Communications of the Association for Information Systems

Volume 17 Article 9

2-23-2006

ICIS Panel Summary: Should Institutional Trust Matter in Information Systems Research?

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ICIS PANEL SUMMARY
SHOULD INSTITUTIONAL TRUST MATTER IN INFORMATION SYSTEMS RESEARCH?

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I. OVERVIEW

This paper summarizes and expands the panel on "Should Institutional Trust Matter in Information Systems Research?" that was presented during the ICIS 2005 Conference in Las Vegas. The panel was co-chaired by Paul A. Pavlou of the University of California and by David Gefen of Drexel University. The panelists were Izak Benbasat of the University of British Columbia, Harrison McKnight of Michigan State University, Katherine Stewart of the University of Maryland, and Detmar W. Straub of Georgia State University.

There were about 150 people attending the panel and taking part in the lively discussion that pursued. Due to the interest the panel aroused, this paper expands on the topics discussed and presents them in a much broader perspective in a set of appendices.

II. BACKGROUND

Given the importance of trust in online environments, IS researchers have recently embraced research on the topic of trust [Ba and Pavlou, 2002, Gefen, Karahanna, and Straub, 2003b, Jarvenpaa, Tractinsky, and Vitale, 2000, Kim and Benbasat, 2003, McKnight, Choudhury, and Kacmar, 2002a, Stewart, 2003]. Yet, despite the enormous interest in the topic of trust by IS researchers, with 129 published papers in ABI/INFORM as of November 2005, most of this research may be equally appropriate for marketing or management journals, as it has little to do

with the IT artifact, although recently IS research has began paying much attention to tying the IT artifact to the trust literature (e.g. Gefen et al. [2003b]). With few exceptions [Gefen, 2004, McKnight, Cummings, and Chervany, 1998, Pavlou and Gefen, 2004, 2005, Pavlou, 2002], however, IS research on *institutional trust* is sparse. The objective of the panel was to encourage interest in this topic, where the IT artifact and trust are combined at the center of the research. The paper presents not only what was said in the panel but, as a service to the community, expands significantly on these topics in a series of appendices.

Institutional trust is defined as the trustor's belief that effective third-party guarantees are in place to assure the trustee's behavior will be consistent with the trustor's favorable expectations. Institutional trust is perhaps more appropriate for IT-enabled environments where there is often minimal prior interaction and people mainly interact with new and unknown entities under the aegis of third parties who provide an institutional context. There is evidence that IT can build effective institutional structures that engender trust in impersonal contexts [Pavlou and Gefen, 2004, Pavlou, 2002]. Given these facts, why do IS researchers keep focusing on interpersonal trust while disregarding institutional trust? Are we doing ourselves a disfavor by examining trust that is perhaps more relevant for management and marketing scholars, while not focusing on institutional trust that is more relevant for IS scholars?

Given this background, the panel set out to discuss whether, how, and why institutional trust should matter more in IS research. This topic was addressed in three separate sections with these three related topics:

1. The Importance of Institutional Trust as a Trust-Building Means
2. Can The Design of an IT Artifact Alone Be Sufficient to Build Trust?
3. What Research Methodologies Should Be Pursued?

This paper summarizes these presentations. In doing so we kept to the flow and order of the panel presentation. Accounting for the limited time of the presentations, additional thoughts by the panelists are added as appendices to accompany the presentations.

III. THE IMPORTANCE OF INSTITUTIONAL TRUST AS A TRUST-BUILDING MEANS

This debate discussed the issue of when institutional trust becomes more or less important compared to other trust-building means. Paul A. Pavlou presented evidence based on field surveys and experiments in online auction marketplaces of the exclusive trust-building potential of institutional mechanisms, even compared with familiarity-based trust, formal contracting and guarantees, legal bonds, and dyadic inter-personal or inter-organizational trust [Ba and Pavlou 2002, Pavlou, 2002, Pavlou and Gefen, 2004, 2005]. These studies are discussed in Appendix 2.

Contrasting this, Izak Benbasat argued, based on experimental data, that institutional trust is not particularly important when compared to other trust building mechanisms in impersonal online environments. To support his point, Izak Benbasat cited his recent papers on argumentation-based trust, which has been shown to be a more effective means of building trust compared to institutional mechanisms. These papers are discussed in Appendix 3.

IV: CAN THE DESIGN OF AN IT ARTIFACT ALONE BE SUFFICIENT TO BUILD TRUST?

Addressing these seemingly contradicting conclusions by Pavlou and by Benbasat, David Gefen highlighted the need to go back to basics in order to understand why trust is necessary in the first place, and, hence, why and how institutional mechanisms build it in some cases and have little effect in others. Basically, trust is a logical leap of faith in which people assume away unethical behavior by others. People have an inner need to do so because otherwise the social uncertainty they encounter in life would be overwhelming and prevent them from social interaction [Gefen, 2000]. But trust is not wholly irrational. People apply judgment and analyze their environment before making this leap. In the case of an online environment, people look at a wide range of

cues, both technical and social, in deciding whether to trust [Gefen, Karahanna, and Straub, 2003a]. Institutional trust is one of these mechanisms, but by no means is it the only one. And so in assessing the question at stake, one must consider what other mechanisms people in the specific situation could resort to. In the case of online marketplaces, institutional mechanisms are unique in providing these cues, and, hence, their potency in predicting buyer's trust. In other cases, such as those discussed by Izak Benbasat, there are other cues in the situation, and, hence, being one of many cues, their strength is less. Appendix 4 discusses this topic in more depth.

