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INVESTIGATING TRUST IN E-COMMERCE: A LITERATURE REVIEW AND A MODEL FOR ITS FORMATION IN CUSTOMER RELATIONSHIPS

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Abstract

As a key issue for the successful proliferation of e-commerce, trust is fast becoming the focus of many IS research initiatives. This paper presents a review and categorization of the trust literature in e-commerce aiming to provide the state of the art as far as research is concerned. Five categories of trust in e-commerce are identified and analyzed into three major dimensions, namely determinants, approaches and consequences. Our analysis indicates a lack of research regarding processes for the development of trust and relationship building. The paper seeks to fill this gap by proposing a theoretical model for the formation of trust in customer-business relationships.

Introduction

The concept of trust is not new. It has been the research topic of numerous studies from diverse theoretical perspectives. Trust is a highly complex, multi-dimensional (Lewis and Weigert, 1985; Butler, 1991; Barber, 1983) and context-specific (Luhmann, 1979) phenomenon. Its importance to interpersonal and commercial relationships is evidenced by the plethora of research efforts within the various disciplines such as social psychology (Deutsch, 1960), sociology (Lewis and Weigert, 1985), economics (Dasgupta, 1988; Williamson, 1991) and marketing (Anderson and Weitz, 1989; Dwyer *et al.*, 1987; Ganesan, 1994). E-commerce and the substitution of the 'physical' with the 'virtual' added new importance to the role of trust. On the one hand, there is an imperative need for trust for the conversion of Internet visitors to online shoppers, dictated by the reported reluctance of consumers to engage in Internet purchases. In addition, trust is an essential prerequisite for establishing and maintaining customer relationships. This constitutes a new asset category for business online, as the accumulation of relationship capital can determine customer retention and provide a new foundation for marketing and sales revenue (Tapscott *et al.*, 2000). Hence, characterized as the "sine qua non of the digital economy" (*ibid.*) and the future currency of the Internet (Urban *et al.*, 2000), trust becomes a necessity for e-commerce, not only as a facilitator of customer acquisition, but also for enabling relationship building and ensuring customer loyalty.

There is currently an emerging body of literature related to trust in e-commerce. This has been based to a greater or lesser extent to findings and principles derived from traditional research on trust. However, due to the newness and complexity of this issue, the extant studies on trust in this field address trust from different viewpoints and to different levels of analysis, contributing only partially and in a fragmented way to our knowledge. With trust research in e-commerce being still at its infancy, this poses a difficulty in gaining a clear understanding of its scale and scope. Taking this into account, we performed a survey of the literature and offer an analysis and categorization that aims to assist in gaining a collective and cumulative view of the concept of trust in e-commerce. We believe that our categorization, although parsimonious, can serve as a framework for enhancing our understanding on e-commerce trust and the related issues and as a guide for further research. Our literature survey indicates that whilst there is evidence of a general congruence regarding the importance of trust for e-commerce success, most of the current literature revolves around the role of trust for the adoption of e-commerce and does not provide an investigation of the way in which trust can actually be developed and maintained. The majority of studies mainly focus on understanding the need for trust, its antecedents and consequences and the barriers contributing to the lack of trust, emphasizing the short-term, transactional perspective of e-commerce, and fail to address the formation of trust as a process and as a means for long-term relationship building.

Recognizing the above as an issue that deserves our immediate attention, we have developed a model for trust formation and relationship building in e-commerce. Models are needed in order to leverage acquired knowledge in such a way so that it can be transferred easily to practice. Our model seeks to achieve this and can be used to inform the design of electronic environments that can support the creation of lasting commercial relationships. The remainder of this paper is organized as follows. The next section presents our categorization of trust literature in e-commerce and the section that follows describes our proposed model for trust and relationship building. Limitations and further research conclude our paper.

Trust in E-Commerce: A Survey and Categorization of the Literature

While trust in the physical world has been extensively studied for years, it has only recently arisen as a topic of research in e-commerce. However, the absence of a generic research framework complied with the multi-dimensionality of trust may soon lead to a large body of fragmented work. With this in mind, we performed a survey of the available literature on trust in e-commerce and identified five research categories. Each of the five categories was further analyzed with respect to the *determinants*, *approaches* and *consequences* of each trust type.

