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# BUILDING EFFECTIVE ONLINE MARKETPLACES WITH INSTITUTION-BASED TRUST

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## Abstract

*Despite the inherent risk arising from separating buyers and sellers, networked online marketplaces are proliferating. We describe how online auction marketplaces take advantage of institutional structures to build buyer trust in auction sellers, mitigate risk, increase satisfaction, and promote transaction intentions. It is hypothesized, based on institutional trust (Zucker 1986), that buyer trust in auction sellers can be increased, beyond past experience with sellers, through structural assurances, such as buyer-driven certification, auction house escrows, and credit card guarantees. We examined buyer transaction intentions, mediated by trusting beliefs, risk reduction, and satisfaction. The model is tested with 274 buyers in Amazon's online auction marketplace. The results support the hypotheses, highlighting the importance of institution-based trust in online networks. Implications are discussed.*

**Keywords:** Institution-based trust, online auctions, institutional structures, certification, escrows, third-party guarantees

## 1 INTRODUCTION

Online auctions are one of the hottest phenomena on the Internet (Federal Trade Commission 2000). These marketplaces are characterized by their mediated nature (as opposed to face-to-face), where buyers mostly interact with sellers who they meet for the first time: increasing the risk of misconduct. Indeed, Internet auctions complaints have dramatically increased (Federal Trade Commission 2000). According to Bernstein (2000), the director of the Bureau of Consumer Protection, "Internet auction sites are experiencing amazing growth [yet] we also know that the number of complaints the FTC has received about Internet auctions is exploding—from 107 in 1997 to 10,700 in 1999." Understanding mechanisms that mitigate risks and facilitate transactions among auction buyers is therefore necessary.

In general, trust is a crucial enabling factor when uncertainty and opportunism exist (Jarvenpaa, et al. 2000; Mayer, et al. 1995; McKnight and Chervany 2002). The same is true even of less risky online business-to-consumer relationships (Gefen 2000, 2002; Jarvenpaa et al. 2000; Kollock 1999; Pavlou 2002a, 2002/03; Reichheld and Scheffer 2000). But increasing trust as shown by previous research through familiarity (Gefen 2000) and prior performance (Gefen 2002) may not apply to an online marketplace where mostly one-time transactions occur and where an increasing numbers of buyers conduct business with new sellers (Kollock 1999; Shapiro 1987). An alternative way of facilitating online auctions is institution-based trust, which particularly applies to communities where trading rules, structures, and norms are shared (Zucker 1986). Since each networked trading community may have different structural assurances and different effectiveness on trust building, we focused on a particular type of institution: online consumer auctions.

An online auction marketplace is a community of buyers and sellers who act within an institutionalized network where they share rules and structures that are controlled by the mediating organization. Accordingly, as in other institutional contexts, escrows and trustworthiness certification of business partners should create trust (Zucker 1986). Indeed, many online auction houses have tried to establish institution-based guarantees to mitigate risks, build a trustworthy marketplace, and encourage auction transactions.

This study investigates the unique trust building mechanisms, based on Zucker (1986), in online marketplaces: (1) *buyer-driven certification*, reducing uncertainty by buyer feedback on sellers, (2) *escrow services* where auction houses authorizes payment only after the buyer is satisfied, and (3) *credit card guarantees*. The three resemble the institution-based trust mechanisms (certification and escrows) that Zucker identified in the American economy at the turn of the last century when the flux in the economy forced the creation of third-party institutions to guarantee transactions. Institution-based mechanisms are necessary because, unlike previous research on dyadic relations, buyers and sellers cannot interact directly with each other but must rely on institutional structures.

As in consumer behavior research, the unit of analysis is the individual buyer (consumer). However, the target of trust in this study is the entire population of networked sellers in the specific online auction marketplace. This is consistent with the spirit of institutional trust that deals with building a trustworthy trading environment as a whole, not necessarily dealing with specific sellers.

