How to Trust: A Model for Trust Decision Making

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ABSTRACT

This paper concerns decision-making processes that rely on trust. In particular, it analyzes how different aspects of trust (e.g., trust, trustworthiness, trustworthy evidence) influence trust decisions, and acting on them eventually. It proposes a trust decision model that structures the analysis of contextualized trust problems. Rather than seeking a general definition of trust, this paper advocates the necessity to have a structured way to analyze and characterize situational trust problems systematically.

Keywords: Situational Trust Problems, Trust, Trust Decision Making, Trustworthiness, Trustworthy Evidence

INTRODUCTION

Trust and trustworthiness (Hardin, 2002) capture many different aspects that are becoming as critical and relevant as many other aspects (e.g., safety, security, dependability) for system design and assessment (Camp, 2003; Yu & Liu, 2001). Research on trust drawn from multidisciplinary domains highlights a continuing debate on its definition and its nature (Gambetta, 1998; Harding, 2002, 2006; McKnight & Chervany, 1996). Yet, it is difficult to derive a definitive and widely-accepted definition of trust. One conclusive remark is that trust is a complex concept. Unveiling its complexity requires us to understand subtle interactions among different aspects of trust (e.g., trust and trustworthiness).

This paper reviews relevant research accounts on trust in order to identify the main trust aspects and analyze their interdependencies. These interdependencies highlight a structured trust decision model, which allows us to discuss and clarify trust matters systematically. The underlying interdependencies among aspects of trust characterize different decision making processes that act on trust. Moreover, they stress the distinction between deciding to trust (i.e., the decision of whether or not to trust) and acting on trust (i.e., any action or activity that might depend on trust). This distinction enables us to analyze different trust situations (e.g., definitions of trust requirements). Furthermore, understanding interactions among trust aspects is instrumental in order to analyze different decision making processes (e.g., unconscious actions or decisions, and informed or rational choices). This characterization of trust emphasizes differences between decision making processes in the general public (e.g., how people act or decide to trust) and in the informed peer groups (e.g., how people who have the capacity to access and interpret trust-related information...
decide to trust). On the one hand, it captures the sociality of trust. That is, it highlights the fact that trust is a social matter. On the other hand, it embraces the rationality of trust. That is, it takes into account trust as being rational. This paper advocates the investigation of how to relate trust, risk, and knowledge uncertainty to each other. One course of investigation is to look at them from a social perspective of trust (Krukow & Nielsen, 2007). Though, it is necessary to enrich such account by cultural aspects (which make possible to distinguish organizations, groups, etc.) and rational domain knowledge in order to tailor them to situated contexts.

This paper is structured as follows. The next section provides a brief review of relevant work on trust in order to stress the complexity of the concept itself. Moreover, it identifies and describes some general aspects that characterize trust. It then introduces our structured account of trust, or trust decision model. The rationale is twofold. First, it is necessary to provide a systematic approach to clarify trust in situated contexts. Second, a systematic account is also useful in order to analyze decision making processes that rely on trust. The proposed trust decision model is used to analyze and structure different situational trust problems. It finally discusses how such trust problems relate to trust and relevant policies, and draws some concluding remarks.

ON TRUST

Trust is a concept that has been investigated in different disciplines (e.g., economics, social science, computer science) and used in everyday life differently (McKinht & Chervany, 1996). This situation creates confusion about trust itself. Simply, many people refer to trust, although they mean different things (Guinnane, 2005). Research has addressed this problem by seeking for a general account of trust (Hardin, 2002, 2006; McKinht & Chervany, 1996; Jones, 2002; Kramer, 1999), which ‘unifies’ the different uses of the word trust. However, the generalization of the concept of trust faces the problem of making sense of different perspectives that might contradict each other. Moreover, it is unclear how these perspectives (and their underlying assumptions and models) have shaped our understanding of trust. For instance, the performativity of economics states economics is performative in the sense that practical uses of aspects of economics modify economics itself (MacKenzie, 2006). The point is then whether or not trust itself is performative (Avis, 2003; D’Adderio, 2008; Szerszynski, 1999) – How do trust models shape our understanding of trust? How do trust models shape our behaviour? What is our understanding of trust in situated contexts?

Although the trust concept is elusive, it is possible to identify some general aspects characterizing its nature. Social accounts of trust have contributed to the analysis of trust in our society and its nature. A common aspect among different accounts is that trust concerns interaction. That is, trust in something (or someone) or being trustworthy is the result of an interaction. Trust takes into accounts emerging (or past) evidence in presence of knowledge uncertainty. Moreover, knowledge depends on contextual situations. Therefore, the assessment of trust or any interpretation of it involves a level of subjectivity (Ugirala et al., 2004). Hence, it is possible, to a certain extent, to draw some comparisons between trust and risk perception. In particular, the social theory of risk highlights how different groups perceive, for instance, environmental and technological hazards (Douglas & Wildavsky, 1982). Trust involves risk that relates to knowledge uncertainty. Trust depends on the subjective positions with respect to knowledge uncertainty like social groups have different risk perceptions. Trust is a social construct like risk.

Other relevant considerations can be drawn from recent research on the dependability of socio-technical systems that stresses the relationship between dependability and structures (Besnard et al., 2006). The emergence of structures and their impact has been a topic investigated in various domains. Similarly, it is useful to understand how trust relates to structures, and
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