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Institution-based trust in interorganizational exchange relationships: the role of online B2B marketplaces on trust formation

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Abstract

Given the uncertainty of online transactions, the digital economy encourages the creation of institutional structures that assure online interorganizational exchange relationships. This research examines how institution-based trust develops in online B2B marketplaces to facilitate interorganizational trust (buyers' trust in sellers). Building upon the notion of institutional trust [Zucker,1986], this study proposes how specific institution-based structures help engender interorganizational trust and indirectly influence transaction success in B2B marketplaces. Five specific institution-based mechanisms are proposed—perceived monitoring, perceived legal bonds, perceived accreditation, perceived feedback, and perceived cooperative norms. To assess the influence of the proposed two dimensions of interorganizational trust—credibility and benevolence—in buyer–seller relationships, three trust outcomes are examined—satisfaction, perceived risk, and continuity. The proposed model is tested on data from 102 organizational buyers in an online B2B marketplace. The results support the proposed model, delineating the relationship between institution-based trust and interorganizational trust. The study provides evidence on how specific institutional mechanisms build trust in online B2B marketplaces, stressing the ability of institution-based trust to build a trustworthy trading environment in the digital economy. The paper discusses the theoretical and managerial implications of this study and proposes several suggestions for future research.

Keywords: Institutional trust; Interorganizational trust; Buyer–seller relationships; B2B e-commerce; Structural assurances; Online B2B marketplaces

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1. Introduction

The importance of trust in e-business has been widely touted by practitioners and academicians alike (Jarvenpaa and Tractinsky, 1999; Heil et al., 2000; Yovovic, 1996). Even if trust has been traditionally associated with successful buyer–seller relationships (Barney and Hansen, 1994; Bromiley and Cummings, 1995; Doney and Cannon, 1997; Geyskens et al., 1998; Zaheer et al., 1998), trust has been recently regarded as the foundation of the digital economy (Keen, 2000; Stewart et al., 2002). The e-business environment is notably characterized by (a) the impersonal nature of the online environment, (b) the extensive use of communication technology as opposed to face-to-face transactions, (c) the implicit uncertainty of using an open technological infrastructure for transactions, and (d) the newness of the transaction medium. Given these attributes, the digital economy resembles the environment where institutional trust would be particularly important by creating the need to certify the trustworthiness of business partners (Zucker, 1986). Following McKnight et al. (1998), this paper attempts to shed light on trust formation in online buyer–seller relationships by examining how firms engender trust by employing the institutional structures available in online B2B marketplaces.

While trust is likely to play a major role in the e-business environment, trust in the digital economy seldom complies with the traditional view of dyadic trust that the academic literature has focused (Doney and Cannon, 1997; Zaheer et al., 1998). Given the new context of most online interorganizational exchanges, the nature of buyer–supplier relationships is expected to undergo some significant changes (Sproull et al., 1997). Since an increasingly large number of buyer organizations conduct business with many new, even anonymous sellers, the dyadic view of familiarity trust does not readily correspond to the reality of the digital economy (Shapiro, 1987). In fact, Geyskens et al. (1998) urge future research to go beyond conventional dyadic relationships and examine the broader context of buyer–supplier relationships. This study investigates the target of interorganizational trust as the population of sellers participating in an online B2B marketplace. This view is theoretically appealing in the sense that trust within this context has its primary source in institutional structures and not in familiarity or similarity with specific sellers. Since online B2B marketplaces resemble a networked community of organizations that are governed by specific structures and policies, this study contributes to the interorganizational trust literature by examining a unique set of trust antecedents that arise from institutional structures in online networks. From an empirical perspective, this study provides experiential support to the theoretical work of McKnight et al. (1998) and McKnight and Chervany (2002) on initial trust formation. The managerial contribution comes from the study's results on the relative effectiveness of several trust-building institutional structures that could help the design of structural assurances in online B2B marketplaces.

Online B2B marketplaces have received a considerable attention in e-business (Bakos, 1998; Palmer et al., 2000; Sarkar et al., 1995) since an increasingly large number of transactions occur over their technology platforms. Forrester Research (www.forrester.com) predicts that transactions through these B2B marketplaces will reach $2.7 trillion in 2004 (Blackmon, 2000). Online B2B marketplaces are virtual networked organizational

forms (Pavlou and El Sawy, 2002), which provide infrastructure technologies and value-added services to facilitate industrial buyer–seller relationships (Hempel and Kwong, 2001). As many interfirm exchange relationships take place online, it is important to theoretically and empirically examine the role of these B2B marketplaces on instituting trust among their participants. From a managerial perspective, the design of online B2B marketplaces could utilize the findings of this study to improve their trust-building structural mechanisms to promote a trustworthy trading environment as a whole.

While trust has generally been studied from the perspective of e-commerce adoption (Pavlou, 2002a,b), this study focuses on ongoing online relationship building . Toward this end, this study aims to shed light on the role and nature of institutional trust in online industrial buyer–seller relationships, by providing theoretical insights and empirical findings on the following research questions: (1) What is the role of institution-based trust in industrial buyer–seller relationships? (2) What is the role of online B2B marketplaces and the perceptual effectiveness of their institutional structures? (3) What is the relationship among institution-based trust, interorganizational trust, and trusting?

The rest of the paper is structured as follows: Section 2 reviews the relevant literature on institution-based in buyer–seller relationships, discusses interorganizational trust, and overviews trust formation in online B2B marketplaces. Drawing upon these foundations, a research model with five antecedents and three outcomes of trust is proposed. Section 3 describes the research methodology, reports the results of the empirical study, and tests the proposed hypotheses. The paper concludes by discussing the findings of this study, its theoretical and managerial implications, its limitations and suggestions for future research.

2. Literature review

2.1. Interorganizational trust

Interorganizational trust has received a considerable attention from multiple literature streams. While this attention has increased the complexity of trust, it also signified its importance in exchange relations where uncertainty is present (Mayer et al., 1995). In the strategy and marketing literatures, interorganizational trust has been related to desirable outcomes such as competitive advantage (Barney and Hansen, 1994), firm performance, conflict and opportunism reduction (Zaheer et al., 1998), satisfaction (Geyskens et al., 1998), and other favorable economic outcomes (Doney et al., 1998; Pavlou and Ba, 2000). From an economic perspective, trust reduces the transaction costs of an exchange, resulting in efficient transactions (Bromiley and Cummings, 1995). Sociologists argue that trust is embedded in the social context of buyer–seller relationships that modifies economic activity and creates social capital (Granovetter, 1985). In the organizational literature, trust has been posited to operate as a governance mechanism (Bradach and Eccles, 1989), diminishing opportunism in exchange relations and promoting cooperation (Morgan and Hunt, 1994). In sum, interorganizational trust has been associated with fundamental positive outcomes.

There is no consensus on a universal definition of trust since the relevant context affects its actual meaning (Palmer et al., 2000). Following the definitions of trust of many researchers in comparable contexts (Bhattacharya et al., 1998; Doney and Cannon, 1997; Gambetta, 1988), interorganizational trust is defined as "the subjective belief with which organizational members collectively assess that a population of organizations will perform potential transactions according to their confident expectations, irrespective of their ability to fully monitor them". This definition captures three important attributes of trust. First, the *subjective probability* embraces the fact that trust is not an objective anticipation (Bhattacharya et al., 1998). Second, the *confident expectations, irrespective of the ability to fully control* encompasses a possibility of a beneficial outcome in the presence of risk (Gambetta, 1988). Finally, the *collectivity* of organizational members suggests that trust is a collectively held cognitive belief of well-informed individuals within the firm in order to avoid the possibility of anthropomorphizing the organization (Zaheer et al., 1998). Whereas the affect-based component of trust cannot be discounted completely even in interorganizational relations, this study focuses on the cognitive aspect of trust, which has been the primary view of trust in industrial buyer–seller relationships (Doney and Cannon, 1997).