Harrison McKnight stressed his general agreement with the above and then added a review of theoretical foundations and current research. Institutional trust was conceived by several researchers, among whom Lynne G. Zucker is prominent because of an article called "Production of Trust: Institutional Sources of Economic Structure, 1840-1920" [Zucker, 1986]. Zucker [1986] proposes three modes of trust production: 1. process-based; 2. similarity-based (or characteristics-based); and 3. institution-based. Zucker proposes that these three modes of trust building are interchangeable or substitutable. Empirical research was then reviewed regarding how the IT artifact can be used to build institutional trust. A detailed discussion of these and other papers which support this view is presented in Appendix 5.

Lastly, Katherine Stewart discussed the role of institutional trust in the decision to use an IT artifact or not in the context of Free/Open Source Software (F/OSS). Extending institutional trust beyond the realms of e-commerce and electronic marketplaces shows the wide range of practical topics to which this research can be applied. Institutional trust applies also to the decision to use an IT artifact or not in the context of Free/Open Source Software (F/OSS). In F/OSS, institutional trust may be obstructed because ownership of software may be unclear, and thus, the means of recourse for dealing with problems may also be unclear regardless of trust engendered by the design of the artifact itself. A detailed discussion of this topic appears in Appendix 6.

V: WHAT RESEARCH METHODOLOGIES SHOULD BE PURSUED?

Concluding this panel by discussing how to pursue future research on institutional trust, Detmar Straub shared his ideas and offered guidelines on how the IT artifact can enhance institutional structures and build trust. These guidelines appear in Appendix 7. IS scholars have been researching trust and institutional trust for some time now and have made some progress in learning how trust relates to positive outcomes, such as buying behaviors and attitudes toward web sites, etc. But there are reasons to believe that the extent of our new knowledge is overhyped because of the limitations of the research techniques employed. Utilizing new techniques may help to overcome some of these limitations and triangulate on the phenomenon in the future.

VI: CONCLUSION

The objective of the panel, and this ensuing paper, was to present the current state of IS research into institutional trust and suggest some ways in which this research could be advanced. We hope the current conflicting evidence by Paul and by Izak, combined with the theoretical reasons behind it, discussed by David and by Harrison, and its application to related topics, discussed by Katherine, promote new research into this field. In doing so, we encourage the reader to pay close attention to the research methodology insights discussed by Detmar.

Hopefully, some thoughts along this line will help guide IS researchers on how to pursue future research on institutional trust and investigate how the IT artifact can build institutional structures and engender trust. Much of the work on trust and institutional trust has used survey techniques, archival data, or lab and experiments with student subjects to examine how individuals respond to third party guarantees or endorsements. While this work has been useful in establishing baselines and testing theory, the extensibility of the research has not really been exercised via these techniques. There are several alternative approaches that could yield a wealth of data and help IS researchers tease out how institutional trust plays out in the real world. The irony is that

one of these suggested techniques is experimental simulation, which many researchers believe is hamstrung by constraints to purely hypothetical situations. This is not necessarily the case; other approaches include field experiments and protocol analysis.

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APPENDIX 1: PANEL INTRODUCTION (PAUL A. PAVLOU)

Paul A. Pavlou launched the panel by introducing the panelists and explaining the rationale for having this ICIS panel. Paul stressed the great interest in the topic of inter-personal and inter-firm trust by Information Systems researchers and noted the apparent lack of research on the topic of institutional trust. After formally defining the construct of institutional trust, he argued that institutional trust is closely related to the IT artifact, which can be used to form institutional structures that engender trust.

Paul then formally stated the research question that motivated this panel: “Whether, How, and Why Institutional Trust Matter in Information Systems Research?” Finally, he explained the research questions of each of the three debates, explaining that Debate 1 tackles the “Whether” question, Debate 2 the “Why” question, and Debate 3 the “How” question.

APPENDIX 2: PAUL A. PAVLOU’S PRESENTATION AND ADDITIONAL COMMENTS

Institutional mechanisms are typically based on both formal and informal accreditation and guarantees. Specifically, in the case of online auction marketplaces, these mechanisms are feedback mechanisms, escrow services, credit card guarantees, and trust in the marketplace intermediary [Pavlou and Gefen, 2004, Pavlou and Gefen, 2005]. If buyers believe in the effectiveness of these institutional mechanisms to protect them from potentially opportunistic sellers, institutional mechanisms engender trust in sellers, reduce risk perceptions, and increase behavioral intentions to transact in the marketplace.

Paul A. Pavlou presented evidence from his earlier work to empirically support the notion that institutional trust matters beyond other trust-building mechanisms:

1. First, he presented evidence from Business-to-Consumer (B2C) auction marketplaces in which the feedback content of institutional feedback mechanisms builds trust and price premiums in specific reputable sellers [Ba and Pavlou, 2002]. The effect of institutional trust was salient in this context given that there was no familiarity and repeated transactions.

