



# Role of electronic trust in online retailing

## A re-examination of the commitment-trust theory

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### Abstract

**Purpose** – Trust and commitment are the central tenets in building successful long-term relationships in the online retailing context. In the absence of physical interaction between the buyer and the seller, how websites can gain the trust of the buyers and deliver on the promises made have become central issues in online customer relationship management. This paper aims to re-examine the commitment-trust theory (CTT) of relationship marketing in the online retailing context. It seeks to theorize the antecedents and consequences of commitment and trust in the online context and identify how CTT can be adapted in a digitized business environment.

**Design/methodology/approach** – Modified constructs and their measures are developed to understand the antecedents and the outcomes of commitment and trust. Survey data from British online customers ( $n = 651$ ) are used to test CTT hypotheses with structural equation modelling.

**Findings** – The study suggests a significant modification to the traditional CTT model in the online environment. Privacy and security features of the website along with shared values are the key antecedents of trust, which in turn positively influences relationship commitment. Behavioural intentions of customers are consequences of both trust and commitment. The relationship termination cost has a negative impact on customer commitment.

**Research limitations/implications** – The paper identifies interesting differences between the original work by Morgan and Hunt and the findings presented, but basically concludes that the commitment-trust theory applies to online retailing.

**Originality/value** – Contributions of this study in re-examining the CTT model of relationship marketing in an online context are manifold. This paper proposes a modified model to understand the role of consumer trust and commitment in a digitized environment. The modified constructs and measures truly reflect the dynamism of online business. The extended CTT model can provide better insight into managing customer relationships in online retailing.

**Keywords** Trust, Electronic commerce, Retailing, Mathematical modelling

**Paper type** Research paper

### Introduction

The emerging digital economy has opened up new paradigms for retailing, and consumers across the world face new opportunities and challenges. The internet – the driving engine of the new economy – has given birth to online retailing, a new and increasingly popular way of selling products for most organizations in the twenty-first century. For example, between 2004 and 2005 in the UK, the online shopping



community grew 25.5 per cent to reach 14.6 million consumers who bought £8.2bn (\$14.3bn) of goods from websites – an increase of 28.9 per cent (see [www.bbc.co.uk](http://www.bbc.co.uk)). Similarly, in the USA, consumers spent \$670 million on Cyber Monday in 2006, which is 25 per cent higher than in 2005 (see [www.usatoday.com](http://www.usatoday.com)).

Online retailing is the carrying out of retailing activities with customers that leads to an exchange of value, where the parties interact electronically, using network or telecommunications technologies (Jones *et al.*, 2000). The electronic hypermedia environment poses new challenges for relationship retailing, where it is in the interest of retailers to establish and maintain long-term bonds with customers (Berman and Evans, 2004). This new marketing medium and channel is now an integral part of the multi-channel strategy for most retailers. However, the physical separation of the buyer and the seller, and that of the buyers and the merchandise, and the overall environment of perceived insecurity on the internet provide unique challenges to online retailers to find ways in which to initiate and develop e-business relationships (Warrington *et al.*, 2000). The popular press is replete with news on high-profile lapses in online security, increased incidence of spamming, hacking, and “phishing”, and figures suggesting that a large proportion of online “business” is fraudulent. Consumer concerns include a range of possibilities from fraud through the hacking of credit card numbers to leaking of personal information, resulting in excessive spam to identity theft (Newholm *et al.*, 2004). In spite of these challenges, the retailer must develop a trustworthy relationship in order to increase sales on the internet and foster customer loyalty. The lack of physical presence of the product and the lack of physical interaction between the buyer and the seller renders online retailing a unique environment, in which trust is of paramount importance. Based on a study of online business, Lamonica (2000, p. 3) concluded:

The success factors in e-business involve more than technology that can address security and to some degree, privacy: IT executives need to work with their customers to evaluate the value of trust in their business relationship.