2.2. Institutional trust

In her seminal study, Zucker (1986) suggests that institutional trust is the most important mode by which trust is created in an impersonal economic environment without familiarity and similarity (communality). In a historical overview of US business at the end of the 19th and beginning of the 20th century, Zucker describes two dimensions of institutional trust. First, third party certification, such as licenses, regulations, and laws, which defines a party's trustworthiness and expected behavior. Second, escrows, which guarantee the expected outcome of a transaction. These institutional procedures were introduced to account for the massive internal migration of people that brought the disintegration of interpersonal trust. Zucker's institutional view of trust has been widely adopted by e-commerce researchers, perhaps because e-commerce brings together a massive number of parties with no familiarity and cultural similarities. Tan and Thoen (2001) propose the term control trust to describe trust built by institutionalized procedures. McKnight and Chervany (2002) describe institution-based trust as a critical part of Internet transactions. Ratnasingam and Pavlou (2002) propose the term technology trust to capture institution-based trust that arises among trading partners because of adherence to technical standards, security procedures, and protection mechanisms. In sum, there is a growing literature that aims to explicate the vital role of institutional trust in e-commerce success.

Institution-based trust has its origins in the sociological literature, which argues that intentions and behaviors are generated by the situation followed by assurances that expectations will be fulfilled. Following McKnight and Chervany (2002), institutional trust is defined here as the "subjective belief with which organizational members collectively assess that favorable conditions are in place that are conducive to transaction success". Basically, institution-based trust suggests that an organization believes that impersonal structures are in place to support the likelihood of transaction success. (Shapiro

1987) describes institution-based trust as the belief that a party has about the security of a situation because of guarantees, safety nets, and other structures. McKnight et al. (1998, p. 478) describe two types of institution-based trust—situational normality and structural assurances. Situational normality refers to the belief that success is anticipated because the situation is normal. Structural assurances refer to beliefs that favorable outcomes are likely because of contextual structures, such as contracts, regulations, and guarantees. Drawing upon McKnight et al. (1998), there are three reasons for structural assurances to build institution-based trust in a B2B marketplace. First, safeguards creates beliefs that sellers are bounded to behave in a trustworthy manner. Second, the institutions in the situation reflect the actions of the sellers involved, allowing buyers to believe that sellers can be trusted. Third, structural assurances are associated with trust because of cognitive consistency, especially when experience is not a major factor. McKnight and Chervany (2002, p. 13) advance this argument to today's B2C e-commerce, positing that "beliefs that the Internet has legal or regulatory protection for consumers (institution-based trust) should influence trust in a particular E-vendor (interpersonal trust)". In addition, Tan and Thoen (2001) view their term of control trust as a supplement to party trust. Applying these arguments to an online B2B context, institutional structures (institution-based trust) should positively influence buyers' trusting beliefs in the population of online sellers in a B2B marketplace (interorganizational trust).

2.3. Dimensions of interorganizational trust

The trust literature provides two general types of trusting beliefs: confidence or predictability in a trustor's expectations about a party's behavior, and confidence in a party's goodwill (Doney and Cannon, 1997; Ganesan, 1994; Ring and Van de Ven, 1992). The first type, commonly associated with the dimension of credibility refers to a party's predictability, reliability, honesty, expertise, and competence; this type has been viewed as the expectation that an entity will behave in a predictable manner and can be relied on to fulfill contractual obligations (Anderson and Weitz, 1989). The second type commonly related to the dimension of benevolence refers to the expectation that a party will act fairly and will not take unfair advantage of the trustor, even given the chance (Anderson and Narus, 1990). Summarizing these two types, interorganizational trust reflects two dimensions: (a) credibility, which is based on the extent to which a buyer organization believes that seller firms have the intention to perform the transaction effectively and reliably because of fears of imposing costs on opportunism, and (b) benevolence, which is based on the extent to which buyer organizations believe that seller firms have intentions and motives beneficial to them, even when new conditions without prior commitment arise. Simply put, the credibility dimension of interorganizational trust refers to intentions of cooperative behavior that result from making opportunism costly or irrational, while the benevolence dimension is a trust expectation that results from goodwill that firms will not act opportunistically, even given the chance. Borys and Jemison (1989) argue that benevolence is a higher level of trust compared to credibility because cooperative behavior is not based on rational calculation but on goodwill. Therefore, the proposed

structural mechanisms may have different contribution to these two dimensions of trust, as this is illustrated later in the paper.

It is important to link the proposed two-dimensional conceptualization of trust with other prominent perspectives in the trust literature. Mayer et al. (1995) and Sako and Helper (1998) propose three dimensions of trust—competence, integrity, and goodwill. Without loss of generality, credibility refers to competence and integrity, while benevolence to goodwill. McKnight and Chervany (2002) propose four sub-constructs—competence, integrity, predictability, and benevolence. The former three sub-constructs correspond to the dimension of credibility. In sum, the proposed two-dimensional view of trust includes a comprehensive, yet parsimonious conceptualization.

3. Conceptual development

Zucker (1986) argues that trust in an economic environment is institution-based, process-based (familiarity), or characteristics-based (similarity). This paper focuses on the role of institution-based trust in interorganizational buyer–seller relationships. The structural mechanisms available in online B2B marketplaces are examined as antecedents of two dimensions of interorganizational trust—credibility and benevolence; also, three outcomes of trust are posited, as shown in Fig. 1.

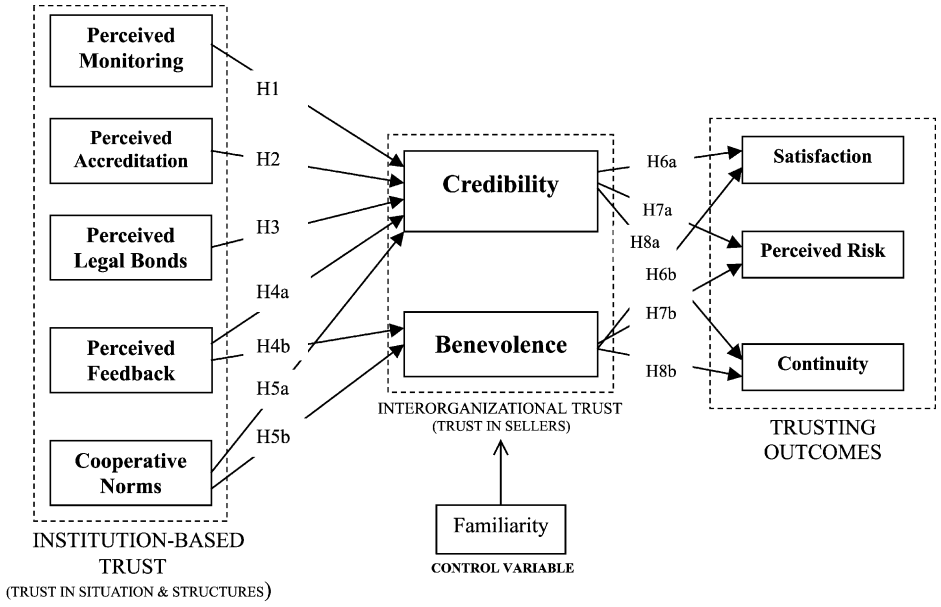

Fig. 1. Conceptual framework and research hypotheses.

3.1. Institution-based trust-building mechanisms

Institution-based trust is a situational belief about structures. Whereas Zucker (1986) focuses on general constructs—certification and escrows, and McKnight et al. (1998) on general sub-constructs—structural assurances and situational normality to describe institutional trust, there is a need to describe specific constructs that constitute institution-based trust and help engender interorganizational trust. A similar example would be general theory of reasoned action by Fishbein and Ajzen (1975) and the context-specific Technology Acceptance Model (Davis, 1989) that specifically deals with system use. It is important to ex ante acknowledge and clarify that structural assurances (e.g. accreditation, feedback mechanisms) are also designed to discriminate among individual sellers based on their reputation (Ba and Pavlou, 2002), and remove fraudulent sellers from the marketplace, either initially (accreditation) or subsequently (monitoring, legal bonds, cooperative norms). The ability of these institutional structures to raise the overall level of buyers' trust in the marketplace's sellers is a complementary, value-added service (positive externality) of the proposed institutional mechanisms.

