December 2003

Customers' Initial Trust in E-Businesses: How to Measure Customers' Initial Trust

Euijin Kim
Southern Illinois University

Suresh Tadisina
Southern Illinois University

CUSTOMERS' INITIAL TRUST IN E-BUSINESSES: HOW TO MEASURE CUSTOMERS' INITIAL TRUST

Euijin Kim
Morehead State University
e.kim@moreheadstate.edu

Suresh Tadisina
Southern Illlinois University
suresht@siu.edu

Abstract

Trust has been one of the main items of focus in e-commerce and many previous studies have provided useful contributions (e.g., Gefen 2000; McKnight et al. 2000, 2002, etc.). This study extends the line of studies of e-commerce trust and provides a framework and an instrument to measure customers' initial trust in e-businesses.

Keywords: E-commerce, trust, customers' initial trust in e-businesses

What Is Trust?

Trust has been studied in various areas (e.g., psychology, sociology, marketing, MIS, etc.) and defined in terms of confidence (e.g., Deutsch 1960; Luhmann 1979), reliance (e.g., Giffin 1967; Schlenker et al., 1973), intention (e.g., Cook & Wall 1980; Moorman, et al. 1993), and others. Some researchers defined trust narrowly as competence (Sitkin & Roth 1993) or goodwill (Burke & Stets 1999). Recently, some scholars approached trust from a more comprehensive viewpoint (e.g., Mayer, et al. 1995). However, the definition of trust needs added clarity and more studies are necessary to understand and articulate it more clearly. One approach to understand trust is to examine it with regard to the levels or stages: initial vs. robust (refer to Figure 1)

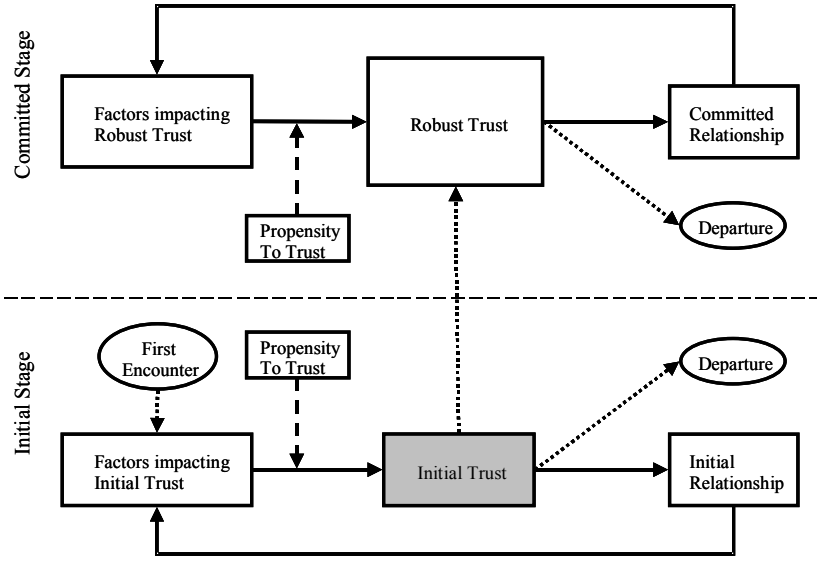


Figure 1. A Model of Trust Development

Figure 1 illustrates how trust can be developed, maintained, or destroyed. It starts with a customer encountering an e-business. The customer will experience many factors that would influence her trust in the company. From the experience she will develop initial trust, which may lead to an initial relationship with the company. At a certain point, the level of initial trust may increase and develop into robust trust that is likely to result in a committed relationship with the company. The committed relationship may provide customers with more opportunities (e.g., purchase experience) that would strengthen into robust trust. During the cycle, the level of trust may plummet and customers may depart from the relationships.

Robust trust is the critical factor for the success of e-businesses. However, initial trust is also important in that it is the starting point from which robust trust can be developed. In this study, initial trust is defined and the development process of an instrument to measure initial trust is illustrated.

Initial Trust

In this study, initial trust is defined as a type of trust that invokes and maintains initial relationships. By nature, initial trust can be generated by superficial impressions within a short period and may be maintained temporarily. It is therefore closely related to a concept of trustworthiness or "trusting belief" (Mayer, et al. 1995; McKnight et al. 2000) and can be measured using the trusting belief scale of McKnight et al. (2002). This study also uses the concept of trusting belief as a surrogate measure of initial trust.