Although many third-party intermediaries may be present in buyer-seller transactions (e.g., escrow, accreditation, authentication, and insurance services), this study primarily focuses on the formal authority that manages the exchange network (e.g., Amazon Auctions or eBay) to answer the following questions: What is the relative importance of prominent types of institutional structures in facilitating trust and developing effective online marketplaces? What is the process by which trust facilitates transaction intentions in online marketplaces? How do online auction marketplaces foster transactions among buyers and sellers?

## 2 CONCEPTUAL DEVELOPMENT

The theoretical model, examining the role of institution-based trust in building effective online exchange networks from a buyer perspective, is presented in Figure 1.

### 2.1 Online Auction Marketplaces

Online auction marketplaces are networked communities of buyers and sellers who exchange product information, coordinate, and transact through an auction marketplace over the Internet. As with other economic transactions spanning time and space, trust is necessary to counter fears of opportunistic behavior (Mayer et al. 1995; Williamson 1985). But, as with other online interactions, the lean online environment (as opposed to face-to-face) makes traditional trust-building cues ineffective and makes cheating easier (Gefen 2000; Reichheld and Schefter 2000). Moreover, the physical and temporal distance between buyers and sellers creates additional uncertainty about product characteristics, because buyers usually inspect the product only upon delivery after the seller receives payment (Ba and Pavlou 2002), increasing risk through delay and information asymmetry.

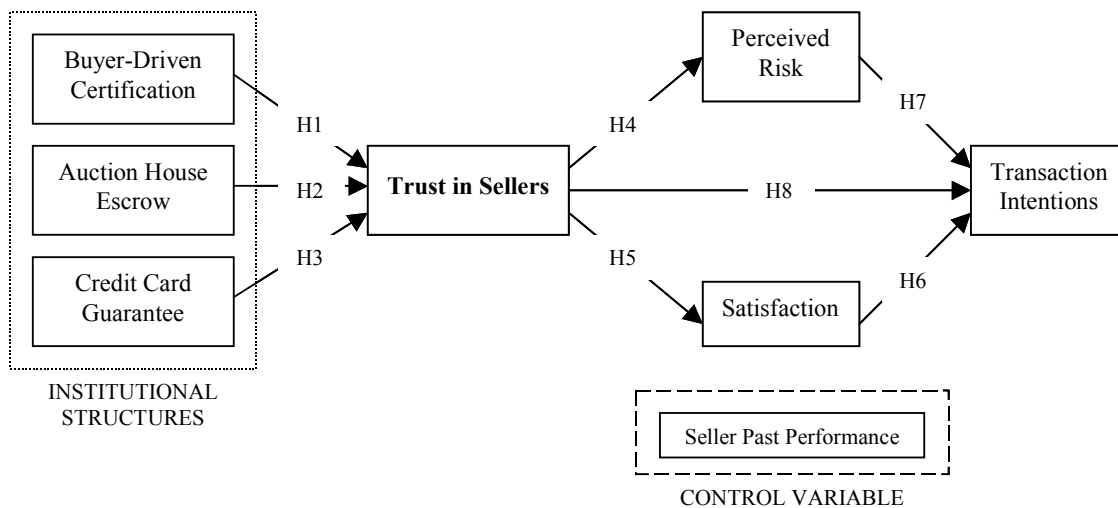


Figure 1. Proposed Conceptual Model and Research Hypotheses

## 2.2 Trust

Trust generally creates expectations of favorable exchange relationships (Schurr and Ozanne 1985) and impacts on all levels of buyer-supplier relationships (Cannon and Perrault 1999). It is also necessary in many buyer-seller transactions conducted in the uncertain environment of e-commerce (Gefen 2000; Lee 1998; Pavlou 2002/03). Trust is the belief that the other party will behave as expected in a cooperative manner and, in doing so, will fulfill the trusting party's expectations without exploiting its vulnerabilities (Gefen 2000, 2002; Lewis and Weigert 1985; Luhmann 1979; Mayer et al. 1995). Because the buyer interacts with an unknown seller, the target of trust in this study is the population of auction sellers in an online auction marketplace.

