Does Technology Trust Substitute Interpersonal Trust? 
Examining Technology Trust’s Influence on Individual Decision-Making

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ABSTRACT

While an increasing number of trust studies examine technological artifacts as trust recipients, there is still a lack of basic understanding of how technology trust relates to traditional trust and its role within the broader nomological net articulated in trust research. This paper suggests that technology trust is distinct from interpersonal trust (i.e., trust in humans) due to the different core characteristics of the trustees. To examine these differences, the authors first develop and validate a measure of technology trust comprised of IT-specific belief sources. Then, they articulate a research model that compares and contrasts technology trust and interpersonal trust. This study provides evidence that technology trust is associated with, yet distinct from, interpersonal trust. The authors found technology trust plays a dual role in the nomological net tied to individual intended behavior – exerting a direct and an indirect influence on a trust outcome. Rather than suggesting that technology trust substitutes for interpersonal trust, the findings suggest that technology trust complements interpersonal trust in affecting purchase intention.

Keywords: Institutional Trust, Interpersonal Trust, Purchase Intention, Technology Trust, Technology Trust Substitutes

INTRODUCTION

As information technology (IT) has grown more pervasive in personal and professional lives, technology trust has played an increasingly important role in people’s decisions and behaviors (Gefen, Karahanna, & Straub, 2003; Sun, 2010). Technology trust refers to people’s beliefs regarding the trustworthiness of particular IT to perform a task (Ratnasingam & Pavlou, 2003; McKnight, 2005). Previous research has investigated technology trust (Ratnasingam, 2005) and used existing trust theories to explain its influence and guide how to operationalize the construct (Wang & Benbasat, 2005). Empirical studies also suggest that technology trust is an important element of the broader nomological net espoused by trust theories (Ratnasingam & Pavlou, 2003; Wang & Benbasat, 2005; Li, Hess, & Valacich, 2008).
While technology trust has received more attention in the recent literature, we believe there are at least two issues that remain critical for advancing our understanding of why individuals trust in technology (Gefen, Benbasat, & Pavlou, 2008). The first issue is with regards to the conceptualization and measurement of technology trust – how should technology trust be defined and measured? Using traditional definitions of interpersonal trust, Wang and Benbasat (2005, 2008) operationalized trust in decision support technologies as a function of users’ beliefs in the systems’ competence, benevolence and integrity. They could do so because the decision support technology was personified as a “virtual advisor.” When one can personify a technology, it may be appropriate to transfer traditional ways of measuring trust in people to technologies. However, it is often inappropriate or problematic to characterize technological artifacts as “honest” or capable of “keeping in mind my interests.” Moreover, in many cases, people perceive multiple objects in their trust assessment, including both human actors and technology artifacts. In such contexts, one would expect people to rely on different information about characteristics of these trusting objects that could strengthen or diminish their overall trust in a given context. Hence, we believe that there is a need to develop a standard, theoretically grounded definition and measure of technology trust.

A second issue necessary for extending technology trust research is deepening theoretical understanding of technology trust’s role in the nomological net espoused by trust theories. While technology is widely used in various contexts to mediate communications, complete a task, or build a relationship on behalf of human actors, we must understand how technology trust relates to traditional trust and situates within existing nomological nets used to understand trust and its implications. One may speculate that technology trust should substitute for interpersonal trust in the cases where technology artifacts completely replace human labor and presence. The logic is that it is difficult, if not impossible, to form trust towards human actors who are not visibly or physically present in a relationship. Instead, the technology should be a more direct and germane trustee that the trustor evaluates in order to form a trustful relationship. For example, when individuals withdraw money from a stand-alone ATM with no human interaction and assistance, they have nobody to trust except the machine to complete the transaction. On the other hand, technology is made to support human activities. It is developed, operated and managed by people. So one might argue oppositely that we still need faith in people in a technology-mediated relationship, and that our trust in technology should co-exist with the trust in people in building such a relationship. Extending our example, individuals’ use of an ATM may be driven not only in the machine’s ability to complete the transaction, but also their faith in the bank and its employees to properly process the transactions behind the scene. To reconcile the different roles of technology, people, and institutions in people’s trust decisions, it is necessary to further consider the relationship between technology trust and traditional trust as well as their relative influences on trust outcomes.

Hence, the purpose of this study is to shed light on the nature and role of technology trust. We examine trust in technology in the context of Business-to-Consumer (B2C) Internet-based store that lacks a physical presence and offers customers minimal contact with human sales representatives. Such an Internet-based store is useful for our purposes because it limits potential confounds of technology trust with interpersonal trust (i.e., online consumers have minimal contact with a merchant’s human agents). In addition, to eliminate other possible confounds in individuals’ perceptions, we focused on initial trust of new customers that leads to the first purchase, and measured purchase intention (i.e., willingness to complete transaction) as trust outcomes. This way, knowledge from previous shopping experience or post-purchase trust perceptions was specifically excluded. We use this context to examine the following research question: When technology replaces human actors, does technology trust...
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