2. Second, he presented evidence from Business-to-Business marketplaces where a set of formal (i.e., institutional accreditation, institutional monitoring, and institutional legal bonds) and informal mechanisms (i.e., third party feedback and third party cooperative norms) were shown to engender two dimensions of trust (credibility and benevolence) [Pavlou 2002]. In turn, these trust dimensions were shown to influence satisfaction, transaction risk reduction, and transaction continuity, controlling for the impact of prior transaction experience.

3. Third, Paul presented evidence from B2C auction marketplaces in the context of transactions with the community of sellers as a group [Pavlou and Gefen, 2004]. The trust-building potential of institutional mechanisms was evident, even when controlling for previous transactional behavior, past experience, and previous seller performance in the online marketplace. In turn, these behavioral intentions to transact influence actual transaction behavior and price premiums. These findings are consistent with research on ERP implementation, which also supports the importance on institutional trust in promoting interpersonal trust [Gefen, 2004].

4. Finally, Paul presented his recent work in B2C online marketplaces in which institutional mechanisms were shown to overcome the negative impact of psychological contract violations (PCV) by sellers [Pavlou and Gefen, 2005]. More specifically, institutional mechanisms were shown to build trust and reduce perceived risk, despite the occurrence of PCV (which reflects a negative transaction experience with a specific seller that has a negative impact on the community of sellers as a group).

In summary, the results from these four empirical studies suggest the prominent impact on institutional mechanisms on building trust, reducing risk, and supporting favorable transaction outcomes, even after controlling for other trust-building means, such as familiarity, previous transaction behavior, and prior seller performance. Paul A. Pavlou concluded that institutional trust does matter in online environments, and its impact becomes more prominent in more impersonal environments in which other trust-building mechanisms are not well established.

APPENDIX 3: ADDITIONAL COMMENTS BY IZAK BENBASAT

In this section, we discuss three studies that compare the influence of institutional trust building schemes, either IT-based or otherwise, to other types of trust building schemes, describe the results of these studies, and explain their outcomes using the Elaboration Likelihood Model.

The first study (Study 1) compared the influence of two trust assuring mechanisms, namely, affiliation with a portal (Yahoo or Amazon) and endorsement from satisfied customers as represented by customers' peers, on trust in a new web-based bookstore [Lim, Sia, Lee, and Benbasat, 2005]. The participants were told to imagine that they were visiting a new online bookstore for the first time. They were told to rank the five versions of the bookstore based on whether they would trust to purchase from this new online bookstore:

1. Version 1 (Familiar and Similar Peer) - Endorsement by customers who look similar to the respondents and whom the respondents may be familiar with (peers within the same university; one of the two versions used in Study 1);
2. Version 2 (Foreign Peer) - Endorsement by customers who are foreign to the respondents (students from a foreign university who looked distinctly different from the respondents);
3. Version 3 (Not Familiar but Similar Peer) - Endorsement by customers who look similar to the respondents but are not personal acquaintances of the respondents (students from another local university who looked similar but not familiar to the respondents);
4. Version 4 - Amazon.com affiliation; and
5. Version 5 - Yahoo affiliation.

Results indicate that peer endorsement was a more effective strategy than portal affiliation for building trust (Versions 1 and 3 were ranked higher than Versions 4 and 5). Affiliation with organizations as identified by the kind of business they conducted did not affect trust building: Amazon and Yahoo affiliations were equally ineffective. Hence, the conclusion of this study is that institutional affiliation is less effective in building trust than the information one receives from one's peers.

The second study was concerned with identifying the trust building processes that are influential in generating trust in online product recommendation agents when these agents provided *explanations* on how they generated recommendations and why they asked users certain questions to identify their product needs [Wang and Benbasat, 2005]. Using a process tracing methodology, *transference of trust* from a third party was found to have no influence on competence and benevolence beliefs and a significant but small influence on reducing integrity beliefs, when one could not rely on the transference of trust to the agent from a third party. In contrast, *expectation confirmation* (when the agent recommended products one expected to be in the recommended list) substantially influenced all three trusting beliefs, and perceived *usefulness* of the agent increased one's competence and benevolence beliefs in the agent. These results are consistent with Senecal and Nantel [2004], who found that where the recommendation source (human vs. computer) resided (retailer, 3rd party related to retailers, or independent 3rd party) did not influence consumers' selection of recommended products. Again, as in the above mentioned study, the feedback a user received from using the agent (i.e., expectation confirmation) was more influential than institutional third-party feedback mechanisms.

The third study investigated the impact of trust-assuring arguments in increasing trusting beliefs in an Internet store. A trust-assuring argument refers to "a claim and its supporting statements used in an Internet store to address trust-related issues" [Kim and Benbasat, 2005]. Toulmin's [1958] model of argumentation was used as a basis to identify the elements of an argument and to strengthen the effects of trust-assuring arguments on consumer trust in an Internet store. Three elements of arguments that commonly appear in daily communication, namely *claim*, *data*, *and backing*, were identified based on Toulmin's model of argumentation. *Data* refers to the grounds for a *claim*, while *backing* is used for providing reasons for why the *data* should be accepted. A laboratory study was conducted to examine the influence of three factors on trust in an online store [Kim and Benbasat, 2005]:

1. Trust assuring arguments (claim versus 'claim, data and backing'),
2. Source of the claim (store versus a third party, namely, *trust assurance organization* called Webtrust),
3. Motivation (personal relevance of arguments made in the claim: low versus high).