## 2.3 Institution-Based Trust

Institution-based trust is based on third party guarantees (Shapiro 1987; Zucker 1986). It may be the most important mode of trust creation in business environments that lack familiarity. There are two dimensions of institutional trust: certification and escrow. Certification deals with licenses and accreditation that testify to the ability and expected behavior of the trusted party. Escrows guarantee the financial side of the transaction by making sure that the third party releases funds only when both parties agree (Zucker 1986). Institution-based is applicable to e-commerce because e-commerce brings together many unfamiliar parties. Tan and Thoen (2001) propose the term control trust to describe trust built by institutional procedures. Pavlou (2002a) proposes a set of institutional trust-building mechanisms in business-to-business marketplaces. To Shapiro (1987), institution-based trust is a belief in the security of a situation brought about through guarantees and safety nets. Also, McKnight and Chervany (2002) describe institution-based trust as a critical part of Internet transactions. Following McKnight and Chervany, institution-based trust is defined as a buyer's subjective belief that favorable conditions are in place to facilitate transaction success.

## 2.4 Institutional Structures

Institutional structures can build trust through (1) calculativeness (economic rationale based on proper incentives or signals), (2) third parties absorbing transaction uncertainty, and (3) establishing cooperative norms (Pavlou 2002a). This study focuses on calculativeness and third party absorption of risk by focusing on structural assurances (McKnight et al. 1998). Following Zucker (1986), three antecedents of institution-based trust are proposed: buyer-driven certification through feedback, auction house escrow services, and credit card guarantees. These structural assurances are by no means comprehensive; yet, they are posited as prominent means of building buyer's trust in sellers in a confined networked trading community with specific mechanisms.

**Buyer-Driven Certification:** An important part of any transaction model is feedback, described by Schramm (1973, p. 51) as "an opportunity to react quickly to signs that have been put out by others." Buyer-driven certification mechanisms through feedback have been widely adapted in practice. For example, eBay's Feedback Forum is a buyer-driven certification system where buyers leave opinions about their transactions with auction sellers. Such certification systems accumulate and disseminate information about the sellers' past trading behavior, providing buyers a basis to build trust in sellers (Ba and Pavlou 2002). Since Internet technology facilitates the collection, aggregation, and dissemination of information with minimal costs, effective feedback systems imitate word-of-mouth communication to provide incentives for cooperative conduct in online auction transactions (Pavlou 2002b).

Buyer-driven certification through feedback is likely to be effective only if buyers perceive the feedback as credible. Thus, buyer-driven certification is defined as the extent to which buyers perceive that a feedback system is able to provide accurate and reliable information about a seller's past trading activity. Given a perceived effective buyer-driven certification, the trust-building transference process allows buyers to trust sellers based on information they receive from other buyers (Doney and Cannon 1997). Buyer-driven certification operates on an economic rationale basis by providing incentives for all sellers to behave cooperatively and signal good reputation to buyers. Even if individual feedback profiles are likely to differ among sellers (Ba and Pavlou 2002), they can be collectively viewed as a broad surrogate for the reputation of sellers in the marketplace that helps build buyer's trust.

**H1: The perceived effectiveness of buyer-driven certification of sellers increases buyers' trust.**

**Auction House Escrow Services:** Escrows are third-party services through which a third-party authorizes payment only after the buyer is satisfied with product delivery. Escrow services ascertain that all exchanges are conducted as per the established standards for quality and delivery. Auction house escrow services assure that all transactions are fulfilled in accordance with the

transaction-specific agreed upon terms. Despite the existence of certain marketplace standards for escrow services and their objective effectiveness, individual buyer subjective perceptions of the effectiveness of these services are likely to differ. Essentially, escrow services rely on calculativeness to build trust by having third parties absorb the risk of sellers behaving opportunistically by not delivering the product as agreed.

**H2: The perceived effectiveness of the auction house escrow services increases buyers' trust.**

**Credit Card Guarantees:** As with most online transactions, online auctions often use the third-party guarantees of credit card institutions. Credit card protection provides guarantees that fraudulent or unlawful seller behavior will be mitigated by an external third-party. Following Chellappa and Pavlou (2002), it is hypothesized that credit card guarantees build buyer's trust through protection from opportunistic behavior, by dealing with potential legal actions, and by reducing financial liabilities.