3.1.1. Perceived monitoring

Monitoring is described as the set of activities undertaken to assure that all transactions are performed as specified by a predetermined set of widely accepted agreements and rules. Monitoring aims to ascertain that all transactions are conducted as per the established standards for quality, delivery, and performance. For example, Williamson (1985) argues that in markets of standardized goods, monitoring services provide incentives for responsible behavior. In this context, monitoring refers to an institutional mechanism undertaken by the marketplace's management to supervise all transactions by scrutinizing economic activity and conveying sanctions to wrongdoing. Therefore, monitoring is a form of an institution-based structural assurance that promotes responsible behavior (Zucker, 1986). Despite the management's ability to supervise transactions, individual firm perceptions for the effectiveness of the monitoring mechanism are likely to vary. Thus, perceived monitoring is defined as the extent to which buyer organizations believe that the third-party monitoring mechanism assures that all transactions in the marketplace are performed as expected. Given the uncertainty of online transactions, monitoring builds trust in sellers by mitigating uncertainty by making seller opportunism irrational. Rational sellers will take steps to fulfill their transaction promises to avoid sanctions from the management and possible removal from the marketplace. Hence, perceived monitoring is able to engender trust by verifying that the costs of wrongdoing are higher than potential benefits. Since perceived monitoring builds trust primarily through calculation, it is unlikely to influence trust in the sellers' benevolence. By definition, benevolence states that sellers are trusted to perform as per the buyer's expectations, even given the chance to behave opportunistically and even if the buyer cannot fully monitor their behavior (Mayer et al., 1995). On the contrary, rational assessment proposes that trust engenders based on economic rationale, suggesting that, given the chance, opportunism will prevail.

H1: Perceived monitoring positively influences trust in sellers' credibility.

3.1.2. Perceived accreditation

Accreditation is described as the scope of efforts undertaken to verify the ability of an organization to perform as expected (Heide and John, 1990). Accreditation, when performed by an independent authority, such as the management of an online B2B marketplace, may be a reliable way to evaluate organizational competence. Accreditation may also be viewed as a surrogate for reputation, which is provided to the marketplace from the accreditation authority. Since accreditation is viewed as a type of an institutional signaling activity (Bergen et al., 1992), it is arguably a sound structural assurance (Zucker, 1986). Despite the existence of an accreditation mechanism, perceptions for the effectiveness of this mechanism may differ. Perceived accreditation is defined as the extent to which buyer organizations believe that the accreditation mechanism is able to provide reliable information about the capacity of seller organizations to perform as expected. Buyers essentially draw on 'proof sources' to form their trust beliefs based on the accreditation outcome. Based on rational assessment, buyers may build trust since sellers would lose their reputation for credibility if they misbehave. In this sense, the cost of losing accreditation is a potential cost to the seller firms, providing incentives to avoid opportunism. Thus, credibility can be engendered. Perceived accreditation is unlikely to influence seller benevolence since accreditation mechanisms seldom provide any information about the sellers' values, principles, and benevolent intentions, which are likely to directly influence benevolence (Pavlou, 2002c). Hence, perceived accreditation is only likely to influence credibility.

H2: Perceived accreditation positively influences trust in the sellers' credibility.

3.1.3. Perceived legal bonds

Legal bonds, which are defined as lawful contracts that govern economic activity, have been widely proposed as an institution-based mechanism that reduce opportunistic behavior and promote trust (Sako and Helper, 1998; Shneiderman, 2000). Legal bonds provide incentives for firms to avoid opportunistic activities if the legal cost of such behavior is likely to exceed potential benefits; hence, legal bonds are a form of a structural assurance (McKnight and Chervany, 2002). Given bounded rationality, not all states of nature can be foreseen (Williamson, 1985); hence, many researchers questioned the adequacy of legal bonds to solely govern economic activity (Dyer, 2000; Granovetter, 1985). Thus, perceptions for the effectiveness of legal bonds are likely to differ among organizations. Perceived legal bonds are defined as the extent to which buyer organizations believe that contracts are able to legally certify that all transactions are performed as specified by a predetermined set of laws. Following rational calculation, perceived legal bonds are able to build trust by ensuring that the costs of unlawful activity are higher than prospective illegal profits. Legal bonds allow the buyer to feel comfortable that sellers will take steps to fulfill their promises to avoid legal action. Similar to monitoring, while legal bonds can engender trust in sellers' credibility through calculation, they are unlikely to influence benevolence simply because contracting is a legal safeguard.

H3: Perceived legal bonds positively influences trust in the sellers' credibility.

3.1.4. Perceived feedback

Feedback mechanisms accumulate and disseminate information about the past trading behavior of organizations. Feedback is described as an opportunity to react quickly to signals that have been put out by others. Feedback mechanisms have been depicted as structural assurances that discourage opportunistic behavior and build trust (credibility) in online marketplaces (Ba and Pavlou, 2002). Drawing upon the institution-based view of trust (Zucker, 1986), feedback mechanisms essentially create a buyer-driven certification authority (Pavlou and Gefen, 2002). Moreover, research in game theory has concluded that a properly designed third party structure can be an effective deterrence to opportunistic behavior by providing proper institutional incentives. Based on signals and incentives, feedback mechanisms provide a signal of good reputation (Pavlou and Ba, 2000), which is an important antecedent of trust in buyer–seller relationships. While feedback mechanisms may exist in online marketplaces, they are likely to be effective only if the participating firms perceive the feedback they receive as credible. Perceived feedback is defined as the extent to which firms believe that a feedback mechanism is able to provide reliable information about the sellers' past trading activity. This enforcement also gives rise to a rational assessment that the benefits of cheating are greater than the costs of lost transactions from unfavorable feedback (reputation). Feedback mechanisms have only been shown to engender buyer's credibility in sellers (Ba and Pavlou, 2002) because the extant literature has dealt with simple feedback scores (positive and negative ratings). However, feedback mechanisms are also capable of providing information about the sellers' values, principles, and signs of benevolent intentions through buyers' feedback comments (Pavlou, 2002c). By utilizing content analysis and expert evaluations to analyze written comments for numerous sellers, Pavlou provides evidence for the existence of benevolence in online marketplaces. Effective feedback mechanisms can replicate the phenomenon of word-of-mouth communication, which gives rise to the trust-building intentionality process (Doney and Cannon, 1997) that has been posited to build goodwill trust. Following this argument, perceived feedback has a positive impact on both dimensions of trust.

H4a: Perceived feedback positively influences trust in the sellers' credibility.
H4b: Perceived feedback positively influences trust in the sellers' benevolence.

3.1.5. Perceived cooperative norms

Cooperative norms are defined as the values, standards, and principles to which a population of organizations adheres. Values and norms discourage opportunism, facilitate cooperation, and promote joint problem solving (Axelrod, 1984). Cooperative norms emerge out of the institutional composition of the marketplace to encourage responsible behavior through a sense of collectivity. The standards of conduct are expected transaction patterns; hence, by establishing such norms, the ground rules are set for successful buyer–seller relationships (Dwyer et al., 1987). Cooperative norms are not an objective reality but a subjective anticipation that is likely to differ among organizations; hence, perceived cooperative norms are defined as the buyer's expectations of the values, standards, and principles to which sellers adhere. Cooperative norms have the form of flexibility, solidarity, and information

sharing (Macneil, 1980; Heide and John, 1992). Flexibility refers to the willingness to make adaptations and good-faith modifications if needed. Solidarity refers to expectations of maintaining a successful relationship. Information sharing is the mutual exchange of pertinent information.