According to the Elaboration Likelihood Model (ELM) [Petty and Cacioppo, 1986], argument content (peripheral cues) influences persuasion outcomes more under high (low) personal relevance conditions than under low (high) relevance conditions. The source of the claim is considered to be a peripheral cue, whereas the trust assuring argument refers to content. Therefore, according to ELM, argument content would be more influential than argument source in affecting trusting beliefs under high relevance conditions, and vice versa under low relevance conditions.

Results indicate that, in terms of increasing trust, the ranking under *low* personal relevance conditions was: Third party's claim (with data and backing), third party's claim only, store's claim (with data and backing) and store's claim only (very low impact). In contrast, under *high* personal relevance conditions, the ranking was: Third party's claim (with data and backing), store's claim (with data and backing), third party's claim only (very low impact), and store's claim only (very low impact). These results confirm the predictions of ELM, in that under low personal relevance conditions, the source (third party) is more influential, whereas under high personal relevance conditions, content, that is, arguments that adhere to Toulmin's prescriptions (having claim, data

and backing), is more influential in increasing trusting beliefs. While third party's claim (with data and backing) is a strong determinant of trusting beliefs under both high and low relevance conditions, under high relevance conditions, the store's claim (with data and backing) is as influential and is the preferred one, due to the costs and effort needed to adhere to the requirements of a trust assurance organization.

The findings of this third study are helpful in explaining the comparative effects of institutional and informational impacts on trusting beliefs. While we find institutional mechanisms (i.e., third party claims) to be influential, this is mainly under low relevance conditions. The findings also have some interesting practical implications. In this study, relevance was manipulated as follows: under the high personal relevance conditions, the participants were provided with an incentive of a one-in-three chance of getting a $90 gift certificate to buy a watch for free from one of the two stores under evaluation, whereas a $10 gift certificate was provided under low relevance conditions. The manipulation checks showed that the amount of incentive influenced personal relevance of arguments in the expected direction. The result is therefore paradoxical in that institutional trust plays a more significant role when the customer is less interested in the trust claims being made, which occurs when the customer has less at stake or is less interested in examining the product sold, hence the online store needs to implement more costly trust enhancing mechanisms when the customer is seeking cheaper products!

The three studies also illustrate the role of information systems in effecting trust. Providing peer reviews on one's website, making explanations by recommendation agents available, and bolstering the type of information provided to make stronger trust assuring arguments are examples of the role of information and information technologies in enhancing trusting beliefs in online stores.

APPENDIX 4: ADDITIONAL COMMENTS BY DAVID GEFEN

Going back to the basics of the study of trust, namely to Aristotle's Rhetoric, and tying this initial perspective of trust through the theory of trust as discussed by Luhmann [1979], and as operationalized by recent research, provides a good background for the relevance of institutional trust.

At the basis of trust is human need to control, or at least understand, the social environment. This social environment can be so complex as to overwhelm people into inaction. Trust is about reducing this social uncertainty. Social uncertainty is prevalent in all but the most rudimentary activities people have with each other because all people are in essence free agents whose behavior cannot be controlled and in many cases not even rationally understood [Gefen, 2000]. Since social uncertainty can be overwhelming, people create rules and regulations to limit the behavior of others and so make behavior in general somewhat more predictable and understandable. Since there is a limit to what rules and regulations can achieve, people also need to resort to the logical leap of trust, which means irrationally assuming away the possibility that the other will not engage in untrustworthy behavior. This leap of faith is done on the basis of assuming the other person is honest, caring, and able to do what he/she claims he/she can [Mayer, Davis, and Schoorman, 1995]. Based on this trust, people and companies are willing to lower their guard and interact with each other. Trust is the oil which lubricates relationships as to make society function. Because people trust, they are more willing to engage with unknown others in a variety of business [Ganesan, 1994] and social interactions [Larzelere and Huston, 1980], including online purchase [Gefen, 2000, Gefen and DeVine, 2001, Jarvenpaa and Tractinsky, 1999, Reichheld and Schefter, 2000] and communities [Ridings, Gefen, and Arinze, 2002].

This is where institutional trust comes in. Trust is basically social. The IT artifact which is there to create institutional trust is a secondary player. It is there, extrapolating from Zucker [1986], to build trust through derivatives of the three trust building mechanisms, in this case Certification, Social Group Equalizer, and Unified Processes. In the context of an IT, institutional mechanisms

have mainly been shown to serve as certifiers and guarantees [Gefen, 2004, Pavlou and Gefen, 2004, Pavlou and Gefen, 2005].

Viewed this way, institutional mechanisms may or may not be influential, depending on the availability of other social complexity reduction mechanisms. In the case of the studies presented by Paul Pavlou, the institutional mechanisms were the only tool users had to confront social uncertainty, and, hence, these mechanisms had a strong effect. In contrast, in the studies presented by Izak, it would seem the users had a plethora of other mechanisms to confront social uncertainty, and, hence, institutional mechanisms, being in this case only one tool out of many, had a minor effect. This stresses the need to address institutional mechanisms and their effect within the broader theoretical context of social uncertainty and the available tools the users have to address it.

