# Chapter XXII
# Trust Based E–Commerce Decisions

**Vesile Evrim**
*University of Southern California, USA*

**Dennis McLeod**
*University of Southern California, USA*

## INTRODUCTION

Over the years, trust has been extensively studied in many fields such as sociology, psychology, and economics. The sociologist Gambetta (2000) states that trust is one of the most important social concepts present in all human interaction and without it there is no cooperation or society. Berscheid (1994) also claims that trust is central to how we interact with each other; thus, it is a key to the positive interrelationships. Social psychologists use the notion of trust to predict acceptance of behaviors by others and institutions (e.g., government agencies). In literature, trust is defined in so many ways that it becomes more elusive than the physical dimensions of space and time.

In time, due to the increase of human-computer interaction, trust has become one of the most challenging topics in computer science. Similar to the definitions of trust defined by sociologists and psychologists, computer scientists have also defined trust in their own way (McKnight & Chevany 1996; Falcone & Castelfranchi, 2001; Wang & Vassileva, 2003). How much we trust the source, information, or agent has become one

of the hardest questions to answer. As computer technology advances, the need for trust between multiple parties in a communication-based systems increase.

The Internet is one of the best examples of the applications that trust needs to be investigated in depth. Although, it was conceived as a military and academic project, over the years, the number of non-academics users, has increased, gaining popularity among the business community. With the introduction of the World Wide Web (WWW) (Berber-Lee & Cailliau, 1994), the Internet has become a collaborative medium that allows people anywhere in the world to add and retrieve information.

Today, Internet services are increasingly being used in business to consumer (B2C) e-commerce applications (Liao & Cheung, 2001). E-commerce provides a new way of shopping for the customers by offering more choices and transforming economic activity into a digital media. It also provides an opportunity for the businesses to extend their sales to a larger community. However, the success of getting higher profits and improved services are based on better communication. As

in the real world, critical understanding of users' behavior in cyberspace cannot be achieved without the analysis of the factors affecting the purchase decisions (Limayem, Khalifa & Frini, 2000). Having lots of options in an environment that is missing face-to-face interaction enforce users to make trust-aware decisions to better protect their privacy and satisfy their expectations such as quality of services.

## BACKGROUND

One of the first works that tried to give a formal treatment of trust that could be used in computer science was introduced by Marsh (1994). This model is based on social properties of trust and presents an attempt to integrate all the aspects of trust taken from sociology and psychology. However, the model is too complex to be implemented in today's e-commerce applications (Aberer & Despotovic, 2001). McKnight and Chervany (1996) also use social sciences in their work. They defined three kinds of trust. Impersonal/structural is trust to a social or institutional structure in the situation. Dispositional trust is based on the personality attributes of the trusting party that develops across broad spectrum of situations and persons. Personal/interpersonal trust is to a person or a group of people in the specific situation. Falcone and Castelfranchi (2001) have presented a cognitive model of trust in terms of mental ingredients such as beliefs and goals. Their cognitive analysis of trust distinguishes internal and external attributes that predicts different strategies for building and increasing trust.

In order to quantify the degree of trust, different models use various representations of trust values. In some models, trust values are represented as intervals (-1, +1), as done by Jonker (1999) or probabilities (0,1) done by Josanf and Ismail (2002). The others such as Abdul-Rahman and Hailes (2000) have proposed discrete values such as very trustworthy, trustworthy, and not trustworthy. In addition to have a common understanding about the meaning of a given trust statement, Kinateder (2005) has proposed a generic trust model to com-

bine all the representations of trust into a common model. However, these studies focused on the syntactic representation of trust and did not answer the question of what it means to trust a source in certain degree (e.g., 30 percent). Subjectivity and the context dependency of trust (O'Hara, Alani, Kalfoglou et al., 2004) make it harder to judge about the trustworthiness of sources.

Recently, increasing amount of data and sources make it necessary to analyze trust in recommender systems (Golbeck, Parsia & Hendler, 2003; Massa & Bhattacharjee, 2004; O'Donovan & Smyth, 2005). O'Donovan and Smyth (2005) inferred trust relationships from "rating based data" and used these relationships to influence the recommendation process. Similarly, Massa and Bhattacharjee (2004) used the popular consumer review site Epinions.com to create a trust-graph and use that to compare users according to their degree of connectedness.

Seigneur and Jensen (2004) incorporated security, privacy, and risk into their trust models. Intuitively, it is not possible to talk about trust if there is no security. But, even if an environment may be secure, it cannot necessarily be trusted. For example, a security guard may make sure that all attendees in the school party have a student ID. Although, it does not mean that a student can trust to everybody who is attending the party. In order to provide a better idea about the security of systems and the privacy of our information, there are currently many services helping people to make better trust-based decisions. For example, VeriSign (2001) provides valid SSL certificates to confirm that the businesses exist. TRUSTe provides assurance to users that the site is following its stated privacy practices through initial and periodic reviews, seeding, and compliance reviews (Benassi, 1999).

## TRUST IN INTERNET APPLICATIONS

The variety of application domains and users together with uncertainty make trust one of the most important parameters of decision making (Jøsang,

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/trust-based-commerce-decisions/21249

# Related Content

Comparing Citizens' Use of E-Government to Alternative Service Channels
Christopher G. Reddick (2010). *International Journal of Electronic Government Research (pp. 54-67).*
www.irma-international.org/article/comparing-citizens-use-government-alternative/42147

Evaluation Framework for Assessing E-Democracy Policy
M. Hendersonand F. Hogarth (2007). *Encyclopedia of Digital Government (pp. 790-796).*
www.irma-international.org/chapter/evaluation-framework-assessing-democracy-policy/11594

Technology Diffusion in Public Administration
Eugene J. Akers (2008). *Handbook of Research on Public Information Technology (pp. 339-348).*
www.irma-international.org/chapter/technology-diffusion-public-administration/21260

Harnessing Interagency Collaboration in Inter-Organizational Systems Development: Lessons Learned from an E-government Project for Trade and Transport Facilitation
Thayanan Phuaphanthong, Tung Buiand Somnuk Keretho (2010). *International Journal of Electronic Government Research (pp. 42-56).*
www.irma-international.org/article/harnessing-interagency-collaboration-inter-organizational/45740

The Role of Social Influence and Prior Experience on Citizens' Intention to Continuing to Use E-Government Systems: A Conceptual Framework
Mubarak Alruwaie (2014). *International Journal of Electronic Government Research (pp. 1-20).*
www.irma-international.org/article/the-role-of-social-influence-and-prior-experience-on-citizens-intention-to-continuing-to-use-e-government-systems/122481