To Trust or Not to Trust? A Model of Internet Trust from the Customer's Point of View

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Abstract

Trust is a major issue in Internet transactions. This paper presents a model of trust on the Internet that focuses on three dimensions of trust. It investigates the perceived value a consumer places on these dimensions when set in the context of different product categories, price discounts and immediacy of purchase. It is argued that the more willing an Internet merchant is to heed these three factors, the greater the perception of trust and hence the greater the probability of a transaction.

1. Introduction and Background

Lack of trust is a significant problem in Internet commerce. Surveys of Internet user attitudes have consistently revealed that lack of trust is a key impediment to people making transactions on the Internet. For example, in the U.S., more than 75 percent
of respondents to a *Business Week/Harris* poll cited privacy concerns as the main reason why they did not use the Web more (Department of Commerce, 1998, citing Green, 1998). Beer (1999) reports the results of a study by Jupiter Communications, an Internet market research firm, indicating that 64 percent of web users do not trust web sites. And Hoffman *et al.* (1999), in an extensive study of web users, found that:

“The reason more people have yet to shop online or even provide information to Web providers in exchange for access to information, is the fundamental lack of faith between most businesses and consumers on the Web today. In essence, consumers simply do not trust most Web providers enough to engage in ‘relationship exchanges’ involving money and personal information with them.” (p. 80)

The results of a recent study by Arthur Andersen/Andersen Legal (2000) of the 100 most popular web sites in Australia suggest that consumer mistrust is not unjustified. Among other things, the study found that while 72 percent of the web sites collected personal information, only 51 percent had a published privacy policy and only 28 percent (or 55 percent of the sites with a privacy policy) informed visitors that information was being collected. Further, 71 percent of the surveyed web sites with a stated privacy policy stated that personal identifying information may be disclosed to third parties but a third of those sites did not offer users a choice with respect to that disclosure.

Concerns about the ability of the system to support transactions with an adequate level of integrity and security, and concerns about the trustworthiness of merchants on the Internet should be recognised as two quite distinct issues. However, there has been a tendency to use the term “trust” interchangeably in discussions of these two issues. For example, National Research Council (1999) and Camp (2000), which use the term in the context of the Internet, are in fact primarily concerned with the integrity and security of the computer network that makes up the Internet.

In this paper we propose a preliminary model of trust in Internet commerce which focuses on the perception of an Internet merchant’s trustworthiness by a consumer. In doing so, we attempt to isolate the basic aspects of trust that are pertinent to Internet commerce. We argue that these are different in important ways from trust in other contexts. Nonetheless, notions of trust that have been developed elsewhere can be brought to bear on the Internet commerce context. We outline a conceptual framework for trust in this context in Section 3, after which we propose a methodology for testing that framework.

2. **Trust and Internet Commerce**

Most existing studies of trust have focused on interpersonal trust, frequently but by no means exclusively in organisational settings. These include Solomon (1960), Rotter (1967), Golembiewski and McConkie (1975), Larzelere and Huston (1980), Scott (1980), Johnson-George and Swap (1982), Sabatelli, Buck and Dreyer (1983), Good (1988), and Mayer, Davis and Schoorman (1995). Some studies focus on
specific relationships: for example, Butler (1983) looked at trust between professionals and their secretaries; Conlon and Mayer (1994) at trust between principals and agents; Kruglanski (1970), Jones, James and Bruni (1975), Rosen and Jerdee (1977), and Butler and Cantrell (1984) at supervisors and their subordinates; Ring and Van de Ven (1992) at trust between individuals in different organisations; and Taylor (1989) at trust in labour-management relations. Trust has been studied in a wide range of disciplines, among them management, economics (Dasgupta, 1988; Williamson, 1993), psychology (Rotter, 1980), sociology (Goffman, 1971), marketing (Morgan and Hunt, 1994; Hart and Johnson, 1999), philosophy (Hollis, 1998), and game theory (Axelrod, 1984; Milgrom and Roberts, 1992).