The five categories of trust types as presented in Table 1 indicate that research on e-commerce trust is associated with the online *system/application*, the *vendor*, the *Internet shopping process*, *people* at both intraorganizational and interorganizational level and *firm trust in e-business*.

Determinant factors represent factors that influence trust in e-commerce or the lack of it. Some researchers describe the antecedents and determinants for the development of trust and stress the characteristics of online commercial interactions that have a positive or negative impact on trust. The factors proposed to have an impact on trust are associated with the personality of the online consumer, the system, the information, the vendor, the transaction, the business stakeholders, and the external environment. They are related to perceptions regarding the trustworthiness of context-specific conditions, such as the risk inherent in a situation (Kini and Choobineh, 2000; Einwiller *et al.*, 2000), while others are defined with respect to attributes of the trusted entity, which can be impersonal or human-specific. Impersonal attributes include security, privacy (Hoffman *et al.*, 1999), the information provided (Kini and Choobineh, 2000), the dependability of technological infrastructure (Jones, 2000) as well as the guarantees of the external environment (Tan and Thoen, 2000). Moreover, human-specific attributes, such as the ability, integrity and benevolence of the vendor (Ambrose and Johnson, 1998; Cheung and Lee, 2000) or the person in question and the reliability of the stakeholders have been found as properties of the trustee affecting individual related trust. All trusted attributes mentioned above have been included in descriptions of this trust dimension, portrayed in terms of determinants of trust since the existence of the perceived property is viewed as a trust-engendering factor. Moreover, a great deal of work has revealed various types of barriers inhibiting the growth of e-commerce, with respect to consumer attitude online (Hoffman *et al.*, 1999), e-business behavior towards capitalizing on the opportunities offered by e-commerce (Schoder and Yin 2000) and the cooperative behavior among individuals at interpersonal and organizational level (Friedman *et al.*, 2000).

The *approaches* proposed to address the problem of lack of trust are mainly recommendations and suggested guidelines to designers of Information Systems (IS) (Shneiderman, 2000) and Internet companies towards establishing partial dimensions of trust in various contexts and do not include specific methods or processes for the formation of trust. They involve the design of the e-commerce system interface (Egger, 2000), the content and the range of information provided (Urban *et al.*, 2000) and the way it is organized and displayed, security and privacy issues (Hoffman *et al.*, 1999), the provision of services, fulfillment, and the business strategy in general (Urban *et al.*, 2000; Einwiller *et al.*, 2000). They also comprise proposed measures that should be taken in a larger perspective outside the organizational boundaries from institutions and governments primarily aiming to reduce the risk associated with the conduction of transactions (Schoder and Yin, 2000). These are presented in terms of mechanisms that can put in place the conditions that can potentially facilitate the institutionalization of trust and the establishment of a trustworthy environment for commercial online interaction.

The diversity of trust definitions, determinant factors and trust-engineering approaches results from the fact that researchers adopt different views on trust. This is clearly reflected in the *consequences* of trust, which vary depending on the trust type under question and the purpose of the study in general. Trust has been considered as a requirement that may result in reducing consumers' perceived risk (Cheung and Lee, 2000; Einwiller *et al.*, 2000), the adoption e-commerce (Kini and Choobineh, 2000; Chircu *et al.*, 2000), and the expansion of e-business markets and the full exploitation of technological developments (Jones, 2000).