**H3: The perceived effectiveness of credit card guarantees increases buyers' trust.**

## 2.5 Consequences of Trust

**Perceived Risk:** Most buyer-supplier relationships are characterized by risks due to information asymmetry because the seller usually possesses more information regarding the transaction compared to the buyer (Mishra et al. 1998). Risk is created by identity and product uncertainty, information asymmetry, and fears of opportunistic behavior. It is an important barrier to online transactions that trust can influence (Jarvenpaa et al. 2000). Since it is difficult to capture risk as an objective reality, research has addressed the notion of perceived risk, which is defined as the buyer's subjective belief of suffering a loss in pursuit of a desired transaction outcome. Buyers' perceived risk mostly stems from seller behavior and not from the relevant context (Mayer et al. 1995). Although risk is inevitable in every transaction, trust reduces the expectations of opportunistic behavior (Sako and Helper 1998), perceptions of risk (Ganesan 1994; Gefen 2002), and fears of being taken advantage of by others (Anderson and Weitz 1989). Trust also reduces risks related to online transactions (Gefen 2002; Jarvenpaa et al. 2000).

**H4: Trust in sellers reduces the perceived risk of sellers in online marketplaces.**

**Satisfaction:** Anderson and Weitz (1989) argue that buyer satisfaction is an important consequence of buyer-seller relationships. Cannon and Perreault (1999) posit that satisfaction with the relationship represents an important outcome of any business exchange. According to Dwyer et al. (1987), satisfaction is a global evaluation of trustworthy relationships. Trust enhances satisfaction by reassuring buyers that they will not be taken advantage of from opportunistic sellers.

**H5: Trust in sellers increases satisfaction in sellers in online marketplaces.**

**Transaction Intentions:** Online auction marketplaces depend on transaction volume; hence, transaction intention is a crucial variable (Cannon and Perreault 1999). Drawing upon McKnight and Chervany (2002), we propose that trusting beliefs directly affect trusting intentions, in this case transaction intentions. Additionally, perceived risk and satisfaction are expected to mediate the impact of trust on transaction intentions. Satisfaction is likely to influence transaction intentions by creating a mediating positive attitude toward auction sellers (Pavlou 2002/03). Perceived risk also has a direct negative effect by stressing the mediating role of uncertainty and potential negative outcomes (Gefen 2002; Jarvenpaa et al. 2000).

**H6: Satisfaction with sellers increases buyers' transaction intentions in online marketplaces.**

**H7: Perceived risk decreases buyers' transaction intentions in online marketplaces.**

**H8: Trust in sellers increases buyers' transaction intentions in online marketplaces.**

## 2.6 Control Variable

**Past Seller Performance:** An important concern of this study is whether institutional mechanisms are important means of building trust, *beyond* the traditional trust-building means of familiarity (Gefen 2000). Positive experience, through the creation of appropriate expectations, should increase trust and reduce risk (Gefen 2002) and should arguably increase overall satisfaction.

Experience in general is perhaps one of the best predictors of future behavior by the creation of rational expectations (Fishbein and Ajzen 1975). Thus, past satisfactory experience is added as a control variable to the model.

### 3 RESEARCH METHODOLOGY

The proposed hypotheses were tested with a sample of 274 buyers at Amazon's online auction marketplace. Measurement items were adapted from the literature wherever possible. New measures were developed following standard psychometric scale development procedures (Boudreau et al. 2001). In cases where the construct measure required significant deviations and for the measurement of new constructs, the domain of the relevant construct was initially specified, and the items were subsequently developed on the basis of the conceptual definition. The preliminary instrument was pilot tested and reviewed by faculty and doctoral students for clearness. The items were then modified on the basis of a major pretest of the survey instrument with a sample of 70 auction buyers through the same Website-based data collection method as would be applied in the actual data collection. All items were seven-point Likert-type scales anchored at strongly disagree (1), strongly agree (7), and neither agree nor disagree (4). All measurement items are shown in the Appendix.

