization, so for them the route to trust development will be different from that of teams more firmly based within the organization.

Effective leadership/facilitation is linked to trust development. The research of Kayworth and Leidner (2000) suggests that the leader has a crucial role in providing a setting for group socialization and cohesiveness building as a means to developing trust. The building of relationships between team members should be a fundamental concern of leaders/facilitators (Pauleen and Yoong, 2001). Pauleen and Yoong also see effective communication as key in building relationships which, in turn, influence team effectiveness. Thus, for example, Cascio (2000), in reporting a study of 29 global virtual teams communicating only by email over a 6-week period, concluded that teams with the highest levels of trust tended to have three characteristics:

1. They began their virtual interaction by exchanging a series of social messages.
2. They set clear roles for each team member.
3. All team members demonstrated positive attitudes.

Piccoli and Ives (2003) concluded from their study of 51 temporary virtual teams that the behaviour control mechanisms used in collocated teams were in fact counterproductive if used in virtual teams as they increased vigilance and led to more individuals perceiving team co-members as failing to uphold obligations. Heightened vigilance was seen as increasing the likelihood of members fearing being exposed for not performing and thus a decline in trust. Communication obstacles were a factor

leading to the coexistence of different communication habits and constraints, the inability to overcome preconceived frameworks about the processes of team working and the inability to attend requests from virtual colleagues simultaneously. The lack of face-to-face interaction escalated all these problems. Hence, where incongruent perceptions of member commitments existed, trust declined. On the other hand, where all members were seen as being high performers, incidents were minimized and high levels of trust maintained. However, although trust and control are both seen as means for reducing uncertainty (Das and Teng, 1998), Crisp and Jarvenpaa (2000) rightly point out that most of the literature of virtual organizational forms concludes that high levels of uncertainty limit the use of control, requiring instead the use of trust.

In virtual interactions collaboration can be effective only if the parties enter into it with the willingness to open up to one another and cooperate to achieve a goal, carry out a task and solve problems. Trust is the factor which binds collaborators by fostering faith that all parties will do their bit without acting opportunistically. It is with this in mind that we adopt Mayer et al.'s (1995, p. 712) definition of trust which they see as 'the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustee, irrespective of the ability to monitor or control that other party.'

THE IMPACT OF THE TASK, ORGANIZATION AND CULTURE ON TRUST DEVELOPMENT

Virtual teams are required to work on a range of tasks where a high degree of interdependency may be present for task achievement, and team members may have the need for intense interaction to develop the innovative solutions expected (Duarte and Tennant-Snyder, 1999). DeSanctis and Monge (1999) suggest that task interdependence is a broad concept and can reflect contingencies involving shared goals or rewards and possibly a combination of behaviour and outcomes. It can be operationalized as communication or exchange of task-related information but also as representing the need for intrinsic or extrinsic resources, or tacit-knowledge structures. Hence, task complexity and the associated risks of non-achievement, routinization, time pressures, member isolation and member capabilities will place different requirements on teams for team working.

McGrath and Hollingshead (1994) suggest that in group activities members are simultaneously and continuously engaged in three functions: *production* (task requirements), *member support* (mutual assistance) and

group well-being (maintenance of social entity). They go on to suggest that, to carry out the functions, groups choose one of the following modes:

1. project inception
2. choice of means of problem solving
3. resolution of conflict
4. execution of performance requirements

They propose that there is no fixed sequence and that modes 1 and 4 are required for completion of every task while 2 and 3 are not essential. They then present the following classification of tasks performed by the group: *generate* – ideas/plans; *choose* – answers/solutions; *negotiate* – conflicting views or interests; and *execute* – against external performance standards. McGrath and Hollingshead also observe that the task types can be *behavioural* (for example execute), *cognitive* (for example choose), *collaborative* (for example generate) or *conflict resolution* (for example negotiate). They conclude that effective performance requires the successful transmission of information. The task types vary in the extent to which they depend on transmission of values, interests, personal commitments and other similar features.

The work of McGrath and Hollingshead provides a better understanding of the processes at play in teams, and their framework allows us to identify aspects of team working which would not appear to lend themselves to distributed working with the attendant loss of media richness resulting from the use of technology to mediate communications.

Stewart (2003) suggests that task difference can be measured based on the relative time spent on behavioural tasks rather than conceptual tasks such as planning, deciding and negotiating. Some tasks are predominantly behavioural and easily programmed, and require little novel interaction amongst members for the work to proceed. Where teams spend considerable time solving unprogrammed problems, the quality of interaction amongst members will have an impact on overall team performance. Where members depend upon each other for information, materials and reciprocal inputs, high interdependence occurs. Working virtually will be more problematic under conditions of high interdependence, which requires high levels of interaction on conceptual tasks. Gibson and Manuel (2003) suggest that the development of collective trust requires opportunities to interact and exchange information and this is less necessary where interdependence is low. Hence, effective working, where high task interdependence occurs, demands high trust, but also the nature of the work creates conditions where high trust can emerge, that is high levels of interaction.

A different approach to management is required compared to the traditional workplace (Cascio, 2000). This is primarily a shift from a focus on time to a focus on results, to 'the management of outcomes' rather than 'the management of process'. According to Cascio (2000) it involves a transition from managing time (activity-based) to managing projects (results-based). Some would argue that the processes for task achievement need to be more explicit than in the more traditional workplace, so that any non-performance is apparent at an early stage.

Whilst it might appear that management has to place more trust in the worker, management also has the capability to put in place technology-based means for measurement and control. This approach to control can impact on the functioning of the team and the development of trust. There is evidence to suggest that managerial interventions that focus the individual's attention on deadlines and work progress can promote trust decline by highlighting differences in contribution (Piccoli and Ives, 2003). These researchers see this as presenting management with a dilemma: they may allow the team to self-direct and accept whatever the outcomes, negative or positive, or they can intervene and risk a reduction in mutual trust between team members.

Other management choices will impact on the relationship between team members. For example, reward systems can focus on individual performance and lead to competition within the team, or they can be based on team performance. The likelihood is that the latter would encourage cooperative behaviour but it may actually impact negatively on the development of trust between team members because it leads to questioning of levels of contribution but in a situation where, due to physical separation, less evidence is available on which to judge input.

Pauleen and Yoong (2001) emphasize the need for training and ongoing support to enable and develop effective boundary-crossing behaviours where this is a pre-requisite for team performance. They suggest that virtual team dynamics and processes are much different to colocated teams, hence the need for training and support. But training may be necessary to assist in the individual's adjustment from more traditional office-based work to virtual working. Raghuram et al. (2003) reported research based on large scale surveys which showed work independence, clarity of evaluation criteria, trust and organizational connectedness to be significantly associated with adjustment. In this context they see interpersonal trust as preventing physical distances between organizational members from becoming psychological distances.

Wiesenfeld et al. (2001) suggested that organizational identification would be the psychological tie that binds virtual team workers together into an organization which then prevents feelings of being an independent

contractor working autonomously. The authors conclude that the need for affiliation and the degree of work-based social support are both critical predictors of organizational identification. Also, where work-based support is high, individual differences in need for affiliation have less impact.

Issues surrounding gaining individual affiliation would suggest that difficulties might be experienced in establishing a sense of organizational culture in organizations that make extensive use of virtual teaming. When teaming crosses organizational boundaries difficulties might arise from differences in policies, processes and practices between organizations as well as language (Pauleen and Yoong, 2001). A lack of identification with the organization may lead to a reduction of trust.

To function effectively the virtual team members not only have to develop an internal accommodation but also maintain the trust of both the parent organization and the client. Being separated from the mainstream organization new problems may be introduced for the client-facing virtual team in maintaining the organization's values in dealing with the outside world. As pointed out earlier, the lifetime of the virtual team may be so short that 'swift trust' is the basis of functioning across stakeholders.

Handy (1995, p. 48) is more radical in his thinking about the management of virtual teams when suggesting that:

Trust inevitably requires some sense of mutuality, of reciprocal loyalty. Virtual organizations, which feed on information, ideas and intelligence (which in turn are vested in the heads and hearts of people), cannot escape the dilemma. One answer is to turn the labourers into members; that is turn the instrumental contract into a membership contract. . . . Members have rights. They also have responsibilities. Their rights include a share in the governance of the community to which they belong. . . . Families, at their best, are communities built on trust. If the family could be extended to include key contributors, the sense of belonging would be properly inclusive.

Handy (1995) is questioning whether traditional views of the organization are at all sustainable in the virtual enterprise.

In conclusion, the nature of the task will have an impact on the extent to which trust amongst team members will impact on effectiveness. Where there is high interdependence and the task is conceptual in nature and limited in the degree to which it is programmable, high trust is needed. Under such circumstances control mechanisms may not be an effective means for regulating team member behaviour, although where the tasks are simpler and more routine this may provide an alternative route to coordinating the work. The style of management most likely to foster trust development is one that is supportive of the team and measures performance based on outputs rather than supervising the process for achieving the outcomes.

A FRAMEWORK FOR ASSESSING TRUST REQUIREMENTS IN VIRTUAL TEAMS

Figure 12.1 illustrates the main factors which, according to the prior research, have a deep impact on trust development. The factors have been grouped into virtual team member, team, parent organization and client organization:

1. Virtual team member factors include dimensions of personality relating to disposition to trust, personal motivation, competence levels and their fit to the needs of the team, and prior experiences of virtual team working.
2. The time frame for the virtual team seems particularly important in influencing the need for trust development. Short-term teams appear to operate on swift trust whereas longer-term teams have more likelihood of having to face up to issues in developing and maintaining deeper trust as well as introducing new members as needed. Task complexity and the potential for process codification are important influences over the extent to which the team needs to focus on behavioural aspects of the tasks rather than what McGrath and Hollingshead (1994) categorized as cognitive, collaborative and conflict resolution. These will influence the degree of interdependency, which in turn influences the extent to which the team behaviour needs to be either based on trust or managed by alternative means of regulation. The degree of autonomy, the means assumed for establishing control over team activity and the processes through which the team is established are important determinants of trust development.
3. The management style is likely to have an impact on the degree of autonomy afforded the team in practice. An inappropriate management style may be reinforced by the culture within the employing organization which may counter the degree of autonomy of virtual teams. Systems for monitoring team performance are dysfunctional where differences in team member contributions are highlighted. Reward systems based on team performance strengthen team working but can also lead to friction where disparities in performance are felt to exist. The rate of change within the parent organization will impact on the functioning of the team particularly where the main points of contact, or processes and systems, are being changed, as this impacts on the working methods of the team. The communications infrastructure may inhibit the team's ability to undertake all the functions in McGrath and Hollingshead's framework, particularly those which involve negotiation where team members are in disagreement about working methods.

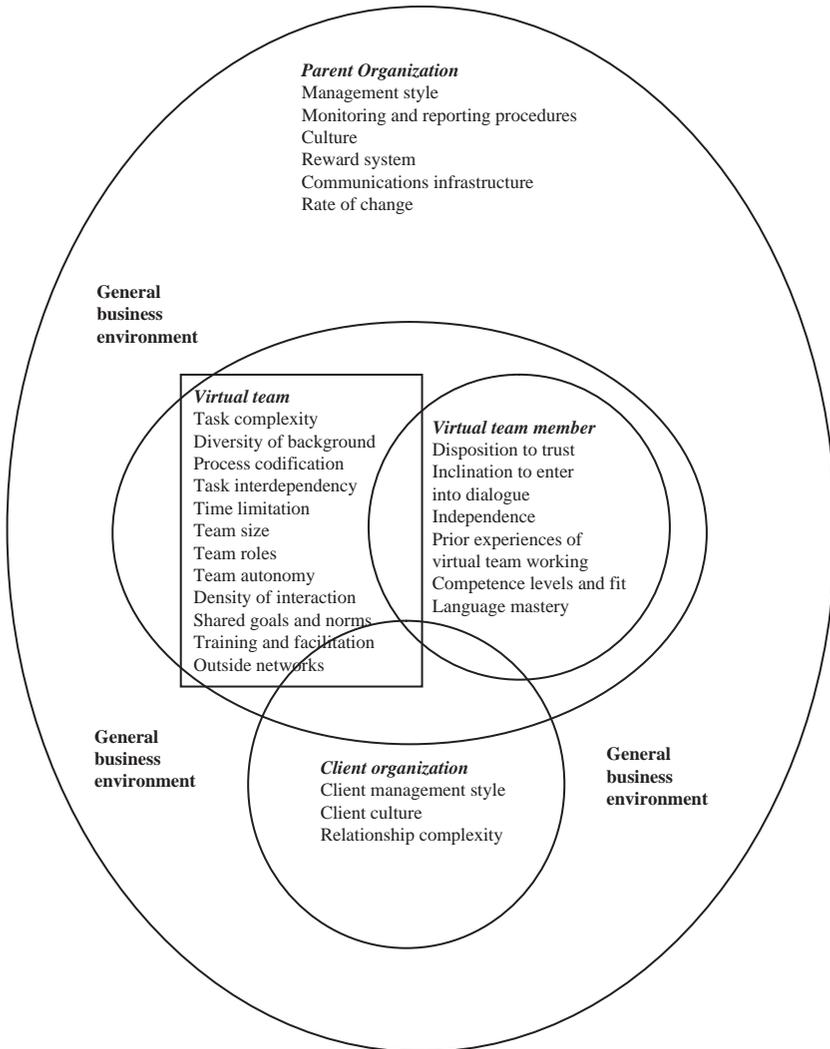


Figure 12.1 The factors impacting on trust development in virtual teams

The type of virtual team as classified by Duarte and Tennant-Snyder (1999) is used as the basis of a framework to review characteristics impacting on trust development. This approach enables a review of both the degree to which trust is essential and the nature of the trust which will enable effective team working. It is suggested that the following characteristics demand higher levels of team member trust:

- a. High task complexity with associated higher risk of task failure.
- b. High team member interdependence resulting from the need to combine member capabilities in order to achieve task completion.
- c. High process uncertainty requiring joint efforts to find/create solutions and resolve differences of opinion.
- d. Complex boundary-spanning relationships.
- e. High degree of team autonomy from parent organization leading to self-management.

The following characteristics of teamwork require swift trust:

- a. Short time period to achieve required outcomes making relationship trust infeasible.
- b. Fluidity in team membership with constant changes in membership with the frequent need to integrate new capabilities into team working.
- c. High client demands with limited time to build relationships.
- d. Limited contact with parent organization through the project phases.

In Table 12.2, after a review of the literature findings, we present an approach to assessing the degree of trust we believe is needed for different forms of virtual team working to be successful. The weightings are presented as illustrative of how the table might be used, either as a framework to guide future research or as a guide to management practice. However, in reading Table 12.2, we should remember the seven basic types of virtual teams identified by Duarte and Tennant-Snyder (1999), whose classification we have adopted in formulating this table:

1. *Networked teams*: team membership is fluid and members can be either internal or external to the organization.
2. *Parallel teams*: usually these teams have a short lifespan and they are distinct from the rest of the organization; they often undertake special assignments and tasks.
3. *Project or product development teams*: they are usually formed to manage projects specifically aimed at customers; their tasks are non-routine ones and the outcomes are measurable.
4. *Work or production teams*: they deal with ongoing work and have a clearly defined membership.
5. *Service teams*: teams which offer, for example, network support on a 24/7 basis.
6. *Management teams*: members of this type of team are rarely cross-organizational or geographically dispersed.

Table 12.2 Different types of virtual teams and teamwork characteristics

Type of virtual team	Complexity of task/ Codification of knowledge	Team inter-dependence	Codification of processes	Temporary/ fixed and short time period (swift trust)	Crossing organization boundaries	Stability of membership	Team independence of management structures
Networked teams	H-L	M-H	L	L-M	H	L	L-M
Parallel teams	H-L	M	H-L	L	H-L	H	L
Project or product development teams	H	H	L-M	M-H	H-L	H-L	H-L
Work or production teams	H-L	L-M	L	L	L	H	L
Service teams	H-L	L-M	H	L	L	H	L
Management teams	H	M-H	L	L	L	H	L
Action teams	H-M	H	L	H	H	L-M	H

Note: H=high presence; M=moderate presence; L=low presence

7. *Action teams*: these are teams that need to act quickly to respond to specific situations; membership is often cross-organizational, for example crisis management.

Table 12.2 shows that action teams normally require both a high level of overall trust (high task complexity, team interdependency, low process codification, high boundary spanning and high autonomy) and swift trust (short time period, unstable membership). In contrast, work or production teams appear to require much less trust in order to perform, although high trust levels may well improve overall performance.

MANAGERIAL IMPLICATIONS

Virtual teams perform different functions and hence no single 'magical recipe' for management practices will meet the organization's needs and purposes in all situations: a 'one-size-fits-all' approach is out of the question.