Trust, then, is a widely-studied issue of interest across the spectrum of human relationships. However, there are very few studies of trust in the context of Internet commerce, and certainly no explicit one-way studies of the trust relationship between an individual and an organisation that we are aware of. Many studies of trust are dyadic in focus; this is because most trust relationships are of that nature, between two individuals. With Internet commerce, however, we are presented with a very different beast. In a static framework, a consumer visits a web site of an Internet merchant with the possible intention of making a purchase. If the web site does not lead the consumer to believe that the web merchant is trustworthy, no purchase decision will result. A more dynamic model, which is beyond the scope of this paper, would investigate how the trust relationship evolves over time.

The Oxford English Dictionary defines trust as a “firm belief [that a] person or thing may be relied upon.” The term “belief” highlights the fact that trust is essentially a subjective matter; the party being trusted may or may not be worthy of the trust. In addition, the idea of risk is inextricably bound up with the concept of trust, and implicit in the definition is the possibility that the party who does the trusting puts themselves at risk of suffering loss if the party being trusted proves untrustworthy. There is an element of calculation in this process. Baier (1986), for example, defines trust as “accepted vulnerability to another’s possible but not expected ill will (or lack of good will) towards one.” The point at which the level of vulnerability to loss crosses over from “possible” to “expected” defines the point at which trust ends and suspicion begins.

More expansive views of trust have been put forward in the literature, as Blois (1999) notes. These include Govier (1994), who recognises that the act of trusting makes one vulnerable, but argues that, in addition, trust involves “expectations of benign action”. Similarly, Hosmer (1995) argues that trust goes “beyond a negative promise not to harm the interests of the other party” and includes an element of goodwill. In other words, when we trust someone, we rely on them not only not to harm our interests but also, “without receiving instructions from us, [to] take our legitimate interests into account if such circumstances arise” (Blois 1999).

We argue that these aspects of trust are more appropriate in the context of interpersonal relationships, and that a more “calculative” (Williamson, 1993) approach to trust is more appropriate and generally justified in business contexts,
and particularly in the context of the Internet. In that environment, the decision to continue browsing and, ultimately, to complete a transaction at a web site may hinge critically on perceptions formed from information and other content on the web site. It would take a particularly naïve consumer to form any “expectations of benign action” over and above what was required of the web retailer in meeting their commercial obligations to the consumer. In fact, it is likely that on the Internet consumers tend to adopt an attitude of mistrust at the outset, and need to be convinced that the web merchant is “trustworthy” before they will be prepared to transact at the site.

3. Conceptual Framework

By way of background, we argue that the process by which a potential consumer arrives at a decision whether or not to make a transaction at a web site can be approximately described by the following equation:

\[ G_b = p_b L_b, \]

where \( G_b \) denotes the gain to the consumer (the “Buyer”, denoted by the subscript \( b \)) from transacting at a web site, \( p_b \) denotes the (subjective) probability as assessed by the consumer that the web site operator will turn out to be untrustworthy, and \( L_b \) denotes the loss the consumer will suffer if that is the case.

If the equation holds, i.e., the gain from transacting at a particular web site is equal to the expected loss from transacting, then the consumer is indifferent between completing the transaction and not doing so. Whatever the web retailer can do to increase the LHS of the equation or decrease the RHS of the equation will enhance the consumer’s incentive to transact. On the LHS, for example, the retailer can lower its price on the good being offered, increasing the gain to the consumer from transacting. Furthermore, on the RHS of the equation, the web retailer can seek to reduce the perceived probability on the part of the consumer that the retailer will dishonour its promises. That is, the lower the degree of uncertainty about this, \( p_b \), the more likely the consumer is to transact with the retailer.

