

Trust: From Sociology to Electronic Environment

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Abstract

This paper proposes a new conceptual model that represents the factors that determine user's online trust. The model is constructed after in depth analysis of trust in sociological, physical, and electronic environment. The represented model also incorporates the theoretical and empirical studies related to trust in physical and electronic environment from online user and business perspective. The model can be used either to enhance online user's trust in online business or to identify the e-areas that need improvement in order to compete with physically present businesses and established online merchants.

Keywords: Electronic commerce, on-line trust, trust-inducing.

Introduction

For generations we have used different techniques to evaluate individuals and businesses before we make any transaction or commitment in the physical world. Such evaluations form user's trust on other party. The evaluation practices are personal to each individual, are subjective and assist individuals to compare choices and make decisions. In the physical world individuals can use visual, geographical and contextual information to evaluate an organization. However in global electronic environment, where the physical attributes are not present, we as individuals have to rely on different non-physical properties to make decisions as parties reach out far beyond their familiar trade environments and physical context. In this somewhat new online interaction medium we, as individuals, communities and businesses, have to develop new techniques to evaluate, form and build trust on an online party. This fundamental change in how we interact and conduct business online raises two essential research questions. First what does trust depend on in today's electronic environment? And secondly, how trust develops and increases or how businesses can be assisted to increase their trust perception in electronic environment so that users feel more confident in committing electronic transactions?

In this paper the conceptual model is constructed which represents the direct and indirect factors which impact user's online trust after in depth analysis of trust from sociological theoretical and from online user behavior perspectives. The represented model can be used by the online service providers to enhance user's overall trust level in order to capture more potential customers. The proper implementation of the represented model should enable the new and

existing online service providers to compete with existing physical and online established brands by enhancing online user's trust level.

Trust and Components of Trust

"Trust is the subjective probability (Anscombe & Aumann 1963) by which an individual, A, expects that another individual, B, performs a given action on which its welfare (interests) depends" (Gambetta, 1990) (translation from Italian). The above definition of trust is correct and valid as it emphasizes the fact that trust is based on personal estimation, evaluation and personal beliefs. This fact is also highlighted in the field of Statistics as subjective probability is defined as "an individual's personal judgment about how likely a particular event is likely to occur. It is not based on any precise computation but is often a reasonable assessment by a knowledgeable person" (Easton & McColl, 1997). However recently it has been argued by Castelfranchi & Falcone that Gambetta's definition of trust is not comprehensive as it only refers to one dimension of trust (predictability), while ignoring the "competence" dimension; it does not represent the meaning of "I trust B" where there is also the decision to rely on B; and it doesn't explain what is such an evaluation made of and based on (Castelfranchi & Falcone, 1998).

Castelfranchi & Falcone also analyzed the ingredients necessary to have mental trust that includes the components that define subjective probability and user expectation about the profitable behavior of the other party. They pointed that one's trust on another is only relative to a goal i.e. if John does not have a goal (target or outcome) then John cannot really decide, nor care about something and thus cannot subjectively trust somebody. Although trust is based on subjective probability, however usefulness of other party and user's dependence to achieve desired goals impact the final decision. It also involves confidence in other party's ability and reliability. In essence trust is a risk judgment where one is required to assign a task to another in order to achieve the desired goal. Thus every act of trusting implies some risk factor. The risk factor further increases in "social trust" as trust is required between strangers.

Four Vital Beliefs of Trust

As identified above usefulness of other party and user's goal mapping is relative to the desired goal; however trust is recognized (Castelfranchi & Falcone, 1999) to be composite of following basic beliefs which focus on four different dimensions of worth of other party (agent B):

1. **Competence:** *User's estimation on agent B's ability to deliver the expected results*
2. **Disposition:** *User's estimation that agent B will actually deliver the expected results. Disposition is based on temperament/nature of agent B*
3. **Dependence:** *User's estimation on reliance on agent B's ability to achieve the desired goal i.e. the user believes that her/his interest depends on another individual*
4. **Fulfillment:** *User's belief that user's goal cannot be achieved without the results produced by agent B*

Internal and External Trust

A user's decision to rely on agent B for some service primarily depends on user's personal estimation of B's competence, ability, honesty and reliability i.e. user's internal trust, however in order to rely on agent B, the user must trust the environment too i.e. the user must have positive estimation on the external conditions that might influence B's actions or ability.

Such factors are part of user's external trust or subjective probability of having appropriate conditions. In global electronic environment the external trust may play more decisive role in relation to internal trust, as unfavorable external conditions may change user's perception to believe that the agent B will not be able to achieve the desired task. On the other hand favorable external conditions may create extremely constructive conditions that may increase users perceived internal trust level and induce the user to commit the transactions.