However, some common issues emerge from our research, namely:

- The setting up and early stages of the team's life;
- The composition of the team and the selection of its members;
- The training and development of management and team members;
- Communication and dialogue;
- Coaching and facilitation;
- Management behaviours in general.

To ensure that a lack of trust does not impede performance of set tasks, managers should make sure there is clarity about what is expected of virtual teaming and about the form of trust that is likely to impact on team performance. This can form the basis for identifying the most appropriate actions.

Based on a study of 65 virtual teams at Sabre Inc., Kirkman et al. (2002) concluded that both leaders and virtual team members face particular difficulty in selecting team members who have the balance of technical and interpersonal skills and abilities required to work virtually. They also recognize difficulties in evaluating the performance of individuals and teams working in virtual space. Included within the skills for management would be the ability to manage by results rather than by specification and supervision of the processes. These attributes might be seen as prerequisites for the development of trust.

Our literature review also highlights the need for management to ensure that the team size is appropriate and as small as practical. Stability in

membership is also identified as supporting trust development. That is the reason why managers should monitor the involvement of outsiders, limiting it if considered potentially disruptive. Management should also provide a suitable communications infrastructure that can meet both task demands and, as far as possible, the team members' personal preferences. This might include the provision of a setting for group socialization and team building.

Development, at an early stage, of a protocol to guide or even govern behaviours within the team, may be appropriate. Kirkman et al. (2002) suggest that a team charter which identifies important types of team member behaviours might be useful (for example responding to all emails from team members within 24 hours is a complementary strategy that leaders may use to develop trust among virtual team members). These actions are seen as being the basis of strong team norms about types of behaviour that foster trust. Team leaders should follow this up by coaching virtual team members to avoid long lags in responding, unilateral priority shifts, and failure to follow-up on commitments. Management has a role to play in creating a supportive climate, one in which ideas are shared freely, conflict is based on the task and not on personality issues, conflict resolution is open and perceived as fair, and problem solutions are understood and mutually accepted (Gibson and Manuel, 2003). Explicit verbalization of commitment, excitement and optimism help create this supportive climate (Crisp and Jarvenpaa, 2000).

COMMUNICATION BETWEEN VIRTUAL TEAMS AND PARENT ORGANIZATION

Managers need to take into account the issue of communication between virtual team members and the parent organization: feeling part of a wider community is important for some team members; also important is being able to identify next career moves. Some organizations would also be concerned to ensure that teams behave as though part of this wider organization, reflecting its culture and following its procedures and practices.

As mentioned, virtual team members have no choice but to communicate and carry out their tasks through Computer Mediated Communication Systems (CMC), and managers should always consider this important aspect which affects communication not just with the parent organization; managers need to consider the impact of CMC in their own communication with staff, as well as on the way team members interact.

CMC allows both synchronous and asynchronous communication, with the former enabling access to information and simultaneous exchange, for

example instant messaging, video-conferencing, teleconferencing, and the latter giving access to non-real time information exchange, for example emails, message boards and collaborative software. However, the rich and expressive communication present in face-to-face interactions is limited in virtual settings. As Zakaria et al. (2004, p. 24) point out, 'unlike face-to-face work environments where non-work information is shared and informal relationship-building occurs naturally, spontaneous expressive communication is less common in computer-mediated environments.' This results in a diminished sense of presence and in the loss of communication cues (Kayworth and Leidner, 2000; Townsend et al., 2000). Hence, CMC can have an impact on interpersonal interaction and relational communication which, in turn, impact on trust development. Although Walther (1995) has demonstrated that people can develop social relationships in CMC environments when they are given sufficient time, there is also considerable evidence suggesting that it is more difficult to develop social relationships due to the depersonalization effect (Kiesler et al., 1984; Sproull and Kiesler, 1986).

Researchers recommend a number of ways to reduce the negative effects of CMC:

- The absence of non-verbal communication requires that virtual team members should be aware of its impact (Hoyt, 2000).
- The choice of communication methods to be used should be consistent with the task and time requirements. Team members should also be trained in its use. Richer media, such as face-to-face interactions, are more likely to enhance the ability to communicate project outcomes and engender cooperative behaviour, which is important in trust development (Kayworth and Leidner, 2000).
- Synchronous methods are effective for time deadlines and asynchronous methods are useful for relational/social aspects, for example a web page used to create a team space (Kayworth and Leidner, 2000).
- From a relational perspective, CMC may be better suited to longitudinal interaction, for example project teams (Jarvenpaa and Shaw, 1998; Walther, 1995). Video conferencing is useful in comparison to face-to-face meetings as physical closeness is not required (Eggert, 2001). Social cues are used to imitate elements of face-to-face interaction, for example emoticons in instant messaging (Overholt, 2002).
- Open and engaging communications counteract the absence of physical proximity and one has to be more explicit when communicating in a virtual environment (Hoyt, 2000; Overholt, 2002).

Trust development seems to be aided by deep dialogue, openness and the sharing of mental frameworks. Management needs to take care of these

processes and consider that they can be facilitated by a coach. Group facilitation is reported as helping develop and maintain relationships. Teams may also benefit from being assisted in the choice of problem-solving approaches. By reflecting on the model proposed by McGrath and Hollingshead (1994), one can identify several dimensions of group activity where help can lead to positive outcomes and, by consequence, increase trust levels, in particular focusing on aspects of negotiation and resolution of conflict. Another important way management can support trust development is by being sensitive, consistent and encouraging with team members. Clearly management behaviours should support the organizational intentions in moving to increased virtual teaming.

Finally, consistency between the team and the parent organization needs consideration by management. Incongruence, for example contradictory reward systems, offers the potential for conflict which will take up management time and effort as interventions are needed to develop and maintain trust.

CONCLUSIONS

Virtual team working is increasing in importance as it serves many and varied purposes in organizations as they search for means to remain competitive in the face of increasingly global competition.

In this chapter we have seen how important trust is in virtual teams. Moreover, we have also seen that the extent to which a high level of trust is necessary for effective team performance varies depending on a number of factors including: codification of both knowledge and processes; team members' interdependence; degree of boundary-spanning; time span; membership stability; team autonomy. In some instances, particularly where the life of the team is short, swift trust is essential. This is likely to take the form of knowledge-based trust established in the first instance through personal reputation and credibility.

A greater degree of virtual teamwork is leading to greater reliance on these teams, not only to carry out routine problem solving, but also to be a source of new knowledge for the organization. For the latter to be successful team members need 'deeper' trust, one based on stronger interpersonal relationships and greater personal commitment. Tacit-knowledge sharing is more likely where this deeper trust is present. Whilst research offers insights into the nature of trust in virtual teams, to date it contributes little to an understanding of the complex processes through which management behaviour fosters the development of this deeper, unconditional trust between team members. Of concern also is the nature and development of

trust between management and the team and between the team and its clients.

In this chapter we have developed a framework for use in future research and to give guidance to managers in developing trusting relationships among virtual team members.

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13. Developing pre-relational trust in technology service providers

Malliga Marimuthu and Alison M. Dean

INTRODUCTION

Over the last two decades, studies on technology adoption have been well documented, with a meta-analysis (Ma and Liu, 2004) and a review of empirical findings (Legris et al., 2003) providing substantial evidence of interest in the antecedents that predict adoption behaviour. Technology adoption is defined as a firm's individual decision to either use or reject a specific system or service (Nijssen and Frambach, 2000). Understanding the antecedents to technology adoption is important because different antecedents may require different marketing approaches. Further, this understanding is especially important in the business-to-business (B2B) context since antecedents to technology adoption in B2B markets remain unclear and largely under-explored.

Even though studies of technology adoption have widely examined the factors that may influence it, the influence of trust in service providers on technology adoption in the B2B context has received limited attention. Trust is a seminal construct in relationship marketing and has been emphasized as an impetus for technology adoption decisions (Bahmanziari et al., 2003). Trust plays a particularly important role in services because of the inability of the purchaser to test agreed quality standards, and the fact that business customers must rely directly on service providers' integrity for appropriate levels of service delivery. Thus, service providers are under pressure to enhance trust by meeting specific customer-related and customer-perceived criteria, in order to develop and sustain relationships (Ligas, 2004). We are interested in the factors that contribute to this preliminary process, that is, to understanding the factors that stimulate the development of trust in service providers prior to decisions on technology adoption.

Pre-relational trust represents the level of trust before the initiation of an exchange episode (Singh and Sirdeshmukh, 2000). Although trust is recognized as a key tool for maintaining and enhancing relationships with

customers in the marketing literature (Coulter and Coulter, 2002; Doney and Cannon, 1997), the role of pre-relational trust in establishing or initiating the relationship remains relatively uninvestigated. Further, little attention has been paid to the contribution of pre-relational trust to behavioural intentions when compared to post-relational trust. This chapter will provide new insights into how pre-relational trust in service providers can be developed.

In addition to identifying factors that lead to pre-relational trust in technology service providers, the effect of marketing communication as an antecedent to developing pre-relational trust is explored. Marketing communication has implications for attracting attention and cultivating awareness among the target audience (Andersen, 2001). It is important in providing information and making potential customers aware of offerings in order to persuade them to buy the product or service. A small number of studies have revealed the significant influence of marketing communication on trust (Ball et al., 2004; Morgan and Hunt, 1994). However, these studies have only investigated the impact of communication on post-relational trust. As yet, no studies appear to have examined the effects of marketing communication on pre-relational trust. Having a clear understanding of these effects will assist business marketers to improve their marketing strategies and increase the likelihood of attracting more customers to adopt the relevant technology.

This chapter reports on a study which aimed to explore how pre-relational trust in service providers develops, and therefore the factors that are likely to influence business buyers' attitudes and behaviours towards technology adoption. Trust in service providers is considered particularly relevant to the study, due to the nature of the technology used, namely Geographical Information Systems (GIS), which provides opportunities for either software or service adoption, or both. It is assumed that the existence of consultancy companies to facilitate the business customers' use of the technology may have a different impact on adoption decisions. Thus, we investigate the opinions of business customers with respect to the importance of trust in service providers, before a specific exchange occurrence. In addition, we consider the role and relevance of marketing communication as an antecedent of pre-relational trust in the context of technology adoption.

The chapter is organized as follows. A brief literature review follows this introduction, and an empirical study is then reported and discussed. The review of the literature examines issues surrounding pre-relational trust in service providers, possible dimensions of pre-relational trust, and finally trust and communication. The empirical study outlines the overall design, sample, analysis and discussion. We then provide a discussion of findings and conclude with managerial implications.

LITERATURE REVIEW

The literature on technology adoption studies at an organizational level shows that the majority of studies have concentrated on identifying the constructs that influence adoption decisions (Avlonitis and Panagopoulos, 2005; Robinson et al., 2005; Schillewaert et al., 2005). Scholars have classified the relevant factors into four main components: (1) innovation characteristics; (2) organization characteristics; (3) decision maker's characteristics; and (4) environmental characteristics (Avlonitis and Panagopoulos, 2005; Ching and Ellis, 2004; Schillewaert et al., 2005). Additionally, the influence of environmental characteristics can be further grouped into four external agents: competitor, customer, supplier and government (Bradley and Stewart, 2003; Ching and Ellis, 2004; Schillewaert et al., 2005). However, these external agents that influence technology adoption are mainly studied from competitors' and customers' perspectives (Avlonitis and Panagopoulos, 2005; Bradley and Stewart, 2003; Schillewaert et al., 2005). Very few studies have examined the influence of suppliers, such as the service provider, on technology adoption (Ching and Ellis, 2004; Deeter-Schmelz et al., 2001; Lee et al., 2005). The current chapter addresses this gap by investigating the factors that influence the development of pre-relational trust in service providers on the technology adoption decision.

Understanding Pre-relational Trust in the Service Providers

Definition of pre-relational trust

Several researchers have acknowledged the difficulties in developing a definition of trust due to its complexity as a psychological construct (Bahmanziari et al., 2003; Geyskens et al., 1998; Keat and Mohan, 2004). However, two general approaches are observed. First, considerable research in marketing views trust as believing that the other party is reliable, benevolent and honest (Doney and Cannon, 1997; Gounaris, 2005; Morgan and Hunt, 1994). This approach is identified as trusting beliefs (McKnight et al., 1998; Nicholson et al., 2001). Second, trust has been viewed as behavioural intentions that reflect the willingness of the buyer to rely on the exchange partner (Andaleeb, 1996; Moorman et al. 1992, 1993) and is identified as trusting intentions (McKnight et al., 1998; Nicholson et al., 2001). Scholars in marketing (Moorman et al., 1993; Morgan and Hunt, 1994) and management (Lewicki et al., 1998) have expressed the view that the expectancy and behavioural conceptualizations of trust should be studied independently instead of combining them, since keeping them separate provides opportunities to study the trust process. In accordance with the existing definitions, this study defines pre-relational trust in service

providers with two dimensions. That is, 'the belief that a business customer places in the service provider, and the willingness of the business customer to rely on the service provider prior to having any business dealings with them' (developed from Anderson and Narus, 1990; Moorman et al., 1993).

The debate about pre-relational trust

A review of the literature on trust indicates contradictory perceptions of the role of pre-relational trust. Several researchers suggest that trust does not play an important role at the beginning of a relationship (Ekici and Sohi, 2000; Gundlach and Murphy, 1993). However, literature in social science alleges that motivated economic exchange relationships between buyers and sellers depend highly on trust and are impossible to establish without it (Fukuyama, 1995; Held, 1968). Similar to social science literature, literature in business studies has also identified that trust is important in determining behavioural intentions before the actual interaction takes place (Ekici and Sohi, 2000; Gefen et al., 2003; Jevons and Gabbott, 2000). Trust is most required when parties are involved in a first-time relationship, due to the high level of uncertainty in the situation (Bahmanziari et al., 2003; Held, 1968). Gefen et al. (2003), who stated that a degree of trust is required in any business interaction, argued that trust is more important among potential customers when compared to repeat customers. Their reasoning is based on the view that potential customers have yet to expose themselves to the service providers, while repeat customers have already gained a certain degree of trust in service providers. Hence, an emphasis on pre-relational trust emerges and the question arises as to how it influences specific customers' attitudes in relation to technology adoption.

Research examining trust in a B2B context has focused more on the ongoing interaction between buyers and sellers (Chung et al., 2006; Izquierdo and Cillian, 2004) compared to that between buyers and service providers. Studies of trust in marketing research primarily focus on two target groups: supplier (Chung et al., 2006; Ekici and Sohi, 2000; Izquierdo and Cillian, 2004) and salesperson (Li et al., 2007; Roman, 2003). Only a few empirical studies have recognized trust as an important variable in service encounters (Gounaris, 2005; Johnson and Grayson, 2005). More studies on trust in service providers are essential because, in the real business world, service providers face a great challenge in attracting customers who feel safe dealing with them (Coulter and Coulter, 2002; Parasuraman et al., 1985). Consistent with social exchange theory (Blau, 1964) and findings that emphasize the importance of trust among potential customers (Gefen et al., 2003), our study proposes that business customers' evaluation of trust prior to any specific exchange incident will have a direct influence on their adoption decision.

Possible dimensions of pre-relational trust

Several researchers state that trusting beliefs and trusting intentions are critical facets of the conceptualization of trust (McKnight et al., 1998; Singh and Sirdeshmukh, 2000). Our conceptualization of trusting beliefs is consistent with Coulter and Coulter (2002) who split trust in service providers, in a B2B context, into two components: person-related trust and offer-related trust. Coulter and Coulter (2002) and Cronin et al. (1997) categorized person-related trust into four elements: similarity, honesty, empathy and politeness; and the four elements identified for offer-related trust were competence, reliability, promptness and customization (Coulter and Coulter, 2002; Johnson and Grayson, 2005; Lapierre, 2000). In addition to the above eight variables, most of the studies on trust have used reputation as another measure (Comer, 1999; Doney and Cannon, 1997; Johnson and Grayson, 2005). For example, Johnson and Grayson (2005) stated that the reputation of the service provider could significantly impact trustworthiness. Thus, nine variables were identified to conceptualize trust from existing studies but, since the majority of studies have examined trust with respect to long-term relationships, these variables are post-relational and they reflect personal attributes and experience developed through interaction over time (Coulter and Coulter, 2002; Doney and Cannon, 1997; Johnson and Grayson, 2005). To our knowledge, the use of these variables to measure pre-relational trust has not been investigated empirically.

The second dimension of trust, trusting intentions, directly measures the cognitive based intention to trust the service providers and does not cause confusion.