To the extent to which sellers adhere to cooperative norms and values of 'fair-play', they send signals of good faith and engage in responsible actions (Aoki, 1984). Schaefer (1993) argues that sellers could induce trust by sharing a common ground of values, attitudes, and interests, since potential buyers would perceive this behavior as trustworthy. Cooperative norms build trust by creating comfort with each other's expected behavioral patterns, building a shared understanding, and feeling comfortable that sellers will act upon these norms. Similarly, when buyers believe that cooperative norms exist, they can make inferences of the sellers' goodwill intentions (Macneil, 1980). Smith and Aldrich (1991) argue that an increase in information sharing between suppliers and buyers promotes trust. Similarly, Dyer (1997, p. 550) argues that the amount of information sharing positively influences trust. In addition, Morgan and Hunt (1994) show that the sharing of meaningful and timely information between firms fosters trust. Cooperative norms influence trust, not through rational calculation, but through characteristics-based trust, which deals with social similarity in issues, such as similar values, beliefs, and principles, and the same set of expectation regarding acceptable behavioral patterns (Zucker, 1986). These arguments suggest that perceived cooperative norms would influence both dimensions of trust.

H5a: Perceived cooperative norms positively influence trust in the sellers' credibility.
H5b: Perceived cooperative norms positively influence trust in the sellers' benevolence.

3.2. Trust outcomes

Even if there is a general consensus that interorganizational trust has positive effects in industrial buyer–seller relationships, it is always necessary to show whether it has a positive influence on context-specific variables that are particularly important to the relevant situation. In online B2B marketplaces, the risk that the Internet creates through identity and product uncertainty, physical separation, and the newness of the medium has been attributed as an important barrier to online transactions (Bakos, 1998). Thus, perceived risk reduction is an important element that trust should influence (Jarvenpaa and Tractinsky, 1999). Second, the success of online B2B marketplaces depends on transaction volume; hence, continuity is another crucial variable. Finally, satisfaction is an overall construct that describes the quality of the exchange relationship (Cannon and Perreault, 1999; Geyskens et al., 1998). In sum, satisfaction, perceived risk, and continuity are posited as important success elements in online B2B marketplaces that interorganizational trust could influence.

3.2.1. Satisfaction

The importance of satisfaction on business success has long recognized (Berry and Parasuraman, 1991; Berry, 1999). Anderson and Narus (1990) argue that buyer

satisfaction is an important consequence of buyer–seller transactions. Cannon and Perreault (1999) posit that satisfaction with the relationship represents an important outcome of any business exchange. Satisfaction is the outcome of a trust-based relationship, since trust enhances satisfaction by reducing conflict (Geyskens et al., 1998). According to Dwyer et al. (1987), satisfaction is a global evaluation of trustworthy relationships; hence, both dimensions of trust should contribute. When buyers have faith in the credibility and benevolence of the marketplace's sellers, they are likely to be satisfied with their transactions since conflict and fears of opportunism are diminished.

H6a: Trust in the sellers' credibility positively influences buyer's satisfaction.
H6b: Trust in the sellers' benevolence positively influences buyer's satisfaction.

3.2.2. Perceived risk

Risk is a fundamental element of an organization's strategy because it has implications for performance (Andrews, 1987). Since risk is difficult to be captured as an objective reality, research has addressed the notion of perceived risk, which is defined as the subjective probability of suffering a loss in pursuit of a desired outcome. Perceived risk has been negatively associated with transaction intentions (Jarvenpaa and Tractinsky, 1999), interfirm partnerships, and joint ventures (Leverick and Cooper, 1998). Following Mayer et al. (1995), buyers' perceived risk in a B2B marketplace mostly stems from the sellers' behavior and not from the marketplace context. Most buyer–supplier transactions are characterized by information asymmetry since the seller usually possesses more information compared to the buyer (Mishra et al., 1998). Information asymmetry may give scope to opportunistic behavior and uncertainty (Williamson, 1985). Although risk is inevitable in every transaction, trust reduces the expectations of opportunistic behavior (Sako and Helper, 1998) and reduces perceptions of risk (Ganesan, 1994). Trust has also been shown to reduce the perceived risk of being taken advantage of from the other party (Anderson and Weitz, 1989). Following the trust literature, it is expected that both dimensions of trust should reduce perceived risk.

H7a: Trust in the sellers' credibility positively influences buyer's perceived risk.
H7b: Trust in the sellers' benevolence positively influences buyer's perceived risk.

3.2.3. Continuity

Continuity is defined as the perception of a buyer's expectation of future transactions with sellers in a B2B marketplace. There is significant evidence in the literature to suggest a strong association between trust and continuity. Morgan and Hunt (1994) show a relationship between trust and a propensity to continue interorganizational relationships in the future. According to Ganesan (1994), trust is a necessary ingredient for long-term orientation because it shifts the focus to future conditions. Similarly, Anderson and Weitz (1989) show that trust is key to maintaining continuity in buyer–supplier relationships. Following these findings, continuity should be positively correlated with both dimensions of trust. Credibility allows buyers to concentrate on future transactions by reducing fears of short-term opportunism. Similarly, benevolence helps buyers to establish a long-term

horizon since they are confident that the marketplace's sellers will seek future transactions with mutual gain in the future.

H8a: Trust in the sellers' credibility positively influences buyer's continuity.
H8b: Trust in the sellers' benevolence positively influences buyer's continuity.

3.2.4. Control variables

While this study focuses on institution-based trust, it is useful to consider other important trust-building modes. Zucker (1986) argues that process-based trust that engenders through familiarity and prior experience is probably the most important trust-building mode. Luhmann (1979), Gefen (2000) and Gulati (1995) show that familiarity and repeated interaction breed trust. Hence, this study controls for the effect of familiarity on both dimensions of interorganizational trust.

4. Research methodology

The proposed hypotheses were empirically tested in an online auction-based B2B marketplace (Small Business Exchange of eBay.com) on a sample of 102 industrial buyers. This marketplace facilitates transactions through the auction mechanism where sellers post auctions for industrial equipment (machinery, tools, manufacturing vehicles). The marketplace creates value to organizations through supply and demand aggregation, selection facilitation, and the dynamic auction pricing mechanism. To control for potentially confounding effects on trust due to previous interaction with specific sellers and to be consistent with the study's conceptualization, participants were specifically asked to post their responses based on their overall evaluation of the general population of sellers in eBay's marketplace.

4.1. Measure development

Appendix A shows the measurement items for the principal constructs. Where available, measurement instruments were adapted from the literature. All new measures were developed following standard psychometric scale development procedures (Bagozzi and Phillips, 1982). First, the domain of the relevant construct was specified. Second, the items were developed based on the conceptual definition. Third, the items were refined on the basis of the extensive pretests of the survey instrument. All items were seven-point scales anchored at 'strongly disagree' at (1), 'strongly agree' at (7), and 'neither agree nor disagree' at (4), neutral point.

Perceived monitoring (MON). Monitoring is measured with three new items. Two items reflect the extent to which the management of the marketplace monitors transactions, helps resolve conflicts, and enforces proper conduct. One item measures the degree of compliance with product specifications.

Perceived accreditation (ACC). Three items measure this construct, adapted from Mishra et al. (1998).

Perceived legal bonds (LB). Two items, adapted from Cannon and Perreault (1999), measure the perceptions of the degree of contractual agreements that detail sellers' obligations to buyers.

Perceived feedback (FB). Perceived feedback is operationalized using three new items. One item measures the extent of sellers' transaction histories being available by the marketplace; another item captures the extent of the marketplace's feedback mechanism to provide information about sellers' misconducts; the last item captures the extent of the marketplace's feedback mechanism in terms of buyers publicizing their transaction experiences with sellers.

Perceived cooperative norms (COOP). This construct was operationalized using a five-item scale adapted from Cannon and Perreault (1999) and Heide and John (1992), following original conceptualization of Macneil (1980) (flexibility, solidarity, information sharing). Two items deal with perceived flexibility in online transactions, one item captures the marketplace's involvement in promoting solidarity, and two items measure the degree of information exchange during transactions.

Credibility (CRED). Credibility is assessed with four items adapted from Ganesan (1994). Items measure the degree of sellers' honesty, reliability, predictability, and openness. Even if competence is a feature of credibility, the transaction context of this study essentially assumes that all sellers are capable of conducting and fulfilling simple auctions. Hence, credibility focuses mainly on integrity.

Benevolence (BEN). Benevolence is assessed with three items based on Ganesan (1994). These items measure the degree of seller fairness, goodwill, and propensity to help and make sacrifices if needed.