Significance of Trust in Electronic Commerce

Palmer, Bailey, and Faraj argue that building consumer trust in Web retailers is essential for the growth of business to consumer (B2C) e-commerce (Palmer, Bailey & Faraj, 2000). It has also been empirically demonstrated that trust has a direct effect on consumer purchase intentions in multiple cultures (Jarvenpaa & Tractinsky, 1999). Hoffman et al. went a step further and pinpointed that lack of trust inhibits consumers from engaging in on-line transactions because they are unlikely to transact with a Web retailer that fails to convey a sense of its trustworthiness (Hoffman, Novak & Peralta, 1999). Hoffamn et al. states 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).

According to *WISTA International E-Commerce Survey (2000)* (WISTA, 2000), trust (26%) is the most important barrier to electronic commerce in 27 surveyed countries. The survey recognized "trust as significant stumbling block in electronic commerce development due to the fact that electronic commerce is global and its international reach means that participants must deal with unknown or anonymous individuals and companies" (p, 10). The WISTA survey also identified payment security (25%), trust on infrastructure (17%) and information privacy (15%) as the most important trust related issues for acceptance of electronic commerce. the survey also clearly recognized the impact of trust on electronic commerce (strongly 42%, moderately 35%).

Online Factors Influencing Trust

As realized from the studies discussed in the previous section trust in commercial local and global electronic environment plays a decisive role since it directly affects the consumer purchase intentions. Currently the research question at hand is to identify the factors contributing to external and internal user's trust in an electronic environment.

1 Trust and online security technology

As recognized in the previous sections, trust is influenced by many internal and external contributing factors and has many dimensions and dynamics. Generally it is perceived that security is the most important decisive factor in determining user's level of trust in online environment. Online security induces user's perceived external trust level as it provides sense of a more favorable environment.

Therefore, environmental uncertainty is strongly influenced by behavioral actions of Web retailers that aim to reduce infrastructure-related concerns. However such measures do not affect user's sense of trust on the business in terms of its performance, credibility and ability to perform the task. The user's level of trust in infrastructure can be greatly increased by facilitating encrypted transactions, installing firewalls, utilizing authentication mechanisms, and ensuring privacy seals and providing disclosures statements (Cassell & Bickmore, 2000; Bhimani, 1996; Benassi, 1999). However trust building is more than secure communication via electronic networks, as the reliability of information regarding the trade partner has little to do with secure communication and more to do with variables which enhance user's internal trust level in e-business. Nissenbaum argues that the technologically protected environment actually kills the possibility of trust as agents will feel security not trust (Nissenbaum, 1999).

2 Trust and trusted third parties

With the growing impact of electronic commerce, distance trust building becomes imperative, better models to represent trust are required for wider adoption of e-commerce. Recent trend in electronic commerce is the use of trusted third parties seals e.g. TRUSTe or Webtrust. Such seals are mostly used by new or small businesses, as it only makes sense to use them when the trust value generated by the used seal exceeds the trust value generated by the company brand. This explains why major companies like amazon.com and polo.com are not part of online seal programs. However this method has inherent drawbacks e.g. the trust seal images can be easily copied and embedded into any webpage and they do not guaranty certain level of performance or quality. Moreover small organizations may not be in a position to afford associated costs with such programs. McKnight et al. while evaluating the effectiveness of trusted third part seals and icons in promoting consumer trust in electronic commerce states that "web-related consumer decisions take place within the context of an individual's personal tendencies and his/her perceptions about the web environment. Thus, user trust in web vendors and the effect of third party icons may depend, to an extent, on individual characteristics ... and an individual's prior experience with the web." (McKnight, Choudhury & Kacmar, 2000, p.533).

3 Trust and online reputation

As stated by MCKnight et al. (2000, p.533) that the "user trust in web vendors and the effect of third party icons may depend, to an extent, on individual characteristics ... and an individual's prior experience with the web". However in situations where the user does not have any past experience with the e-business and there is an absence of trusted referral, online reputation can be one of the crucial factors for establishing relation with the users. Zacharia states that "Reputation is usually defined as the amount of trust inspired by a particular person in a specific setting or

domain of interest” (Zacharia, 1999 p.163). Online reputation regarding an e-business is built by collating the past experiences of the agents who have previously interacted. Such techniques in the form of reviews, feedback and point ratings are used by several online auction sites like ebay.com and some web retailer like amazon.com to highlight user’s level of trust in an e-business. However under such circumstances the user’s level of trust on the information provider will play a decisive role.

In an empirical study by Sarah et al. (Sarah, Choon-Ling & Kai, 2002) it was identified that most users would give high value to previous customer endorsements over the third party affiliation to judge the ability of the web merchant. In the study 80% of the respondents reacted positively to establishing trust on online merchant due to the positive feedback from the previous customers. However the effect of customer endorsements and third party affiliation was identified to be moderate to judge integrity and benevolence perception of the online merchant.