Trust and Technology Adoption

A great deal of research has documented the influence of trust on behavioural decisions. Trust has been asserted to be an important factor to precede satisfaction (Jevons and Gabbott, 2000), loyalty (Auh, 2005; Gounaris and Venetis, 2002) and purchase decisions (Gefen et al., 2003; Kennedy et al., 2001). Correspondingly a small number of studies have been devoted to examining the role of trust in adoption decisions at the B2B level (Bahmanziari et al., 2003; Payton and Zahay, 2005; Suh and Han, 2003). Among the studies, trust has been largely examined as a relationship enhancement or relationship sustaining variable and it is suggested that post-relational trust significantly influences behavioural decisions. Since most of the existing research focuses on long-term relationships (Chung et al., 2006; Izquierdo and Cillian, 2004; Nicholson et al., 2001), the role of pre-relational trust as a relationship initiation variable is under-researched (Ekici and Sohi, 2000) especially with respect to decision-making processes for technology adoption.

The literature in marketing and technology adoption studies suggests that researchers have often approached trust in B2B situations from a product trust setting (Keat and Mohan, 2004; Suh and Han, 2003) with little attention paid to the role of trust in service providers. In their study, Bahmanziari et al. (2003) emphasized the importance of developing trust in a new technology and its providers, as an impetus for technology adoption decisions. The current study responds to their call and investigates pre-relational trust in service providers as a predictor of technology adoption in businesses.

Trust and Communication

Communication has been identified as a strong determinant of trust (Ball et al., 2004; Morgan and Hunt, 1994; Ratnasingham 2005; Selnes, 1998). Good communication is believed to reduce uncertainty and lead to trust within the relationship (Anderson and Weitz, 1989; Selnes, 1998). Dwyer et al. (1987) viewed that communication can help to develop trust since it assists in clarifying expectations, and related processes often seek additional insights and information about the system in regard to the customer's needs and expectations.

The relationship literature indicates that communication components such as channel used and context of the message have a significant impact on trust. Ball et al. (2004) proposed that personalized communication through written communication, machine mediated interactions and in-person communication before, during and after service transactions, improve customer trust. In his study that examined perceived trust in B2B sales, Comer (1999) emphasized the importance of gaining, using and giving information via appropriate communication channels, prior to the development of trust. In contrast, Friman et al. (2002) and Sawhney and Zabin (2002) found that the relevance of the message has a greater impact on trust. Other researchers have found that timely information is the major antecedent of trust (Friman et al., 2002; Morgan and Hunt, 1994; Selnes, 1998; Yousafzai et al., 2005); and other studies have indicated that better communication quality increases the level of trust (Bialaszewski and Giallourakis, 1985; Moorman et al., 1992; Payton and Zahay, 2005). Finally, Payton and Zahay (2005) found that the quality of information including relevance, timeliness and reliability, significantly influences the level of trust in pre-established relationships between service providers and users. Thus, a substantial number of communication variables emerge from the literature in different contexts.

Focusing on the software industry, it is assumed that the exposure of business customers to marketing communication can develop the business

customer's trust in the service provider, prior to software adoption. Marketing communication refers to the process of exchanging information between marketers and customers. According to Orlander and Sehlin (2000) and Smith et al. (1998), marketing communication is a systematic relationship between a business and its market to communicate its offerings and to stimulate a particular perception of products and services into its target market. This study proposes that communication provided by the marketers is important to the development of trust among potential customers, and the relationship is explored through a preliminary study reported in this chapter. Hence, we move one step backward and explore the influence of marketing communication on pre-relational trust, as well as determining the factors that may influence GIS adoption decisions by business buyers.

EMPIRICAL STUDY

Overall Design

This preliminary study explores the relationship between marketing communication and pre-relational trust in service providers as applied to technology adoption in the retail industry. Thus a qualitative study is appropriate (Cavana et al., 2001; Malhotra, 2004). Telephone interviews were selected as the method because of the dispersed location of respondents (see sample below). The interviews were conducted to confirm and extend the constructs as outlined in the literature, and to identify potential omissions.

Sample

The current study explores GIS adoption by store-based retailers in Australia from the technology providers' perspectives. Thus, the sample frame for the study comprised GIS providers that are either GIS vendors or GIS consultants. There are only eight identified GIS vendors and consultancy companies in Australia dealing with retailers and other business organizations. These specialized software providers are geographically highly dispersed throughout Australia; thus a telephone interview was chosen to collect data from the respondents. Of the eight invitations that were emailed out to the potential interviewees, six respondents were willing to participate in the study, and were subsequently interviewed. Two major vendors of GIS technology, who serve 80 per cent of the market, responded to the interview request. Thus the technology providers who consist of the

major market have been interviewed. Five males and one female were interviewed, all of whom were Managing Directors in their companies except for one interviewee who was a Marketing Manager.

Method of Analysis

The process of qualitative analysis for this study was performed manually. The information collected from the telephone interviews was subjective and was transcribed verbatim. Data was reduced based on the recommendations of Miles and Huberman (1994). In particular, related questions were grouped and analysed together, to identify topics and themes that informed the key variables. The analysis process followed a standard format of reading, re-reading and noting topics, clearly defining those topics, then checking the content and establishing the major themes. Once the data had been coded and values assigned to the attributes, matrix tables were established to gain some understanding of the data.

The major questions used in the interviews were:

- a. How does your company promote GIS software/service? Why?
- b. Do you think your promotional strategy could develop the potential adopters' trust in you? How?
- c. When a service is purchased by a first-time customer do you think trust in the service provider is important? Why?
- d. How do you develop trust among first-time customers?

DISCUSSION

Marketing Communication

The preliminary findings indicated strongly that marketing communication acts as a mechanism for communicating the product information in a persuasive manner to potential business customers. The respondents mentioned that planning an effective communication via an appropriate communication medium is a great challenge for them when targeting business customers. Two major themes were identified from the interviews in relation to the use of marketing communication to develop pre-relational trust: communication media and communication quality.

Communication media

The interviews indicated that three types of media: person mediated communication (PMC), mechanical mediated communication (MMC) and

Table 13.1 *The use of media in GIS promotion*

Type of communication medium	Explanation
Person mediated communication (PMC)	The role of human interaction in GIS promotion
Mechanically mediated communication (MMC)	The role of any mechanical mechanism (except computers) in GIS promotion
Computer mediated communication (CMC)	The role of cyber mechanisms in GIS promotion

cyber mediated communication (CMC) are being used extensively in GIS promotion. Table 13.1 explains the three types of communication media.

Among these three media, CMC is used widely in GIS promotion. Two interviewees discussed the ability of cyber media to displace traditional media such as PMC and MMC due to their interactional abilities. However, the study indicated that even though marketers are increasingly using cyber media, such as the Internet and websites, the effectiveness of cyber media as a tool to develop trust in first-time customers is uncertain. The interviewees still viewed PMC (for example face-to-face interaction) and MMC (for example publication and telephone) as the best media for promoting GIS among potential customers because the physical and personal communication which occurs in PMC and MMC is believed to be important for trust development. In summation, even though all three groups of communication media play an integrated role in promoting information about new technology, PMC and MMC played the major role in cultivating trust among the potential customers to rely on service providers. CMC is basically effective to communicate and to promote the technology among existing customers in order to retain them as customers.

Communication quality

A message or information is the product of communication and it makes decision-making easier by reducing uncertainty (Duncan and Moriarty, 1998). Four components of perceived information quality are: a) Credibility – the degree to which information is perceived by the receiver as a reliable reflection of the truth; b) Relevance – the degree to which the information is appropriate for the user's task or application; c) Clarity – the degree to which the information is comprehensible and understandable for the users; and d) Timeliness – the degree to which information is perceived as current and actionable (Jablin, 1987; Maltz, 2000; Maltz and Kohli, 1996).

The interview findings showed that the content of the information transmitted needed special consideration in terms of customization, accuracy and relevance, in order to cultivate trust among the new customers. The respondents stated that the information should directly address the situations of the potential buyer's industry and solutions appropriate for that industry. For this reason, most of the service providers approached potential customers with customized white papers that discuss how GIS technology can bring solutions to the particular businesses. In the process of transmitting the information, both the accuracy and the realistic nature of the information are believed to act as quality controllers for the information. Additionally, the importance of continuously updating the communication content has been highlighted by the interviewees as another method of retaining the quality of the communication. The interviewees also alleged that frequent levels of interaction between the service providers and the potential buyers can increase the level of trust. Hence, along with the four components of perceived information quality proposed in the literature (credibility, relevance, clarity and timeliness), customization and communication frequency are predicted to be antecedents of pre-relational trust development, and should therefore be added as measures of communication quality.

The preliminary findings also suggest that effective coordination of information quality across various media is important to achieve synergies. According to the interviewees, an effective promotion was considered to be a combination of the media and information quality in response to particular circumstances, the technology proposed, and the status of customers. Consistent with these preliminary findings, the link between the type of media and information characteristics can be explained using media richness theory (Daft and Lengel, 1986).

Trust

All the interviewees agreed that pre-relational trust in service providers, as defined for the study, is very important in attracting first-time customers to adopt a particular technology. The findings identify nine methods that can generate customers' trust from a marketer's perspective. Table 13.2 provides details.

Table 13.2 shows that most interviewees suggested that producing evidence of other client success cases is an effective way of developing trust among first-time customers. Evidence of client success is a useful tool to build a good reputation about the service providers and also to prove the competence of the service providers to customers. In support of this assumption, it is noted that almost all the interviewees provide a reference site on their company website to show evidence of their client success cases.

Table 13.2 Factors that develop trust in service providers

Themes	Definitions	No. of interviewees
Evidence of client success cases	Approach the potential customers with some evidence and referral of client success cases	4
Customized approach	Technology provider’s ability to provide a customized approach to address the needs of the potential customer	3
Effective solutions	Technology provider’s ability to provide effective solutions according to the industry needs	3
Confidentiality assurance	Keep customers’ dealings confidential	3
Reputation	Technology provider’s company reputation	2
Timely reply	Technology provider’s intention to respond quickly to potential customers’ enquiries	2
Length of time in business	Length of time (years) the technology providers have been operating this business in the market	1
Regular contact	Develop regular communication with the potential customers	1
Global support	Technology provider’s ability to provide effective global support to the customer (facility to access the technology providers from anywhere in the world)	1

Half the interviewees suggested that a customized approach, identifying effective solutions, and the ability to practise confidentiality contribute to developing trust among potential customers. The interviewees emphasized that a customized approach to address the needs of the potential customers and the ability to provide effective solutions according to the industry needs are vital to increase customers’ trust in service providers. One third of the interviewees indicated that reputation and timely reply are important for cultivating trust. According to them, it is essential for the technology providers to build up the company’s reputation, and to provide a quick response to customers’ enquiries. Finally some interviewees suggested three other requirements for developing pre-relational trust, including length of time in business, regular contact and global support.

Out of the nine elements identified to develop trust among service providers, four elements: customized approach, effective solution, reputation and timely reply are consistent with the existing trust literature (Friman et al., 2002; Johnson and Grayson, 2005; Ratnasingam, 2005). Providing an effective solution reflects the competence of service providers, while giving a timely reply reflects the responsiveness element, referring to the process of delivering the service in a timely manner (Friman et al., 2002; Yousafzai et al., 2005). Besides these four elements from the literature, five other new elements were developed from this study: evidence of client success, confidentiality assurance, length of time in business, regular contact and global support. To our knowledge, these five elements have not been explored yet, probably because studies which examine the role of trust in technology adoption decisions at the organizational level often approach it from a product trust perspective rather than trust in service providers (Bahmanziari et al., 2003; Payton and Zahay, 2005; Suh and Han, 2003). Therefore, the five elements identified to develop trust in service providers should be added as new items in an overall measure of pre-relational trust.

Implications of the Findings

This study makes a theoretical contribution by exploring pre-relational trust in technology service providers, as an antecedent of technology adoption by business customers. The study has identified nine elements for inclusion in a new scale for pre-relational trust in service providers: customized approach, effective solution, reputation, timely reply, evidence of client success, confidentiality assurance, length of time in business, regular contact and global support. Overall, the chapter highlights the importance of including pre-relational trust in adoption studies, and provides measures and indicators to do so.

As well as its theoretical contribution, the study provides two major practical implications. First, because pre-relational trust in service providers was found to influence potential customers' perceptions towards GIS adoption, the findings can be used by marketers to plan their promotional strategies effectively in order to build trust and influence business customers' decisions in adopting complex IS such as GIS. The chapter presents managers with insights into the key components of pre-relational trust. Second, the findings suggest that the interrelationships between marketing communication and pre-relational trust are important for enhancing IS adoption among business customers. Thus, the study gives guidance about how marketers might design their communication strategies as the first step in forming a relationship with potential customers. In particular,

it appears that retailers should upgrade their methods of approach concerning communication media and communication quality.

CONCLUSION

This chapter reports on a preliminary study among service providers in the GIS software industry. It makes a theoretical and empirical contribution by examining the significance of pre-relational trust in a B2B situation for technology adoption from the perspective of service providers. We argue that potential adopters need to have a level of pre-relational trust in service providers before they will adopt the technology, and we develop the role of marketing communication in achieving this end. The study indicates that both communication media and communication quality are likely to have a significant impact on pre-relational trust.

The findings have particularly important implications for marketers. They assist in understanding the importance of developing customers' pre-relational trust as a mechanism to enhance technology adoption, besides planning appropriate communication strategies to approach the potential customers. The findings suggest that the possession of a strong marketing communication with the absence of effort to develop trust in service providers is likely to be less effective in enhancing the adoption of complex technology among potential customers. To upgrade selling performance, the marketers should continuously upgrade and intensively promote service providers, in addition to their usual system and software promotion strategies.

The current study was conducted among service providers; therefore future research should employ the business customer's perspective to provide more insights into how pre-relational trust in service providers might influence their behaviour with respect to technology adoption decisions. Business customers might have different expectations and perceptions of trust in service providers when compared to the service providers themselves. We also propose that future research should empirically test pre-relational trust as a key mediator between marketing communication and attitudes to technology adoption.

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14. Reengineering trust in global information systems

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INTRODUCTION

Trust is a success factor in achieving effective cooperation within and between organizations spread over different areas. Trust becomes a vital concept when there are significant risks involved and when there is uncertainty about future consequences of a particular interaction (Rousseau et al., 1998). A transaction is a specific instance of an interaction, when it concerns the exchange of values between two parties. The higher the importance of the exchanged goods and services between the organizations, the more critical trust becomes between the negotiating end points. As the Internet expands and social and business relationships come to rely more on computer based interactions, many inter-organizational collaborations shift from face-to-face based interactions to virtual interactions (email, virtual meetings, video-conferencing, e-learning, and so on). On the one hand, this shift from real business towards e-business enables companies to conduct their global transactions as simply as local transactions. On the other hand, the trust relation between humans is implicitly mandated to the network between computers or telephones in different organizations. Without precautions this implicit mandate can be subverted. So, in order to maintain the trust relation between humans we also need to understand how organizations and computers trust each other and mediate the mandated human trust. As such, there is a need for reengineering trust as a result of border-crossing information systems of globally operating companies. In this chapter we argue that a distinction needs to be made between real trust between real entities, that is, trust between individuals, groups or organizations and virtual trust, that is, trust between computers.

For instance, in the real world tangible items such as passports and ID cards are applied to settle trust between unfamiliar interacting parties, whereas in the virtual world those means are either missing or are extremely vulnerable (to ease of copying). In the real world social interactions in context can be hard to understand and difficult to deal with, since

psychological grounds are the soil for the perceived behaviour. In the virtual world besides these 'real' problems, there are also some specific technological problems that make trust a difficult phenomenon to understand and to deal with. Now, not only do people have to trust each other in order to come to a satisfying end result, but also the facilitating computer systems have to negotiate trust. Even when the trusted human endpoints want to communicate, this interaction might be frustrated due to unreliable network components, for example.

In this chapter we present a multi-level approach to establishing and maintaining trust from interpersonal to virtual relationships within global e-interactions. This work attempts to bridge the gap between technological and social disciplines, addressing trust relationships between agents at different levels including interpersonal, organizational and virtual. An agent can be an organization, a person, a system or a component. This chapter considers the choice of a technology merely as one of the steps in establishing and maintaining a trust relationship (Adams and Lloyd, 2002). A definition of trust is first presented and followed by the description of the transition model which illustrates the trust relations at different levels between two or more global organizations involved in e-interactions. The trust relations that are considered are a) human-human; b) organization-human; c) organization-organization; d) human-computer; and e) computer-computer. We describe the factors that determine each trust relation and summarize each set of factors in a lemma. This chapter ends with an evaluation of the given lemmas from which design guidelines for establishing and maintaining trust in global e-transactions are derived.