Satisfaction (SAT). Satisfaction with sellers participating in the B2B marketplace is measured with a two-item scale adapted from Cannon and Perreault (1999). The items are modified to reflect buyers' satisfaction in the population of participating sellers rather than within a dyadic relationship.

Perceived risk (RISK). Perceptions of risk associated with transacting with sellers in the B2B marketplace are assessed with two items, adapted from Jarvenpaa and Tractinsky (1999).

Continuity (CONT). Continuity is operationalized following Ganesan (1994) with two items that describe the buyers' perception that they will continue transacting with sellers in the marketplace.

Familiarity (FAMIL). Familiarity is captured with two objective measures—number of years in the marketplace and number of feedback scores. Feedback scores is a proxy for the number of completed transactions; however, since not all sellers provide a feedback evaluation for buyers after a completed transaction, this measure is potentially biased. The objective scores are obtained only for those buyers that provided their contact information (77%). The correlation between the two measures is 0.87; hence, only one cumulative measure for familiarity is retained.

4.2. Pretest

The preliminary instrument was initially reviewed by faculty and doctoral students for comprehensiveness and clearness. The measurement adequacy of the proposed measures

was also examined in a realistic context through a series of informal phone interviews with purchasing managers. Finally, the instrument was pretested by personally administering it to three purchasing managers to verify the appropriateness of the terminology used, the clarity of the instructions, and the response formats. At this point, no particular problems appeared to exist with the survey instrument.

4.3. Survey administration

Respondents were selected after a screening procedure that examined the nature and value of products they purchased in eBay's marketplace. Only industrial buyers who had five or more transactions of high-priced industrial equipment were selected. The reason for selecting respondents with several transaction experiences is threefold. First, respondents with some familiarity are more knowledgeable on the marketplace's institutional structures and transaction norms. Second, screening ensures respondents that are true members of the B2B marketplace, and not one-time users. Third, high-priced transactions insure true industrial buyers and not individuals that use their firm's account to purchase consumer goods. During the screening procedure, the e-mail addresses of the selected organizations were collected from eBay's website. E-mails were sent to 400 key informants of the selected firms, explaining the purpose of the study and asking their participation in the study. The invitees were assured that the results would be reported in aggregate to guarantee their anonymity. The respondents were asked to click on the URL link provided in the e-mail message, which linked to the web-based online survey instrument. To motivate organizations to respond, the respondents were offered an incentive in the form of a report that summarized the results of the survey; 77% of the respondents requested this report. Given the study's need to assess interorganizational trust, the respondents were asked to collectively assess the perceptions of the entire group of people responsible for their firm's procurement efforts.[1] Additional waves of electronic mailing was sent to those who did not respond to earlier e-mail messages 1 week, 1 month, and 6 months after the first e-mailing.

4.4. Key informant quality

Although some preliminary steps were taken to ensure proper selection of key informants, a formal check was administered as part of the questionnaire (Kumar et al., 1993). Specifically, two items were used to assess the informant's knowledge about the firm's purchasing policy in general, and the relationships in particular on a seven-point scale. The first item assessed the respondents' involvement in the firm's online trading activities and the second described the informant's involvement with the firm's relationships in the focal marketplace. A composite score was calculated by using the

[1] Given the small size of the organizations in this study, the key respondents were likely to be the sole decision-makers of their firm's procurement efforts (McEvily and Zaheer, 1999, p. 1137). Nonetheless, this step aims to ensure that their organization's collective trust perceptions (interorganizational trusty) are reflected through the key respondent.

self-report scores on the two items. The mean composite score for informant quality for each item was 6.72 and 6.57, respectively (SD = 0.58), and all respondents scored above 6. Hence, all respondents were classified as adequately knowledgeable, and all responses were retained.

4.5. Response rate and non-response bias

Out of the 400 participants, four e-mails were undeliverable, and 102 responses were obtained resulting in an effective response rate of 26%. Non-response bias was assessed by a comparison of sample statistics to known values for the population between the early and late respondents (Armstrong and Overton, 1976). Early respondents were identified by selecting those that responded during the first week (44%), against those responding later (56%). These two groups were compared on the basis of their collected sample characteristics: (a) annual trading volume, (b) percentage of online trading volume, and (c) number of employees. This procedure showed no significant differences for these three characteristics at the $p = 0.1$ level. Therefore, the risk of non-response bias to the internal validity of this study's results is limited.

4.6. Characteristics of the sample

Most enterprises had a very small size as this is represented by their trading volume (mean = \$2.74M, S.D. = \$2.82M) and their number of employees (mean = 41, S.D. = 49). However, a significant portion of their trading volume (mean = 13%, S.D. = 25%) was performed online. Missing values were replaced by the mean value given only 45 missing values in the total sample (1.6%); the results did not notably change when the missing values were simply dropped than replaced.

5. Results

5.1. Measure validation

Measure validation was initially examined for reliability analysis by computing Cronbach's alpha coefficient for each construct. As shown in Table 1, all measures have high levels of reliability, all above the recommended 0.7 levels. Discriminant and convergent validity of the principal constructs was examined with factor analysis procedure in partial least squares (PLS). Discriminant validity is shown when the PLS indicators (a) load much higher on their hypothesized factor than on other factors, and (b) when the square root of each construct's average variance extracted (AVE) is larger than its correlations with other constructs (Chin, 1998). As shown in Table 1, the square root of the AVE is much larger than all other cross-correlations. As shown in Appendix B, own factor loadings are much higher than cross-loadings, reinforcing the claim that the instrument demonstrates convergent and discriminant validity. In addition to reliability coefficients and AVE values, Table 1 also reports

Table 1
Descriptive statistics, correlation matrix, and AVEs of principal constructs

	MON	FB	LB	ACC	COOP	CRED	BENEV	SAT	RISK	CONT	FAMIL
Monitoring (MON)	**0.91**	**0.66**	**0.56**	**0.69**	**0.32**	**0.57**	**0.35**	**0.52**	−0.07	**0.44**	*0.23*
Feedback (FB)		**0.90**	**0.51**	**0.66**	**0.34**	**0.56**	**0.39**	**0.53**	**− 0.29**	**0.47**	**0.28**
Legal bonds (LB)			**0.91**	**0.60**	**0.50**	**0.43**	**0.39**	**0.56**	−0.21	**0.50**	**0.40**
Accreditation (ACC)				**0.84**	**0.40**	**0.47**	**0.37**	**0.51**	−0.16	**0.54**	*0.25*
Cooperative norms (COOP)					**0.95**	**0.53**	**0.49**	**0.50**	−0.20	**0.43**	**0.45**
Credibility (CRED)						**0.92**	**0.56**	**0.75**	**− 0.43**	**0.54**	**0.33**
Benevolence (BENEV)							**0.95**	**0.58**	**− 0.47**	**0.49**	**0.45**
Satisfaction (SAT)								**0.96**	**− 0.31**	**0.69**	**0.51**
Perceived risk (RISK)									**0.94**	**− 0.37**	**− 0.29**
Continuity (CONT)										**0.83**	**0.41**
Familiarity (FAMIL)											**0.79**
Cronbach's alpha	**0.89**	**0.86**	**0.76**	**0.93**	**0.85**	**0.94**	**0.90**	**0.91**	**0.87**	**0.80**	**0.87**
Mean values	5.6	5.9	5.8	4.1	5.3	6.0	4.5	6.1	2.9	5.7	1.2
Standard deviation	1.4	1.7	1.8	1.9	1.7	1.9	1.6	0.8	1.1	0.9	0.6

Significant at $p < 0.01$ level ($r > 0.27$ or $r < -0.27$) are shown in bold; significant at $p < 0.05$ level ($r > 0.22$ or $r < -0.22$) in italics. The main diagonal shows the square root of the AVE.

the correlation matrix, means, and standard deviations of the study's principal constructs.