Table 1. Categorization of Literature on Trust in E-Commerce

CATEGORIES	DETERMINANTS	APPROACHES	CONSEQUENCES
TRUST IN E-COMMERCE SYSTEM/APPLICATION	<ul style="list-style-type: none"> • Pre-interactional filters (propensity to trust) [Egger, Kini & Choobineh] • Interface properties [Egger] • Internet and web site [Urban <i>et al.</i>] • Information provision/content/ displayed [Urban <i>et al.</i>, Egger, Kini & Choobineh] • Risk Involved [Kini & Choobineh] • Relationship Management [Egger] • Fulfillment [Urban <i>et al.</i>] 	<ul style="list-style-type: none"> • Ensure privacy [Urban <i>et al.</i>] • Transfer/build brand equity [Urban <i>et al.</i>] • Provide complete, accurate, unbiased, customizable, also about competitors [Urban <i>et al.</i>] • Virtual advisors [Urban <i>et al.</i>] • Meet expectations (delivery, service) [Urban <i>et al.</i>] 	<ul style="list-style-type: none"> • Communicate trustworthiness in user interface design [Egger] • Intention to adopt E-commerce intermediaries [Chircu <i>et al.</i>] • Adoption of WWW commerce systems [Kini & Choobineh] • Consumer trust-building strategy [Urban <i>et al.</i>]
TRUST IN INTERNET SHOPPING PROCESS	<ul style="list-style-type: none"> • Trustworthiness of Internet Vendor [Cheung & Lee, Tan & Thoen, Ambrose & Johnson] • Privacy/control of information [Hoffman <i>et al.</i>] • Propensity to trust [Cheung & Lee, Ambrose & Johnson] • Control trust [Cheung & Lee, Tan & Thoen] • Potential gain [Tan & Thoen] • Personal experience [Tan & Thoen] • Understanding [Tan & Thoen] • Communalities [Tan & Thoen] 	<ul style="list-style-type: none"> • Use of social signs [Tan & Thoen] • Allow anonymity, pseudonymity [Hoffman <i>et al.</i>] • Consumer-oriented privacy policies [Hoffman <i>et al.</i>] 	<ul style="list-style-type: none"> • Reduce perceived risk [Cheung & Lee] • Positive outcome for seller: interest, intention, purchase [Ambrose & Johnson], information disclosure [Hoffman <i>et al.</i>]
TRUST IN VENDOR	<ul style="list-style-type: none"> • Familiarity [Gefen, Einwiller <i>et al.</i>] • Disposition to trust [Gefen] • Risk and uncertainty [Einwiller <i>et al.</i>] • Expectation of positive outcome [Einwiller <i>et al.</i>] • Confidence in morality of trustee [Einwiller <i>et al.</i>] • Experience [Einwiller <i>et al.</i>] • Affiliation and belonging [Einwiller <i>et al.</i>] 	<ul style="list-style-type: none"> • Transparency [Einwiller <i>et al.</i>] • Factual signals and heuristic cues [Einwiller <i>et al.</i>] • Online chats, virtual communities [Einwiller <i>et al.</i>] 	<ul style="list-style-type: none"> • Reduce perceived risk [Einwiller <i>et al.</i>] • Reduce information complexity [Einwiller <i>et al.</i>] • Interest and purchase [Gefen]
TRUST BETWEEN INDIVIDUALS	<ul style="list-style-type: none"> • Personal and cultural factors [Olson & Olson] • Information sources [Olson & Olson] • Risk/potential harm [Olson & Olson, Friedman <i>et al.</i>] • Good will of trustee [Friedman <i>et al.</i>] • Expectations from technology [Friedman <i>et al.</i>] • Environment [Friedman <i>et al.</i>] 	<ul style="list-style-type: none"> • Electronic medial mediation [Olson & Olson] • History/past performance information/Reputation [Olson & Olson, Friedman <i>et al.</i>, Shneiderman] • Security and privacy policies [Friedman <i>et al.</i>, Shneiderman] • Status cues [Friedman <i>et al.</i>, Shneiderman] • Classified responsibilities/Insurance [Friedman <i>et al.</i>, Shneiderman] • Showing attention [Olson & Olson] • Trusting and trustworthy behavior [Olson & Olson] 	<ul style="list-style-type: none"> • Enhanced cooperative behavior (interorganizational, intraorganizational, interpersonal, person to organization) [Olson & Olson, Shneiderman] • Enhance personal and social lives [Friedman <i>et al.</i>]
FIRM TRUST IN E-BUSINESS	<ul style="list-style-type: none"> • Identity and reliability of e-business stakeholders [Jones <i>et al.</i>] • Dependability of infrastructure (services and system) [Jones <i>et al.</i>] • Quality and protection of information (digital assets) [Jones <i>et al.</i>] 	<ul style="list-style-type: none"> • Reveal policies [Schoder & Yin] • TTP certification [Schoder & Yin] • Reputation tracking services [Schoder & Yin] • Legal and business framework (Industry and trade Associations role, Government role) [Schoder & Yin] 	<ul style="list-style-type: none"> • Firms capitalize on opportunities offered by Web [Schoder & Yin] • Trust requirements elicitation for e-business [Schoder & Yin]

