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# i2i TRUST IN E-COMMERCE

*The depth of participants' trust and trustworthiness depends on how the medium transmits and translates the social experience, including its often unviewable cultural and personal cues.*

**T**he Internet has brought about the New Economy and with it a host of research on e-commerce. Most people familiar with e-commerce think of it as, first, the ability of consumers to buy products and services online (an arrangement known as B2C). Alternatively, it's also the ability of businesses to interact with one another electronically (B2B) in the interests of, say, supporting the supply chain, the next step beyond electronic data interchange.

Another important change the Internet has meant for commerce is that individuals have the ability to communicate with one another, independent of location (or i2i, for individual-to-individual). i2i plays a big role in e-commerce in two main scenarios: global teams inside organizations and advisor/advisee interactions from one organization to another or from an agent to a customer.

**Global teams.** For global teams, managers can choose members from around the world, extending their reach to find the most appropriate experts for the job at hand. Many companies have gone global, assigning people from different continents, time zones, areas of expertise, even from outside the organization, to work toward a common goal. Ford

Motor Co. is an example of a global organization assigning global teams to design various automobile components and produce cars for all regions, rather than different cars for different regions, as it had previously; Ford calls it "virtual collocation." Meanwhile, although a number of companies have been doing software development around the world and around the clock, such global work has become much easier in recent years thanks to the Internet. Where these companies used to work through ftp and version-control software to share the code itself, today's Net-based communication makes it easier to discuss the work, clarify misunderstandings, coordinate changes, and monitor and maintain the schedule through email, attachments, and text-chat capabilities, as well as through audio and videoconferencing.

**Advisor/advisee relations.** The Internet was originally expected to be a great medium for "disintermediation," or the elimination of people as intermediaries to sources and services. We would be able to explore enormous digital libraries without a reference librarian; access medical information before meeting a physician; view ongoing changes in the stock market, allowing us to make decisions without a broker; or secure travel arrangements without a travel agent. Although such access

is widespread today, and many of us are able to work independently, people are beginning to reappear in our online interchanges. We now recognize the value these intermediaries might offer us, including counsel, guidance to the right sources of information, assessment of the quality of the sources, and customized advice, because they understand our overall goals and needs. Today, we are seeing “reintermediation,” or the reintroduction of people to online interaction to link sources and services. Services include live chats with human advisors—on-screen videoconferencing to hone the advice for the individual being served. Reintermediation via i2i affects both B2C and B2B.

Trust is the principle challenge in both areas—connecting teammates across long distances and the interaction of advice seekers and advisors on the Internet. In order for teammates to work productively and efficiently, they have to trust one another’s abilities, sight unseen, trust they will fulfill their promises, and once trust is established, that there

tells us something about how trust differs in these different environments.

Research on trust takes two forms: fieldwork using survey methods and lab studies using a game called a “social dilemma” in which people either act in a way that shows trust and cooperation or in their own personal self-interest [1].

What does this research tell us? The general wisdom is that “trust needs touch”; indeed, in survey studies, coworkers report trusting people who are collocated more than those who are remote [10]. Interestingly, the people who spend the most time on the phone chatting about nonwork-related matters with their remote coworkers showed greater trust than those who communicated using only faxes and email. But lab studies also show that telephone interaction is not as good as face-to-face interaction for producing trust between people. People using just the telephone behave in more self-serving, less-trusting ways than they do in face-to-face meetings [2].

What about other Internet media? Can people



IN THE LAB, FACE-TO-FACE INTERACTION PROMOTES THE GREATEST TRUST, FOLLOWED BY THE TELEPHONE, THEN TEXT-CHAT, THEN EMAIL, UNTIL WITH EMAIL, TEST SUBJECTS BEHAVE MOSTLY IN A SELF-SERVING WAY.

will be enough social capital to cover for one another in future difficult times.

Advisors also rely on trust—when they help their advisees construct and maintain, say, a stock portfolio, when they prescribe a medical regimen, or recommend a travel destination to fit complex needs and goals. Advisors are trusted to serve their advisees’ needs, not merely maximize their own profits. Advisors also have to trust that their advisees will pay for their services, not just take the information and run.

How do the new Internet-based communication technologies affect the development and maintenance of trust? Does trust depend on meeting face-to-face, or can it also be established through videoconferencing and rapid response to chats and email? Although nobody yet knows the definitive answer, recent research on technology-mediated communication

learn to trust when they use only email or text-chat (like through such products as ICQ, or “I seek you”, from ICQ, Inc., or MicrosoftMessenger)? Apparently not. In the lab, face-to-face interaction promotes the greatest trust, followed by the telephone, then text-chat, then email, until with email, test subjects behave in a mostly self-serving way [4, 9].

What can be done to counteract the mistrust that is inspired by trust-inhibiting online media? In one series of experiments in 1998, the test subjects met face-to-face to engage in a team-building exercise the day before they engaged in the social dilemma game using only email for communication [9]. Happily, these people showed as much cooperation and trust as those who discussed things face-to-face during the game. This trusting behavior, despite electronic media-mediation, is important; it suggests that

remote teams engaging in some face-to-face team-building before commencing their projects act in a relatively trusting/trustworthy manner.

Since it's not always possible to have everyone on a project meet face-to-face before commencing the actual work assignment, what other methods would work to inspire trustworthy behavior? Researchers have found that online text translated into voice has no effect on trust, but when it is translated into voice and presented through an animated human-like face online, the result is even worse than text-chat [4, 5]. However, when test subjects exchange personal information—combining pictures of the remote people, their resumes, and chatting about social matters—they cooperate more. We do not yet know whether any of these ways of communicating produces as much trust as face-to-face interaction, but the results are intriguing. If we can find a way to establish trust without expensive travel, we are more likely to see important productivity gains.