Though online retailing is evolving at an unprecedented rate, participants at all levels still exhibit a fundamental lack of trust. Egger (2000) noted that “difficulty of use and lack of trust with respect to online payment privacy and customer service have been found to constitute a real psychological barrier to e-commerce”. It is widely felt, therefore, that the importance of trust in the e-business exchange deserves special attention (Warrington *et al.*, 2000).

Retailers can build mutually valuable relationships with customers through a trust-based collaboration process (Dayal *et al.*, 2001). However, the way in which trust may be gained and the impact it has on e-business outcomes are not yet well understood (Jones *et al.*, 2000). Factors relating to trust in online retailing have been seen from many different perspectives by researchers from different disciplines, and often expressed in different terms. There is a need for a common framework that will support a shared understanding of the concept of trust and its relations with its antecedents and consequences. This paper aims to provide a basis for such a multivariate framework.

In this research, we examine the applicability of the highly cited commitment-trust theory of relationship marketing (Morgan and Hunt, 1994) in the online retailing context. Website design aspects, which are in the control of the retailer’s marketing and

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internet/IT team, are studied as antecedents to trust and commitment, so that online retailers can draw some benefits from the study. Although the main variables are mostly borrowed from the commitment-trust framework, privacy and security are introduced as two additional antecedents to trust and commitment due to their salience in the context of online retailing. Also, the construct dimensions and the items are adapted significantly to the context of online retailing. We explore the relationships between trust and commitment and their key antecedents and consequences. We also attempt to find the relative importance of the key factors that influence trust (antecedents) and the behavioural outcomes that are influenced by trust (consequences). While most of the antecedents of trust and commitment that we use in our research have already been identified by Morgan and Hunt, we hypothesize that the online retailing environment might show some differences with regard to the applicability and relative importance of the antecedents, as well as the effects of trust and commitment on customers' behavioural intentions.

### **Is trust in online retailing conceptually different?**

Is trust in online retailing conceptually different? Some would argue that the new electronic environment is really just a different context for existing trust theories, while others claim that the new environment requires a re-examination of theories adapted to the realities of a radically transformed marketplace. Fortin *et al.* (2002) feel that this is a fascinating research question that is unlikely to be answered any time soon. Online trust is different from offline trust on the following parameters:

- physical distance between buyer and seller, absence of salespeople, and separation between buyer and products (Yoon, 2002);
- absence of simultaneous existence in time and space;
- absence of human network attributes (i.e. audio, video, and sensual); and
- absence of feedback and learning capability (Nohria and Eccles, 1992).

The most important aspect of online retailing from the customer's perspective is the increase in access and choice, and especially in the information on products and services. Previously, a typical customer would be limited to choosing among a few local retailers, banks, travel agents, stockbrokers, insurance agents and department stores (perhaps limited to one's specific county, city, or state) (Balto, 2000). In the age of the internet, one can choose from scores of online retailers located anywhere in the world, leading to breakdown of borders and growth in the number of competitive alternatives. Along with this, there is also a tremendous growth in the number of online retailers, which can potentially provide consumers with a vast array of alternatives and new sources of information. It is precisely this potential increase in consumer sovereignty that would also lead to increased role of trust in online retailing. This, coupled with the physical separation of the buyer and the seller, and that of the buyers and the merchandise, make trust a core issue. Viewed from the perspective of classical management problems regarding the issue of trust in exchange, if the internet represents just another distribution channel or retailing model, one may wonder whether the internet context demands revisiting the traditional theories of trust. However, it has been argued by Hoffman and Novak (1996a, b) that the internet has unique characteristics that differentiate it from traditional marketing in important ways. The contribution of this

research is best understood in the context of these differences. For example, a many-to-many interactive model underlies the web as a medium for exchange (Hoffman and Novak, 1996a). This means that customers can interact with retailers, with other customers and the technological environment. In a radical departure from traditional exchanges, consumers can also provide content, often outside the retailer's control, to the medium (Novak *et al.*, 2000). These differences imply the need to understand the role of trust in an environment in which the rules of customer engagement are likely to be different. Such a situation makes this context quite different even from telemarketing, traditional mail catalogue and phone reservations, which otherwise share lack of physical interaction between the buyer and the seller. Indeed, the internet is best visualized not as a simulation of the "real world", in which case parallels are easily drawn from existing trust frameworks (Novak, 1999), but as an alternative, real, yet computer-mediated environment in which online exchange and the associated trust become paramount (Novak *et al.*, 2000). It is in this perspective that the contribution of this research on trust in online retailing needs to be assessed.