The following problems are associated with online feedbacks and online reputation systems have been highlighted by Resnick et al. (Resnick, Zeckhauser, Friedman & Kuwabara, 2000).

- Generally people do not bother to provide feedback
- Mostly people with really bad experiences report
- It is almost impossible to validate and assure the honesty off feedbacks. For example a group of people may collaborate to inflate their reputation
- While registering the users can use any pseudonym, thus erasing previously associated feedback information. This property makes it very difficult to verify previously provided feedbacks and does not stop users from posting multiple feedbacks
- Most online feedback based reputation systems do not exchange/share information thus making the collection of information from all trusted sources expensive and a tiring activity

4 Trust and trusted referrals

Information regarding a product, physical or online business acquired from either user’s personal physical social network or from user’s personal trusted online network impacts user’s initial level of trust on a business. The impact is directly related to the user’s level of trust on the source in terms of source’s credibility, honesty and ability. Trusted referrals “are the primary means of disseminating market information when the services are particularly complex and difficult to evaluate. This implies that if one gets positive word-of-mouth referrals on e-commerce from a person with strong personal ties, the consumer may establish higher levels of initial trust in e-commerce” (Kim & Prabhakar, 2000, p538).

5 Web interface and trust

The impact of web site interface and structure has been previously studied in great detail by many researchers. Effective interface, good quality graphics and ease of use have been recognised to portray trustworthiness (Kubilus, 2002). Jarvenpaa et al. (Jarvenpaa, Tractinsky, & Saarinen, 1999) believe that trustworthiness features of a web site actually function as expert and professional salesperson of the company. The relation between web site interface and consumer

decision was also identified by Karvonen (Karvonen, 2000). The impact of online graphics was studied by Karvonen et al. (Karvonen & Parkkinen, 2000) in detail and they suggested the use of real pictures rather than graphics. Basso et al. (Basso, Goldberg, Greenspan, & Weimer, 2001) while analyzing the emotional and cognitive factors underlying judgments of trust in e-commerce indicated that web retailers actually use eye-catching graphics to convey competence and professionalism along with an attempt to catch user's attention. The strong relation between website quality on user's initial trust is also empirically verified by Kim et al. (Kim & Tadisina, 2005). In their study they identified a relatively weaker relation between company profile and supporting organizations on trust.

6 Trust and information source

Fullam et al. (Fullam & Barber, 2004) outlined the following factors which effect the agent's belief on acquired information:

- Agent's prior belief regarding the information
- Content of the reported information
- Content of the derived belief
- Number of sources reporting the information
- Priority is given to similar information from different sources
- Certainty conveyed in the information
- Agent's perceived trustworthiness of the information source
- Age of the source information. Most recent information is given higher priority

They defined that agent's primarily belief on information accuracy and certainty conveyed in information form the level of trust in the information source.

7 Trust and alternate dispute resolution

Access to trusted alternate dispute resolution to third parties is one the emerging techniques to enhance user's trust in electronic transaction. Due to costs involved with the traditional legal system in terms of time, effort and money, the availability of trusted alternate dispute resolution parties are considered to play a major role in user's final decision. Mostly such systems are provided either for free by the service provider or for very little cost. However the effectiveness of alternate dispute resolution systems on user trust is not empirically tested.

8 Trust and online privacy

Online privacy is information privacy in the electronic environment, mostly over the Internet. It is defined as "... an individual's ability to control the terms by which their personal information is acquired and used" (Chellappa, 2002, p. 10). It has been established that consumers do not hesitate to provide personal information, if they expect to get benefit from it (Culnan & Armstrong, 1999). The same study concluded that mostly the consumers will provide personal information if they believe that they have control over the provided personal information. Although online consumers are willing to provide their personal information for personal gains, but the risks associated with information disclosure to third parties without user's explicit consent does add to total risk factor.

Conceptual Model of Trust in Online Environment

Aligning sociological aspects of trust with the theoretical and empirical studies conducted on online trust it is evident that in order to enhance user's level of trust the online merchant has to portray following four aspects of online business:

1 Professionalism

Professionalism is usually defined as character to represent good standing. In the physical world physical visual information, which represents the character of the organization, is one of the decisive factors to determine user's trust on a business. However in the electronic environment where the physical attributes are missing, the business is represented by the web site. The in depth analysis of online consumer behavior in the previous sections clearly suggest that the following web interface factors help the online organization to portray professionalism

- The use of graphics and pictures
- Structure of the web site and ease of use
- Proper branding, i.e. the use of well known brands