5.2. Hypothesis testing

The data analysis procedure aims to test not only the hypothesized relationships, but also all possible associations shown in Fig. 1, even if not explicitly hypothesized. Since the two dimensions of trust are proposed to be mediating variables in the proposed model, testing the entire structural model would allow examining the mediating role of trust (Baron and Kenny, 1986). In order to examine the proposed hypotheses, PLS (PLS-Graph Version 3.0) was employed (Fig. 2). PLS allows to both specify the relationships among the principal construct and their underlying items, resulting in a simultaneous analysis of both whether the hypothesized relationships at the theoretical level are empirically true and also how well the measures relate to each construct (Chin, 1998). The ability to include multiple measures for each construct provides more accurate estimates of the paths among constructs, which are typically downward biased by measurement error when applying multiple regression analysis. Furthermore, due to the nature of some of the measures used and the small sample size, LISREL analysis was not appropriate (Chin and Gopal, 1995).

Credibility. As shown in Fig. 2, the proposed independent variables explain 58% of the credibility's variation. As hypothesized, perceived monitoring ($b = 0.45$, $p < 0.01$) has a positive impact on credibility, largely supporting H1. The effect of perceived accreditation

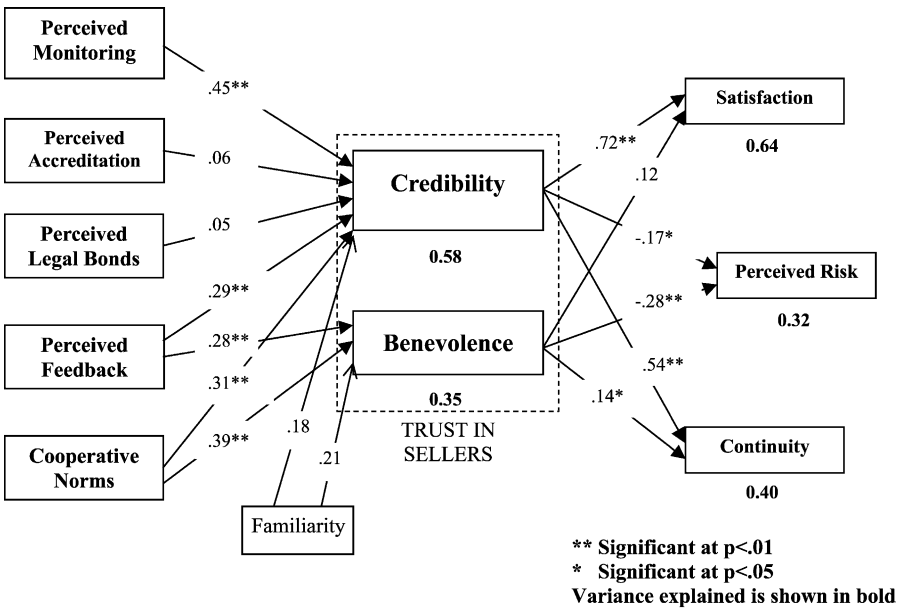

Fig. 2. Results of partial least squares analysis of the research model.

is insignificant, not supporting H2. Similarly, the effect of perceived legal bonds on credibility is non-significant, failing to provide support for H3. Perceived feedback ($b = 0.29$, $p < 0.05$ for PLS) has a significant positive effect on credibility, supporting H4a. The impact of perceived cooperative norms is also significant ($b = 0.31$, $p < 0.01$), rendering support for H5a. Finally, familiarity has a non-significant control effect on credibility.

Benevolence. Perceived feedback has a significant effect on benevolence ($b = 0.28$, $p < 0.01$), rendering support for H4b. Similarly, as hypothesized in H5b, perceived cooperative norms have a positive effect on benevolence ($b = 0.39$, $p < 0.01$). As shown in Fig. 2, PLS explains 35% of the variation of benevolence.

Outcome variables. A significant extent of the variance of satisfaction is explained by the two dimensions of trust (64%). While credibility ($b = 0.72$, $p < 0.01$) has a positive effect on satisfaction, benevolence ($b = 0.12$, $p < 0.1$) has a weak effect on satisfaction, rendering strong support for H6a, but not for H6b. This finding partially supports previous research (Geyskens et al., 1998) that both dimensions of trust contribute to buyer satisfaction. As hypothesized in H7a and H7b, both credibility ($b = -0.17$, $p < 0.05$) and benevolence ($b = -0.28$, $p < 0.05$) have a substantial negative influence on buyers' risk perceptions, explaining 32% of the variation. These findings support previous research (Jarvenpaa and Tractinsky, 1999), even after controlling for the direct influence of all structural assurances. Finally, as hypothesized in H8a and H8b, credibility ($b = .54$, $p < 0.01$) and benevolence ($b = 0.14$, $p < 0.05$) have a statistically significant effect on continuity, explaining 40% of the variance.

The proposed PLS model was also tested controlling for the effect of familiarity and all non-hypothesized relationships. None of the non-hypothesized relationships was significant, emphasizing the validity of the proposed model. It is important to note that the direct impact of the proposed institutional mechanisms on satisfaction, perceived risk, and continuity was insignificant, suggesting that these institution-based variables act indirectly through trust.

6. Discussion

By rendering empirical support to the proposed conceptual model, this study provides several new insights on the role of institution-based trust in buyer–seller relationships. First, this study describes the role of institution-based trust in the formation of interorganizational trust (trust in sellers). In doing so, this research makes a theoretical contribution by extending the propositions of McKnight et al. (1998) from an intra-organizational to an inter-organizational context. In addition, rather than focusing on the general concept of structural assurances, this study extends previous research (Zucker, 1986) by proposing, operationalizing, and validating a comprehensive set of specific institution-based sub-constructs that constitute institutional trust. Second, from an empirical perspective, this study provides

empirical support to theoretical work of McKnight and Chervany (2002) on trust formation in a B2B e-commerce context. More specifically, the results support the notion that institution-based trust directly leads to interorganizational trust and indirectly to trust outcomes. Third, this research highlights the role of online B2B marketplaces in building trust by providing institutional structures, assurances, and values. Given the increasing importance of these marketplaces in the digital economy, understanding which structural assurances help build trust is of fundamental managerial importance. Finally, this study departs from the traditional dyadic view of trust by examining a new target of trust, which readily corresponds to the reality of e-business. Both dimensions of trust in sellers are empirically shown to influence important outcomes—satisfaction, perceived risk reduction, and continuity. Given the growing magnitude of online networks in e-business, trust in network sellers is likely to receive greater attention by future research.

Whereas familiarity has been the primary means for trust formation, this study shows that familiarity may not be as prominent in many e-business contexts, such as in online marketplaces. In addition, the luxury of experience and prior interaction may even not be available in many e-commerce contexts (Tan and Thoen, 2001). This study follows (Shapiro's 1987) call for research to further understand the role and nature of institutional mechanisms in impersonal contexts. This study convincingly shows that several institution-based mechanisms promote interorganizational trust and indirectly facilitate online transactions. Therefore, this study makes a theoretical and empirical contribution to the emerging literature on trust in the digital economy by specifying how institutional structures build buyers' trust in sellers in an impersonal context.

6.1. Theoretical implications

This research makes a theoretical contribution to the area of trust in online interorganizational transactions by integrating the institutional trust literature (Zucker, 1986; McKnight et al., 1998) with theories from interorganizational exchange relations (Doney and Cannon, 1997; Ganesan, 1994; Heide and John, 1992) and online B2B marketplaces (Hempel and Kwong, 2001; Pavlou and El Sawy, 2002). This integration allows us to propose a unique set of institutional trust-building structural mechanisms available in B2B marketplaces that can engender interorganizational trust and transaction success. This study also makes an empirical contribution to the growing body of trust literature in the digital economy by validating how institution-based trust positively influences interorganizational trust and results into several favorable outcomes. Finally, this paper extends the theory on how B2B marketplaces can be strategically used beyond cost reduction and bargaining power (Bailey and Bakos, 1997). An electronic B2B marketplace can be viewed as an informal network of organizations that depends on trust to transact successfully. This study empirically shows that trust in network sellers can be engendered by the mechanisms available in electronic B2B marketplaces to build satisfaction, diminish risk perceptions, and encourage continuity.