### **The theoretical background**

The research is grounded in the well-known commitment-trust theory of relationship marketing, originally proposed by Morgan and Hunt (1994). In their seminal paper, Morgan and Hunt showed that "relationship marketing" – the act of establishing, developing, and maintaining successful relational exchanges – constitutes a major shift in marketing theory and practice.

Traditionally, the political economy paradigm highlighted the role of power to condition others as the key factor in network analysis (Thorelli, 1986). The commitment-trust theory (Morgan and Hunt, 1994) questioned this central hypothesis in view of relationship failures in strategic alliances. Focusing more on what makes relationship marketing successful, the commitment-trust theory espoused trust and relationship commitment as the key factors in building and maintaining successful relationship. According to the theory, trust and relationship commitment are central to successful relationship marketing, because they encourage marketers to:

- work at preserving relationship investments by co-operating with exchange partners;
- resist attractive short-term alternatives in favour of the expected long-term benefits; and
- view potentially high-risk options as being prudent because of the belief that their partners will not act opportunistically.

Based on the commitment-trust theory, Morgan and Hunt (1994) developed the key mediating variable (KMV) model of relationship marketing. The KMV model positioned trust and commitment as mediating variables between five antecedents (relationship termination cost, relationship benefits, shared values, communication, and opportunistic behaviour) and five outcomes (acquiescence, propensity to leave, co-operation, functional conflict, and decision making uncertainty). Although they tested the model in the context of automobile tire retailing, Morgan and Hunt (1994) claimed that their theory would apply for all relational exchanges involving suppliers, customers or employees. They felt a strong need for "further explication, replication,

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extension, application and critical evaluation” of their theory and model. This is exactly what we attempt to do in this paper in the context of online retailing.

### *The concept of trust*

Our main focus in this research is on the construct of trust, and commitment is considered as a necessary complement of trust. Trust, according to Spekman (1988), is so important to relational exchange that it is “the cornerstone of the strategic partnership” between the seller and the buyer. Trust is a multi-disciplinary concept, incorporating ideas from economics, marketing, sociology, psychology, organization behaviour, strategy, information systems, and decision sciences.

Trust has been defined in various ways in the literature. “Trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another” (Rousseau *et al.*, 1998, p. 395). Trust is willingness to rely on an exchange partner in whom one has confidence (Moorman *et al.*, 1993). Morgan and Hunt (1994) felt that trust exists when one party has confidence in an exchange partner’s reliability and integrity. According to Deutsch (1960), trust consists of two components: confidence in ability and intention.

### *The dimensions of trust*

Various dimensions of trust have been identified in the literature (see Bart *et al.*, 2005; Newholm *et al.*, 2004; Yoon, 2002). Since our study is aimed at a re-examination of the commitment-trust theory, we adopted the customer’s propensity to trust the retailer, customer confidence in the website, and the customer’s trust in internet technology features as the key dimensions of trust in an online retailer (Morgan and Hunt, 1994; Mukherjee and Nath, 2003).

Propensity to trust is important in economic transactions as it reduces perceived risk (Humphrey and Schmitz, 1998). This is particularly important in the case of online retailing, where the buyer and the seller are physically separated, contingencies are difficult to predict and incorporate into contracts, relationships are difficult to monitor, and cyber-laws are not well defined. A high level of satisfaction with services received in previous online transactions is likely to increase propensity to trust (Pavlou and Chellappa, 2001; Rutter, 2000). There are arguments that the level of customers’ experience is related to their propensity to trust. Online customers with a high propensity to trust perceive the risk to be less and thus have more trust in online transactions (Ba, 2001).