What about video? Does it produce the same behavior as being there? It is encouraging that the more interactive a media is the more effective it is at engendering trust (the telephone and online chat are better than nothing), and providing personal information (background details, including photos) engenders some trust. But to date, no research has yet sought to determine whether video interaction undermines or engenders trust. There is promise but no data yet; still, we should not be too optimistic. In other tasks, video does not produce the sensation of being there. Video adds overhead to the conversation, requiring more effort than working face-to-face [8]. Moreover, video over the Internet today is delayed and choppy, producing cues that people often associate with lying; one doesn't trust someone who appears to be lying. Trust is a delicate emotion, so video today might not do it.

Why are the research results so mixed? Where does trust come from? Which media are more likely to offer what is needed to produce trust between people?

*Some are inherently more trusting.* Some people are inherently more trusting than others, and some cultures are more trusting than others [3]. Identifying which countries are inherently trusting and which are not produces surprising results. For example, although people in the U.S. and in France are similar on many cultural dimensions, they differ on base trust [3]. Same with the Chinese and the Japanese. Americans and Japanese have more base trust than the Chinese and the French. How might this affect long-distance relationships? Where one culture might start off assuming both parties trust each other,

another culture would be waiting for evidence before trust is offered. We therefore start with a baseline.

*Trust varies with the situation.* People assess the costs/benefits of trust and vulnerability moment by moment. We might be more likely to leave our laptops in a Microsoft conference room than in an airport lounge. We trust more when the stakes are relatively low or the same as our partners or when the potential loss is miniscule.

*People infer trustworthiness.* People infer trustworthiness from a number of information sources. Some of us have reputations for being trustworthy. We sometimes infer such reputations by weighing social/organizational standing, inferring that some people couldn't have achieved their stations in life without being trustworthy. Sometimes, seeing that other people are like ourselves, we infer they have the same level of trustworthiness as we do [6].

People learn to trust others by noting their behaviors. Promising to do something and fulfilling the promise earns trust. Interestingly, people can also engender trust by making themselves vulnerable, inviting others to trust them, because they themselves are so trusting. In theater and literature, characters often reveal a secret in order to get a secret in return.

What do these sources and ideas imply about the research results we have seen so far? What might the promise be for untested technologies like video and untested procedures like online get-acquainted games?

*Face-to-face.* Meeting face-to-face provides a lot of information about the trustworthiness of other people. Just from seeing them, we infer nationalities, social class, demeanor, and whether they are like us. The setting itself begins to help calculate the stakes; we know why we are meeting and can assess the cost/benefits to each of being trustworthy. Conversational conventions also often allow more interchange about personal information; the small talk that typically begins and ends conversations provides some emotional bonding. What the first face-to-face encounter does not provide is information about other people's reputations or their recent behaviors (see Resnick's, Zeckhauser's, Friedman's, and Kuwabara's "Reputation Systems" in this section). However, in many organizational settings, those who are politically astute investigate their colleagues before engaging in sensitive negotiations.

*Telephone and text-chat.* Neither of these technologies provides the visual cues from which we might guess other people's cultures or status. The telephone provides voice clues; text does not. Both, however, are more likely to engender trust than

email, because the response is immediate; we infer attention (leading to emotional bonds) and a quick assessment of the fulfillment of a promise. However, because both the telephone and text-chat are ephemeral (typically), they provide no guidance as to other people's reputations.

**Email.** Email clearly lacks even the interactivity of text-chat. We often get no clues as to whether the other people are even reading our messages. Delays can be caused by a number of factors, only some of which represent legitimate information about someone's trustworthiness. Task-based information can be relayed easily, but all other information concerning trustworthiness and social/emotional bonds is missing. We can search email for past promises-fulfillment combinations but not easily. It is amazing we can work exclusively through email for long.

**Videoconferencing.** The one promising but untested technology in this arena is videoconferencing, whether formal systems like Pictel from Pictel Corp. or lower-quality video on the desktop as in that provided by NetMeeting from Microsoft. Ads for these technologies have claimed they are just like "being there." They're not [7]. Although they provide visual cues from which we might assess culture and status, we still have difficulty if the physical distance and the cultural boundaries that have to be crossed are great. Not only might we encounter differences in base levels of trust, but moment-by-moment behaviors might be misinterpreted. For example, the French do not smile often, not because they are less warm than Americans, but from learned behavior from childhood about how long it takes to earn a smile from others. Americans are viewed as frivolous and shallow by the French; the French are viewed as cold by Americans. So, in some cases, video cues can be misleading.

Is there any hope for electronically mediated trust? Yes, but the design of the interface needs to recognize the kind of experience and social cues people need to be able to feel trust and the kind of experience and social cues we actually get from these technologies. The keys to designing a trust-engendering system are:

- Appropriate background information (to judge similarity and reputation);
- Attention (exchanges showing that each party cares); and
- Trusting and trustworthy behavior (to invite trust and the fulfillment of promises).

These guidelines suggest that people constrained to work only through relatively impoverished technologies like email can help foster trust by:

- Exchanging personal information or engaging in team-building exercises through audio or video interfaces;
- Engaging in cross-cultural sensitivity as needed (when, say, the team represents a number of different cultures);
- Responding to requests in a timely manner (showing attention); and
- Fulfilling promises.

Engendering i2i trust on the Internet isn't free with today's technologies. Indeed, most of the needed fix is not even in the technology but in human behavior and expectations—the most difficult adjustment of all. ■

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