This study extends theoretical work by McKnight et al. (1998) toward establishing the relationship between institution-based trust and interorganizational (interpersonal) trust. The relationship between interorganizational trust and institution based trust has been traditionally viewed as a substitution or complementary relation. For instance, Sitkin and Roth (1993) argue that "legalistic remedies have been described as weak, impersonal substitutes for trust". Tan and Thoen (2001) posit a complementary (additive) relationship by proposing that trust in a given transaction is the sum of party (interpersonal) and control (institution-based) trust. However, McKnight et al. (1998) argue for a sequential relationship where institution-based trust leads to party trust, and both forms of trust contribute to trust outcomes. This study empirically corroborates with the latter view; however, there are no strong direct relationships between institution-based trust and trust outcomes since these relationships are mediated by interorganizational trust, at least in this context and set of trust outcomes.

Most work on trust-building structural mechanisms has focused on differentiating among sellers and creating differential outcomes for buyers or sellers. Whereas trust-structural assurances may indeed engender trust in specific reputable sellers, this study focuses on the ability of structural mechanisms to build a trustworthy trading environment as a whole. By being able to differentiate among organizations, these mechanisms concurrently provide signals and incentives for all organizations to behave cooperatively. This by-product of institutional mechanisms has implications for building a trustworthy network of organizations. For example, while feedback mechanisms have been shown to differentiate among sellers to create price premiums (Ba and Pavlou, 2002) and competitive advantage (Pavlou, 2002c) through building trust, this study extends these findings by showing that feedback mechanisms are able to engender trust in the entire population of sellers. Therefore, an important theoretical and empirical implication of this research is the new target of trust, which is the population of seller organizations in a network context. Since organizations often conduct business with many new, even anonymous sellers in a B2B marketplace, this study contributes to research by examining the role of trust in an embedded network context where organizations share a common set of structures.

Finally, it is important to integrate the institution-based perspective by which organizations build trust with familiarity-based trust formation (Luhmann, 1979; Gefen, 2000; Gulati, 1995). This study theoretically argues and empirically validates that familiarity has a complementary role, as Zucker (1986) theorizes. McKnight et al. (1998) and Tan and Thoen (2001) argue that institution-based trust (and trust propensity) are likely to be the most important determinants of trust, until experience and familiarity grow. However, the proposed dynamics of trust formation may not always take this route in the digital economy. In a dynamic and rapidly changing environment, such as eBay's marketplace where organizations change frequently, familiarity may not ever become a solid basis for trust. In our sample of repeat buyers, familiarity has not become a prominent trust-building factor. Therefore, the e-business environment calls for a better understanding of the role of institution-based trust in sustaining online buyer–seller relationships.

6.2. Managerial implications

Online B2B marketplaces provide infrastructure technologies and value-added services to facilitate industrial buyer–seller relationships (Hempel and Kwong, 2001). A critical value-added service they provide is structural assurances that can build interorganizational trust. Therefore, online B2B marketplaces should utilize the findings of this study to improve the design of their trust-building structural mechanisms to institute a trustworthy trading environment. Given the inherent uncertainties of e-business, these institution-based mechanisms could be the difference between confident and satisfied participants that wish to continue transacting in the marketplace and hesitant firms that prefer traditional routes. Since the future of most online B2B marketplaces relies on high liquidity and trade volume, institution-based trust is an important determinant of their survival in the digital economy. Moreover, the proposed antecedents of trust are perceptions of the effectiveness of trust-building mechanisms, not the mere existence of an available mechanism. This suggests that the management of a B2B marketplace and the participating sellers need to take steps to increase the effectiveness of trust-building mechanisms in order to enhance interorganizational trust.

An important challenge for many organizations is to identify how to move from transactions characterized by mutual distrust and bargaining positions to trust-based relationships. Despite the potential benefits of trustworthy relationships, the difficulty arises from the required leap of faith that some executives are not willing to take the inevitable risk. This research proposes that institution-based trust can be the first step toward building the required interorganizational trust to enable collaborative relationships. Online B2B marketplaces provide the institutional mechanisms where initial trust forms without the need for substantial investments in time and commitments to few sellers. Institutional trust gives companies the freedom to engage in transactions that would otherwise be viewed as extreme risk.

6.3. Limitations and suggestions for future research

This research conceptually views interorganizational trust as a collectively held belief by a group of organizational members. Despite the need to assess interorganizational trust at a collective level, the empirical study was limited to a single respondent who was asked to evaluate the trust perceptions of the entire group. Moreover, lack of further respondents from the same firm did not allow testing the responses among several members within the organization. Even in our sample which consists of small firms whose purchasing decisions are often conducted by a single decision maker (McEvily and Zaheer, 1999), future research should attempt to collect responses from several knowledgeable responses from the same organization to better capture the notion of collectively held trust.

The role of the online B2B marketplace in affecting trust among organizations has not been extensively addressed in this study. A possible conceptualization is that trust in the marketplace (e.g. trust in eBay) may complement trust to the marketplace's participating sellers. In other words, trust in the marketplace positively influences

the perceptual effectiveness of the marketplace's structural mechanisms, which in turn build trust in sellers. Tan and Thoen (2001) argue that institution-based trust also depends on how much trust a party has in the institution responsible for issuing the structural assurance. Pavlou and Gefen (2002) show that trust in the marketplace has an impact on institution-based trust by increasing buyers' perceptions on the effectiveness of the marketplace's structural assurances. In fact, the presence of structural assurances in a B2B marketplace does not necessarily engender trust, unless buyers perceive these mechanisms as reliable and credible. This finding suggests that the management of a B2B marketplace needs to take steps to increase the effectiveness of its trust-building structures by increasing its own trustworthiness.

While this study posits positive relationships between trust and its consequences, these relationships are non-linear. Following Castelfranchi and Tan (2001), buyers would only engage in a transaction if their level of trust exceeds their organization's threshold, which depends on the importance of the transaction, the level of risk, and their individual propensity. Given a minimum threshold for trust to become effective, it is important to recognize this non-linearity. While most of this study's respondents have probably exceeded the minimum threshold of trust, an interesting research question would be to further explicate the non-linear relationship between trust and its consequences.

A potential limitation of this study also comes from the sample selection. To avoid dealing with uninformed or non-industrial respondents, the sample consisted of repeat buyers that conducted high-valued industrial purchases. This selection may bias the results since these respondents may have already adopted the marketplace. In fact, their responses are relatively high on satisfaction, low on perceived risk, and high on continuity intentions. Despite this favorable predisposition, the purpose of this study is to explicate the relationship between institution-based trust, interorganizational trust, and favorable trust outcomes among marketplace participants. Thus, the focus of the study is not how to encourage new organizations to join and transact in a marketplace, but how organizations that exceed their minimum threshold of trust to successfully transact in an online marketplace. The selected sample most accurately captures repeat marketplace participants. In addition, despite the truncated distribution, the results validate the proposed hypotheses for the dependent variables. Nevertheless, given the ability to convincingly screen out uninformed respondents, future research should examine the proposed model among repeat and infrequent participants.

Even if information sharing as part of cooperative norms has been conceptualized as an antecedent of trust in this study, Nahapiet and Ghoshal (1998) argue that trust has a causal influence on shared knowledge creation. Following Dyer (2000), there is a reciprocal, mutually reinforcing relationship among trust and information sharing. In other words, open information sharing is the outcome of some basic level of trust, but in the process, trust develops, which helps more open sharing of confidential and proprietary information. Dyer (1997, 2000)) describes this point very well when describing Toyota's and Chrysler's knowledge sharing networks. The purpose of this

study was to describe a single causal aspect of this reciprocal relationship as this relates to how institution-based trust builds interorganizational trust. However, the opposite direction of causality is also possible; interorganizational trust might have an impact on institutional structures. Future research could shed light on this challenging relationship.

This study focuses on the cognitive view of trust (Doney and Cannon, 1997), discounting the importance of affect-based trust in interorganizational relationships. If one adopts the rational view of organizations (Williamson, 1985), affect-based trust should have no role in business transactions. Nonetheless, it would be interesting to examine the nature and role of affect-based trust in industrial buyer–seller relationships, especially in small organizations where personal cues may have stronger influences compared to large enterprises.