When one looks at the trust and institutional trust research, which Harrison does next, one cannot but be amazed by the persistent and consistent results of how much trust and institutional trust determine behavior. And yet, institutional trust does not operate in a social vacuum. Its effect in building trust depends on what other cues people can bear in mind when making the decision to trust. These cues can be both rational, as institutional trust is, or irrational, such as social presence [Gefen and Straub, 2004]. Researchers should be aware of these many antecedents when studying institutional trust.

APPENDIX 5: ADDITIONAL COMMENTS BY HARRISON MCKNIGHT

In this section, I first detail some of the theoretical foundations of institutional trust, then apply these foundations to e-commerce research, and finally report findings that support the idea that IT artifacts can build e-commerce trust and e-commerce related institutional trust.

THEORETICAL FOUNDATIONS OF INSTITUTION-BASED TRUST

Zucker [1986] proposes three modes of trust production: 1. process-based (repeated exchange); 2. similarity-based (or characteristics-based—social similarity); and 3. institution-based (formal impersonal mechanisms such as regulations, certification). The latter only work after being legitimized through a social process, which requires time. Zucker argues that from 1840-1920, because of heavy immigration and a more mobile U.S. economy, commercial relationships were often new or socially distant, making it harder for transactional trust to be based on process. Also, diversity of communities and geographic distance made it hard to base trust on similarity. Hence, institution-based mechanisms were required to fill the void. Other important institution-based trust theorists include Shapiro, Garfinkel, and Tan and Thoen. Shapiro [1987a] recounts the 1985 Ohio banking collapse, arguing that a complex network of institutional controls or 'policing' bodies (CPAs, private and government regulators, supervision, accreditation) are involved in providing structural assurances that maintain overall trust in institutions. Harold Garfinkel [1963, Garfinkel, 1967], quoted by Lynne Zucker [1986], says trust in the social order of things is largely taken for granted. "…trust resides in actors' expectations of 'things as usual,' with the actor being 'able to take for granted, to take under trust, a vast array of features of the social order' [Garfinkel, 1967, p. 173]" [Zucker, 1986, p. 57]. McKnight, et al., [1998] called the type of institutional trust Garfinkel examined situational normality. Tan and Thoen [2000] have theorized that (institutional) controls can supplement person trust thresholds. They argue that trust in the other party, plus trust in the institutional control mechanism, equals transaction trust.

APPLYING INSTITUTIONAL TRUST THEORY TO ELECTRONIC COMMERCE

We now apply the above theory specifically to the electronic commerce situation. The e-commerce domain often has the following conditions:

1. Unknown parties or little known parties [Pavlou and Gefen, 2004], obviating process-based trust mechanisms that are based on repeated experience.

2. Socially distant and diverse parties [Pavlou and Gefen, 2004], making it very difficult to generate similarity-based trust.
3. Few social cues [Pavlou and Gefen, 2004] used to build trust in face-to-face contexts [Dellarocas 2001].
4. Difficult, complex, or inadequate legal protections [Dellarocas, 2001].
5. Transaction anonymity, enabling parties to leave / re-emerge [Dellarocas, 2001].

EMPIRICAL FINDINGS ABOUT TRUST BUILDING THROUGH IT ARTIFACTS

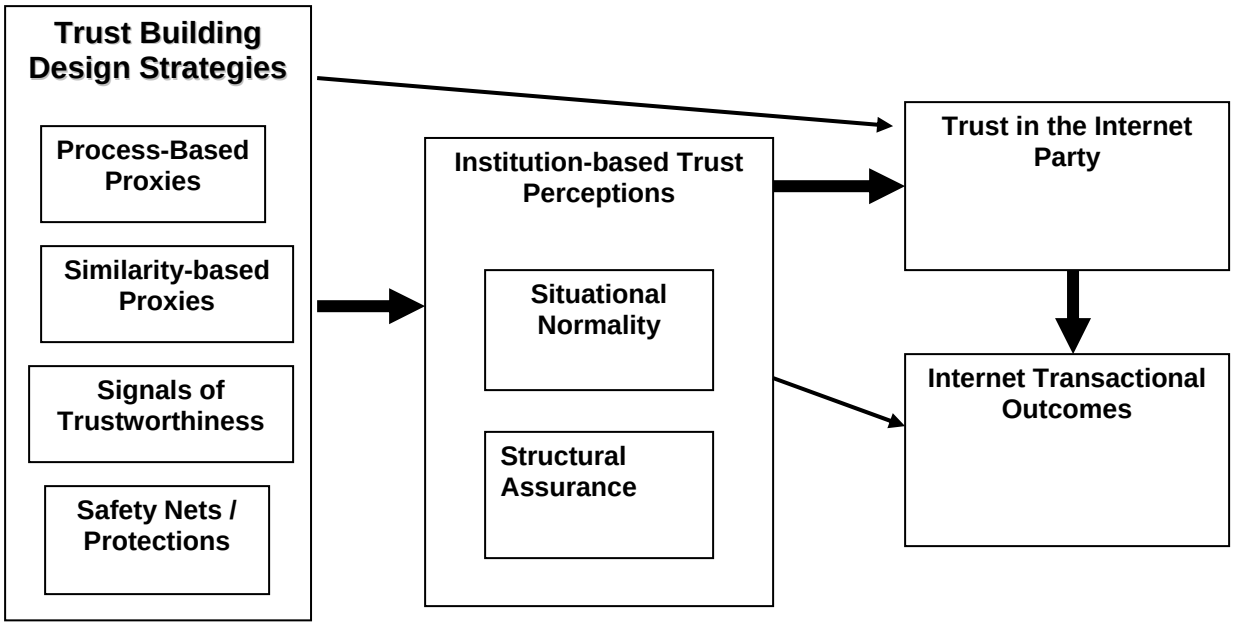
For these reasons, institution-based trust is both needed and emerging as a trust builder. In particular, e-commerce site vendors need to design the IT artifact (website) to provide:

1. Proxies for process-based experience. These include peer feedback mechanisms used in online auction environments [Ba and Pavlou 2002; Pavlou 2002]; online testimonials [Grazioli and Jarvenpaa, 2000; Lim, Sia, Lee, and Benbasat, 2001]; reputation advertising [McKnight, Choudhury, and Kacmar, 2004]; and a website's About Us feature [Tseng and Fogg, 1999].
2. Proxies for similarity-based identity, including affiliation links [Stewart 2003; Stewart and Zhang 2003].
3. Institutional safety nets, which include: escrows [Hu, Lin, Whinston, and Zhang, 2004; Pavlou and Gefen, 2004], guarantees [Pavlou and Gefen, 2004], and auction marketplace monitoring [Pavlou 2002].
4. Signals of safety and security, such as assurance seals like the WebTrust seal [Mauldin and Arunachalam, 2002].
5. Proxies for visual and voice cues, including seller photos [Bunnell and Luecke, 2000] and 1-800 numbers [Cheskin, 1999; Pavlou and Gefen, 2004].
6. Other signals of trustworthiness: size [Grazioli and Jarvenpaa, 2000; Jarvenpaa et al., 2000] and site quality [Cheskin, 1999; McKnight, Choudhury, and Kacmar, 2002b]. Jarvenpaa and associates found that size builds trust, probably because it signals stability. McKnight, Choudhury, and Kacmar, 2002b] found that site quality was a stronger predictor of trusting beliefs (.51**) than were either reputation (.39**) or structural assurance of the Web (.10**). They concluded that how one designs the IT artifact matters.

E-commerce research is also beginning to show that, as Zucker [1986] argued, it is important to legitimate the IT artifact, or it won't build trust. For example, third party seals work only if they are noticed, familiar, and transmit intended meaning [Cheskin, 1999; Kimery and McCord, 2002; Kovar, Burke, and Kovar, 2000; Mauldin and Arunachalam, 2002]. Grazioli and Jarvenpaa [2000] found that it was the credibility or convincingness of testimonials that affected trust. Also, see Kim and Benbasat [2003] for a review of the various trust building strategies.

CONCLUSION

From the above, institution-based IT researchers are coming to a consensus that design strategies for the IT artifact tend to build institution-based trust, which builds trust in Internet transaction partners, which leads to positive transactional outcomes (Figure 1). Overall, the significant body of evidence outlined above shows that design of the IT artifact influences both trust and institution-based trust.



Note: Thinner arrows denote partial mediation

Figure 1: Overview of Evidence for the Trust Building Efficacy of the IT Artifact

APPENDIX 6: ADDITIONAL COMMENTS BY KATHERINE STEWART

The literature typically discusses two dimensions of institutional trust: structural assurance refers to guarantees, regulations, promises, and legal recourse; situational normality refers to the perception that the environment is in order, the situation is normal, appropriate, well-ordered, and favorable for assuring a transaction. There are a number of challenges to establishing institutional trust in the domain of open source software adoption.

CHALLENGES TO INSTITUTIONAL TRUST IN OSS ADOPTION

Open source software is software that is released under a license that requires source code be made available, that anyone may make modifications to the source code, and that those modifications can be distributed to others freely. See http://www.opensource.org for the full set of requirements an open source license must meet. Code distributed under an open source license is therefore generally provided without any warranty or guarantee attached. For example, the MIT opensource license contains the statement, “THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND.”

Even without licensing provisions such as these, the fact that no individual or organization owns the code (because any others may modify and redistribute it) undermines the possibility of legal recourse should a user suffer negative consequences as a result of software adoption. The lack of an identifiable owner for the source code not only undermines structural assurance but also situational normality for potential corporate adopters, who are accustomed to dealing with software vendors. Further undermining situational normality in the eyes of business users, open source software is often developed by volunteers who are not directly paid for their contributions.

IS THE QUALITY OF THE OSS ARTIFACT ENOUGH TO OVERCOME THESE CHALLENGES?

Proponents of OSS often argue that the quality of OSS is higher than the quality of proprietary software, and that this fact, along with other benefits of open source, is enough to spur adoption.

One reason quality is argued to be higher is that the software code may be viewed, and problems fixed, by a larger set of talented persons than have access to proprietary code. The fact that users may view the code and see how it works is also argued to increase confidence in crucial characteristics such as the level of security. There is some data presented in the business press to support the idea that users are swayed by these arguments. For example, a survey of IT managers showed that many listed quality-related characteristics of software including reliability, stability, interoperability, and performance, as benefits of open source [Smith, 2002]**.** However, this same survey also highlighted the remaining need for institutional structures to support OSS adoption. Respondents listed support concerns, the inability to hold someone responsible, and intellectual property concerns among the most significant factors reducing their companies' use of OSS. The importance of institutional trust related to factors apart from the software artifact is recognized by major actors in the OSS arena, and several actions taken by those parties may be seen as directly affecting institutional trust.