Confidence is another dimension of trust (Moorman *et al.*, 1993; Morgan and Hunt, 1994; Deutsch, 1960). Customer confidence arises from the online retailer’s reputation, which is defined as faith in overall quality or character as seen or judged by people in general (Malaga, 2001). Confidence also arises from the strength of the brand name, endorsement from trusted third parties, and previous interactions on- and/or offline (Egger, 2000). Ba (2001) concluded that when customers feel low on confidence about an online retailer, they would be discouraged from purchasing from that website. For gaining confidence, customers also assess the abilities of the retailer, which are based on the skills and competencies that the retailer possesses in electronic transactions (Lee and Turban, 2001).

Customers’ trust in the technology of electronic communication and the internet is frequently a proxy for their trust in an online retailer. Their trust in technology is likely to correlate with their overall trust when engaging in online activities (Lee and Turban, 2001). Customers with different levels of trust in technology use various performance

measures such as speed, reliability, availability, navigability, order fulfilment, and customization to determine their trust in electronic transactions (Lee and Turban, 2001). Technology-based trust influences the perceived reliability of the system. Therefore, customers' perception of the technological competency of the electronic communication system is very important in their information processing behaviour and perceived trust.

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*The trust-commitment interaction*

According to Morgan and Hunt (1994), a critical complement of trust in exchange relationships is commitment. Moorman *et al.* (1992) defined relationship commitment as an enduring desire to maintain a valued relationship. Trust influences relationship commitment. Partners in business value trust-based relationship very highly and commit themselves to such relationship (Hrebiniak, 1974). McDonald (1981) uses social exchange theory and principle of generalized reciprocity to explain how mistrust decreases commitment in the relationship. The trust-commitment interaction has also been demonstrated by Achrol (1991), Moorman *et al.* (1992) and Morgan and Hunt (1994).

Thus, we hypothesize that as trust increases, commitment also increases. Trust and commitment are at the centre of our proposed model. Influencing trust and commitment are the set of antecedents and influenced by them are the behavioural intentions.

*The antecedents to trust*

Based on an extended adaptation of the commitment-trust theory, we identified five main antecedents to trust:

- (1) shared values;
- (2) communication;
- (3) opportunistic behaviour;
- (4) privacy; and
- (5) security.

According to Hoffman *et al.* (1999), there is a higher degree of consumer concern about security and privacy issues on the web in comparison with equivalent transactions through conventional channels. We therefore introduced privacy and security as two additional antecedents to trust in addition to the three antecedents proposed by Morgan and Hunt (1994).

*Shared values.* Shared value is the extent to which partners have beliefs in common about what behaviours, goals and policies are important or unimportant, appropriate or inappropriate, and right or wrong (Morgan and Hunt, 1994). Ethics is a key aspect of shared value. Morgan and Hunt (1994) have conceptualized shared values through the extent to which ethics is compromised and the consequences of unethical behaviour. High standards of retailer ethics such as e-governance, taking permission from users for mailing lists or preventing kids from accessing adult content are especially important for online retailing. We hypothesize that in online retailing, when there is a higher perception of shared values, such perceptions will lead to increased trust.



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*Communication.* Communication, defined as the formal as well as informal sharing of meaningful and timely information (Anderson and Narus, 1990), fosters trust by assisting in resolving disputes and ambiguities, provides accurate information on order processing, and aligning perceptions and expectations (Etgar, 1979). Anderson and Narus (1990), Morgan and Hunt (1994), and Mukherjee and Nath (2003) have used communication as an antecedent of trust.

In this research, communication is considered as a multidimensional construct. We consider three key aspects of communication:

- (1) openness;
- (2) quality of information; and
- (3) quality of response (Mukherjee and Nath, 2003).