Equation (1) therefore helps focus attention on what can be done by web retailers to enhance consumers’ perception of their trustworthiness. Trust in commerce is called for whenever there is a degree of uncertainty regarding the other party. The greater the uncertainty, \( p_b \), the greater the degree of trust required. The extent to which trust is required also increases the riskiness of a transaction, as they are essentially two sides of the same thing. Thus, consumers seek to reduce their vulnerability to exploitation by reducing their level of uncertainty. For example, they may incur additional costs to research the background of parties and investment possibilities. Alternatively, firms themselves may provide the requisite information to

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1 Governments and other regulatory authorities also seek to do this by enacting laws and regulations which protect consumers from exploitation by the threat of penalties on offending parties.
consumers, and it may in fact be more efficient for them to do so. A large part of the information provided by web retailers may be interpreted as being devoted to enhancing the perceived trustworthiness of the web retailer by reducing the uncertainty, $p_b$, faced by potential consumers.

There are at least three aspects of this uncertainty, reflecting different aspects of trustworthiness, to be addressed. First, consumers are concerned about the retailer’s ability to deliver on its promises. Thus an important aspect of trust building focuses on the web retailer’s efforts to enhance the credibility of its claims regarding, for example, the quality of its products or services being marketed on the web site. It can do this in a number of ways, for example, by offering products with well-known brands so that the perception of quality is not in doubt, the use of a certification authority (trusted third party) to authenticate its claims, and the use of customer feedback comments on the web site to provide unbiased testimony regarding the quality of its product offering.

Second, consumers concerned with determining the retailer’s willingness to rectify any problems arising from customer dissatisfaction and honour its commitments may look for indications on the site that the retailer intends to honour its commitments, or has honoured its commitments in the past, and that there is reasonable recourse for them should the transaction go “wrong”. This can take the form, where practicable, of a money-back guarantee, or allowing damaged or unsuitable goods to be easily returned in the off-line world (e.g., to the nearest retail outlet); the use of traditional but familiar communication systems like faxes and customer telephone hotlines to show that it is backed up by a viable product fulfillment facility; (again) the posting of the testimonials of past satisfied customers to vouch for the quality of its customer service; and, generally, information indicating that it is an operation that is there for the long haul, not a “fly-by-night” operation.

Third, it is widely recognised that one of the primary concerns that Internet users have is with regard to the use of personal information provided to web sites (Arthur Andersen/Andersen Legal, 2000). Consumers need to be assured that their privacy will be respected and that personal information will not be passed on to third parties. Therefore they may look for information or specific cues regarding the web retailer’s attitude in this respect. For example: does the web retailer inform visitors if information on them is being collected? If so, does it indicate if that information may be disclosed to third parties? Does it offer visitors a choice with respect to that disclosure? Also, if information is being collected, does the web site give visitors a

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2 As Baier (1986) and Blois (1999) have noted, A may trust B with regard to one aspect of B’s behaviour but not with regard to another aspect.

3 See Schoorman et al. (1996) on the issue of whether ability should be included in the concept of trust.

4 See, however, Grossman (2000), who reports that a proposal by the British government to address the problem of trust by setting up a network of trusted third parties to encourage e-commerce appears to have been ineffective.
chance to have at least some personal information amended or deleted from web site records?\(^5\) In this regard, a simple policy statement declaring that the web retailer will respect the privacy of personal information may suffice to reassure most consumers.\(^6\) Alternatively, the web retailer may use a third-party certification authority’s seal to provide a possibly more credible cue to visitors that it adheres to a certain set of standards regarding customer privacy.

In this paper we focus on three aspects of the perception of trustworthiness outlined above: the ability of the web retailer to deliver a product/service that performs as promised, the retailer’s willingness to rectify should the purchase turn out to be unsuitable, and the presence of a privacy policy or statement on the website. These are represented in the use of branded goods, the use of transaction warranties, and the presence of a privacy policy/statement. Specifically, we want to know if a product carrying a well-known brand sells more easily on the Internet than a similar non-branded product; and whether the use of a transaction guarantee and privacy statement will influence the likelihood of an online purchase. Our framework indicates that the use of these three strategies will reduce the consumer’s uncertainty regarding the trustworthiness of the web retailer and increase the likelihood of a transaction.