CONCEPTUAL ISSUES: DEFINING TRUST AND TRUST DOMAINS

Trust has been a central focus of theory and research over the last few decades. Much insight has been given into the conceptual diversity, the role and the importance of trust in different real and virtual contexts and at different levels of analysis (Dirks and Ferrin, 2001; Handy, 1995; Hosmer, 1995; Jarvenpaa and Leidner, 1999; Kramer, 1999). As such we need a definition of trust that applies to the various contexts. We will first look at definitions from three different points of view and then propose our own definition.

A definition from a social psychologist's point of view is given by Zand (1972). He defines trust as the conscious regulation of one's dependence on another that will vary with the task, the situation and the person. A semi-technical definition is given by Kini and Choobineh (1998). They define

trust in a system as an individual's belief in the competence, dependability and security of the system under conditions of risk. A technical definition is given by the ISO/IEC 10181-1 (www.iso.org). Here, trust is a relationship between two elements, a set of operations, and a security policy in which element X trusts element Y if and only if X has confidence that Y behaves in a well-defined way (with respect to the operations) that does not violate the given security policy.

These definitions are at least seated on three concepts. The first one is risk or probability that a certain event or behaviour occurs, which gives uncertainty to the trusting person. According to Rousseau et al. (1998) vulnerability and uncertainty arise under conditions of risk and interdependence. Risk is considered to be the probability of loss as perceived by the trusting person(s). When trust is not fulfilled, the trusting party suffers from an unpleasant consequence, which is greater than the gain he would have received (Smith and Barclay, 1997). Secondly, there are different parties involved. Whereas the social psychologists refer to human parties, the ISO refers to computers. The term 'agent' can refer to (human) actors that trust, but also entities such as organizations, institutions and computers. Organizations and institutions form the structure where trust takes place, and include norms and underlying values of conduct they are able to enable, constrain and guide the actions of (Nooteboom, 2002). Computers can be considered as agents that collaborate within a network, since they assess trust of another agent based on different variables such as reputation (history events) and a probability factor (previous concept) (Barber and Kim, 2001). The so-called human 'leap of faith' can be equally captured within the network by the (approximated) assessment of this probability. Although we consider computers as agents that can 'trust' each other in their predetermined ways, we do not support an artificial intelligence approach, where computers are even assumed to have 'emotions'. The third concept is relativity of trust: trust only has a meaning when it concerns two or more agents. The most basic principle of trust is the recognition of its two-sidedness; one the one hand, the trustor(s) – the agents that have trust – and on the other hand the trustee(s), the trusted things or agents on different levels such as people, organizations, institutions and systems (Mayer et al., 1995; Nooteboom, 2002). Therefore, we argue that although the factors that determine trust between agents of a different nature (people vs. computers) are not comparable, the process in which agent X trusts agent Y is comparable in the extent to which it is based on the same principles of accessing a sufficient level of trustworthiness that the other agent behaves in an expected way.

The concept of 'trust domain' can be defined as a group of human or computer entities that are able to trust each other. Such domains can be

for instance a university, a business unit, a project team or one organization, in which a method is defined and used by the members to trust each other. In this chapter we use this concept to illustrate the challenge in establishing and maintaining trust in global interactions by means of information systems. Global information systems are information systems that consist of collaborating worldwide remote applications. This means that remote components of such a system reside on different servers and in different places. In the context of global information systems, where humans function as the endpoints of the network, interpersonal 'social' trust precedes virtual trust when committing to a transaction. After all, it is a human who initiates the transaction and who gives (pre-programmed) instructions to the computer. A transaction then becomes an e-transaction. As such, the establishment and preservation of a trust relationship between remote computer entities by means of global information systems requires to a certain extent means for translating interpersonal trust into virtual trust. However, even after translating interpersonal trust into virtual trust, that is, when a person has found a way to pass on his trust assessment to his computer system, virtual trust remains a problem, since the individual, the organization and the computers reside in different 'trust domains'.

These trust domains are influenced by several factors which can lead to several incompatibilities. One in particular is that the factors shaping real trust domains differ from those influencing the virtual trust domains. For instance, real world trust domains are often determined by individual or group attributes as a result of process- and characteristic-based modes of trust production, such as past experiences, familiarity or characteristics of similarity (Zucker, 1986). Trust in the real world is most likely to develop either through repeated interaction between individuals (process-based) or through mechanisms of social similarity (characteristic-based). In both cases the development and maintenance of trust depends on factors such as interdependence between parties, reciprocity and continuity of interaction of the people involved. In the virtual world it is, amongst other things, the role and position of the intermediary that determine the issued trust model (Daskapan et al., 2004). This is close to what Zucker (1986) describes as institution-based trust grounded on intermediary mechanisms. Trust resulting from these bases is related to rules, bureaucratic sanctions and safeguards that provide some system guarantees (Zucker, 1986). The development and maintenance of trust at this level is dependent on factors such as the level of perceived fairness, objectivity in handling affairs, and openness to participation of the system rules. This suggests that trust models in the virtual world differ from each other due to several reasons. First, trust methods could prescribe either hierarchical

or distributed models, which imply differences in the number of and the authority of the trust intermediaries (Daskapan et al., 2004). Second, even when the same models are issued, interoperability problems between the different implementations of the trust models can separate the domains from each other. Third, differences between regions concerning social, cultural or political aspects can also lead to a separation of domains. For instance, an Iranian company will have major difficulties in establishing and maintaining virtual trust with an American company because of the political relations between both countries, despite the same implementation of the same trust model. Trust domains in the virtual world are less determined by the attributes of the interacting persons due to the dominant role of trust intermediaries; however, they are influenced by major socio-political factors from the real world regions of these domains.

A TRANSITION MODEL OF TRUST

Despite the numerous publications recognizing the importance of trust and reporting on the wide number of its benefits, trust remains a phenomenon that cannot be described easily because of the continuous influence from the context in which it is found (Morris and Moberg, 1994).

To understand the implication of this distinction in business cases, consider the following scenario: a company based in China sells cheap electronic components to another company in the USA that uses the components to assemble computers for the local market. In this case the USA purchasing representative wants to place an order via the sales manager in China. They interact mainly by phone and email. In this case the USA representative has to trust the Chinese company and assure himself that he is not dealing with a suspicious organization. When he has assured himself of the company's reliability, he then also has to assure himself of the trustworthiness of the Chinese sales manager. After that, the USA representative has also to trust his computer system, that is software (like his email application operating system) and hardware. If he also trusts the computer system, this computer system receives the command from him to execute the e-transaction. This computer is connected to the computer of the sales representative via a chain of computers (network). The computer has to ensure that data is transmitted securely to the computer of the Chinese sales representative. The same stages of trust development must also be followed from the recipient's side, but in reverse. Figure 14.1 depicts the trust transition model for such a scenario.

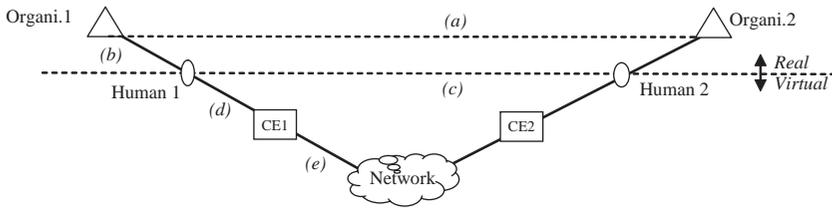


Figure 14.1 Trust transition model

The transition model shows five types of trust relations that form the contextual framework of this chapter: a) organization–organization; b) organization–human; c) human–human; d) human–computer; and e) computer–computer. As we will explain below, those correspond with the five stages of trust. The translation of a trust relationship from one stage to the next is called a transition. We also distinguish three levels: the level of organizations, of humans and of computers. Although more relations can be drawn, such as organization–computer, their trust effect is either already included in the other relations or that trust relationship does not have any significant effect.

We assume that trust is a concern that is first initiated between organizations and individuals before any e-interaction is conducted. Since e-interactions are mostly initiated by humans or organizations but subsequently relayed via the computer network, humans and organizations implicitly trust the computers to mediate the transaction. Consequently, the remote computers, which transmit these e-interactions, may not necessarily have a reliable connection or may not have enough information about each other to determine whether they are trustworthy or not. As such a trust relationship, which has even been approved at the human and organizational level, then becomes the concern of the network. In this chapter we argue that although it is a human that initiates a trust relationship with another human, trust has to be settled and maintained at each level. In our model we assume that organizations have mandated individuals to trade and conduct transactions. Individuals in their turn mandate the computer systems to conduct the actual e-transaction. Since organizations trust their employees with their specific tasks and roles and individuals trust their computer systems' specific capabilities and applications, we speak of relayed trust from organizations via humans to computers. A trust relationship at one level has to be translated into the next trust relationship and translated again until it reaches the human or organizational destination. In that respect, we consider the establishment and maintenance of trust as an ongoing process that needs to be assured at different stages preceding

any e-interaction between agents. In our model, we identify five stages and we will elaborate on each of these in order to understand how trust is relayed.

TRUST IN HUMAN-TO-HUMAN INTERACTIONS

Most scholars agree that trust between people is essentially a latent concept, which has mostly been referred to as a 'psychological state' that is based on positive expectations and the willingness to become vulnerable to the actions of others (Rousseau et al., 1998). The willingness to become vulnerable is represented by behavioural consequences of trust, which are the actions taken by the trustor based upon his/her psychological state (Lewis and Weigert, 1985; Smith and Barclay, 1997). Trusting behaviours constitute an important aspect of trust since they constitute the basis for reciprocity between individuals (Nooteboom, 2002). Moreover, it is through the observation and interpretation of such behaviours that team members learn about each other's motives and intentions, and are able to draw inferences about each other's trustworthiness (Zand, 1972). This involves risk assessment. Assessing the risk before trusting involves considering other people's motives and intentions and the situational factors that weight the likelihood of the possible positive and negative long-term effects of the trust. Cummings and Bromiley (1996) suggest that trustworthiness is determined by the following assessments; the belief that the person(s) or group will make good-faith efforts to behave in accordance with any commitments, both explicit and implicit; will be honest in whatever negotiations preceded such commitments; and will not take excessive advantage when the opportunity is available. These expectations have cognitive and emotional grounds (McAllister, 1995), and are based on previous experiences or information about competence, motives and intentions of others whom we are willing to become vulnerable to (Lewis and Weigert, 1985; McAllister, 1995).

In virtual settings, one particular challenge is the communication of these attributes (trustworthiness) through the information system. Moreover, where two people do not see or know each other in advance, trustworthiness has little or no impact. People engage in interpersonal interactions with a certain level of trust, either higher or lower, depending on their own individual dispositions, trustworthiness assessment of the other person, and the perceived incentives for cooperation under certain contextual contingencies (Kadefors, 2004). The relative importance of these factors is determined by the type and course of the relationships where trust occurs. In global transactions where two people do

not see or know each other in advance, perceived trustworthiness is not enough to trust. Rotter (1980) suggests that in less familiar contexts the influence of trusting dispositions on behaviour grows. Propensity to trust is commonly described as the general willingness to trust others and can be seen as a constant factor that is carried from one situation to another. People differ in their propensity to trust others. Different life and work experiences, personality types, cultural background, education, and several other socio-economic factors determine one's propensity to trust (Dasgupta, 1988; Farris et al., 1973). Propensity to trust might help to explain variations in initial trust levels between individuals in unfamiliar contexts.

The context and the characteristic of the relationship also have an influence on trust. The degree of interdependence in a given relationship can vary according to type and depth, and entail distinctively different risks (Sheppard and Sherman, 1998). These differences suggest that in different situations people will look for different attributes in order to trust. For example, in superficial dependence relationships it is necessary to look for partners that have a history of reliable behaviour, whereas in situations of deep dependence people will look for additional attributes such as honesty and integrity. Translating these types of trust relations into the virtual world, it can be argued that trust between two virtually separated humans depends heavily not only on prior knowledge of the other person, or his/her own relevant reputation, but also on the indicators provided by the information system. These indicators are of extreme importance when both parties do not know each other, or do not have much information available about each other through reputable sources.

Lemma 1: Trust between two virtually separated individuals depends on individual propensities, trustworthiness assessments, the level of interdependency between them and system indicators.

TRUST IN ORGANIZATION-TO-ORGANIZATION INTERACTIONS

Inter-organizational collaboration is commonly viewed as an association between companies in which organizational boundaries are permeable and joint activities and mutual learning are the sustaining force (Powell, 1996). These associations vary from full mergers to loose alliances, serve different purposes, and provide different degrees of openness as well as divergent rationales for reciprocity. Because trust facilitates information exchange and

reciprocity between partners, successful collaborations depend on high levels of trust between them (Buckley and Casson, 1988). However, trust has been shown to be particularly difficult to develop at this level. A growing number of studies report the lack of trust among those who should be collaborating as a major factor in the disruption of many inter-firm collaborations (for example Shaw, 1997; Sydow, 1998). The difficulties in building trust in such environments result from the fact that, while collaborating, firms have to deal with differing histories, cultures, competitive strategies and operating procedures. The more different firms are, the more the potential for a conflict and the more problems the collaborative partnership will experience.

Powell (1996) describes four forms of inter-firm collaboration in which trust is created through different mechanisms. Each inter-firm collaboration appears with distinct mechanisms to develop trust. However, trust seems to develop more 'naturally' when inter-firm collaboration is forged from common membership of a professional community, from existing ties of place, or from common sharing of norms and values (Powell, 1996). In the case of industrial districts, R&D networks and business groups, trust is more likely to be built on shared norms of reciprocity and civic engagement, and to rely on past experiences and group membership (Sydow, 1998). Collaborations that are mainly forged from mutual dependencies and/or a calculation of resource needs, such as in the case of strategic alliances, develop trust on more formal bases, which can be more costly and time consuming (Powell, 1996). Dodgson (1993), on the other hand, advocates that the major source of trust in inter-firm collaboration should be institutional. Although key individuals or groups (that is, boundary spanners) play an important role in inter-firm collaborations, problems of turnover and the possibility of communication breakdown on the part of these individuals makes trust at this level a very fragile form of governance.

Other examples of inter-firm collaboration can be based on multiparty arrangements. Vansina and Taillieu (1997) refer to collaborative task-systems as groups of people who, because of their membership of other groups, institutions or social categories, come together to work on a largely-self-constructed task or problem domain (for example the development of a regional area). Here, collaboration starts from an under organized state, where individual stakeholders act independently towards a more solid organized relationship characterized by concerted decision making. In order to move from independent, and some times divergent, points of view to a convergent process, three important conditions seem necessary. First, diversity should be recognized as a valuable asset in order to reach a multifaceted picture of the problem and mobilize resources

(Vansina and Taillieu, 1997). Secondly, parties need to feel trusted before they are free to expose themselves and to share appreciation (Vansina et al., 1996). In the process by which reciprocity is developed informally in the absence of rules, trust is one of the most crucial dynamics (Gray, 1989). Thirdly, some rules of logic are needed to convince members that things will not run out of control (Gray, 1989). Also here, trust at both informal and formal levels of the multiparty system seems crucial for its success.

Lemma 2: Trust between two globally separated organizations depends on the type, size and engagement of organizations and in particular on the existence of common group membership and shared norms of reciprocity.

TRUST IN ORGANIZATION-TO-HUMAN INTERACTIONS

Trust within organizations occurs within an institutional framework that can be grounded on two different bases: person- or firm-specific attributes, and intermediary mechanisms (Zucker, 1986). Trust based on personal or company attributes refers to professional credentials, memberships or functions that create clear and specific perceptions and expectations within the society (for example lawyers, doctors and engineers). To a certain extent trust based on these attributes constitutes a mechanism to legitimize authority and the different functions individuals perform within the organization. Trust resulting from intermediary mechanisms is related to rules, bureaucratic sanctions and safeguards that provide some system guarantees (Zucker, 1986). Here, the development and maintenance of trust depends on factors such as the level of perceived fairness, objectivity in handling affairs, and openness to participation of the system rules. Interactions based on institutional arrangements (for example laws and regulations), and professional practices support the organization as a whole. These mechanisms create a common ground for understanding actions and they enhance patterns of behaviour that can extend beyond particular individuals or transactions (Zucker, 1986). According to Creed and Miles (1996) trust within organizational interactions is embedded into a general climate upon which trust is produced and generalized to all levels of the organization. Within the same organization all agent relationships involved absorb part of this climate to focus expectations and attributions as well as to shape the nature of interactions, and statements of reciprocity within the organization. Creed and Miles (1996) suggest that different structures carry a set of minimal requirements for trust and that failures in

meeting these requirements bring different consequences to each of the organizational forms.

