Chapter 3
Trust Theories and Models of E-Commerce

ABSTRACT
The literature on relationship between trust and e-commerce draws heavily on the insight provided by various theories and models of human behavior. A number of trust models have been proposed by various scholars to give a comprehensive view of the concept of trust and its antecedents. This chapter offers a summary of the selected trust theories and models for e-commerce that have been used for conceptualizing the ‘Trust and Technology’ model proposed in the book.

TRUST IN E-COMMERCE AND THE UNDERLYING THEORIES

The researches in the area of trust in e-commerce have drawn heavily from a set of existing theories. The following paragraphs provide a brief description of the perspectives of trust in e-commerce emerging from these theories.

Systems Theory

System Theory, first proposed by Ludwig von Bertalanffy in 1945 has been used for decades as an analytical approach to understand how complex physical, biological, economic and social systems operate. A system may be, typically defined as a set of several independent and regularly interacting or interrelating units or subsystems that work together to accomplish a set of pre-determined objectives.

Thus, system theory provides a framework for identifying the subject entity, creating a formalized model of the entity and thereby enabling the ability to study the entity by which groups of elements and their properties may be studied jointly in order to understand results. Business organizations and their behavior have often been investigated using what is termed as 'system's approach'. The basic advantage of the system approach is that it encompasses many concepts of system theory such as inputs, outputs, boundaries, feedback and control, etc. that are useful in understanding business situations. An Information System (IS) is a typical example of a system that conforms to the system theory. The IS as a sub system that works with other sub systems of the business system that acquires the resources, supports business processes and produces the outcomes that represent business performance (Lomerson et al., 2007). An e-commerce, being a sub system of IS, uses appropriate information practices in order to
achieve customer acquisition, customer loyalty, cost savings channel optimization and value capture (Epstein, 2004). Since, the transactions in e-commerce are computer mediated, they are subject to risks arising out of system-dependent uncertainty. The system dependent uncertainty may arise either from the open technological infrastructures or from the transaction-specific characteristics of the trading parties (Grabner-Krauter S., 2003). The risks associated with the system-dependent uncertainty enhance the role of trust in the transactions carried out in online (virtual) environments (Grabner-Krauter S. et al., 2003). Thus, system theory may be applied to understand the issue of trust in e-commerce.

Two particular perspectives have emerged in recent years that relate to organizations and they include the chaos theory and the complexity theory (Millet B. et al, 1998). Chaos theory is “… the proposition that systems are neither open or closed, but so complex that minute changes to the system can cause complex and unpredictable change” (Smither, Houston & McIntire, 1996). According to Chaos theory, it is not possible to forecast future events in an organization because small change in the environment can have a snowball effect (Smolowitz, 1996) and may have significant consequences. However, the complexity theory emphasizes on planned change instead of chaotic processes of “self-organization that produce unpredictable emergent change” (Shaw, 1997). It advocates continued adaptation and realignment instead of freezing an organization to a state of rigidity (Dawson, 1994; Crossan, White, Lane & Klus, 1996). In the context of trust in e-commerce, the complexity theory underlines the need for planned and deliberate steps in the direction of realigning the information practices.

The systems approach to building trust in e-commerce would focus on effectively deploying a set of appropriate practices in order to achieve an environment that is trusted.

### Social Construction of Technology (SCOT) Theory

Social construction of technology (also referred to as SCOT) theory draws on the work done by a number of researchers belonging to school of the sociology of scientific knowledge including Thomas P. Hughes, Wiebe Bijker and Trevor Pinch. This theory advocates that human action influences technology. According to this theory, science and technology are socially constructed sub-cultures and the boundaries between them are the product of social negotiations. It argues that the process of adoption or rejection of a technology cannot be understood without understanding how that technology is embedded in its social context. This theory is based on the premise that technologies emerge from social interactions among social groups and actors. According to SCOT, there are no ‘best’ or ‘worst’ technologies, as all technologies can be shaped differently according to the users need.

SCOT theorists disagree with the conventional view that “technology is self-determinant and pre-given as it unfolds over time to answer the needs of society” (Webster, 1991:26-7). It questions the idea that technological development has occurred through a logical, rational self-selective path. The critics of SCOT argue that this theory ignores the role of structural influences, especially of institutions, economic and political systems (Klein & Kleinman, 2002; Russell, 1986; Winner, 1993).

### Adoption Theory

E-commerce, like other innovations, has been characterized by varying degree of adoption by different individuals/organizations. Adoption, here, refers to the decision of any individual or organization to use an innovation (Frambach et al., 2002). Five characteristics that influence the adoption of any innovation was identified by Rogers (1995). These include relative advantage, compatibility, complexity, triability and observ-
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