Table 2. Categorization of Trust Models

	<i>Egger</i>	<i>Cheung & Lee</i>	<i>Ambrose & Johnson</i>	<i>Kini & Choobineh</i>	<i>Tan & Thoen</i>
Consumer characteristics	<ul style="list-style-type: none"> • General Propensity to trust • Foreknowledge/reputation 	<ul style="list-style-type: none"> • Propensity to trust 	<ul style="list-style-type: none"> • Propensity to trust 	<ul style="list-style-type: none"> • Tendency to trust 	<ul style="list-style-type: none"> • Potential gain • Risk attitude • Experience • Understanding • Communality
Vendor-related believes	<ul style="list-style-type: none"> • Competence (indirectly) 	<ul style="list-style-type: none"> • Perceived competence • Perceived integrity • Perceived security control • Perceived privacy control 	<ul style="list-style-type: none"> • Benevolence • Ability • Integrity 		<ul style="list-style-type: none"> • Disposition • Competence • Fulfillment • Dependence
Environmental characteristics	<ul style="list-style-type: none"> • Risk (indirectly) 	<ul style="list-style-type: none"> • Third party recognition • Legal framework 		<ul style="list-style-type: none"> • Risk involved 	<ul style="list-style-type: none"> • Control trust • Risk
Application-related characteristics	<ul style="list-style-type: none"> • Interface properties: appeal, overview, usability • Information content 			<ul style="list-style-type: none"> • Information provision • Security, competence, dependability 	

We should mention at this point that a number of the studies attempt to systematize the acquired knowledge into some form of model. Our survey indicates that these models mainly describe trust determinant factors and their interrelationships, revolving around four categories of trust antecedents, as presented in Table 2. Trust predecessors are associated with consumer personal characteristics and trustee perceptions about properties related to the online vendor, the environment, and the e-commerce system. As it can be seen, each model comprises certain categories of trust determinants, depending on the type of trust considered.

What is evident from the works presented in Table 2 is that the models they describe are limited to presenting the determinants of trust and the way they interrelate and influence its creation. As a result, they do not propose specific methods or processes for trust formation. In addition, the reviewed models focus on trust and its role in short term transactional exchanges and do not examine it in the broader context of building long-term relationships. With the exception of Egger’s model which includes relationship management as one of its components, there is an evident lack of research in this direction. In the highly competitive environment of e-commerce, where control shifts from the company to the consumer (Ingari, 1999), the role of customer relationships becomes prominent, with the accumulation of relationship capital constituting a strategic goal for business online. As trust becomes a key differentiator and success factor for e-commerce, there is a need for a careful investigation of the dynamics of trust formation and its potential for customer relationship building.

Aiming to address this need, we sought to develop a conceptual model for the formation of trust in business-to-consumer e-commerce relationships. Drawing from established theoretical work on trust and relationship marketing, our aim was to synthesize a series of trust constructs, determinant variables and trust building processes and conceptualize them in the context of an electronic servicescape, where trust is formed through iterative interactions with promises being made, enabled and fulfilled. Our model is presented in the following section.

A Model for Trust Formation in E-Commerce Relationships

Our attempt to understand the concept of trust has been aided by an excellent typology of interrelated types of trust constructs proposed by McKnight and Chervany (1996). Drawing on relationship marketing literature to understand the nature of trust and its development in commercial relationships, our effort focused around five trust-building processes as described by Doney and Cannon (1997) and a set of trust precursors found by Morgan and Hunt (1994). Examining and building on Doney and Cannon’s work, we have defined as depicted in Table 3 another trust building process, the *credibility* process (Papadopoulou *et al.*, 2000), associated with the assessment of business integrity, thus differentiating it from the capability process as originally proposed by the authors.

Table 3. Trust Constructs, Precursors and Building Processes

Trust Constructs [McKnight & Chervany, 1996]	Precursors of Trust [Morgan & Hunt, 1994]	Trust-building Processes [Doney & Cannon, 1997]
<ul style="list-style-type: none"> • Dispositional trust • Institution-based trust • Trusting Believes: <ul style="list-style-type: none"> – Benevolence, – Competence, – Honesty/Integrity, – Predictability, <i>Confidence in beliefs</i> • Trusting Intention • Trusting Behavior 	<ul style="list-style-type: none"> • shared values • communication • opportunistic behavior 	<ul style="list-style-type: none"> • Intentionality • Capability • Prediction • Transference • Calculative • <i>Credibility (Paoadopoulou et al., 2000)</i>

The three facets of trust, representing its constituents, its determinants and its development modes, have been synthesized and theoretically interrelated, resulting in an integrated model and a vertical understanding of how trust is formed in a relational exchange between two parties. The model has been based on the assumption that building customer trust in an e-commerce business is built through repeated interactions with promises made, enabled and kept within an electronic servicescape. A servicescape, according to Wanninger's *et al.* (1997), is one of the three primary components that comprise an e-commerce information system. The other two are the supporting infrastructure plus the customer database and analytical tools to support the relationship marketing.