Currently, most organizations look to invest in conditions that facilitate trust among members in order to survive (Shaw, 1997), foster adaptability and innovation (Anderson and West, 1998), and enhance their competitive advantage (Rousseau et al., 1998). Increasingly lateral relationships and alliances have become important, in contrast to hierarchical relationships that used to dominate the framing of work relations. New linkages are being formed to achieve and maintain competitive advantage in the marketplace, leading organizations towards network forms and alliances (Lewicki and Bunker, 1996; Powell, 1996). In multinational companies, cross-national and cross-cultural teams are formed that have to perform, based on virtual exchange relations. Extra-role behaviours such as exploration of opportunities, participation in organizational learning processes, helping colleagues and cooperation within teams are critical success factors nowadays (Organ, 1988). The increasing flexibility expected of work relationships is another development that contributes to looser, and sometimes more virtual relations between organizational members; these are less easy to monitor, and therefore it has become more difficult to assert who is a trustworthy partner based mainly on personal or company credentials. Although initial interactions may be developed on these bases, in order to continue to attribute trustworthiness to a certain agent, trust needs to become more process-based, that is, past experiences, loyalty and commitment to the relationship to be developed (Zucker, 1986).

Lemma 3: Trust between organizations and their employees depends on the structure and the culture in place and the possibility of developing process-based trust among individuals.

TRUST IN HUMAN-TO-COMPUTERS INTERACTIONS

In this section the third stage of trust, from human to computers, is discussed. This is a crucial step, since here the perceived trust of a human being has to be translated into trust between computers. This is done in two steps. The first abstraction we will make is to dehumanize trust by applying an imaginary separation and alienation between two humans who want to interact with each other. This step reflects the intervention of the computer network. This separation is compensated for by defining a new entity in that alienated network that enables mediated trust. The second step is to specify the role and position of the intermediary in a given global business engagement.

A person in an organization has a certain perception of the trustworthiness of another person in the real world. This trust relationship could be established either directly based on previous experiences and visual contact, amongst other things, or indirectly via a notary (see previous sections). This notary could be a formal one like a legal notary, but a less formal version is also possible, like the headman of a village. The requirement for the latter type is that all humans that interact should respect the authority of that notary that intermediates trust. Since in large real communities there is no direct trust between all human beings, an agreement between the members (or imposition on one dedicated notary) is the only alternative. Therefore several local, national and supranational 'notaries' in the real world already exist for several purposes. A typical characteristic of a notary in the real world is a highly regulated, institutionalized and thus governmental structure. For example, when buying a house the title deed is also signed by the legal notary. This title deed functions as a trust certificate which is recognized by both interacting persons (buyer and seller). Also a driving licence and a passport are likewise signed by a trusted authority and therefore the only credentials recognized by a police officer. In case of doubt the police officer is able to check the legal status of the notary at the corporation of notaries. This corporation is usually trusted and mandated by the government. This chain of trust that starts with the driver and his/her driving licence and ends at a governmental institution is therefore called the verification path.

Consider again our case: two interacting persons P1 and P2 in two separated trust domains A (organization in China) and B (organization in the USA). A trust domain depicts an isolated environment in which a collective agreement about the credentials of any person exists, a kind of village where everybody knows and trusts everybody. So, P1 is known and trusted by every other person in domain A. If, however, P2 in domain B wants to interact with P1, that is to purchase micro electronics components, there is lack of mutual trust; P1 has (or knows) nothing about P2 to trust P2 and vice versa. In the real world P1 could simply visit P2 and get acquainted with P2. This would improve their trust relationship and enable reliable future interactions. However, when a real contact is not possible a virtual connection with each other is the only alternative.

The fundamental approach of establishing trust by trusted third parties as notaries in the real world can more or less also be applied in the virtual world, since in the virtual world there is by definition no direct visual/physical contact between humans. We will call those trusted third parties or intermediaries Point of Trust References (PORs). A virtual POR intermediates trust by issuing signed certificates to both interacting humans. Those certificates contain the identity of the person, name of their organization,

address, validity date, but could also contain more sophisticated properties, like credibility and capabilities of that person. Signing and verification of this certificate happens by means of cryptographic keys¹ (ITU-T 2000). As in the real world, verification paths also exist here. Each person is therefore able to verify this path in order to assess the trustworthiness of all the PORs in the path (Elley et al., 2001).

Several trust models exist that differ in the way they include this POR. When examining trust models, they can be distinguished by their quality and quantity. Quality refers to the authority or reputation of a POR and quantity refers to the number of PORs. In Table 14.1 four archetypes of trust models are listed: central hierarchy, meshed hierarchy, central peer and decentral peer (Daskapan et al., 2004).

The first cell represents the class of trust models, in which trust depends on a single central institutionalized authority. According to this *hierarchical authority* trust principle, one or more superior entities grant credentials to the computing peers. A typical instance of the central hierarchy type is the public key infrastructure (PKI) (Adams and Lloyd, 2002) usually based on X.509 (Housley et al., 1999; ITU-T, 2000). There are, however, some drawbacks to this type, like the maintenance and reliability of the complex chain of hierarchical references. Of more importance for global transactions, is that global trust based on this model implies the existence of a global authority, possibly via the UN, which is not the case now.

In the second cell the POR is also *centralized*, but in contrast with the first cell it has a low authority. The POR in this case is just a peer entity with a special duty, that is, mediating credentials between all the peers who want to interact with each other. Instances of this type are KeyNote, PolicyMaker (Blaze et al., 1999), Kerberos (Steiner et al., 1988) and KryptoKnight (Bird et al., 1995). Besides its low authority, it suffers from the same drawback as in the first cell, that is, that all global entities can rely on a single POR.

According to the *decentralized peer* trust type in the third cell the POR also has a low status, but this time not one, but all peer entities can function as an unofficial POR. In that sense each entity has two roles: one as a

Table 14.1 Trust models

		Quantity	
		low	high
Quality	high	1. Central hierarchy	4. Meshed hierarchy
	low	2. Central peer	3. Decentral peer

communicating peer and one as a POR. This is an easy anarchistic and simple model, but also the least reliable. An example is PGP (Zimmermann, 1994).

The fourth cell consists of models representing trust by decentralized PORs with a high status. Here, certification authorities on the same level in the hierarchy but from different trust domains are interconnected. These inter-hierarchy models or *meshed hierarchical models* are reliable, since they are based on the same principle of the first cell, but without suffering from the drawbacks of the centralized hierarchical principle. Examples are bridge certification authorities (BCA) and cross certification authorities (CCA) (Alterman, 2001). The major drawback here is that between all trust domains a bilateral agreement must be set up to serve the whole world.

Based on those archetypes, an appropriate trust model has to be tailored to enable global transactions. We expect that the choice of a trust model will be determined especially by the type of the interacting organizations (Powell, 1996), social political and cultural distance, between the trust domains and the value and frequency of the global transaction. The higher the social political and cultural distance the less the institutionalized approach is preferred: cell 2 and 3. The higher the frequency, the more a centralized approach is preferred for reasons of efficiency: cell 1 and 2. The higher the value, the more trust assurance is preferred: cell 1, 2 and 4. Large companies might prefer a formalized hierarchical trust infrastructure with BCA to ensure retention of their assets, whereas academia throughout the world prefers an anarchistic constellation. Usually more types of models are adopted and refined for the specific case, resulting in hybrid models.

After accepting this principle and adopting an appropriate trust model the human has to reveal his/her perception of trust. Since the PORs will mediate trust, he/she has to 'tell' his/her computer which PORs to follow and to what extent. This is done the first time by manually listing the names, addresses and their trustworthiness (according to the user) of the PORs.

Conclusively, there are several types of trust models to define a trusted intermediary, that is a POR, to establish trust in global information systems. Is one model preferred over another? No, there is no such superior model, since an appropriate trust model depends, amongst other things, on the type and context of the transaction. Thus there exists no universal global trust model upon which any entity can rely to establish trust in global e-transactions.

Lemma 4: To enable trust from human to computer networks a common agreement about trusted intermediaries is required.

Lemma 5: Trust models to include a POR in global transactions can be distinguished by their quantity and quality, which results in four archetypes: central hierarchical, central peer, decentral peer and meshed hierarchical.

Lemma 6: The appropriate trust model to include a POR in global transactions depends at least on the type of organizations, the social political and cultural distance between the trust domains and the value and frequency of the global transaction.

Lemma 7: Trust is translated from human to computers by establishing the appropriate trust model and by giving to the computer the initial trust values of the PORs.

TRUST IN COMPUTER-TO-COMPUTER INTERACTIONS

The previous models enable us to establish trust relationships between persons that have to communicate via computer networks by means of PORs. After this establishment, this person will have to entrust their message to the computer that will relay it to the receiver. The computers, however, do not understand the concept of trust as we humans do (see previous sections). Therefore a next step in digitalizing trust is to identify the variables that determine virtual trust, so that computers can deal with trust in terms of arithmetic expressions.

Previous works on arithmetic expressions of trust, such as Beth et al. (1994), Marsh (1994), Reiter and Stubblebine (1999), Shi et al. (2004) and Winsborough and Li (2002), have confirmed that trust T_{xy} between two computing entities CEx and CEy depends at least on the following variables:

- $n_{x,y}$, sum of positive and negative *experiences* of CEx with CEy; $n_{x,y} \in \mathbb{Z}$ and $f_T(n) \in \mathbb{Z}$ (with $\mathbb{Z} = \{ \dots, -3, -2, -1, 0, 1, 2, 3, \dots \}$ integers).
- $m_{x,y}$, number of arbitrary *hops* between CEx and CEy; $m_{x,y} \in \mathbb{N}$ and $f_T(n) \leq 0$ (with $\mathbb{N} = \{0, 1, 2, 3, \dots\}$, natural numbers).
- $p_{x,y}$, a priori *probability* of distrusting CEy by CEx, $0 \leq p_{x,y} \leq 1$ and $f_T(n) \leq 0$.

The number of positive experiences with an entity CEy increases trust. Positive experiences can be formalized as the number of successful completed transactions. The number of intermediating nodes between the assessor CEx and the assessed CEy decrease the value of trust. In its

simplest form the number of hops can be determined by the number of routers² or the number of organizations, which are involved in the transaction. The number of routers, however, could give a misleading result. To give an example, two routers in Iraq would give a better trust value than a hundred routers in the US. In reality it is the other way around. There is also the probability of distrust, that is, opposite to the propensity to trust, which represents the default value of the trustor about the trustee due to other non-rational factors.

Given that in global information systems we need to define PORs (see lemmas 4 and 5) a distinction can be made between the quality and quantity of credentials from PORs. *Quality* refers to two types of credentials, $ql_{x,TA}$ and $ql_{TA,y}$. First, quality $ql_{x,TA}$ refers to the reputation of the POR, that is a trusted third party (TTP) or trust-granting authority (TA), as perceived by the user x .³ Second, quality $ql_{TA,y}$ refers to the 'good' behaviour of CEy as perceived by the TA. The TA not only assures the binding of the identity of the CEy with a public key, but can also include the history of good behaviour of CEy (for example in the extension block in X.509 vs.3; Housley et al.,1999) and whether it respects a given code of conduct of CEy. Both values, $ql_{x,TA}$ and $ql_{TA,y}$, range between 0 and 1. The *quantity* of credentials depicts the number of TAs that vouch for CEy: two TAs give a better approximation of the trustworthiness of a CEy than one TA. This quantity variable especially plays a role in the decentralized model, where many little-trusted PORs are consulted.

Now that we know which variables determine trust, our aim is to gradually construct the relation between the variables into a calculus. In order to derive an appropriate trust function $f(n)$, some basic assumptions and simplifications about trust have to be made. The first simplification is to disregard the m variable, because users are not always able to determine the number of intermediating organizations as hops. We also assume that normal trust, that is no disruptive events, can grow gradually and that it has a maximum, that is, full trust/distrust. The growth occurs with each single experience. Since we assume that each single experience has the same impact or weight on the growth of trust, the trust function can be approximated by a continuous function.

Distrust is that part of the trust curve where the total of positive minus negative experiences is lower than zero. Distrust is therefore assumed to be anti-symmetric with trust. This means that distrust has an equal distribution to trust, but then negatively. Given those assumptions, the trust function should be continuous and have a range of values between two maximums, say 1 and -1 . We also assume, however, that trust will never reach exactly those maximums (1 or -1), but with increasing/decreasing n it approaches those limits, that is it is asymptotic. The motivation is that a

buyer will never trust a merchant as he/she trusts him/herself (with value 1), regardless of the number of experiences the buyer has with the merchant. Trust is also assumed to behave according to the 80-20 rule: 80 per cent of trust or distrust is achieved with the first (20 per cent) of n , and the next 20 per cent of trust/distrust is achieved within the next (80 per cent) of n . This means that a few positive experiences with a merchant are enough to trust them highly, but you will need endless positive experiences to trust them as you trust yourself. While there are many types of functions that can fit within these assumptions, for the purpose of this chapter the arctan function is adopted further. Given the test results of Marti (2005), the arctan function is not an unrealistic assumption.

Another concern is that certain events can damage the CEy’s reputation radically; positive and negative experiences cannot simply be summed up. One experience of drinking spoiled cola drink cannot be compensated for by another experience of drinking good cola drink. The spoiled cola drink has a disproportional effect on the reputation of the firm. Each experience can therefore additionally be amplified by a weight α . If a represents the experience, then

$$n = \sum_{a=0} \alpha \cdot a \text{ and } a \in \{-1,0,1\}, \alpha \in \mathbb{N} \tag{14.1}$$

Since we expect that negative experiences have more impact, the default values for α are: $\alpha = 1$ for each positive experience and $\alpha = 2$ for each negative experience. A disruptive event can now also be included by asserting a high α value (say 100). A high trust value on the arctan curve with $n = 102$ will decrease along the curve very quickly to $n = 2$. This is not visible as a sudden discrete step in the curve since it is not a trust versus time curve. The direct trust value between CEx and CEy ($TD_{x,y}$) can now be expressed as:

$$TD_{x,y} = \frac{\arctan(n_{x,y})}{\pi/2} \cdot (1 - p_{x,y}) \tag{14.2}$$

With q the quality value of and qn as the quantity value of credentials from the vouchsafing third entity or entities, we can define indirect trust (TI). The notation $(n)_{x,y}$, or $n_{x,y}$, indicates an assertion n by CEx about CEy, where x = sending user, y = receiving user and TA = trust authority.

$$TI_{x,y} = \frac{\arctan(n_{x,y} \cdot qn_{x,TA} \cdot \prod (ql_{TA,y} \cdot q_{1_{x,TA}}))}{\pi/2} \cdot (1 - p_{x,y}) \tag{14.3}$$

In conclusion, we assume that a trust model has been defined and PORs with their trust values have been selected in the previous phase (see previ-

ous section). In this section we have discussed the variables and constants that determine trust between computers.

Lemma 8: trust between computers depends on the sum of positive and negative experiences, number of arbitrary hops, a priori probability of distrust, the asserted trust values by the PORs about the interacting computers, trust values of the PORs and the number of PORs.

Lemma 9: the relation between trust and those variables can be approached by an arctan-like function.

EVALUATION

We have explored the different trust relations in global transactions from an organizational, sociological and technological perspective. This has resulted in nine lemmas. The nine lemmas show that distrust in global transactions cannot be removed by use of only a virtual trust or a real trust model. The ideal trust model in such cases is a symbiotic model in which both models are united. To develop this symbiotic model it is proposed to take the following guidelines into account when establishing and maintaining trust in global information systems. Table 14.2 states the action of each guideline (GL) based on each of the lemmas. The variable that is to be explained or sought is the dependent variable. The dependent variable is explained by means of known independent variables, which can be influenced, and constants, which can not be influenced. The last column shows the levels that are affected by the actions. For example, on the fifth row we can see that based on lemmas 5 and 6, the fifth guideline dictates that the trust model has to be determined as an action. As such, we need to find the trust model, which is the dependent variable, by determining the quantity and authority of the trust intermediary, as the independent variables, given the type of organization, social, political and cultural distance between the trust domains, value and frequency of the global transaction, as the independent constants. This fifth guideline takes place on an organizational level.