Openness, which is an aspect of good business morality, builds trust (Huemer, 1998). Trust is negotiated through communication and open interaction and is specific to the individuals involved and their relationship. Research conducted by Gefen and Straub (2001) found that man-machine communication, or at least the belief that the system has characteristics of social presence, is critical to building online customer trust. The extent to which an online retailer can enhance its social communication in terms of openness, authenticity of information, speed of response, relevance of information, quality of information, and feedback systems determines the ability of the site to address needs for e-customers. The quality of information is measured in terms of its authenticity, relevance and completeness. Quality of response addresses the speed of response and the frequency of response.

We hypothesize that in online retailing, the communication between the retailer and the customer is positively related to trust.

*Opportunistic behaviour.* Opportunistic behaviour has its roots in the transaction cost literature, and is defined as self-interest seeking with guile (Williamson, 1975). In this research, opportunistic behaviour has been conceptualised as the extent of violation of rules and information distortion (Mukherjee and Nath, 2003).

The integrity of the online sellers and likelihood of violation of rules, regulation and obligations are major determinants of customer trust in online shopping (Lee and Turban, 2001). When customers process online information, they assess the probability and likely extent of the retailer's opportunistic behaviour. Due to the higher risk of opportunistic behaviour by online retailers, customers have lower levels of trust in online transactions (Clay and Strauss, 2000). They are uncertain of whether the online retailers would at all deliver the goods or whether the delivered goods would be of lower quality than represented (Klang, 2001). In addition, websites can be counterfeited, online identities can be forged (Ba, 2001) and electronic documents can be falsified (Bailey and Bakos, 1997). Therefore, the customer's level of trust would be partly based on whether he or she believes that the retailers would fulfil their obligations. Klang (2001) pointed out that customers would also assess the retailer's interests and then make a judgement about their integrity. Customers would also determine whether a degree of trust based on knowledge of the online retailer exists (Sultan *et al.*, 1999). It can thus be seen that under conditions of uncertainty and risk, the integrity of the online retailers is very important in helping customers to gain trust in online activities.

Information distortion and asymmetry is another important factor that affects customers' trust when they are engaging in online activities. The extent of the information asymmetry affects the way they process online information. Furthermore, in electronic transactions, customers cannot view the actual physical products or touch the products (Lee and Turban, 2001). Thus, they cannot assess the quality of the products before making any purchase decision. Under conditions of incomplete information on the quality of the products, customers frequently lack the trust to engage in online transactions (Ba, 2001).

We hypothesize that in online retailing, when customers believe that the retailer is engaging in opportunistic behaviour, or vice versa, such perceptions will lead to reduced trust.

*Privacy and security.* Privacy addresses the issue of protection of individually identifiable information on the internet. Privacy policies of an online retailer involve the adoption and implementation of a privacy policy, notice, disclosure, and choice/consent of consumers (Bart *et al.*, 2005). Benassi (1999) states that mechanisms such as trust-providing intermediaries and institutional infrastructures that establish and enforce rules and regulations can build trust by addressing privacy concerns. A number of surveys have found consistently high levels of concern about privacy in online purchase behaviour (Ackerman *et al.*, 1999; Swaminathan *et al.*, 1999).

Security is another factor that affects customer trust in online retailing. Security provided by an online retailer refers to the safety of the computer and credit card or financial information (Bart *et al.*, 2005). Customers believe that the internet payment channels are not always secure and could potentially be intercepted (Jones and Vijayasarathy, 1998). This reduces the customer's level of trust, discouraging them from providing personal information and making online purchases. On the other hand, Klang (2001) argues that the level of uncertainty and risk that customers perceive in online transactions is not dependent on whether the transactions are actually secure or not. Even if retailers adhere to a scientific assessment of security and privacy based on technological solutions and legal guidelines, customers' perceived sense of privacy and security would still be necessary to create the required level of trust to enable online transactions (Pavlou and Chellappa, 2001). Despite huge investments in privacy mechanisms such as proper handling of user information and responsible use of cookies, and in security technologies such as privacy seal programs, authentication mechanisms, and encryption, there is ambiguity as to whether these investments have an impact on online customers' perceptions about privacy and security, as customers differ in their general perceptions about privacy and security concerns. Klang (2001) also found that even though the development of technological and legal mechanisms for secure payment and protection of identity have improved online security and privacy, it does not adequately increase customers' faith in electronic transactions. However, one study has shown that recent developments in internet payment systems have caused the average customer to be less concerned about the security of electronic exchanges or privacy issues (Swaminathan *et al.*, 1999). Interestingly, Novak *et al.* (2000) identified security as one of the least important factors in creating a compelling online environment.