**Survey Administration:** E-mail addresses of 1,600 buyers were randomly collected from Amazon's auction Website using an e-mail extractor spider program. Invitation e-mails were sent to the selected buyers, explaining the purpose of the study and requesting their participation. The respondents were asked to click on the URL link provided in the e-mail message, which linked to the Web-based survey instrument. The respondents were offered incentives in the form of (1) a monetary award of \$250 to be raffled among the participants, and (2) a report that summarized the results of the survey; 65 percent of the respondents requested this report and 62 percent requested to participate in follow-up studies. The invitees were assured that the results would be reported in aggregate to guarantee their anonymity. Respondents had previously bid on average 22 times in online auctions. Of the respondents, 55 percent were males; the average respondent age was 41 years old (STD = 15) with 3.2 years (STD = 1.2) of Internet experience. The average income was in the range of \$25,000 to \$50,000, and the average respondent had at least some college education. Respondents came from 22 countries, but most resided in the United States (85 percent).

**Response Rate and Nonresponse Bias:** Out of the 1,600 invitees, 69 e-mails were undeliverable, and 274 responses were obtained (response rate of 18 percent). The low response rate may be because of possible e-mail filtering. Non-response bias was assessed by comparing (1) the respondents with the current Internet population ([www.blgt.com/demograf.html](http://www.blgt.com/demograf.html)), and (2) between the early and late respondents (Armstrong and Overton 1976). Early respondents were identified by selecting those that responded during the first phase in December 2001 (54 percent), against those responding in February 2002 (46 percent). The two groups were compared based on their sample characteristics (age, sex, education, income, and Internet experience). All possible comparisons showed insignificant differences ( $p = 0.1$  level).

### 4 DATA ANALYSIS

The research model was analyzed with LISREL. LISREL examines all covariance values in the data when estimating coefficients, thus examining not only the specified paths but also alternative paths that may have been overlooked, providing indications not only whether the correlations that were specified are significant but also whether the model may be incomplete. This property makes LISREL more suitable for confirmatory studies (Gefen et al. 2000). As in the accepted LISREL methodology (Gerbing and Anderson 1988), both the measurement and the structural model were examined together and all of the items reflecting the constructs model were included in the analysis. One item that showed significant residual variance with other items was discarded. This is a necessary step to examine the unidimensionality of the constructs (Gerbing and Anderson 1988, Segars 1997). All loadings were significant, and all of the reliabilities are above .80 (see the Appendix).

Figure 2 shows the model with standardized coefficient. Fit indexes were good (Gefen et al. 2000)  $\chi^2_{234} = 362.26$ , GFI .90, AGFI .88, NFI .95, CFI .98, and RMR .041. All of the hypothesized paths were significant, except for H3 and H8. H3 was not supported, possibly because credit company escrows are not closely related to the auction marketplace, and many sellers may not even encourage or accept credit cards for payment. Buyers may also not want to rely on the dispute resolution procedures provided by credit card companies. Chellappa and Pavlou (2002) also showed a weak effect of credit card protection on trust. H8 was not supported, perhaps because of the mediated effect of satisfaction and perceived risk, which are shown as key mediating variables. McKnight and Chervany (2002) also posit a weak link between trust and intentions, which is mediated by trusting stance. The explained variance is acceptable: transaction intentions, 56 percent; perceived risk, 20 percent; satisfaction, 52 percent; and trust in sellers, 57 percent.