Table 14.2 Guidelines for establishing and maintaining trust in global information systems

Lemmas	GL	Action	Dependent variable	Independent variables	Independent constant	Levels
1	1	Settling interpersonal trust	Interpersonal trust	Propensities, trustworthiness	Level of interdependency	human
2	2	Settling inter-organizational trust	Inter-organizational trust	Common group membership and shared norms of reciprocity	Type, size and engagement of organizations	human/organizational
3	3	Settling organization to human trust	Organization to human trust	The structure and the culture of organization	Past experiences, loyalty and commitment of employee	human/organizational
4,5	4	Agreement on type of trust model.	Inter-organizational trust			human/organizational
5,6	5	Determining the trust model	Trust model	Quantity and authority of trust intermediary	Type of organization, social, political and cultural distance between the trust domains, value and frequency of the global transaction	organizational
7	6	Determining the trusted intermediaries (= POR)	PORs	Trustworthiness of the PORs according to the users	List of the agreed PORs with their attributes (names, address, public keys, etc)	organizational

7,8	7	Determining the way to query the PORs	Method computer-POR interaction	Method used to request and receive trust service from POR	Stored list of the agreed PORs with attributes (names, address, public keys, etc)	organizational/technical
8	8	Determining the trust profile of the partner	Trust profile of the partner	Relationship between PORs and partners, as affected by: sum of experiences; number of arbitrary hops; a priori probability of distrust and asserted trust values	The trust values of the PORs and the number of PORs.	technical
9	9	Determining the trust behaviour of the partner	Trust function	Damper/amplifier for sudden changes of behaviour	'Arctan'-like function	technical

NOTES

1. The POR encrypts a digest (a hash) of the original certificate with its private key. This encrypted hash is appended to the certificate. The owner now has a certificate with a signature from a trusted authority, that is the POR. Any person corresponding with this owner can ask for this certificate. To verify the integrity of this certificate the receiver decrypts this hash with the corresponding public key. This decrypted hash and a self-generated hash (from the certificate) should be the same.
2. By ICMP Ping for example.
3. POR = TTP = TA.

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15. Knowledge management and trust

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INTRODUCTION

The field of knowledge management has grown tremendously over the past two decades, both in practice and scholarship. Many of the most visible efforts have been focused on technological aspects of the discipline. While critical, an overemphasis on technology solutions sometimes obscures the relationship issues at the heart of knowledge management. Individuals and organizations must act together to make knowledge management systems work. This cooperation requires trust on several levels.

This chapter develops the trust implications present within knowledge management systems. The systems require social capital to work, relationships built between individuals using knowledge management and the organizations employing them. Knowledge systems are increasingly reaching across organizational boundaries as well, requiring trust between networked firms, too.

BACKGROUND: KNOWLEDGE MANAGEMENT

A substantial amount of scholarly and practitioner attention in recent years has gravitated to the concept of knowledge assets as a critical, perhaps the only source of sustainable competitive advantage (Grant, 1996; Zack, 1999a). While other advantages can often eventually be duplicated, a core group of knowledge workers, continually re-inventing marketplace advantages can be hard to match. The key is identifying those knowledge workers and effectively managing their talents (Drucker, 1991). If all organizations have access to the knowledge present in the heads of their managers and employees, advantage will go to those who best manage that knowledge.

Hence we have the field of knowledge management, referred to as intellectual capital when dealing with measurement issues. Knowledge management in current practice is intricately entwined with technology and has key trust considerations; it is a natural topic for this book. The trust aspects

of knowledge management will be developed further on in this chapter. For now, let's turn to basic knowledge concepts and their relationship with technology.

At its core, knowledge management is about identifying, capturing (if possible), and leveraging through sharing the knowledge in the heads of an organization's people (Zack, 1999b; Zander and Kogut, 1995). Standard theory differentiates between tacit and explicit knowledge (Nonaka and Takeuchi, 1995; Polanyi, 1967). The former is personal, hard to explain, perhaps impossible to share. Explicit knowledge is more codifiable – it can be stored in databases, shared, and distributed by the organization (Choi and Lee, 2003). Basically, explicit knowledge can be written down easily, tacit cannot. So when we are talking about technology and knowledge management, most systems capture and distribute explicit knowledge. The massive knowledge management installations of the late 1990s and early 2000s had to do with identifying explicit knowledge and storing it within the IT structure of the firm, recalling it when necessary to solve problems. This does not mean tacit knowledge doesn't have a place in knowledge management systems or even within IT systems devoted to knowledge management. Although tacit knowledge is best shared person-to-person, especially by demonstration, technology can help its distribution by identifying those holding it and providing mechanisms for discussion and interchange. Resource identification systems, such as those at IBM (Forelle, 2005), are built on the idea that if you have a problem, you can find someone within the network with the expertise to solve it. Their knowledge may not be within the IT system, as with explicit knowledge, but their contact information and some description of their fields of expertise is. Hansen et al. (1999) refer to these structures as 'personalization' strategies, identifying and channelling individual expertise through IT systems. Technology also provides a platform for common tacit knowledge sharing techniques such as communities of practice, storytelling and apprenticeships while also helping to improve their performance by, counter-intuitively, providing ways to make the huge databases more personable (Brown and Duguid, 2000). In short, knowledge assets, regardless of their nature, can benefit from technology. As a result, as knowledge management keeps growing, the take-up of IT-based knowledge systems will grow apace.

Knowledge assets are also sometimes distinguished by type of knowledge (Bontis, 1999; Edvinsson and Malone, 1997). Human capital is probably the best-known term, referring to knowledge about how to do one's job. If I know how to run a grinding machine or how to balance the company's books better than you, I have more human capital in that area. Structural capital has more to do with the firm, including IT infrastructure, organization (bureaucratic vs. flat), and corporate culture. Relational

capital refers to knowledge about dealing with outside entities, including customers, suppliers, regulators and others. The salesperson who knows a client really well or the purchasing agent who knows how to cajole a supplier both possess relational capital. And competitive capital refers to knowledge about competitors (Rothberg and Erickson, 2002). Employees from salespeople to scientists often possess specific knowledge about competitor activities, underlying strategies and other matters. Once again, organizations that can categorize and process these disparate sources of knowledge will perform better. They can better manage how people perform, how the organization itself works, how it deals with outside entities, and how it anticipates and counters competitive initiatives.

Those are the basics of knowledge management, and the field is based on exchange between combinations of individuals and organizations. Several extensions further complicate the picture. Initially, virtually no organizations of any size operate in a vacuum. Everyone has a network of collaborators, and organizational knowledge is inevitably shared, at some level, beyond the boundaries of the firm, with suppliers, vendors, manufacturing partners, research partners, and so forth. So, increasingly, knowledge management systems and strategies need to be network-based, not limited to a single company. Relatedly, these same networks routinely exchange hordes of data every day through the massive web-based enterprise systems, including supply chain management and customer relationship management systems that are omnipresent in modern corporations (Rothberg and Erickson, 2005). Though not knowledge as we normally characterize it (most definitions of knowledge suggest that some reflection or learning takes place, differentiating it from basic data or information), data exchange includes matter that can become knowledge. If I know enough of my competitor's data, for example, I can develop knowledge about what its competitive strategies might be. So knowledge and 'pre-knowledge' is routinely shared amongst e-network partners on a regular basis.

As a final complication, all of this identification, collection and sharing of knowledge assets within and across organizations takes place in an environment of increasing competitive intelligence (CI) activity (ASIS, 1999; Fleisher and Bensoussan, 2002). If your knowledge assets are valuable to you, chances are that they are just as valuable, perhaps more so, to your competitors. As organizations increasingly invest in CI operations, knowledge assets, especially those spread widely through digital means, are much more vulnerable. Protection has become an issue with knowledge management (Liebeskind, 1996; Zander and Kogut, 1995). With many more individuals within a firm (or its extended network) having access to the knowledge base, CI operatives have significantly more targets for attack,

and digital knowledge leaves few obvious signs that an incursion has taken place. So whether by viewing publicly available information, human intelligence, or active gathering, competitive intelligence poses a threat to firms dependent on their knowledge assets – and this threat is enhanced by the IT structures running modern knowledge management systems.

This is just a surface discussion, of course, of some fairly complex concepts regarding knowledge management, competitive intelligence, and their interaction. Interested readers should refer to the source material for more detail. But it provides a foundation for us to discuss how technology and trust relate to this field.

KNOWLEDGE MANAGEMENT AND TRUST

Trust is a topic of some importance in the knowledge management literature. Knowledge management is about exchange of know-how (Teece, 1980). For knowledge to gain value, exchange and combination must take place (Nahapiet and Ghoshal, 1998). Individuals give up their personal knowledge, sharing it with and throughout the organization. Organizations distribute knowledge from their knowledge bases, increasing the personal knowledge of individual employees. Whether giving or receiving knowledge, individuals have to give up time in order to learn and use the knowledge management system. Organizations share knowledge assets with network partners. The key to an effective knowledge system is the willingness of participants to yield their knowledge to someone or something else (Bakker et al., 2006). While some may do so willingly, most expect an exchange, something in return. Nahapiet and Ghoshal (1998) suggest that conditions for exchange include accessibility, value expectancy, motivation and combinative capability. Essentially, exchange will take place if individuals and/or organizations have potential access to desired knowledge, believe accessing it will create value, that they will benefit from this value creation, and that they have the knowledge precursors to be able to use the acquired knowledge. For effective knowledge management, ‘communication and trust are critical success factors’ (Choi and Lee, 2003, p. 406).

The concept of social capital is often used as the basis for discussions of trust related to knowledge management (Vainio, 2005). While other concepts utilizing the term ‘capital’ (intellectual, human, structural, relational, competitive) all refer to intangible knowledge assets, social capital has a different connotation. Regardless of discipline, it essentially refers to networks of relationships (Nahapiet and Ghoshal, 1998), enhanced by greater volume or deeper relationships. Stronger social capital can make it easier to grow intellectual capital. Within an intellectual capital context, social capital has a

structural dimension and a relational dimension (Tsai, 2000). The former has to do with the network centrality of the actor in question. The latter deals directly with trustworthiness, 'other units' perceptions and evaluations of the unit's integrity and reliability in interunit exchange' (Tsai, 2000, p. 928).

This view of trust squares with the established view of trust, that one believes an opposite party will not use opportunistic behaviours and that trust can therefore also reduce costs of finding exchange partners (Chiles and McMackin, 1996). Individuals or organizations with strong social capital are at the centre of a substantial network that believes that they will fulfil obligations.

Trust in this context is usually structured as a dyadic relationship, with each partner giving something up. The most common definition is that trust is based on three factors (Bakker et al., 2006; Collins and Smith, 2006; Marshall et al., 2005):

- Capability, the perceived ability of the partner to perform
- Benevolence, the partner's desire to do well by its partner, and
- Integrity, that the partner will live up to the terms of the exchange

The literature has yielded up a number of other variables that affect these factors. First and foremost is the strength of the relationship (Collins and Smith, 2006; Foos et al., 2006). The build-up of trust over time is core to the field, and it is no different in this context. As partners interact more over time, establishing a pattern of performing as promised, the relationship builds and trust develops. Hence, long-term partners are generally trusted more than short-term partners.

Another variable contributing to trust in this context is shared fields of experience (Lin, 2006). Similar pasts, similar experiences, similar expectations brought to the table can make entities more likely to trust one another. Shared individual or corporate codes and languages as well as similar cultural factors can make a difference in terms of individuals or organizations trusting one another. The size of the network can make a difference. As teams, organizations and networks expand, trust can get more difficult. Part of this is that the ability to develop strong relationships is somewhat constrained, so only so many can happen, at least for individuals. But organizations can suffer from the same sort of boundedness as they attempt to develop ever more distant relationships with an ever growing number of partners.

Part of this issue relates to technology itself (Anonymous, 2006). With more and more partners or potential partners, individuals and organizations lose the ability to conduct face-to-face interactions (Choi and Lee, 2003). Virtual relationships, almost by definition, instil less trust.

Individuals, representing their own interests or those of an organization, like to look exchange partners in the eye, observe body language, and other factors in judging trustworthiness.

A final concern is power. If one partner has power over another or if power is in some way surrendered during an exchange, it can have considerable effects on trust. If one possesses power, the opposite party is less likely to act opportunistically for fear of retribution (Collins and Smith, 2006; Nielsen, 2005). If part of the exchange is one side or the other surrendering power, then that changes the balance of the relationship and the perception of trustworthiness. The party losing power has less reason to believe its opposite will follow through – the threat of retribution has diminished.

So the basic concept in trust in our context is that an exchange takes place in some way concerning knowledge, and each side must believe the other is capable, willing and ethical enough to live up to its side of the bargain. But a number of key variables influence these factors including strength of relationship, social capital, fields of experience, network size, technology and power. These all apply to the specific topic of knowledge management and trust.

INDIVIDUAL TO ORGANIZATION

The first circumstance involving knowledge and trust is that of the individual's contributions to the organization. Identifying individual knowledge was actually one of the key original drivers of interest in knowledge management as firms dependent on what key people might know recognized their vulnerability if those employees were to quit, get hit by a bus, transfer to a different division or otherwise leave and take their precious knowledge with them (Davenport and Prusak, 1998). So knowledge management was a reaction to this vulnerability, seeking to capture and codify individual knowledge while it was still resident in the firm.

At the bottom of any knowledge management system, then, is capture of individual knowledge. If explicit, the surrendered knowledge can be easily codified and managed with information technology. Most of the major consulting firms and others have well-developed knowledge marketplace systems that can hold explicit organizational knowledge, allowing search, sharing, rankings, and such (Matson et al., 2003). A more difficult puzzle is tacit knowledge. As noted earlier, however, IT still has a place as organizations can develop expert catalogues. This approach does not necessarily capture the knowledge but instead identifies the holder of the knowledge, allowing those searching for specific insights to appraise backgrounds and, of course, obtain contact information.

For these systems to work, however, individuals must be willing to surrender their personal knowledge (Gupta and Govindarajan, 2000a; 2000b). While some employees may be altruistic and do so simply for the good of the organization, most will legitimately view this as an exchange. Entities looking to better manage knowledge need to understand that perspective, and set up the system to address that expectation. Further, as we discussed earlier, in such exchange circumstances, there must be trust, particularly in this instance, where the individual will surrender personal knowledge and any payback will likely be sometime in the future. One identifiable aspect of successful knowledge management systems is a motivational system to get employees to contribute (Davenport et al., 1998) and clear incentives (Hansen and von Oetinger, 2001).

On the other end of things, users of the system are also contributing some time and effort when looking for pertinent knowledge. Those users have to have some trust that the knowledge obtained will be helpful. Essentially, the users have to have a willingness to accept the knowledge, have the necessary background to understand and employ it, and find it to be what was promised and relevant to their problem (Gupta and Govindarajan, 2000a; 2000b).

One illustrative example is found in a front-page Wall Street Journal article concerning an industrial pump manufacturer (Aepfel, 2002). The organization sought to systematize production practices, essentially looking to create a system for knowledge sharing among the line workers. Much of the story focused on the most efficient worker on the line who possessed a great deal of tacit knowledge concerning machine set-ups and the cutting operation. He refused to surrender his knowledge because of concerns about losing his job (if it went to 'scabs' during a strike or overseas through outsourcing), losing his preferred machine assignment, or being forced to work at a faster pace. As long as he had sole access to his own expertise, replacing him on the machine would result in an efficiency loss for the organization. Once he surrendered the knowledge, he didn't trust the firm not to use it opportunistically. The only way he could control the knowledge asset was to keep it to himself.

From this perspective, several issues become clear. Initially, organizations must pay attention to the exchange aspect of knowledge management systems. Individuals are giving something up and they will expect something in return – and when they give up a lot, they will expect a lot back. Secondly, once exchange is apparent, the trust issues discussed earlier come into play, especially the aspect of power. We will discuss each in turn.

Individual contributions to knowledge management systems, particularly those codifying knowledge and making it explicit within an IT-based structure, involve the surrender of personal knowledge. They also require

time and effort as employees must give some thought to what they know, how to explain it to others, and then must enter it into the system. Whether operational procedures, case histories, troubleshooting guides, customer profiles, regulatory procedures, or any other sort of in-depth knowledge, the contributions are not without cost. So, from a very basic point of view, the organization must ensure that proper incentives are in place for taking on these tasks (Davenport et al., 1998, Hansen and von Oetinger, 2001). So whether in formal evaluations or through systems of rewards for contributions (particularly for highly ranked contributions), there has to be a reward of some sort in place. For some individuals, peer recognition will be enough, and this aspect mirrors social networking studies identifying the informal structure of who seeks whom out for help within a work group. The font of wisdom is recognized and respected by the work group. Conceptually, the same thing can occur within a technology-driven knowledge management system, but if it can be formalized with a reward system, so much the better.

Even further, organizations must ensure that the system does not punish contributions (Prusak and Cohen, 2001). As noted in the example, if contributors foresee any possibility that they may be harmed by surrendering knowledge to the system, they will not participate. In many ways, surrendering individual knowledge assets to a knowledge management system effectively creates a blueprint for how to do one's job. Insights developed over time can be gleaned by the rawest trainee accessing the system. While this is undoubtedly for the good of the organization as a whole, the individual may no longer have unique abilities. If the organization then acts opportunistically by limiting pay or bonuses, outsourcing, shifting duties and such, perverse incentives are created and future contributors to the system will be few.