We hypothesize that in online retailing, when there is a higher perception of privacy and security, such perceptions will lead to increased trust.



*The antecedents to commitment*

Morgan and Hunt (1994) identified three antecedents to commitment:

- (1) relationship termination cost;
- (2) relationship benefit; and
- (3) shared value.

“Relationship termination costs” are all expected losses from termination of the relationship, and result from the perceived lack of comparable potential alternative partners, relationship dissolution expenses, and/or substantial switching costs (Morgan and Hunt, 1994). It is measured by contractual obligation and partnership stake. We hypothesize here that higher expected relationship termination costs will lead to higher commitment.

“Relationship benefit” is any addition in perceived customer value that comes out of a business relationship. Such customer value could arise from the nature of association and the sense of belonging. We hypothesize in this research that higher relationship benefits get translated into higher commitment.

Consistent with the organizational behaviour literature, we hypothesize that when the online retailer and the customer share some values they will be more committed to their relationship. Shared value, therefore, positively impacts on commitment.

*The consequence of trust (and commitment)*

“Behavioural intention” is the consequence of both trust and commitment. Based on Morgan and Hunt (1994), we conceptualize behavioural intention as consisting of word of mouth communication, purchase intention and continued interaction.

Word-of-mouth communication is defined as the willingness to engage in informal conversations about the product between people who are independent of the company providing the product, and in a medium independent of the company (Silverman, 1997). If trust and commitment are high, positive word-of-mouth communication is more likely.

Various researchers have suggested that online customers’ trust will positively influence their adoption of internet to search for information and subsequently, their intention to purchase online. With a greater degree of trust in the online retailer, customers are more willing to make online purchases (Jarvenpaa *et al.*, 1999; Novak *et al.*, 1999; Stratford, 1999; Sultan *et al.*, 1999; Gefen and Straub, 2001). Hoffman *et al.* (1999) argued that the likelihood of customers’ preferential usage of the internet to buy products over traditional physical stores is influenced by the amount of customer trust concerning the delivery of goods and use of personal information. In contrast, Luo (2001) stated that the relationship between trust and purchasing online is indirect, as there could be many factors that affect online purchases. Continued interaction in our study measures the likelihood of repeat and preferential usage of Internet over the short and long terms. We hypothesize that both trust and commitment have positive effects on customers’ online behavioural intentions. Theory suggests that these outcomes of trust and commitment promote relationship marketing success (Morgan and Hunt, 1994).

### Hypotheses

The overall model being tested in this research is given in Figure 1. Stated in formal fashion, our study tests 11 hypotheses:

- H1.* There is a positive relationship between trust and relationship commitment.
- H2.* There is a positive relationship between shared values and trust.
- H3.* There is a positive relationship between communication and trust.
- H4.* There is a negative relationship between opportunistic behaviour and trust.
- H5.* There is a positive relationship between privacy and trust.
- H6.* There is a positive relationship between security and trust.
- H7.* There is a positive relationship between shared values and relationship commitment.
- H8.* There is a positive relationship between relationship benefits and relationship commitment.
- H9.* There is a positive relationship between relationship termination costs and relationship commitment.
- H10.* There is a positive relationship between trust and behavioural intentions.
- H11.* There is a positive relationship between commitment and behavioural intentions.

The list of variables in the study and the measures used are provided in Table I.