2 Credibility

Credibility is the believability of a statement or source, and the ability of the observer to believe in the statement or organization. In the physical world the contextual and geographical information primarily defines the credibility of the organization. However in the electronic environment the use of following portrays the online organization to be credible

- Appropriate security technologies e.g. trusted party's digital certificates or online security seals like VeriSign Secured, or Verified by Visa Online Seal
- Trusted third party seals e.g. Verified by Visa Online Seal
- Availability of trusted alternate dispute resolution company's e.g. Escrow

3 Honesty

Honesty is usually defined as the human quality to communicate and act truthfully and with fairness. One of the key concerns of online user is how the electronic merchant will use and distribute his/her personal information or the user's concern that how honest the online merchant is in using his/her personal information. This concern can be adequately handled with the help of following

- Trusted third party seals e.g. web privacy seals like Truste or BBB Online Privacy Program along with transaction handling trusted third party seals e.g. Verified by Visa Online Seal etc
- User control over the private disclosed information in terms of user's ability to control over his/her information
- Clear and easy to follow privacy and disclosure statement by the online merchant

4 Capability and performance

A positive word of mouth from a person the user trusts in the physical world is the most important factors in developing user's trust on organization in terms of its capability to deliver a product or service with desired performance. However in the electronic environment the users go far beyond their physical, cultural and trade environments, the electronic trusted referrals and online reputation primarily form the level of user's trust on an electronic business. This relation has also been empirically proved, as discussed earlier.

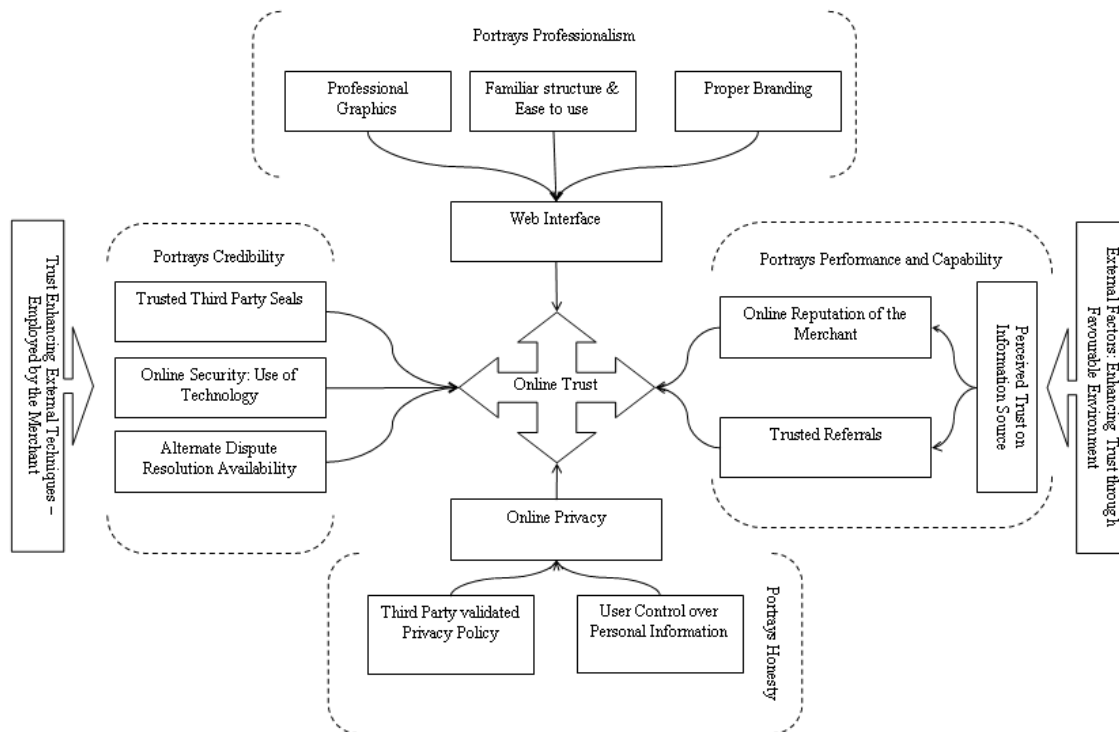


Fig. 1. Determinants of online trust

The constructed conceptual model (see figure 1) is developed to represent the above mentioned direct factors and their determinants; which impact the user's online trust by portraying professionalism, credibility and honesty in its practices and capability and performance to deliver the desired service or product.

Conclusion

In this paper the conceptual model is constructed which represents the direct and indirect factors which impact user's online trust after in depth analysis of trust from sociological theoretical and from online user behavior perspectives. The represented model can be used by the online service providers to enhance user's overall trust level in order to capture more potential customers. The proper implementation of the represented model will enable the new and existing online

merchants and service provider to compete with existing physical and online established brands in capturing more customers.

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