Chapter VII

Building Trust Online:
The Design of Robust Reputation Reporting Mechanisms for Online Trading Communities

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ABSTRACT

Several properties of online interaction are challenging the accumulated wisdom of trading communities on how to produce and manage trust. Online reputation systems have emerged as a promising trust management mechanism in such settings. The objective of this chapter is to contribute to the construction of online reputation systems that are robust in the presence of unfair and deceitful raters. The chapter sets the stage in identifying a number of important ways in which the reliability of the current generation of reputation systems can be compromised by unfair buyers and sellers. The central contribution of the chapter is a number of novel "immunization mechanisms" for countering the undesirable effects of such fraudulent behavior. The chapter describes the mechanisms, proves their properties and explains how various parameters of the marketplace, most notably the anonymity and authentication regimes, can influence their effectiveness. Finally, it concludes by discussing the implications of the findings for managers and users of current and future electronic marketplaces and identifies some important open issues for future research.

INTRODUCTION

The emergence of electronic markets and other types of online trading communities are changing the rules on many aspects of doing business. Electronic markets promise substantial gains in productivity and efficiency by bringing together a much larger set of buyers and sellers, and substantially reducing search and transaction costs (Bakos, 1997). In theory, buyers can then look for the best possible deal and end up transacting with a different seller on every single transaction. None of these theoretical gains will be realized, however, unless market makers and online community managers find effective ways to produce trust among their members. The production of trust is thus emerging as an important management challenge in any organization that operates or participates in online trading communities.

Several properties of online communities challenge the accumulated wisdom of our societies on how to produce trust (Kollock, 1999). Formal institutions, such as legal guarantees, are less effective in global electronic markets that span multiple jurisdictions with often conflicting legal systems (Johnson & Post, 1996). The difficulty is compounded by the fact that, in many electronic markets, it is relatively easy for trading partners to suddenly "disappear" and reappear under a different online identity (Friedman & Resnick, 2001).

As a counterbalance to those challenges, electronic communities are capable of storing complete and accurate information about all transactions they mediate. Several researchers and practitioners have, therefore, started to look at ways in which this information can be aggregated and processed by the market makers or other trusted third parties in order to help online buyers and sellers assess each other's trustworthiness. This has led to a new breed of systems, which are quickly becoming an indispensable component of every successful online trading community: *online feedback mechanisms* (Dellarocas, 2003), also known as *reputation systems* (Resnick, Zeckhauser, Friedman, & Kuwabara, 2000), are using the Internet's bi-directional communication capabilities to artificially engineer large-scale word-of-mouth networks in which individuals share opinions and experiences on a wide range of topics, including companies, products, services, and even world events. Figure 1 lists several noteworthy examples of such mechanisms in use today.

The disembodied nature of online environments introduces several challenges related to the interpretation and use of online feedback. Some of these challenges have their roots in the subjective nature of feedback information. Brick-and-mortar settings usually provide a wealth of contextual cues that assist in the proper interpretation of opinions and gossip (such as familiarity with the person who acts as the source of that information, the ability to draw inferences from the source's facial expression or mode of dress, etc.). Most of these cues are absent from online settings. Readers of online feedback are thus faced with the task of evaluating the opinions of complete strangers. Other challenges to feedback interpretation have their root in the ease with which online identities can be changed. This opens the door to various forms of strategic manipulation. For example, community members can use fake online identities to post dishonest feedback and thus try to inflate their reputation or tarnish that of their competitors. An important prerequisite for the widespread acceptance of online feedback mechanisms is, therefore, a better understanding of how such systems can be compromised, as well as the development of adequate defenses.

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