All of this goes back to the conceptual matters discussed in the previous section. Trust is at the heart of the exchange. In the exchange, trust is built on capability, benevolence and integrity. Employee contributors to knowledge management systems must believe the organization capable and willing to reward them. Capability, in this circumstance, boils down to the organization's ability to recognize useful contributions to the knowledge system and follow through on any promised incentives (recognition, remuneration). Benevolence and integrity both go to the heart of how the entity will use the knowledge. Individuals must believe the organization will want to treat them fairly and will live up to those intentions. Again, if the knowledge is used only for the organization's benefit and to the detriment of contributors, knowledge management systems simply won't work.

A couple of other theoretical aspects are also pertinent here. Initially, the aspect of power is important (Gupta and Govindarajan, 2000a). One of the

perceived hallmarks of the knowledge-based economy is that power is passing from organizations (which previously competed on the basis of capital, scale or other such factors) to workers (who possess the knowledge that will increasingly drive competitive advantage) (Belasco and Sayer, 1995). If organizations can capture that knowledge, they can tilt the power balance back in their favour. If employees are to surrender their power, the attractiveness of the exchange and the employees' trust in it are of critical importance.

The use of technology in knowledge management systems is also a factor and influences some of the other theoretical considerations (Hansen et al., 1999). Knowledge sharing has always gone on in organizations. When effective, work groups share insights, help train newcomers, and generally look to perform better as teams by passing along knowledge. Social capital develops as do similar fields of experience. With the technological basis of modern knowledge management systems, some of this is lost. If I contribute my insights to the system, the person who actually employs them may be unknown to me and halfway around the globe. The personal interaction, the concept of helping out the buddy in the next cubicle or just down the production line is lost. Though an enormous task, organizations looking to manage in this manner have to give a thought as to how to instil similar connections throughout an often extensive and dispersed technological network.

So though technology is driving the growth in contemporary knowledge management systems, many of the details determining system effectiveness have to do with the soft side of the process. Some social capital and trust is lost because of the technological nature of things, and both are further challenged because of the sometimes one-sided exchanges taking place. Organizations need to work hard to establish an appropriate exchange mechanism within their knowledge management systems, and then work equally hard to establish trust by following through on appropriate payback.

ORGANIZATION TO INDIVIDUAL

Individual to organization trust revolves mainly around the identification, collection and dispersal of knowledge. Trust is also an issue from the standpoint of the organization to individuals but is more associated with only knowledge dispersal. Possessing a stock of knowledge assets is one thing, but they are really only of use if shared by others in the organization who can employ them to good effect. As we noted, however, knowledge as the basis of an exchange raises the question of what comes back in return.

In the case of individuals receiving organizational knowledge, the firm obviously expects it to be put to good use, for the benefit of the entity. That part is generally uncontroversial as few employees would take the time to review knowledge without intent to use it. The more difficult issue is how the employee takes care of the knowledge. As noted earlier in this chapter, valuable proprietary knowledge (and pre-knowledge) is increasingly the target of aggressive, highly organized competitive intelligence efforts.

Most organizations recognize this fact, of course. And given the digital nature of knowledge management storage systems, many have appropriate security systems, including limited access, firewalls, encrypting, and other such measures. Most competitive intelligence operations, however, do not focus on illegal break-ins but on softer techniques, some referred to as social engineering. Employee presentations or public conversations, published information, employees hired away, or other such tools can be much more effective and less legally dubious. The nature of the IT system plays a role in that so much more information is available to the employee, but the actual vulnerabilities are found in the people more than the technology (Rothberg and Erickson, 2005).

So when organizations share knowledge with employees or grant access to knowledge, there is a fear of leakage (Liebeskind, 1996; Zander and Kogut, 1995). This is especially true if the employee leaves the company, raising the old question of what job-related knowledge belongs to the employee and what to the firm. The organization has an expectation that if they provide employees with knowledge about how to do their job better, the employee will take some care with that knowledge. They will not be sloppy with passwords or public statements, they will not share it too widely with acquaintances, and they will not take knowledge that is not theirs with them to another position. So trust is again present in the knowledge management structure.

Referring back to theory once again, the concepts of capability, benevolence and integrity are present. Employees must be capable of taking appropriate steps to protect organizational knowledge assets. Security and counter-intelligence training and established procedures are critical if employees are to be aware of the dangers and the proper protection protocols. If the employees do not recognize the dangers, they are unlikely to be able to avoid them. Employees must also want to follow procedures, of course, so benevolence toward the company and personal integrity are important, too. The most dangerous situation is when an employee is leaving the company, when benevolence is likely to be lowest. From this standpoint, organizations are best served by assuming that trust is low. Hence, many use non-compete and/or non-disclosure agreements (though these are sometimes not worth the paper they are written on) while also

taking steps to explicitly identify organizational knowledge assets with statements like confidential, property of, and so forth, that make clear the knowledge is proprietary to the company and is not the employee's (Carr et al., 2004). In such circumstances, the new employer will at least have some qualms about using the knowledge.

As earlier, some of the other key theoretical concepts apply here, too. With knowledge management systems based on technology, the organization may not always recognize who is accessing specific knowledge assets. Before knowledge management, when an individual shared personal knowledge with another individual, there were some safeguards as to knowledge access. With knowledge management on digital systems, numerous employees may have access to a great deal of knowledge without anyone really noticing (it takes effort to dig into such matters and the effort probably would not be expended until after the fact).

Because of these circumstances, the importance of appropriate procedures and appropriate training is further reinforced. And if the corporate culture and incentives are structured so that following procedures and being careful with knowledge (the application of social capital and fields of experience once again) is rewarded, then the organization will be better able to trust employees to use the knowledge management system properly.

ORGANIZATION TO ORGANIZATION

The final area of interest concerning knowledge management systems and trust has to do with organization to organization relationships. Some of these issues are the same as those covered previously and are simply extensions of earlier ideas. But given the different context, it is still useful to comment upon them.

Initially, the idea of exchange is even stronger when talking about two organizations. Firms routinely share pre-knowledge and knowledge with collaborators in modern business, not only through knowledge management systems but also the enterprise resource planning, supply chain management, and customer relationship management systems mentioned early in this chapter. If one firm contributes knowledge to the relationship, it expects the same in return. And if the knowledge or pre-knowledge is proprietary and valuable, there is also an expectation that the partner organization will take steps to protect it. One does not want to yield up valuable knowledge to a partner only to see it leak out to a competitor or the general public.

And this is not uncommon. Because firms recognize the value of their own knowledge assets, they tend to take care of them. Competitive intelligence operatives understand this and so often attack a target firm not

directly but through its collaborators. Competitive intelligence looks for the weak points, and those are typically found outside the core organization. As this chapter was being written, for example, Oracle sued SAP for corporate theft for entering its computer system numerous times in order to obtain confidential information (Vara, 2007). SAP allegedly got into the system by means of Oracle customer login credentials. So the incursion was not because of Oracle's sloppiness but sloppiness or ill-feeling on the part of its customers. The third party was the key.

Thus, as knowledge or pre-knowledge is shared with collaborators, whether suppliers, vendors, customers, operations partners, R&D partners, marketing communication partners, business services partners, or whomever, there is a major trust issue involved. Not only is there an expectation that useful knowledge will come back the other way but also an understanding that the knowledge will be handled carefully, preferably as carefully as in the originating firm. So again, the key pieces of capability, benevolence and integrity arise.

Firms that share their knowledge widely with a network of collaborators (and collaborators of collaborators) would be well advised to ensure that their partners have appropriate security and counter-intelligence procedures in place (Erickson et al., 2003). If collaborators and their employees do not know to be careful, they obviously cannot be trusted to be careful. Further, there must be benevolence and integrity. Power imbalances will help to ensure benevolence on the part of collaborators, but treating them well will also help. And integrity is only found in choosing collaborators well in the first place.

From that aspect, relationships that are initially well chosen and that persist over time are likely to be the strongest. Just as social capital develops in companies between individuals, so it develops across companies through networks of relationships. Organizations that have worked together, built social capital, and that have similar fields of experience including similar ethical standards, will be more likely to share sensitive knowledge. Newcomers to relationships will probably not readily share the corporate knowledge jewels immediately, or at least they would be well advised not to. With technology, different levels of access can be easily established, and different levels of certification can define what knowledge and pre-knowledge organizational partners are entitled to access.

CONCLUSION

Trust is a critical issue for knowledge management. Knowledge management, by definition, involves exchange, and if one side has doubts about the

fairness or surety of the exchange, consummation will be difficult. Executives establishing knowledge management systems have to consider the exchange viewpoint and make it worth the while of all participants. This concept is complicated by the fact that technology is typically an important part of the systems, whether for knowledge storage or for network categorization. Considerations such as power, social capital, fields of experience and tacitness of knowledge also play a role and make planning and execution difficult.

Knowledge management poses these challenges in a number of areas. Individuals contributing to an organization's knowledge management system must have confidence in the equity of the exchange. They are undoubtedly contributing, but it is not always clear what is to be given back (or even whether it is desirable). Organizations share their knowledge with individuals. They must be confident the individuals will use the knowledge for the good of the entity and not let it leak outside the firm, intentionally or not. Finally, organizations share knowledge between one another and must have trust in the equity of the contributions and that partners have taken appropriate steps to protect the knowledge and, again, prevent leakage.

Only when trust is established, in each of these scenarios, will knowledge management systems work to their fullest potential. Although technology-based, the key to the systems is actually in the softer notion of trust. Without trust, the technology does not work.

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16. The role of uncertainty and trust in the marketing of new technologies

Dietmar Roessl, Matthias Fink and Sascha Kraus

INTRODUCTION

The intensified pressure of innovation within the majority of developed economies, the shortened cycles of product development, as well as the constant leaps of technology following on from one another with increased velocity, have all led to considerable problems for an increasing number of enterprises in the last decades. Companies are often forced to put completely new (revolutionary) innovative products on the market (Yadav et al., 2006), as for example the first-time market introduction of VoIP (Voice over Internet Protocol) in the late 1990s. In order to sell these new products, new technology marketing has become one of the core competences for technology-intensive enterprises (Tschirky et al., 2000).

Within this context, however, companies often find themselves confronted with significant obstacles. One of the main obstacles is the lack of a 'market history' for these kinds of new technology products. Owing to the lack of experience of the participants in the market with the product that is offered, the suppliers of new technology products often have to face massive barriers concerning their marketing. This is particularly the case when the company itself does not yet possess a well-documented history of activity in the respective market. This paper focuses on suppliers of new technology products that do not yet have any reputation in the market. These suppliers are either relatively youthful enterprises or well-established companies that try to enter a completely new market in which they are not yet known with a new technology product.

In order to overcome the barriers with which the providers of new technology products are confronted when they carry out marketing activities, the characteristics of the object of transaction as well as of the transaction relationship are analysed, and the resulting uncertainties (in the broad sense) of new technology marketing are identified. Based on these findings, the possibilities concerning the reduction and the handling of these

uncertainties are outlined. As a further step, the outlined components of the norm strategies of new technology marketing serve as a basis for the design of a requirement profile for new technology marketers.

This chapter will help to recognize barriers within new technology marketing and to understand their determinants and functional mechanisms. The analysis is focused on the perspective of the marketers of such new and highly innovative products. Our systematic elaboration leads to initial starting points for the formulation of strategies to overcome these barriers, and thus may also produce important suggestions for practitioners.

TRANSACTION OBJECT-BASED UNCERTAINTIES

New technology products generally involve high degrees of uncertainty concerning the market, technology and competition (Moriarty and Kosnik, 1989). An analysis of the objects of transaction (new technology products) that are offered within the range of new technologies under the aspects of concreteness/uniqueness has shown that the qualities of the exchanged goods have a significant influence on the type and the extent of the stakeholders' uncertainties. New technology products are the result of innovation processes, and they are considered the first exchange goods of this kind on the market.

The term 'concreteness' refers to the a priori definition of the exchange good, its contractual determination, and its possible examination before the conclusion of the transaction. If the transaction good has little or no concreteness, it has to be characterized more strongly as a 'promise' (Kaas, 1992a; Rushton and Carson, 1989). The term 'uniqueness' on the other hand refers to the influence of situation-specific circumstances and the importance of the transaction participants' identity for the evaluation of the exchange good by the buyer. Thus, uniqueness refers to the specificity of the exchange goods (for example Picot, 1991, p. 345) and implies a 'small number exchange situation'.

These aspects lead to the conclusion that transaction relationships within the field of new technology products often concern exchange goods that are not yet available at the time of the arrangement. Thus, the organization of the incentive-/contribution structure not only refers to the specification of the performance, but also to the credibility of expectations, for example the credibility of a company founder's statement that the surrounding neighbourhood will hardly be disturbed by the noise created when trucks delivering the new product are unloaded late at night or early in the morning (Kaas, 1992b). Furthermore, the transaction relationships include services that will not or can not be contractually determined (in

terms of all fields of services) at the time of the completion of the contract. As an example, master agreements enabling a flexible adjustment with regard to new developments and follow-up negotiations of change requests need to be created (Hauschildt and Leker, 1990). These services are usually long-term services (for example facilities with service contracts) and can be characterized by low transaction frequencies and/or a high value- and time dimension. Consequently, the collection of experience via 'trial and error' represents an attractive strategic option neither for the new technology provider, nor for the client.

The potential stakeholder is only able to evaluate some characteristics of the exchange good offered by the new technology provider. This a priori lack of examination opportunities stems from the temporal separation of agreement, production and the realization of the transaction utility and/or the stakeholder's non-existent know-how when it comes to examining the statements of the new technology provider.

It has to be pointed out that the essential characteristics (for example, confidential handling of data, quality standards, simple coordination tasks, generous regulation in case of conflicts, and so forth) of new technology products are mostly 'experience' and 'credence' qualities. As a result, (potential) clients are often confronted with difficulties when it comes to evaluating these products. In this respect, they correspond to the original definition of 'contract goods'. Alchian and Woodward (1988, p. 66) describe 'contract goods', differentiating them from 'exchange goods', as complex, highly specific and valuable promises of performance, the realization of which takes a certain period of time and implies a well-coordinated match between supplier and consumer (Kaas, 1992a, p. 884).

Furthermore, new technology products are highly service-oriented. They are usually bundled with service contracts on the one hand, and are often developed and finalized together with the client on the other hand ('lead user innovation'; see for example Tapp and Hughes, 2004, p. 292). This shows the importance of the performance promise's service qualities and underlines the importance of the relationship between the new technology provider and the potential client. Thus, the analysis of the new technology marketing has to focus not only on the exchanged good, but also on the exchanged service as well as on the transaction relationship.

Owing to the intangibility of new technologies, it is not easy to communicate their service qualities to the client. The client cannot evaluate the quality of the service before buying it, and it is not possible to communicate the service's value; the consumer sees him/herself confronted with the 'empty pocket' problem after consumption. This problem gradually varies according to the visibility or sustainability of the result and the embeddedness of the performance in a material environment.

The value of the services that have a visible result and that have been produced by the visible use of tangible factors can be communicated to the client more easily, whereas services on the other side of the continuum do not have any search qualities. As a consequence, the consumer has to rely on the promise of performance from the new technology provider and has no preliminary guarantee with regard to the quality of the product. The perception of risk that is connected with the purchase of services and the client's necessary confidence needed to overcome these uncertainties are therefore regarded as constituent characteristics of services (Rathmell, 1974, cited in Scheuch, 1982).

The strong service orientation of new technology products also implies, due to their situational embeddedness, a rather high degree of individualization. In particular, the characteristics of the service object tend to have an influence on the performance (coordination with the spatial/temporal availability and adaptation according to the variety of the service object, and so forth; see Guttersohn, 1984). At the same time, the specifications of the service object and general situational aspects lead to the uniqueness of each service performance. Thus, against the background of uncertain transactions, the new technology provider has to make specific investments. In addition, the resources that he uses in order to initiate or to carry out a transaction lose almost all their value if the sales relationship fails (small-number-exchange, sunk costs). This situation dramatically increases the risk for the new technology provider when carrying out the transaction.

In the field of new technologies, the problems concerning uncertainty are aggravated, as the sales relationships are generally embedded in a certain context which has often not been adapted to the new requirements, and therefore impede the controllability and programmability of the transactions. There is a general lack of safeguarding instruments and efficient implementation of these available instruments that could help reduce uncertainties.

TRANSACTION RELATIONSHIP-BASED UNCERTAINTIES

Even if the characteristics of the goods are decisive determinants for (the degree of) uncertainty, the different types of the exchange constellation also have an influence on the uncertainties between the new technology provider and the potential customer.