Initially, a customer is enticed to engage in a relationship with the business through the servicescape based on a positive predisposition towards the business, which is the result of the combination of 3 constructs: disposition to trust, institution-based trust (McKnight and Chervany, 1996) and initial trusting beliefs. The customer has a general propensity to trust others stemming from personality and cultural factors (disposition to trust), enhanced by the perceived propriety of the conditions (institution-based trust), which involves legal aspects associated with e-commerce and perceptions regarding the security and privacy offered by the business. In addition, the customer has initial trusting beliefs that have been formed through the transference process (Doney and Cannon, 1997), with information conveyed from third parties regarding the business reputation and trustworthiness, including information from third party recognition bodies. The combination of these three constructs results in the customer being open to promises made by the business, which aim to augment the customer's trusting intention towards it. Provided that the customer is interested in the promise made, he expresses a willingness to depend on the business - a trusting intention (*ibid.*), and anticipates the promise to be enabled. Enabling the promise within the servicescape allows the trusting intention to be manifested and leads the customer to accept the risk inherent in the situation and actually depend on the promise, thus act in a trusting behavior (*ibid.*). Then, keeping the promise has a positive impact on the customer's perceptions and future expectations regarding the quality of the interaction with the business through the servicescape. This point, when all stages of promise fulfillment have been completed represents what Carlzon (1987) calls "moment of truth". The customer evaluates the service encounter and compares the service he expected according to the promise that was initially made to him with his perception of the service received. The degree to which the perceived service meets customer expectations, the service quality (Gronroos, 1984; Lewis and Booms, 1983; Parasuraman *et al.*, 1985), will determine customer satisfaction and will be reflected in the customer's trusting beliefs (McKnight and Chervany, 1996) in the business. These trusting beliefs will substitute the initial three trust bases and will serve as the launch pad for future interaction with the business with their effect on trusting intention and trusting behavior. Each repetition of the customer's contact with this environment will further enhance his trusting beliefs resulting in the continuation of the trusting relationship with the business via the repeated use of the servicescape (Figure 1).

During customer's interaction with each stage of promise fulfillment as well as the overall experience within the virtual servicescape, each one of the trust building processes is activated to strengthen customer's trusting beliefs about the business as well as customer's confidence in these beliefs. When a promise is made, the intentionality process (Doney and Cannon, 1997) is initiated to help the customer determine the business motives and intentions, influencing his trusting belief in the business benevolence. Enabling the promise invokes the capability process (*ibid.*), an assessment of the business ability to realize its promise, which affects the customer's trusting belief in the business competence. Keeping the promise triggers the credibility process by which the customer evaluates the extent to which the business has actually delivered on its promise and develops the trusting belief in the business integrity. The entire interaction with the servicescape results in the activation of the rest of the trust building processes. Relying on the prediction process (*ibid.*) the customer makes inferences about the business consistency in delivering the promises it makes, enhancing his trusting beliefs in the business predictability. Finally, with the calculative process (*ibid.*) the customer assesses the costs and benefits of the business possibly acting in an untrustworthy behavior to increase his confidence in the trusting beliefs (Figure 2).

