

# “Trust Me, I’m an Online Vendor”: Towards a Model of Trust for E-Commerce System Design

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## ABSTRACT

Consumers' lack of trust has often been cited as a major barrier to the adoption of electronic commerce (e-commerce). To address this problem, a model of trust was developed that describes what design factors affect consumers' assessment of online vendors' trustworthiness. Six components were identified and regrouped into three categories: *Prepurchase Knowledge*, *Interface Properties* and *Informational Content*. This model also informs the Human-Computer Interaction (HCI) design of e-commerce systems in that its components can be taken as trust-specific high-level user requirements.

## Keywords

Electronic commerce, trust, requirements engineering.

## INTRODUCTION

For users to adopt Business-to-Consumer (B2C) e-commerce, it is imperative that the benefits of using this new commercial medium (e.g. convenience, decreased transaction costs) significantly outweigh potential risks. Indeed, the private user's freedom to select appropriate vendors tends to be correlated with greater concerns as regards financial risk, privacy and trust (GVU, 1998).

## Understanding Trust in E-Commerce

Traditional HCI analysis and design methods can be employed effectively to address usability aspects of e-commerce interfaces, but they may fail to deliver when it comes to designing trust-inducing features susceptible to convert users into customers.

Indeed, the discipline of HCI currently lacks *substantive* knowledge about how trust is formed, maintained and lost in B2C e-commerce. Accordingly, without a model of how trust operates in this context, it is difficult to build up valid and reliable *methodological* knowledge about the way trustworthiness can be communicated in e-commerce system design.

## Previous Research

Kim and Moon (1998) conducted a study to investigate which graphic design elements were most likely to communicate trust in cyber-banking interfaces. Since their approach was exclusively empirical with little grounding in theory, it is argued that their results cannot be taken as high-level, generalisable HCI design principles. Similarly, a study by Cheskin Research and Studio Archetype (1999) discusses some heuristics susceptible to increase consumers' trust. However, the validity of these rules-of-thumb is also seriously undermined, due to the lack of explicit knowledge from which the guidelines are derived. Tan and Thoen (1999), on the other hand, propose a generic, analytical, model of trust for e-commerce. Although their model has not been tested empirically, it remains that it constitutes a good basis from which to derive a trust-specific HCI design method.

## METHODOLOGICAL APPROACH

This piece of research seeks to gain both substantive knowledge about the way trust operates in e-commerce and methodological HCI knowledge about the way it can inform system design.

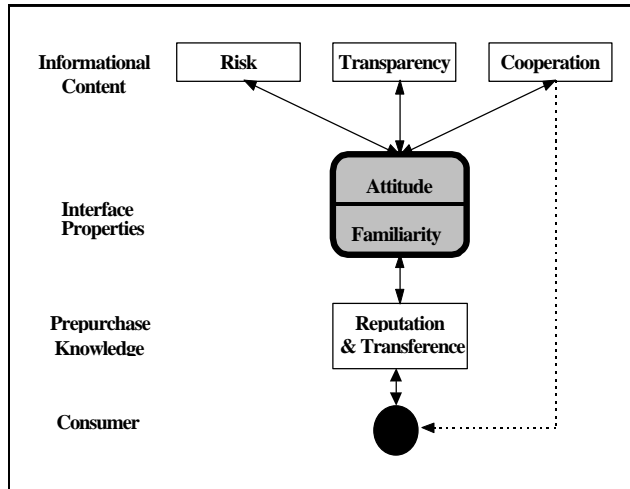
The objective of the first phase was to investigate the cognitive processes involved when consumers assess the trustworthiness of online vendors. This high-level, descriptive, model can then be used to derive generic user requirements susceptible to aid the establishment of trust in the buyer-seller relationship. User-centred design methods can then be employed to refine these requirements and thereby inform the conceptual design of the interface.