In addition to these three trust variables, it can also be argued that certain contextual effects can affect the likelihood of an online purchase. For instance, products like music CDs and books are often bought on the internet. This may be because such products are perceived to be more easily standardised or described and therefore fewer errors of specification are liable to be made on the Internet. It has also been speculated that with certain product categories like apparel or high-value products, consumers are less inclined to want to wait (Rosen and Howard, 2000). This is perhaps due to the innate need of wanting to know if the purchase made is not a mistake. Under such circumstances, instant gratification is important, that is the customer would want the product to be delivered quickly. Finally, as we argued above, the web merchant can increase the perception of gain on the LHS of equation (1) by offering discounts. Offering discounts is a well-known technique employed by dot.com startups to quickly build up a customer base.

In summary, a key objective of this research is to understand the importance of the various trust factors we have identified in the context of Internet commerce. In doing so, it is hoped that we will have a better understanding of the design as well as marketing of a web-based retailing business.

\(^5\) These questions and others form part of the U.S. Federal Trade Commission privacy survey form used by the Arthur Andersen/Andersen Legal (2000) study.

\(^6\) In addition, Deutsch (1958), in explaining the results of an early series of experiments, suggests that a party is more likely to behave in a “cooperative” fashion if they have indicated a commitment to behaving in that fashion.
4. Methodology

This research will use choice modelling to assess the impact of the various facets of trust on web users’ perception of web sites. Of necessity, we focus only on limited aspects of the three dimensions of trust outlined in the previous section. Subjects will be given a set of different purchase scenarios, and asked to choose the scenario that they find most appealing.

<table>
<thead>
<tr>
<th>Ability to deliver</th>
<th>Willingness to rectify</th>
<th>Personal privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known Brand</td>
<td>30-day merchant guarantee</td>
<td>Has privacy statement</td>
</tr>
<tr>
<td>Unknown Brand</td>
<td>No 30-day merchant guarantee</td>
<td>No privacy statement</td>
</tr>
</tbody>
</table>

Figure 1: Trust variables

The three dimensions of trust to be investigated are ability to deliver, willingness to rectify, and personal privacy. Within each of these factors, a number of levels are also manipulated. The factors and levels are shown in Figure 1. Note that security is held constant as our research indicated that an insecure web site would always be a dominated alternative and thus would violate the requirements of choice analysis. Therefore, the three variables we used and their levels are:

1. Ability to deliver: Known brand versus unknown brand
2. Willingness to rectify: 30-day merchant guarantee versus no merchant guarantee
3. Personal privacy: has privacy clause versus no privacy clause on the Internet merchant site

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Delivery Time</th>
<th>Discount Levels</th>
<th>Where available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports shoes</td>
<td>Immediately</td>
<td>Regular Price</td>
<td>Online merchant</td>
</tr>
<tr>
<td>Jeans</td>
<td>Some Delay</td>
<td>20% discount</td>
<td>Shop retailer</td>
</tr>
<tr>
<td>Wrist watches</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal computers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: Context variables

To increase realism, the trust factors are couched in a number of scenarios to extract their impact on respondent choices. The contextual variables manipulated are summarised in Figure 2. These are:
1. Product categories: sports shoes, jeans, wrist watches and personal computers
2. Delivery Time: Fast versus slow
3. Discount levels: Regular Price versus 20% discount
4. Where available: Online merchant versus shop retailer

Thus, in total, combining both the trust factors and the contextual factors results in a full factorial design of: $2 \times 2 \times 2 \times 2 \times 2 \times 2$, yielding 64 combinations for each product. Using a fractional factorial foldover design, a total of 24 combinations for each product will be used instead, which still yields an orthogonal experimental design and allows us to investigate all pairwise interactions. Each subject will be given two random products and will therefore make a total of 48 choices.