The concept of trusting belief is based on the three component framework (i.e., beliefs, attitudes, and intention) by Fishbein and Ajzen (1975). According to them, the label – belief - should be used "when the measure places the individual on a dimension of subjective probability relating an object to an attribute (p. 13)." Based on the concept, McKnight et al. (1998) defined trusting belief as a person's belief that the other person is benevolent, competent, honest, or predictable in a situation. This concept is also related to Mayer et al.'s (1995) trustworthiness (McKnight et al. 1998). Furthermore, McKnight et al. used the trusting belief scale to measure initial trust (2003). The logic behind the use of trusting belief as a surrogate measure of initial trust is that the latter represents an initial phase of customers' trust in an e-business (refer to Figure 1).

Previous studies proposed (e.g., Mayer et al. 1995; McKnight et al. 1998) or tested (e.g., McKnight et al., 2002) three or more dimension models of trusting belief. However, most of the empirical studies failed to support the three-dimension model of trusting belief (e.g., McKnight et al., 2002). Alternatively, therefore, this study examines a two-dimension model of trusting belief. The two-dimension model has practical advantages over the three-dimension model (e.g., parsimony) and is supported by many previous studies as shown in Table 1.

Table 1. Literature Supporting the Two Dimensions of Trustworthiness: Competence and Goodwill

Authors (year)	Competence Trust	Goodwill Trust
Hovland, Janis, & Kelley (1953)	Expertise	Motivation to lie
Deutsch (1960)	Ability	Intention to produce
Kee & Knox (1970)	Competence	Motives
Cook & Wall (1980)	Ability	Trustworthy intentions
Lieberman (1981)	Competence	Integrity
Barber (1983)	Competence	Goodwill
Good (1988)	Ability	Intention; Trustees' claims about how they will behave
Swan et al. (1988)	Competent	Responsible
Sitkin & Roth (1993)	Ability	Value congruence
Mayer, Davis, & Schoorman (1995)	Ability	Benevolence, Integrity
Nooteboom (1996)	Ability	Intentions
Das & Teng (2001)	Competence trust	Goodwill trust

Barber (1983) defined competence trust as "the expectation of technically competent role performance (p. 14)," and goodwill trust as "the expectation that some others in our social relationships have moral obligations and responsibility to demonstrate a special concern for other's interests above their own (p. 14)." Nooteboom (1996) also illustrated that "[t]rust may concern a partner's *ability* to perform according to agreements (competence trust), or his *intentions* to do so (goodwill trust)" (p. 990, emphasis in original). In an empirical study, Swan, et al. (1988) proposed five dimensions of trust among which three were related to trusting beliefs (honest, competent, and responsible). However, they found that the items for the three dimensions were loaded onto two dimensions that were similar to competence and goodwill. Based on the two-dimension model of trusting belief, the procedure used for developing an instrument for measuring trusting belief, or initial trust, is illustrated in the next section.

Developing an Instrument for Measuring Initial Trust

The guidelines for developing measurement instruments (e.g., Churchill, 1979) were followed to develop a scale of initial trust. First, items were generated for the dimensions of the initial trust scale based on the previous studies and logical inference. Second, pretests were conducted to improve the items. Third, an empirical test was done with primary data and statistical analyses.

Item Generation and Pretests

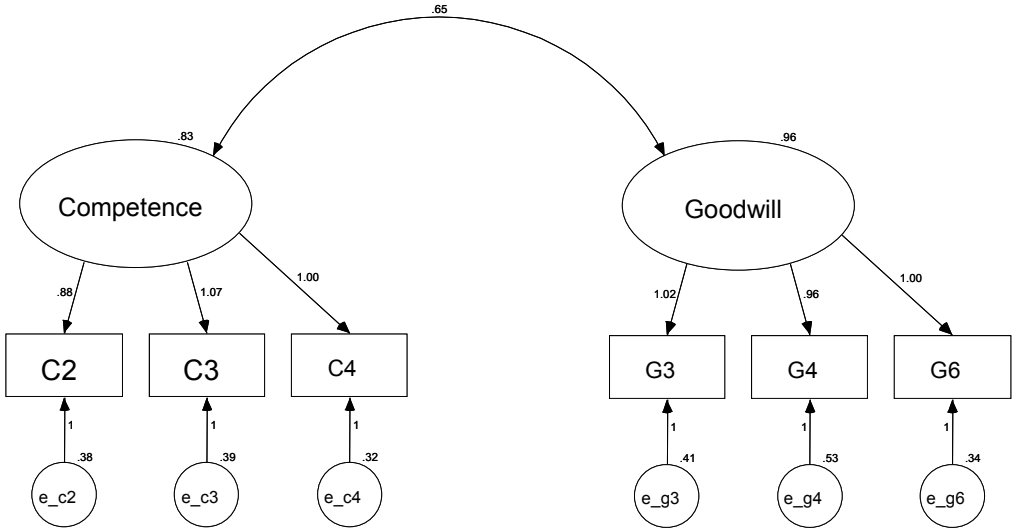
The items to measure customers' initial trust in e-businesses were generated based on previous studies and/or logical reasoning. These items were then reviewed by judges (students and instructors at a US college) and some of the items were slightly modified based on the review. The items were also screened through three pretests that used students at a small US college as subjects. The final items of the initial trust scale are shown in Table 2 and were used in the main test. The items were deemed to capture most important aspects of customers' initial trust in e-businesses. For instance, the items for the competence scale include questions about company's ability to provide needed products (C1), ability to provide high quality products (C2), expertise to provide safe transaction mechanism (C3), capacity to provide high quality products (C4 and C5). The items for the goodwill scale (G1 through G6) attempted to capture the inherent aspect of goodwill trust. An additional item (T) was also included to check for the validity of the scales.