INSTITUTIONAL TRUST BUILDING AND DEGRADING MOVES IN OSS

In 1998, leaders in the open source software movement formed an organization called the Open Source Initiative (OSI). One of the major goals of this organization, explicitly described on its website, is to enhance the legitimacy of OSS in the eyes of business users. One of the first activities aimed at this goal was the creation of the OSI certification mark, which provides a kind of third-party guarantee as to some of the important characteristics of software that is distributed with a license bearing the mark. In addition to providing a kind of structural assurance, OSI has taken actions to enhance the perceived situational normality of adopting OSS by, for example, posting case studies of successful business adoptions on its website (http://opensource.org).

While OSI has attempted to enhance institutional trust in OSS, others have taken actions to undermine the perceived situational normality around OSS use and increase the need for structural assurances. Lawsuits involving the SCO group serve as an example. In particular, one of the SCO lawsuits attacked AutoZone for using Linux, claiming that by doing so, AutoZone was infringing on SCO copyrights (see http://groklaw.net). In conjunction with filing this lawsuit, SCO mailed letters to more than 1000 other large companies informing them that they may also be subject to legal action for using Linux. These moves by SCO served to highlight the unusual nature of Linux, and OSS in general, in terms of not having a clearly identifiable single owner as well as increasing the perceived need for companies using OSS to have some structural assurances to protect against potential negative legal consequences of use. At least one company has been formed to capitalize on this need: Open Source Risk Management (OSRM) was formed after the SCO filings, and the main product of OSRM is insurance for companies in case they face lawsuits related to their OSS use. Other OSS providers such as Novell have also started offering their customers various guarantees against lawsuits that may result from OSS usage.

CONCLUSION

OSS adoption appears to be a particularly rich context for studying the role of institutional trust in IT decisions, and in particular, the question of whether or to what extent characteristics of an IT artifact may increase or reduce the need for institutional trust building mechanisms. Given the current state of OSS-related institutional structures, it appears that widespread adoption requires perceptions of situational normality and structural assurances that cannot be provided by characteristics of the artifact alone. In addition to more rigorous study of the factors mentioned above (i.e., OSS artifact quality and the impact of SCO lawsuits on willingness of businesses to use OSS), another means of studying this issue may be to compare adoption patterns across particular OSS applications that are associated with different kinds of institutional structures. For example, one might compare adoption decisions for artifacts that have for-profit companies in place to provide guarantees (e.g., companies such as Red Hat) versus adoption decisions for artifacts that do not have any formal support organizations.

APPENDIX 7: ADDITIONAL COMMENTS BY DETMAR W. STRAUB

PRESENT SITUATION: THE PROBLEM

Before examining the utilization of techniques to date, it is vital to establish what is required in studies of online trust. First, I would argue that such studies need to delve into the subtle cognitive and emotional psychology of individuals as they make decisions about visiting web sites, gathering information, and purchasing products and services. How do they think? Secondarily, how do the trustworthiness of the site and the vendor play out in terms of being critical factors in their thinking? Finally, does this vary across customer types, market segments and kinds of products/services?

What this suggests, at base, is that we really need to get into the minds of the customers in a deep way. Their superficial preferences may not provide a strong causal link to behaviours such as purchases. Even worse, it could be artifactual and related more to methodological bounds.

PRESENT SITUATION: COMMON METHODS DEPLOYED

The methods/techniques commonly used in studies of institutional trust to this point in time have been field study surveys, archival data, and experiments. The argument in using student respondents in these cases has often been that they represent a large portion of Internet purchasing, and so whether we are surveying their views or experimenting with their views, they are a reasonable sample.

FIELD STUDY SURVEYS

An example of this method is the long-running work leading to the Georgia Tech Visualization dataset [Salam, Rao, and Pegels, 2003]. The respondents to this online survey are typically enthusiastic Internet users, and it may well be that many also purchase online. The inherent disadvantage of such sampling though is directly tied into its strength. What is of greater interest to the effects of institutional trust is not how users who are enthusiastic about buying online perceive a site or vendor, but, indeed, how the users who are hesitant to respond perceive the site or vendor. This systematic sampling bias means that we gain little knowledge about the critical group of nonenthusiasts. If the Internet is ever to make deep penetration into have-not populations, it will likely be by overcoming the lack of trust these potential users have. Knowing how they really think is therefore critical.

ARCHIVAL DATA

Archival data from sources such as Amazon, Yahoo, and eBay [Ba and Pavlou, 2002] can and has been used to evaluate the power of third party guarantors. Secondary data has the advantage that it is objective and not thereby subject to instrumentation biases that emerge from respondent and subject perceptions. But secondary data is often, even usually, based on different assumptions than the assumptions of the researchers. In many cases, it is not clear what the data actually represents, and it is necessary for the researcher to interpret or re-interpret its meaning.

The strength of archival data is that it can represent an independent source of variables and, combined with perceptions of trust, could be methodologically convincing. But if the interpretation of the data is a serious deviation from reality, totally false conclusions could be reached. In a case where the researcher is interpreting time stamps between clicking on web pages, some that highlight a third party guarantor and decisions like purchases, for example, there needs to be an accounting of delays due to user distractions or other alternate explanations such as the user not being highly engaged in the task.