**Stimulus Manipulation**

The subjects will be shown a series of scenarios in a booklet which will contain the 48 sets of two choice options from which the subject selects the one s/he likes. There is also an option for not selecting any (see diagram below).

Each option is made up of one level for each of the factors discussed above.

In making up the stimulus set, care was taken to ensure that it is sensible, easily communicable, and something that the respondents can readily understand. On this basis, the 'shop retailer' was not combined with the 'privacy' variable because the latter is not an issue in that setting.

For the trust factor of 'ability to deliver', well-known and unknown brands were used to represent this dimension. The well-known brands manipulated across the four product categories were: Levi's (jeans), Dell (personal computer), Swatch (wrist watch), and Nike (running shoes). The corresponding unknown brands manipulated were Jeenz (jeans), Starcomp (personal computer), Timeo (wrist watch) and Sportz (running shoes).

The diagram below (see Figure 3) is an example of what a respondent would see in the experimental booklet. Note that each variable is visually coded with a unique icon, which was introduced at the start of the experiment. Thus for each choice scenario – that is, for each variable-level combination – a respondent sees a visual representation of the choice set. This is to facilitate understanding and ease of evaluation among the respondents.
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<table>
<thead>
<tr>
<th>Choice Set 9</th>
<th>Product</th>
<th>Brand</th>
<th>Money Back Guarantee</th>
<th>Delivery Time</th>
<th>Price Level</th>
<th>Where Sold</th>
<th>Privacy Statement</th>
<th>Tick Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td></td>
<td>LEVIS</td>
<td></td>
<td>1 Week</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario 2</td>
<td></td>
<td>Coach</td>
<td></td>
<td>20% OFF</td>
<td></td>
<td></td>
<td>WWW PRIVACY</td>
<td></td>
</tr>
<tr>
<td>Scenario 3</td>
<td>Neither of the above scenarios interests me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: Sample Choice Set

Subjects

A total of around 300 subjects will be used in this study. They will be a mix of postgraduate and undergraduate business students aged between 20 to 50 years old studying in Australia, Singapore and Hong Kong.

Co-variate measures

To control for possible confounds, a number of personal characteristics of the subjects will also be collected. This includes their age, gender, the last time they bought something on the Internet, direct mail, mail catalogue, or direct response TV. They will be asked if they have purchased any products and, if so, to indicate what these products were.

In addition to these, manipulation checks will also be carried out for the ‘ability to deliver’ dimension. Here, subjects will be asked to rate on a 7-point scale how familiar they are with each brand, and the level of quality.

Procedure

Subjects will be told that this study is to better understand factors that influence purchase behaviour. The results of the study will be made known to them at the end of the course with the results, or a summary sent to them.

At the front of the booklet will be a set of instructions that briefly explain what the stimulus set is, and what the task requirements are. Subjects will be instructed to look at each choice set, and from each set to either select one option or none at all. They will do this by ticking one box only.

Three successive pretests (with a total of approximately 20 subjects) on the instrument and questions have been conducted and the attributes, question design and presentation have been modified as a result of feedback received.
5. Summary

In this paper we have outlined a conceptual framework to investigate perceptions of trustworthiness in Internet commerce. We also outlined a methodology for testing the model. Although the empirical component of this research is not completed, we expect that it will yield interesting results.

The model presented and to be tested in this research is a preliminary and incomplete static model of trust on the Internet. Further research avenues could be directed towards: (1) a fuller articulation of the static model; (2) a more thorough specification of the experimental conditions, e.g., to test the effects of third-party guarantees versus own guarantees; (3) the development of a dynamic model which would investigate how the trust relationship evolves over time, for example, focusing on the relationship between trust and reputation, and the ways in which these are built up or eroded over time.

References