Table 2. Proposed Items to Measure Competence (C1-C5) and Goodwill (G1-G6)

Code	Item	Reference
C1	I believe that the company has the competence to provide goods and/or services that I need.	McAllister (1995); Garbarino & Johnson (1999)
C2	I believe that the goods and/or services that the company provides must be of high quality.	Garbarino & Johnson (1999)
C3	I believe that the company has the expertise to provide mechanisms for safe and reliable transactions.	New
C4	I believe that the company has the capacity and resources to provide high quality goods and/or services.	Garbarino & Johnson (1999)
C5	I don't think that the company has the capability to provide customers with high quality goods and/or services	Garbarino & Johnson (1999)
G1	I believe that the company is always eager to help customers.	McAllister (1995); Parasuraman et al. (1988)
G2	I believe that the company is eager to provide mechanisms for safe and reliable transactions.	Parasuraman et al. (1988)
G3	I believe that the company is honest with customers all the time.	Larzelere & Huston (1980); Doney & Cannon (1997)
G4	I believe that the company is interested in customers' welfare.	Doney & Cannon (1997)
G5	I believe that the company does its best to protect customers' privacy.	New
G6	I believe that the company is truly sincere in keeping promises made to customers.	Larzelere & Huston (1980); Parasuraman et al. (1988); Doney & Cannon (1997)
T	The company is trustworthy.	Validity check item

Empirical Test

An empirical test was conducted with a self-administered questionnaire survey. Students at a small US college were requested to visit and navigate the website of an e-business (four websites were prepared for the survey) and answer the questions based on his/her experience of the website. Four hundred questionnaires were distributed to the students and three hundred nineteen responses were collected. Further data screening processes resulted in a final tally of 300 cases. A structural equation modeling (SEM) procedure was used to check for items in the proposed scales that had potential problems. Some items that had too high error values (C1, C5, and G1) or cross-loading problems (G2 and G7) were removed from the model. Figure 2 is the graphical output of the AMOS program used for SEM analysis of the model.



Chi-square=8.970, df=8, p=.345; GFI=.990; CFI=.999; RMSEA=.020

Figure 2. SEM Results of the Proposed Model of Initial Trust

The model provided acceptable level of fit indices as shown in Figure 2 providing evidence of convergence in measurement (similar to convergent validity; Bagozzi & Yi 1988). A nested model with one latent variable (initial trust) and the six indicators regressed onto the latent variable was tested and compared with the proposed two-dimensional/factor model. As shown in Table 3, the one-factor model provided a poor fit and there was a significant difference between the two-factor model and the one-factor model with regard to the Chi-square difference. Therefore, there was evidence of differentiation among the constructs (discriminant validity; Bagozzi & Yi 1988).

Table 3. Summary SEM Results of Tests of Differentiation Between Constructs

Unconstrained model (two factor)	Constrained model (one factor)	Difference in Chi-square
Chi-square=8.970	Chi-square=159.012	Chi-square=150.042
df=8	df=9	df=1
P= .345	P= .0001	P= .001
GFI= .990	GFI= .807	
CFI= .999	CFI= .854	
RMSEA= .020	RMSEA= .236	