EXPERIMENTS

Experiments on institutional trust [Gefen and Straub, 2004; Stewart, 2003] are easy to criticize on the basis of their use (some would say over-use) of readily available student subjects. There are certainly times when student subjects are more than adequate for testing a theory or when studying populations in which students are, in fact, representative [Gordon, Slade, and Schmitt, 1986]. My argument is related to this in that I believe that the groups who are least experienced with the Internet and buying over the Internet are the ones that IS scholars should be most interested in. These groups are typically not found on university campuses, though, and so it is crucial to learn why they do not trust the online experience, even when a trusted third party is standing behind the transaction. These groups have occasionally been studied [Gefen et al., 2003b], but often not. The growth of online businesses is going to come from this huge part of the world population, and the experiments to date are just not tapping into this group. One could easily argue that B2B clients are equally underrepresented in the trust literature, likely again because they are not a convenient group of subjects.

FUTURE SITUATION: PROMISING NEW METHODS AND APPROACHES

What are the methodological options for studying this domain? I believe that there are three good candidates: (1) talking aloud protocols, (2) experimental simulations, and (3) sampling across spectrums of interest/non-interest, B2B clients, and online products and services. In addition, some new variables of value need to be included in our designs.

(1) TALKING ALOUD PROTOCOL ANALYSIS

These forms of verbal recall [Ericsson and Simon, 1980] are extremely effective at capturing cognitive processes such as whether people trust an online web site or vendor. The researcher is a listening post for what the user of the sites is thinking as s/he navigates through the buying or information gathering experience. Whether the user even notices the institutional guarantor would be a fascinating observation that would tell us volumes about real cognitions.

(2) EXPERIMENTAL SIMULATION

This form of experiment [Fromkin and Streufert, 1976] simulates the buying experience by manipulating made-up Web pages that represent different institutional trust mechanisms under differing interface conditions. Why would this be an effective way to gather variables to study institutional warranties? The presence or absence of third party icons may not be the issue at all. The ability of the user to take notice of such icons and to pay attention to them may be the whole issue. Experiments that simulate varying conditions can employ repeated measure designs to tease out these possible effects in a way that has not been done to date.

(3) SAMPLES OF INTERESTED/NON-INTERESTED AND B2B PARTIES ACROSS THE SPECTRUM OF ONLINE PRODUCT LINES AND SERVICES

A large part of the variance explained by institutional trust in studies to this point could easily be attributable to the groups sampled. Parties that are not using the Internet, as already argued, could be the most valuable sources of information, yet these have been neglected hitherto. Singling them out in future work would help to remedy this.

Studies of this form of trust have also restricted themselves to small online purchases such as books and to limited services such as information offered by Yahoo. The vast number of products being offered online all have an element of institutional trust in them, and they may vary by product/service type and by dollar volumes. B2B may differ markedly from B2C. B2B clients/customers may have serious reservations upon first using the Internet for purchases.

More needs to be done to study their responses. Government to business (G2B) may also be another matter entirely. All need to be studied more.

NEW APPROACHES TO CONSIDER CRITICAL MODERATING VARIABLES

Poor web sites are not going to instill much trust no matter what is being offered. This simple intuitive statement lies at the heart of the final point I want to make. We need to study the moderating effect of quality of interface on trust as we push forward into new techniques. Interactions with varying Web interface designs may be necessary because prior work in this area has found that subjects are not always manipulated successfully unless the institutional mechanism is patently obvious [Gefen, 1997]. This suggests that Web sites may not be "manipulating" or, better stated, "influencing" customers as they wish, and that the problem is not that institutional trust cannot be engendered, but that ineffective web sites cannot engender it. Only by varying the usability of the interface can we truly learn this.

CONCLUSION

It would be an overstatement to argue that we have not learned anything of lasting value about institutional trust in the methods employed to date. But without a ***meta-analysis*** of the variables and the techniques that have been used, we are left to surmise on how little or much we do know. This kind of study would be extremely welcome to help frame future work. It would also lend insight into whether the techniques recommended above are best practices or there are others that would be even more valuable.

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Paul A. Pavlou is an Assistant Professor of Information Systems at the University of California at Riverside. He received his Ph.D. from the University of Southern California in 2004. His research focuses on institutional trust building in electronic commerce and online marketplaces, and information systems strategy in turbulent environments.

His research has appeared in MIS Quarterly, Information Systems Research, the Journal of the Academy of Marketing Science, the Journal of the Association of Information Systems, the International Journal of Electronic Commerce, the Journal of Strategic Information Systems, the Proceedings of the ICIS Conference, and the Best Paper Proceedings of the Academy of Management Conference, among others. His research has been cited over 400 times in Google Scholar and over 100 times in the Institute of Scientific (ISI).

Paul received the 2003 MIS Quarterly 'Reviewer of the Year' Award, and the 'Best Reviewer' award of the 2005 Academy of Management Conference (OCIS Division). Paul also won the 'Best Doctoral Dissertation Award' of the 2004 International Conference on Information Systems (ICIS).

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Communications of the Association for Information Systems

ISSN: 1529-3181