## Substantive Knowledge

A model of trust for electronic commerce (MoTEC) was developed in the first phase of this research (Egger, 1998). The general issue of trust was first analysed from a psychological (Rempel *et al*, 1985) and Marketing (Doney & Cannon, 1997) viewpoint, which led to the identification of a number of crucial factors for the development and maintenance of trust. These factors were then integrated as components in MoTEC<sub>analytical</sub>. The descriptive power of this model was then tested in an empirical refinement study, where subjects had to rate the relevance of statements about trust and e-commerce. A checklist was derived from the

new model, MoTEC<sub>empirical</sub>, which was subsequently used to evaluate the trustworthiness of three e-commerce systems. These evaluations were then compared with findings from user trials, where subjects were observed as they had to decide whether or not they would trust the same online vendors. On the basis of these observations, a revised model was proposed. The revised MoTEC model is presented below (Fig. 1).

Figure 1 - Revised MoTEC Model



MoTEC components are defined as follows:

- **Prepurchase Knowledge.** Before interacting with the system, consumers might already have formed an opinion about the vendor's trustworthiness. This can be due to the vendor's *Reputation*, previous experience with the vendor, off-line and/or online, or reports from trusted third parties (hence, *Transference* of trust).
- **Interface Properties.** *Familiarity* refers both to the system's usability and to familiarity in terms of terminology and domain model. The *Attitude* component is defined as the first impression the system makes on its users with respect to the services available and the way information is presented, i.e. architecture, navigation and graphic design.
- **Informational Content.** The *Risk* component refers to information the vendor provides about financial risk and guarantees. *Transparency* is defined as the vendor's openness with respect to business policies and, in particular, its privacy policy. *Cooperation* reflects the facilitating effect of vendor-buyer and interaction on trust formation.

#### Methodological Knowledge

Components identified in the MoTEC model correspond to consumer concerns that need to be addressed when designing e-commerce systems. These concerns can therefore be re-expressed in the form of high-level user/consumer requirements to be refined by means of user-centred analysis methods. This would yield application-specific requirements at a level of granularity suitable for design. In order to render the design process more coherent, the model

components have been redistributed into three qualitatively different types of requirements:

- **Appeal [Graphic Design]** is defined as an emergent property coming about when different system attributes are experienced positively by the user. It also refers to the system's likeability and has obvious consequences for its acceptability.
- **Usability [Structure & Navigation Design]** is defined as the system's ease-of-use. Learnability, consistency, flexibility and error tolerance also fall into this category.
- **Trustworthiness [Content Design]** refers more to the vendor behind the system than to the system *per se*. Financial risk in online transactions being a major consumer concern, vendors should deal with it explicitly and, possibly, provide guarantees. In addition, consumers should also be informed about the vendor's privacy policy and the way confidential information is handled. Experienced trustworthiness can also be increased with the involvement of trusted third parties (TTP) that report on violations of posted privacy policies or business contracts.

#### CONCLUSIONS

Trust in B2C e-commerce has been addressed by providing:

- Substantive HCI knowledge in the form of a descriptive model of trust for e-commerce; and
- Methodological HCI knowledge in the form of high-level user requirements to be refined by user-centred analysis and design methods.

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#### REFERENCES

1. Cheskin Research & Studio Archetype. *Ecommerce Trust Study*. Available at: <http://www.studioarchetype.com/cheskin/>
2. Doney, P.M. & J.P. Cannon (1997). An Examination of the Nature of Trust in the Buyer-Seller Relationship. *Journal of Marketing*, Vol. 51: 35-51.
3. Egger, F.N. (1998). *Increasing Consumers' Trust in Electronic Commerce through Human Factors Engineering*. Unpublished Master of Science (Ergonomics) Thesis, University of London.
4. GVU (1998). GVU Tenth WWW Survey. Available at: [http://www.cc.gatech.edu/gvu/user\\_surveys/](http://www.cc.gatech.edu/gvu/user_surveys/)
5. Kim, J. & J.Y. Moon (1998). Designing Emotional Usability in Customer Interfaces - Trustworthiness of Cyber-banking System Interfaces. *Interacting with Computers*, Vol. 10: 1-29.
6. Rempel, J.K., Holmes, J.G. and M.P. Zanna (1985). Trust in Close Relationships. *Journal of Personality and Social Psychology*, Vol. 49 (1): 95-112.
7. Tan, Y.H. & W. Thoen (1999). Towards a Generic Model of Trust for Electronic Commerce. In Proceedings of the 12<sup>th</sup> Bled E-Commerce Conference, Bled, Slovenia, June 7-9, 1999. Vol. 1: Research, 346-359.