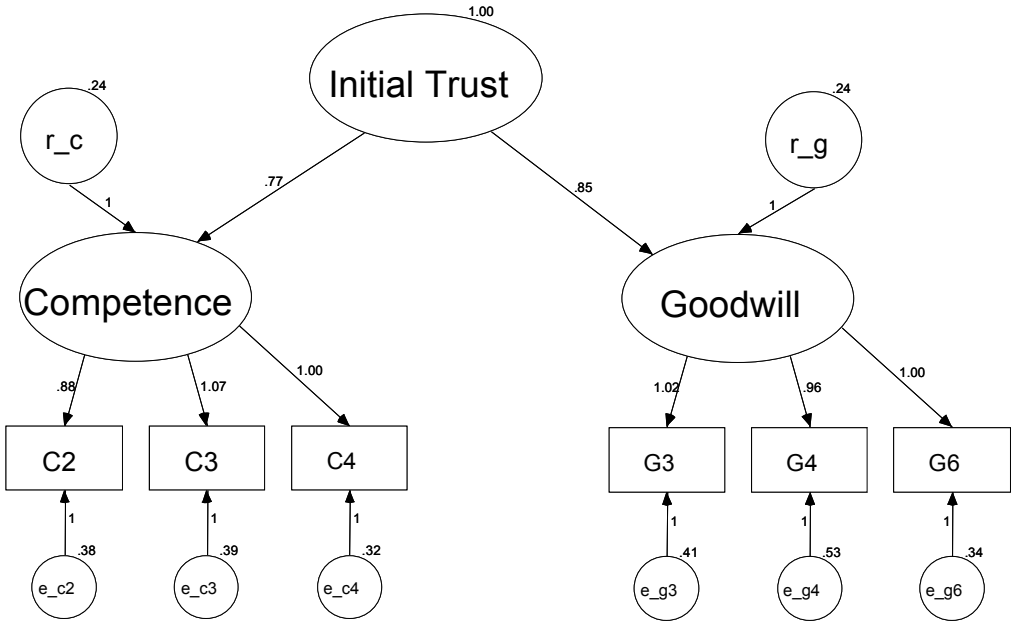
Correlation analyses with the items and the validity check item (T) were conducted to examine whether the items measured what they purported to measure (construct validity). As shown in Table 4, the correlations between the validity check item (T) and the selected items were statistically significant (p=.0001, n=300). In addition, the correlations among the items for the same dimension were higher than those between the different dimension items, therefore, there was evidence of construct validity (convergent and discriminant validity).

Table 4. Correlations*, Variances, and Covariances*** of the Retained Initial Trust Items**

	T	C2	C3	C4	G3	G4	G6
T	**1.358**	.524	.562	.546	.692	.629	.775
C2	*.617*	**1.023**	.671	.668	.463	.451	.509
C3	*.760*	*.787*	**1.345**	.712	.476	.496	.553
C4	*.684*	*.726*	*.888*	**1.156**	.509	.478	.574
G3	*.962*	*.558*	*.658*	*.652*	**1.421**	.687	.721
G4	*.871*	*.541*	*.684*	*.611*	*.973*	**1.411**	.661
G6	*1.033*	*.589*	*.734*	*.706*	*.984*	*.898*	**1.308**

* Correlations: upper right diagonal (All correlations were significant at p=0.0001, n=300)
** Variance: diagonal (bold)
*** Covariance: below left diagonal (italic)

A second-order factor model of initial trust was also tested to examine whether the two factors can be explained by a hypothetical second order factor (proposed to be initial trust). The model was just-identified and therefore, an equality constraint method was used (Byrne, 2001). Figure 3 shows the results of the SEM analysis of the second-order factor model of initial trust and indicates that the model had an acceptable fit (Chi-square = 8.970, df = 8, p = .345; GFI = .990; CFI = .999; RMSEA = .020, p = .774). Therefore, there was evidence that the two factors can be explained by a hypothetical second order factor.



Chi-square = 8.970, df = 8, p = .345; GFI = .990; CFI = .999; RMSEA = .020

Figure 3. SEM Results of the Second-Order Factor Model of Initial Trust

Cronbach's coefficient alpha of the competence scale was .87 and that of the goodwill scale was .87. Therefore, there was evidence that both scales were internally consistent. In sum, the measurement model proposed in this study provides valid and reliable scales to measure initial trust.

Future Plan

This study proposed a model to measure customers' initial trust in e-businesses. The scales appeared to be valid and reliable. However, this study has some limitations. First, using students as the survey subjects involves a problem of representativeness of the sample because students are just a part of the larger population of e-business customers. Second, the way the subjects (students) visited the websites as per the study design may not be typical. For instance, if a customer is not interested in a website, he or she may leave the website. In this study, a student was forced to visit and navigate a website. Third, the sample size was not large enough for more detailed analyses to be conducted. To validate and extend this study, future studies need to be designed to incorporate the above issues.

References

Bagozzi, R. P., Yi, Y. "On the Evaluation of Structural Equation Models," *Journal of the Academy of Marketing Science* (16:1), 1988, pp. 74-94.

Barber, B. (1983). *The Logic and Limits of Trust*. New Brunswick, NJ: Rutgers University Press, 1983.