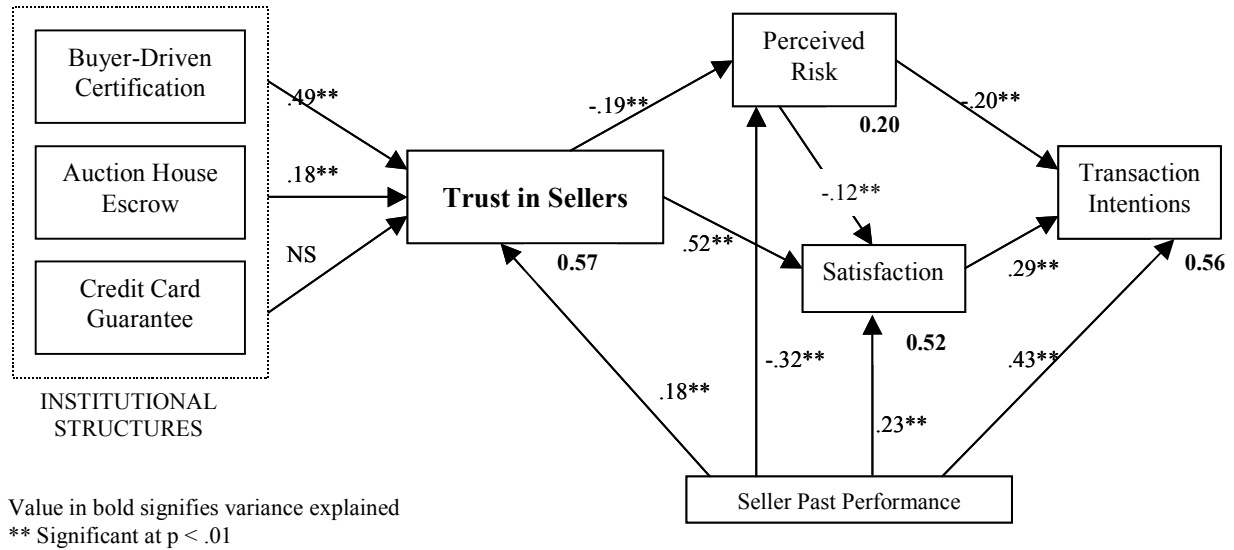


Figure 2. Standardized LISREL Data Analysis

## 5 DISCUSSION

The results show that auction houses can build trust through institutional structures, namely buyer-driven certification and auction house escrows, and that trust leads to transaction intentions through satisfaction and perceived risk reduction. However, there was no direct effect of trust on transaction intentions. Apparently this relationship is mediated by perceived risk and satisfaction. This study also shows that trust in buyer-seller relationships can be built even when familiarity is not present through institutional trust. The findings help explain the apparent success of these impersonal marketplaces by specifying some critical mechanisms that influence transaction success.

To some extent, the study also answers Shapiro’s (1987) call to clarify the role and nature of institutional mechanisms in impersonal contexts, hoping that “it conveys enough of the seductiveness of impersonal trust – the paradoxical choices it demands, its self-perpetuating and self-defeating tendencies, and, most of all, its subtle insinuation into the most complex and commonplace threads of the social fabric—to entice others to help search out some of the answers” (p. 653). This study provides some answers to the paradoxical phenomenon of institution-based trust, aiming to pave the path toward fully understanding the antecedents and nature of institutional trust.

### 5.1 Implications

The main theoretical contribution of this study is the extension of Zucker’s (1986) work to online auctions where there is minimal prior interaction among trading parties and where, therefore, institution-based structural assurances are shown to engender trust. Moreover, online networks enable conducting transactions in which reputation effects can be quickly communicated (Williamson 1985). The study take a first step in understanding these advantages.

The future of most online auction marketplaces relies on high trade volume. Based on our results, auction houses could improve the design of their trust-building mechanisms to increase auction volume through institution-based trust. Online auction houses should also consider that it is their escrow service that builds buyer’s trust; credit card guarantees do not. Investing in this service, and even more so in buyer-driven certification systems, seems prudent.

### 5.2 Limitations and Suggestions for Future Research

Several other factors, such as reputation and size (Doney and Cannon 1997; Jarvenpaa et al. 2000), may also engender trust. These were not controlled for in this study. Additional controls are needed to confidently assess the true value of institution-based trust

in online auction marketplaces. As with most research studies, the real-life context is much more complex than what we depict in our study. Perhaps the greatest complexity comes from the fact that individual buyer-seller transactions (even single transactions) may have a huge effect on the overall evaluation of trust in the entire population of sellers. And so, even one case of uncooperative behavior by a single seller may play a negative role in the evaluation of the entire marketplace. Another limitation is the choice of a single auction marketplace (Amazon auctions). This was done to focus on marketplace-specific institutional mechanisms that can build trust in a particular networked community. However, this imposes a limitation in terms of the ability to generalize the results to other online communities. These are issues for future research.