The new technology provider promises to deliver an efficient (that is, a useful) product to the customer. However, this promise is connected with massive uncertainties in the form of information asymmetries for the client.

In this case, the information asymmetry means that the (potential) customer disposes of a certain deficit of information concerning the qualification and the efforts of the new technology provider.

On the one hand, the client is uncertain as to the performance capacity of the new technology provider. We consider that these quality uncertainties (hidden characteristics) can often not be overcome *ex post*, as the problems concerning the uncertainty of results affect the *ex post* assessment of the *ex ante* existing qualification.

In addition, the potential customer of new technology products is confronted with uncertainties concerning the decision of the new technology provider in favour of the agreed behaviour. We believe that this uncertainty regarding the behaviour (hidden intention, hold up) cannot always be eliminated *ex post*, as the uncertainty concerning the result again affects the *ex post* assessment of the behaviour that is shown. Spremann, however, differentiates fairness/obligingness as *ex post* discernible elements of the 'hidden intention', and effort/care as *ex post* non-discernible 'hidden actions'.

In the end, the potential customer also has to cope with the result's uncertainty. These uncertainties concern the *ex post* assessment of the new technology provider's behaviour. In such a situation, the principal's deficient performance cannot be detected as such and the reason for a possible deficient performance cannot be identified. We therefore consider uncertainty with regard to the result as a derived cause for risk, that is the danger of non-identification of behaviour as a form of uncertainty regarding quality or decision making that has become effective (Kaas, 1992b, p. 24). Owing to the characteristics of the exchange good and the associated degrees of liberty of the performance, it remains unclear whether the deficient performance results from the exogenous risk (the effort of the qualified new technology provider was hindered by unfavourable external circumstances) or from veiled characteristics (the effort of the unqualified founder was supported by expected external circumstances).

In the case of performances that include a narrow scope of action, the evaluation of the quality is limited to the question of whether the 'activities have been carried out properly', whereas complex services require the supplier to carry out the 'appropriate actions'. The measure to which the characteristics of the transaction relationship cannot be evaluated beforehand determines the level of uncertainty for the potential stakeholder. Along with other services, the acceptance of these uncertainties is to be seen as an additional contribution from the buyer of a new technology product. As the buyer attributes higher costs – in correspondence with the other contributions – according to the risk level of uncertainties, increasing uncertainties tend to diminish the possibility that the buyer perceives a

positive incentive balance in the exchange relationship. At the same time, a high level of the potential customer's uncertainty may serve as a chance for the new technology provider, as they can achieve a competitive advantage towards their competitors by adopting measures for the reduction of uncertainty and by offering 'credibility'.

OVERCOMING UNCERTAINTY THROUGH RELATIONSHIP MANAGEMENT AND TRUST

In order to cope with the challenges of marketing, and due to the high level of uncertainty and the tendency towards long-term transaction relationships in the field of new technology marketing, the embedding of the transaction within a consistent relationship management seems reasonable. As in such configurations neither of the coordination mechanisms proposed by orthodox economies – the market mechanism and hierarchical governance (for example Williamson, 1991) – are feasible powers to coordinate the behaviour of the transaction partners, 'relational contracting' (Carson et al., 2006; Granovetter, 1985; Macaulay, 1963; Macneil, 1980) may be an attractive option for new technology providers.

During the initial phase, the main aim is not to stimulate the customer to buy repeatedly but to manage the client relationship with a specific customer from the very first appearance of the product on the market to the implementation of a new technology solution for that particular customer, and of after-sales marketing. In the field of new technology marketing, the maintenance of relationships plays an especially decisive role for the success of the transaction, since the new technology provider has to make risky advance-performances in the form of specific investments concerning each service. The customer on the other hand also has to make some specific investments in order to adapt the structures and processes of his own organization to the needs of the new technology. Thus, both sides are interested in a reduction of uncertainty in their transaction relationship. However, the new technology provider focuses more strongly on the reduction of uncertainty within the whole process of the transaction, as the customer – because of corresponding legal regulations – is able to at least partially shift his costs, which may result from a possible exit due to product failure, to the new technology provider.

Relationship management aims at the development of the business partner's commitment. Therefore, it is not 'canvassing for customers' (Gumesson, 1997, p. 28), but a credible and well-communicated transition from short-term profit to long-term orientation. One of the main objectives of relationship management is to increase the commitment and

thus the loyalty of the customer towards their supplier and the common transaction. The business partner should consider the transaction relationship as important enough to justify its continuation even if, at some periods of the relationship, the efforts are not compensated for by any service in return (Schmitz, 1996, p. 212). Only if the short-term opportunism is replaced by a long-term orientation can the temporal separation of services and services in return be bridged, and the double contingency (Luhmann, 1984, p. 179) that is typical for uncertain, long-term transaction relationships be overcome.

Relationship management – besides its role of facilitator within the field of new technology marketing – is also seen as a strengthener; satisfied customers convert themselves into supporters of and advertisers for the supplier (Gummesson, 1997, p. 30; Kawasaki, 1997). Within this context, the customers are often the most important ‘marketing employees’ (Kawasaki, 1997, p. 26). This is particularly the case in those areas in which the exchanged products do not have any search qualities, as for example within the field of new technology marketing.

A new technology enterprise can carry out measures which reduce its customers’ uncertainty concerning: 1) its performance capacity (uncertainty of quality), 2) its willingness to perform (decision in favour of a behaviour according to the agreement, uncertainty of decision) as well as 3) the evaluation and assessability of the performance result (uncertainty of result) (Kaas, 1992b; Spremann, 1990).

It is, however, necessary to take into account that ‘uncertainties of the potential customer’ also lead to the ‘obligation of the consumer to rely on “reputation” for the purchase decision’ (Kleinaltenkamp, 1992, p. 824). With the reduction of uncertainties, the ‘credence qualities’ become less important. With the relativization of the importance of trust towards the supplier, existing trust relationships lose their significance as barriers for market entry. If the potential customer is able to specify and to evaluate the demanded service, the hitherto existing supplier can be easily replaced by a new competitor and the price becomes the central criterion for the decision.

Enterprises that produce high quality services, but whose reputation and products are not (yet) regarded as trustworthy, are especially interested in reducing the uncertainties of the potential customer. New-technology enterprises often belong to this category. Companies that have already obtained a certain level of trust or, contrarily, those delivering inferior quality, do not intend to reduce uncertainties. For the first group, uncertainties in connection with their already obtained level of trust represent certain competitive advantages: customers who are indecisive (due to uncertainty) when choosing a certain product, tend to select products and producers who maintain a positive reputation on the market. It is therefore

probable that customers with a low level of know-how in the field of IT tend to buy brand names, whereas IT experts also consider purchasing the products of unknown producers. The second group of companies (inferior quality) is only successful by 'exploiting' rather opaque markets (inefficient negative word of mouth) and because of the limited possibilities of an *ex ante* examination of quality (high level of uncertainties of the customer). This is a strategy that can be pursued by enterprises that generally have changing customers, for example those companies that are frequently changing their location (for example fairs), or that are confronted with a variety of customers (for example souvenir shops for tourists). This also applies to enterprises that meet aperiodic needs (for example estate agents who normally only carry out one transaction for the customer; the people looking for an apartment at a certain point in time do not know each other; negative word of mouth therefore has a high level of waste coverage). Furthermore, a partner in an exchange relationship who intends to betray somebody's trust is not interested in reducing the existing uncertainties.

Measures for the reduction of uncertainties aim at the transformation of trust characteristics ('credence qualities') in testable search characteristics ('search qualities'), or in promises that can be more easily trusted (Schmitz, 1996, p. 10). Instead of promising high quality, the producer guarantees the use of certain materials; the latter can be operationalized and can consequently be evaluated more easily. This transformation follows the objective that 'promises become viewed as credible expectations' (Rushton and Carson, 1989, p. 32). Consequently, the uncertainties are perceived as less problematic than before:

1. The performance capacity can partially be demonstrated by referring to search and experience qualities (signalling; Kaas, 1992a, p. 893; Kleinaltenkamp, 1992, p. 820). In this context, for example, references to samples, to technical specifications of the production machinery, and to the education of the employees, as well as seals of quality, awards after competitions, certificates and so forth, deserve mention.
2. The performance capacity can also partially be communicated by means of input-oriented self-commitment (Kaas, 1992a, p. 893). The input-oriented self-commitment – together with the control procedures – limits the supplier's scope of action (specifications of the production process, for example the materials that are used, procedures and so forth).
3. And finally, the supplier can take over the risks of the result's uncertainty by issuing performance guarantees or profit-related payments (output-oriented self-commitment). By doing so, the supplier assumes the risks of a deficient performance, regardless of its cause (for

example exogenous causes, the supplier's lack of qualification, or their lack of effort). It is, however, not always possible to apply these instruments and they may be prohibitively expensive (Kaas, 1992b, p. 49).

The uncertainties with regard to performance capacity and evaluation of the result can therefore be limited by surrogate information and by sanction mechanisms in connection with examination procedures. These measures reduce the uncertainty by strengthening confidence. However, the uncertainties concerning the willingness to perform can only be reduced by establishing trust. The indicators for the performance capacity, comprehensive guarantees and output-oriented incentive systems cannot impede the fact that the entrepreneur – owing to a more attractive offer – is for example unwilling or only partially willing to perform the service that he or she agreed upon. This may be particularly the case if there is a slight chance that the deficient performance will not be uncovered by the customer (Kleinaltenkamp, 1992; Kaas, 1992a).

The evaluation of the products' characteristics such as 'search', 'experience' and 'credence qualities' also depends on the customer's qualification and on the available procedures for examination as well as their costs (examination costs as transaction costs). The characteristic of a product can be a 'credence quality' for one actor due to a lack of knowledge, whereas another actor identifies the same characteristic as a 'search quality'. The main objective of 'reducing the potential customer's uncertainty' can therefore be achieved by communicating the necessary knowledge to the customers, so that they are able to evaluate performances and products themselves. This leads to an improvement in the offer's controllability for the consumers.

The importance of trust in order to overcome uncertainties can easily be argued: somebody who is able to trust can more easily establish relationships, even those that are uncertain and not completely controllable. Relationships that are extremely uncertain and in which the uncertainty cannot be reduced can only be established on the basis of trust. If the uncertainties within a relationship can be reduced and a stable trust relationship has been established, the partners can generally do without cost-intensive measures (checks, contracts and so forth). Therefore, trust allows for what would otherwise be an 'impossible' relationship and can also save transaction costs in other relationships. In order to be successful on the market, new technology enterprises – in addition to their efforts to reduce uncertainties of the client relationship – have to carry out measures which lead to the establishment of trust. Only when the uncertainties that have not been sufficiently reduced by the corresponding measures are managed by a stable trust relationship will the actors – especially the customer – tend to accept these uncertainties.

The new technology enterprise uses various measures for the establishment of trust:

1. The development of a reputation as a competent and fair company: the investigation of trustworthiness incorporates the company's whole 'history' that is visible for the potential customer, and for the people who make the decisions in the company and who have personal contact with the customer (for example with the negotiation team). Thus, the 'establishment of reputation' starts even before the first contact with a potential customer. Owing to the importance of the past, the previous behaviour has to be trustworthy and communicated appropriately. Trust is mainly based on the company's history of self-portrayal. Potential customers try to find answers to the question if the history of an enterprise taken into consideration justifies a risky and confidential 'leap' into an uncertain future without any guarantees (Luhmann, 1989, p. 20).
2. Building up trust by self-commitment and the creation of dependencies: Trust can be developed if companies invest in risky advance performances in their client relationship, such as planning, orders of samples, reservation of capacities and so forth ('specific investments', see Tolle, 1994, p. 929 onwards). As these performances do not have any value outside of the particular client relationship's context (sunk costs), there is a possibility that the customer will exploit the supplier. As an example, the customer may use the supplier's concepts for contracting one of the supplier's competitors. This competitor is then able to implement and elaborate the supplier's original concept at a lower price because it had no conception and planning costs. If the new-technology enterprise still carries out the conception and planning without any guarantees, the trusting supplier exposes himself and is at the same time reliant on the goodwill of the customer. Somebody who trusts, exposes himself to certain risks. The possibility of a breach of trust can therefore never be completely eliminated. The ability to trust somebody presupposes self-assurance which enables someone to 'await a possible breach of trust with composure, without [. . .] considering them already as a basis for action' (Luhmann, 1989, p. 86). This self-submission not only leads to a more attractive offer. Due to the risky advance performances, it also constitutes dependencies of the supplier. This self-imposed vulnerability also produces a certain type of moral pressure: the desire not to betray somebody's confidence. Voluntary self-submission of the new technology provider is therefore well-suited for the initiation of the customer's trust in the supplier's willingness to perform (Adler, 2001; Fink, 2005; Roessl, 1996). Thus, guarantees have

a double function: on the one hand they reduce uncertainties, as the supplier takes over the risk regarding its own deficient performance (Kleinaltenkamp, 1992, p. 817). On the other hand, they promote the development of trust. If the new-technology provider offers a free examination of his/her offer by an independent authorized expert (chosen by the buyer), this might replace the necessity for a checking report.

3. Building up trust by adequate management activities: trust cannot be simply 'produced' or 'demanded', but can only be permitted and made possible. If management does not want to hinder the development of trust by acting as a 'facilitator', it has to pursue a management orientation that does not aim at the exploitation of short-term goals but at the creation of long-term potentials. This kind of management orientation can therefore be credibly communicated in particular by family enterprises and by small and medium enterprises (SME), as these types of companies typically do not have as their main objective a short-term maximization of shares by changing generations of managing directors, but instead aim at the maintenance of long-term income sources for generations and qualify themselves by a corresponding long-term orientation. Furthermore, the orientation of management has to be in line with a consistent behaviour on the market in order to communicate a trustworthy reputation history. Within this context, SMEs also have a decisive advantage. They are embedded in a regional social environment which allows for better visibility of the reputation history, and the assessment of the history's consistency can be controlled more easily in comparison to internationally active (large) enterprises. Owing to the spatial and psychological proximity to the exchange partner, the communication barriers are lower, which facilitates the communication of a consistent, trustworthy history of the entrepreneur and the enterprise. For the spreading of this 'trustworthy' behaviour, SMEs can rely more strongly on comparatively credible, word-of-mouth advertising by their customers.

Regardless of the company size and its range of action, the new-technology enterprise is able to encourage the process of the establishment of trust by integrating the entrepreneur or executives into the project team. Besides the signaled importance of the transaction, the integration of the person with final responsibility serves as a certain kind of pledge concerning the reputation of the executives. If the transaction fails due to deficient completion of the performance that has been promised, the actors are directly concerned: their reputation is damaged. On the basis of this pledge and the personal contact of the executives with the customer, the subjective

product characteristics in the field of credence and experience qualities can be easily developed within the exchange relationship (Roessl, 1991).

CONCLUSION

The analysis of the relationship between the new-technology provider and the customer(s) of new technology products provides a high-level view of the uncertainties as a result of the characteristics of the exchanged goods, as well as the exchange constellation per se. Since these uncertainties tend to have such a negative influence on the incentive/contribution balance of the actors if they are not treated adequately, it may well be that the targeted exchange relationship cannot be established at all. Thus, the decisive role of management in overcoming these uncertainties becomes visible. The intention of our chapter was to systematically uncover the uncertainties of new technology marketing and to elaborate measures for the handling of these problems. On the one hand, we ask for measures that are suited to reduce the uncertainties of new technology marketing (increasing confidence). On the other hand, the establishment of measures that enable the actors to accept persisting uncertainties within the framework of the exchange relationship (increasing trust) seems necessary. This applies to uncertainties for both the new technology provider as well as for buyers of new technology products.

For a successful realization of new technology marketing, the new technology marketer therefore has to work on both dimensions with the same intensity. This represents a particular challenge to the expertise, as well as (to a large extent) to the social competence, of the new technology marketer. The competent implementation of the outlined measures for the handling of uncertainties by well-prepared new technology marketers therefore facilitates transactions that could otherwise not be realized due to highly perceived uncertainties.

The realization of what are initially considered to be extremely uncertain and complex exchange relationships is relevant for the new technology provider, as it involves the generation of (process-) know-how and of relevant knowledge concerning the further development of the new technology product together with the customer, who is typically also the user. Finally, owing to the transactions that have already been carried out in the field of new technology products, the uncertainties for those customers that follow the 'early adopters' diminish, because the realized transactions are taken as reference projects for the management of uncertainties and the acquisition of new customers.

Summing up, we are convinced that SMEs have considerable advantages within the field of new technology marketing. These include the long-term

orientation of management to aim for consistent behaviour in the market, and which consequently serves as a valuable basis for the establishment of trust among customers.

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