Burke, P. J., & Stets, J. E.. "Trust and Commitment through Self-verification," *Social Psychology Quarterly* (62:4), 1999, pp. 347-360.

Byrne, B. M. *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers, 2001.

Churchill, G. A. "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research* (16:1), 1979, pp. 64-73.

Cook, J., & Wall, T. "New Work Attitude Measures of Trust, Organizational Commitment and Personal need Nonfulfillment," *Journal of Occupational Psychology* (53:1), 1980, pp. 39-52.

Das, T. K., & Teng, B. "Trust, Control, and Risk in Strategic Alliances: An Integrated Framework," *Organization Studies* (22:2), 2001, pp. 251-283.

Deutsch, M. "The Effect of Motivational Orientation upon Trust and Suspicion," *Human Relations* (13), 1960, pp. 123-140.

Doney, P. M., and Cannon, J. P. "An Examination of the Nature of Trust in Buyer-Seller Relationships," *Journal of Marketing* (61:2), 1997, pp. 35-51.

Fishbein, M., & Ajzen, I. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, Mass.: Addison-Wesley, 1975.

Garbarino, E., & Johnson, M. S. "The Different Roles of Satisfaction, Trust, and Commitment in Customer Relationships," *Journal of Marketing* (63:2), 1999, pp. 70-87.

Gefen, D. "E-commerce: The role of Familiarity and Trust," *Omega* (28), 2000, pp. 725-737.

Giffin, K. "The Contribution of Studies of Source Credibility to a Theory of Interpersonal Trust in the Communication Department," *Psychological Bulletin* (68), 1967, pp. 104-120.

Good, P. (1988). "Individuals, Interpersonal Relations, and Trust, " In D. G. Gambetta (Ed.), *Trust: Making and Breaking Cooperative Relations,* New York: Basil Blackwell, 1988, pp. 31-48.

Hovland, C. E., Janis, I. L., & Kelley, H. H. *Communication and Persuasion*. New Haven, CT: Yale University Press, 1953.

Kee, H. W., & Knox, R. E. "Conceptual and Methodological Considerations in the Study of Trust," *Journal of Conflict Resolution* (14), 1970, pp. 957-366.

Larzelere, R., & Huston, T. "The Dyadic Trust Scale: Toward Understanding Interpersonal Trust in Close Relationships," *Journal of Marriage and the Family* (42), 1980, pp. 595-604.

Lieberman, J. K. *The Litigious Society*. New York: Basic Books, 1981.

Luhmann, N. *Trust and Power*. New York: Wiley, 1979.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. "An Integrative Model of Organizational Trust," *Academy of Management Review* (20:3), 1995, pp. 709-734.

McAllister, D. J. "Affect- and Cognition-based Trust as Foundations for Interpersonal Cooperation in Organizations," *Academy of Management Journal* (38:1), 1995, pp. 24-59.

McKnight, D. H., Choudhury, V., & Kacmar, C. "Trust in E-commerce Vendors: A Two-stage Model," *Proceedings of the Twenty-First International Conference on Information Systems*, December 10-13, 2000, Brisbane, Australia.

McKnight, D. H., Choudhury, V., & Kacmar, C. "Developing and Validating Trust Measures for E-commerce: An Integrative Typology," *Information Systems Research* (13:3), 2002, pp. 334-359.

McKnight D. H., Cummings, L. L., & Chervany N. L. "Initial Trust Formation in New Organizational Relationships," *Academy of Management Review* (23:3), 1998, pp. 473-490.

Moorman, C., Deshpande, R., & Zaltman, G. "Factors Affecting Trust in Market Research Relationships," *Journal of Marketing* (57:1), 1993, pp. 81-100.

Nooteboom, B. "Trust, Opportunism and Governance: A Process and Control Model. *Organization Studies* (17:6), 1996, pp. 985-1010.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. "SERVQUAL: A Multi-item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing* (64:1), 1988, pp. 12-40.

Schlenker, B. R., Helm, B., & Tedeschi, J. T. "The Effects of Personality and Situational Variables on Behavior Trust," *Journal of Personality and Social Psychology* (25), 1973, 419-427.

Sitkin, S. B., & Roth, N. L. "Explaining the Limited Effectiveness of Legalistic "Remedies" for Trust/Distrust," *Organization Science* (4), 1993, pp. 367-392.

Swan, J. E., Trawick, Jr. I. F., Rink, D. R., & Roberts, J. J. "Measuring Dimensions of Purchaser Trust of Industrial Salespeople," *Journal of Personal Selling & Sales Management* (8:1), 1988, pp. 1-9.