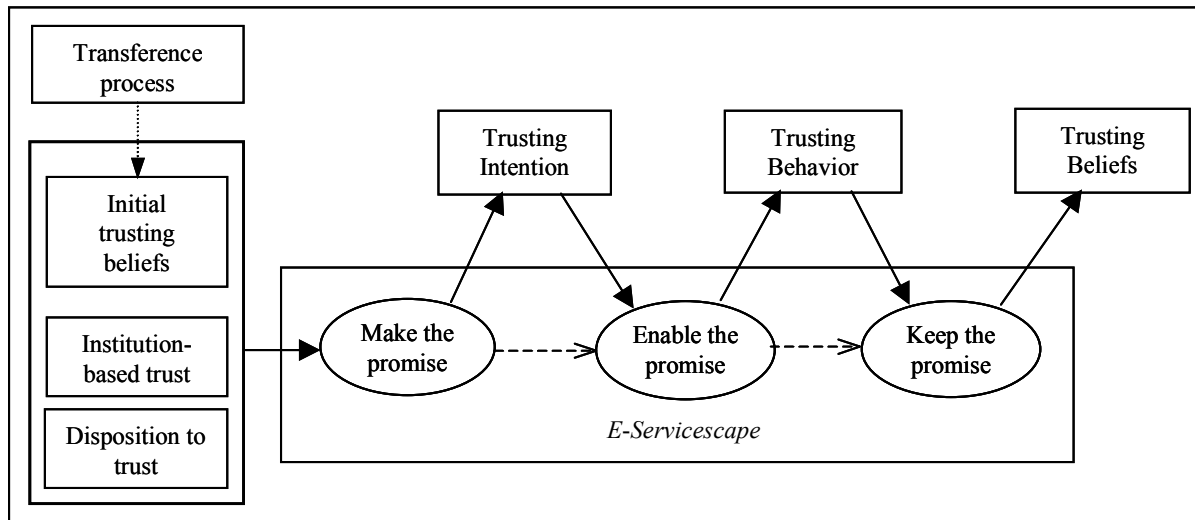


Figure 1. Trust Formation through Promise Fulfillment Within the E-Servicescape

<i>E-SERVICESCPE</i>						
Promise fulfillment	Make a promise	Enable a promise	Keep a promise	Overall experience	Overall experience	
Customer Communities	Shared values				Opportunistic behavior	Communication
Trust-building processes	Intentionality	Capability	Credibility	Prediction	Calculative	Transference
Trusting beliefs	Benevolence	Competence	Honesty/Integrity	Predictability	Confidence in beliefs	All beliefs/ Confidence in beliefs

Figure 2. Activation of Trust-Building Processes Within the E-Servicescape

Trust evolves over time as the customer engages in repeated interactions with promises being fulfilled within the servicescape. Each time a promise is made, enabled and kept, it is evaluated with the intentionality, the capability and the credibility process confirming customer’s trusting beliefs in the business benevolence, competence and credibility. The level of trust is further augmented with the experience that the customer gains within the servicescape. Customers perceive the length of the relational exchange as an investment which is made by the business and is valued highly enough to deter it from acting opportunistically. The number of business-customer contacts also provides a basis for a thorough interpretation of the business behavior, which enables the customer to predict subsequent interaction.

Conclusions and Further Research

In this paper, we presented a review/survey and categorization of the literature of trust in e-commerce. Five distinguishable categories of types of trust were identified and analyzed with respect to their determinants, approaches and consequences. The proposed categorization offers a comprehensive and multilateral view of the concept of trust in e-commerce that can aid our understanding of its scale and scope and set the basis for further research. Our analysis highlighted the lack of research regarding

trust-engendering processes and relationship building. With the objective to address this need, we proposed a model for the formation of trust in business-to-consumer relationships.

It is obvious that our categorization is not complete. Further research is needed in order to revise its content and inform it with input from more studies to include trust-related aspects that may be missing from the current categorization with the aim to produce a refined and enriched version that could augment our knowledge on trust. As another step of our continuing research effort, we intend to validate our conceptualization of trust and its formation by performing an empirical testing of our model. Data will be collected by distributing questionnaires to a sample of 1000 persons approximately to yield a satisfactory sample size and response rate. In order to maximize response rate, a three-stage procedure will be employed as suggested by Dillman (1978). Our study will comprise two parts. In the first part, the focus will be on testing our model in the context of e-commerce as currently conducted in conventional web sites. In the second part, an experiment will test our model in the context of an e-servicescape, which will be developed using virtual reality and agent technology. The questionnaire will be used for both parts of the study. For this purpose, a measurement instrument will be used, assessed through confirmatory factor analysis for item and scale reliability, unidimensionality, convergent and discriminant validity. We expect that our findings will add to our theoretical and practical understanding of how trust can be built and support long-term commercial relationships that are developed within electronic environments.

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