The results and implications of this research are constrained by the research method employed and the small sample size. For example, discriminant validity could not be strongly supported. Also, the validity of the proposed causal relationships is limited by the cross-sectional nature of the methodological design that limits the ability to rule out alternative inferences. Though the results generally support the theoretical framework with the two forms of trust as mediating variables, it is also possible that a different sequence of relationship is present. Therefore, longitudinal research could further enhance or refute these empirical findings. Moreover, the proposed antecedents of trust have been examined predominantly among US organizations. However, as Doney et al. (1998) convincingly argue, culture may have a strong moderating effect on trust formation. Therefore, future research could examine whether institution-based trust has a different effect in dissimilar cultures. Finally, this research examines only a subset of the many possible relationships between trust and its antecedents and consequences. Future research could examine or propose other trust-building mechanisms available in online marketplaces that are likely to engender trust. In addition, many other consequences of trust could be identified and empirically validated.

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Appendix A

See Table A1.

Table A1
Operationalization of principal constructs

Item	Measures and items
MON	Perceived monitoring
MON1	There is an effective third-party authority in this B2B marketplace to monitor all sellers and help resolve conflicts.
MON2	There is an effective third-party mechanism in this B2B marketplace to assure that all products are in accordance with the posted specifications.
MON3	There is an effective third-party enforcing mechanism in this B2B marketplace to assure that all transactions are conducted properly.
ACC	Perceived accreditation
ACC1	Assessing the competencies of new sellers is an important part of this B2B marketplace's selection process.
ACC2	I believe that this B2B marketplace undertakes a thorough screening process before sellers are allowed to transact in its marketplace.
ACC3	I believe this B2B marketplace makes a substantial effort to assess the sellers' true competencies.
LB	Perceived legal bonds
LB1	This B2B marketplace imposes formal agreements that detail sellers' obligations.
LB2	Participating in this B2B marketplace implies that sellers have formal contractual agreements with buyers.
FB	Perceived feedback
FB1	A considerable amount of information about the transaction history of most sellers is available from this B2B marketplace.
FB2	If any seller misconducts in a transaction, a reliable feedback mechanism is provided by this B2B marketplace to inform buyers.
FB3	There is an effective mechanism in this B2B marketplace to allow buyers to publicize their purchasing experience with other sellers.
COOP	Perceived cooperative norms
COOP1	This B2B marketplace promotes cooperative norms for sellers to resolve any transaction disputes.
COOP2	Sellers rarely take advantage of buyers in this B2B marketplace.
COOP3	Most sellers are willing to make cooperative adjustments to transact successfully.
COOP4	Buyers and sellers in this B2B marketplace exchange a considerable amount of information before transacting.
COOP5	*This B2B marketplace provides ways for buyers to receive relevant information from sellers before purchase.*[a]
CRED	Credibility
CRED1	Sellers in this B2B marketplace are likely to be honest in dealing with buyers.
CRED2	Promises made by sellers are likely to be reliable.
CRED3	Sellers in this B2B marketplace are likely to make false claims (r).
CRED4	Sellers are likely to be open with buyers if problems occur.
BEN	Benevolence
BEN1	Sellers in this B2B marketplace are likely to care for buyers' welfare.
BEN2	If there is a problem, sellers in this B2B marketplace are likely to go out on a limb for buyers.
BEN3	I feel that sellers in this B2B marketplace are likely to make sacrifices for buyers if needed.
SAT	Satisfaction
SAT1	I am very pleased with making purchases with sellers through this B2B marketplace.
SAT2	I regret doing business with sellers through this B2B marketplace (r).

Table A1 (*continued*)

Item	Measures and items
RISK	Perceived risk
RISK1	The decision to transact with sellers in this B2B marketplace involves a significant amount of risk (r).
RISK2	The decision of whether to transact with sellers in this B2B marketplace has a low potential for loss.
CONT	Continuity
CONT1	I do not expect to continue to transact with sellers in this B2B marketplace (r).
CONT2	It is likely that I transact for a long time with sellers through this B2B marketplace.
QUAL	Key informant quality
QUAL1	I would characterize myself in regards to my company's online purchasing activity in this B2B marketplace as: (1 = not at all knowledgeable and 7 = very knowledgeable).
QUAL2	I would describe myself in regards to my company's relationships with sellers in this B2B marketplace as: (1 = minimally involved and 7 = highly involved).

[a] Removed from subsequent data analysis.

Table B1
PLS factor analysis for convergent and discriminant validity

Item name	MON	FB	LB	ACC	COOP	CRED	BEN	SAT	RISK	CONT
MON1	**0.92**	0.57	0.46	0.61	0.36	0.40	0.31	0.56	−0.13	0.53
MON2	**0.89**	0.56	0.38	0.47	0.14	0.37	0.28	0.45	−0.03	0.48
MON3	**0.90**	0.53	0.22	0.45	0.30	0.44	0.34	0.50	−0.14	0.45
FB1	0.59	**0.89**	0.27	0.48	0.37	0.49	0.41	0.48	−0.07	0.31
FB2	0.52	**0.85**	0.40	0.46	0.34	0.53	0.36	0.43	−0.08	0.30
FB3	0.44	**0.90**	0.43	0.49	0.36	0.47	0.38	0.47	−0.24	0.37
LB1	0.46	0.48	**0.87**	0.49	0.38	0.26	0.39	0.35	−0.34	0.50
LB2	0.48	0.45	**0.93**	0.50	0.13	0.38	0.23	0.43	−0.12	0.47
ACC1	0.47	0.50	0.47	**0.90**	0.26	0.33	0.32	0.53	−0.29	0.49
ACC2	0.38	0.48	0.33	**0.92**	0.35	0.44	0.40	0.46	−0.31	0.51
ACC3	0.44	0.46	0.42	**0.93**	0.41	0.45	0.31	0.50	−0.24	0.44
COOP1	0.32	0.30	0.49	0.35	**0.90**	0.48	0.39	0.61	−0.13	0.37
COOP2	0.34	0.36	0.50	0.44	**0.97**	0.46	0.40	0.62	−0.16	0.31
COOP3	0.40	0.37	0.48	0.38	**0.92**	0.54	0.41	0.65	−0.22	0.40
COOP4	0.42	0.40	0.49	0.41	**0.91**	0.44	0.29	0.58	−0.23	0.33
CRED1	0.33	0.51	0.44	0.44	0.48	**0.88**	0.34	0.50	−0.10	0.35
CRED2	0.42	0.45	0.51	0.43	0.43	**0.95**	0.39	0.42	−0.15	0.43
CRED3	0.40	0.51	0.40	0.46	0.40	**0.90**	0.42	0.49	−0.16	0.41
CRED4	0.41	0.47	0.50	0.47	0.47	**0.96**	0.55	0.45	−0.21	0.44
BEN1	0.34	0.44	0.34	0.48	0.44	0.58	**0.96**	0.55	−0.23	0.43
BEN2	0.34	0.31	0.37	0.41	0.43	0.49	**0.94**	0.56	−0.26	0.61
BEN3	0.37	0.40	0.44	0.38	0.49	0.57	**0.97**	0.62	−0.30	0.56
SAT1	0.50	0.55	0.24	0.31	0.50	0.60	0.47	**0.88**	−0.33	0.61
SAT2	0.46	0.56	0.17	0.48	0.50	0.62	0.49	**0.89**	−0.41	0.53
RISK1	−0.07	−0.30	−0.28	−0.16	−0.21	−0.30	−0.37	−0.29	**0.95**	−0.37
RISK2	−0.10	−0.28	−0.29	−0.19	−0.18	−0.32	−0.33	−0.29	**0.94**	−0.35
CONT1	0.08	0.53	0.47	0.30	0.43	0.51	0.40	0.65	−0.35	**0.94**
CONT2	0.38	0.49	0.52	0.40	0.45	0.48	0.43	0.73	−0.37	**0.92**

Note: Boldface indicates own-construct factor loadings.

Appendix B

See Table B1.

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