Buyers must have faith in the third party that provides structural assurances. Shapiro raised a crucial question: “who guards the guardians?” Examining this question requires additional research. A possible conceptualization is that trust in the auction house may complement trust in sellers. Tan and Thoen (2001) argue that control trust depends on how much trust a party has in the institution responsible for issuing the guarantee. This suggests that third parties must take steps to increase their own trustworthiness. Future research could examine the role of trust in the auction house (e.g., trust in eBay), and its role in influencing the trust-building environment.

It is also important to integrate institution-based trust with familiarity-based trust formation. This study argues that familiarity has a complementary role; Zucker theorizes that institution-based trust is likely to be an important determinant of trust, until familiarity grows. Additional research binding these mechanisms and examining the longitudinal aspects of trust building in online marketplaces is needed.

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## Appendix

### Measurement Items for Principal Constructs

Caption	Standardized Loading	Reliability
<b>Trust in Sellers</b> Sellers in Amazon's auctions are in general <u>dependable</u> . Sellers in Amazon's auctions are in general <u>reliable</u> . Sellers in Amazon's auctions are in general <u>honest</u> . Sellers in Amazon's auctions are in general <u>trustworthy</u> .	Dropped .91 .96 .97	.95
<b>Feedback Mechanism</b> I feel confident that Amazon's Ratings & Feedback mechanism gives <u>accurate information</u> about the auction <u>sellers' reputation</u> . A considerable amount of <u>useful feedback information</u> about the transaction history of auction sellers is available through Amazon's Ratings & Feedback mechanism. I believe that the Ratings & Feedback mechanism in Amazon's auctions is <u>effective</u> . I believe that the Ratings & Feedback mechanism in Amazon's auctions is <u>reliable and dependable</u> .	.90 .87 .95 .96	.92
<b>Auction House Escrow</b> The escrow method in Amazon's auction marketplace <u>guarantees that I will get what I pay for</u> . <u>protects me from an inappropriate behavior of sellers</u> . <u>guarantees that sellers cannot cheat easily</u> .	.91 .94 .87	.91
<b>Credit Card Escrow</b> I believe my credit-card company will <u>protect me in case of problematic transactions</u> with sellers in Amazon's auction marketplace. I am confident that my credit card <u>payments are safe in case of disputed purchases</u> from sellers in Amazon's auction marketplace. My credit-card company will <u>stand by me if problems occur</u> during transactions with sellers in Amazon's auction marketplace.	.95 .91 .93	.93
<b>Perceived Risk</b> There is a <u>considerable risk</u> involved in participating in Amazon auctions. There is a <u>high potential for loss</u> involved in participating in Amazon auctions. My decision to participate in Amazon auctions is <u>risky</u> .	.86 .96 .85	.90
<b>Seller Performance</b> Please rate the performance of Amazon's auction sellers <u>on average</u> on fulfilling these goals: <u>Competitive pricing</u> . <u>Timeliness of delivery</u> . <u>High quality products</u> .	.73 .81 .79	.80
<b>Satisfaction</b> Please state the extent to which you agree or disagree with the following statements regarding your <u>satisfaction</u> with Amazon's auction network. <u>I am satisfied</u> in general with my transactions with sellers in Amazon auctions. <u>I am very pleased</u> with sellers in Amazon's auction marketplace.	.95 .90	.93
<b>Transaction Intention</b> Please state the extent to which you agree or disagree with the following statements regarding <u>your intentions to transact with sellers</u> in Amazon's auctions. Given the chance, <u>I predict that I would consider bidding for products</u> from sellers in Amazon's auctions in the future. It is likely that <u>I actually bid for products</u> from sellers in Amazon's auctions in the near future. Given the opportunity, <u>I intend to place a bid</u> in Amazon's auctions.	.91 .97 .92	.94