### Construct definition

The model that we test here has ten constructs, each having multiple items that are measured using a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). Our survey instrument was developed on the basis of a qualitative phase consisting of 15 depth-interviews, and then an extensive pilot testing ( $n = 60$ , comprising 12 students, 30 working professionals from various industries and 18 self-employed people), leading to the adaptation of existing scales wherever appropriate. Table I lists the ten constructs and the corresponding 51 measures used in the final survey.

The shared value scale is obtained using a three-item scale modified from Morgan and Hunt (1994). The scale for website communication effectiveness is adopted from Morgan and Hunt (1994) and Moorman *et al.* (1993) and modified in the internet context. The measurement scale for opportunistic behaviour is developed from Morgan and Hunt (1994) and Klang (2001). Measures for privacy and security are adopted from Cheung and Lee (2001) and then modified using the feedback from qualitative interviews. The measures for the construct trust are taken from Morgan and Hunt (1994) and Egger (2000). The measurement scales for relationship benefit, termination costs and relationship commitment are borrowed from Morgan and Hunt (1994) and Dabholkar (1996), and modified on the basis of user interviews and pilot testing. The one-item measures for word-of-mouth and purchase intention are taken from Silverman (1997) and Sweeney *et al.* (1999), respectively. We modified the propensity to

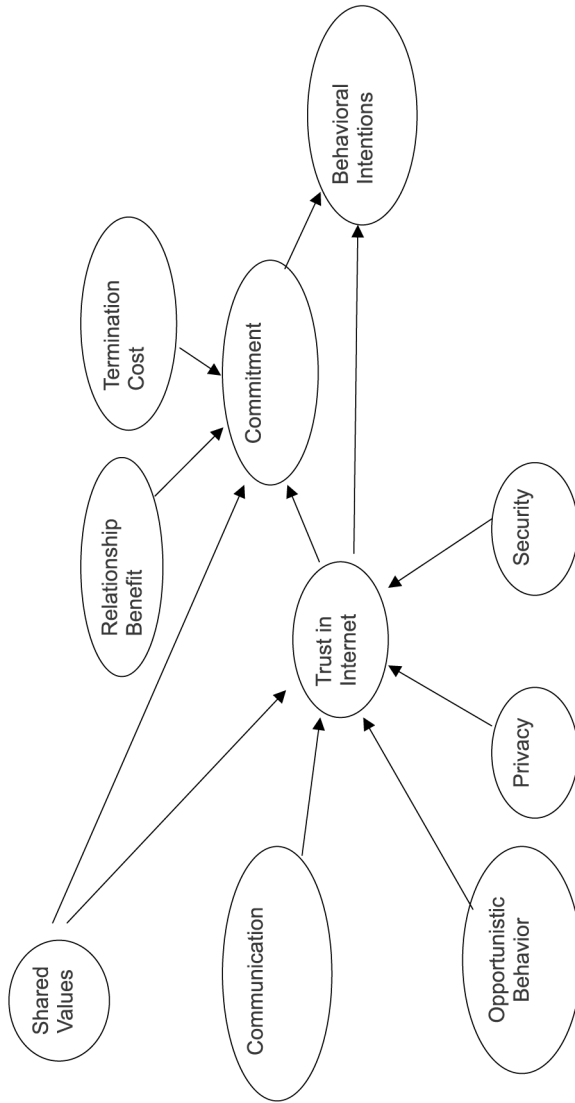


Figure 1.  
Proposed model

Main construct	Variable number	Sub construct	Item measures
Shared values	X1	Ethics	The online retailer takes measures to prevent kids from accessing adult content if any (SV1)
	X2		The online retailer allows users to select or deselect their inclusion on mailing lists or promotional campaigns (SV2)
	X3		The online retailer sticks to highest level of business ethics in all its transactions (SV3)
Privacy	X4	Information protection	The online retailer does not divulge or sell customer information without the customer's consent (P1)
	X5		The customer does not receive unsolicited emails from this online retailer (P2)
Security	X6	Safety features	The customer's credit card information is not prone to leakage (S1)
	X7		The security features used by the online retailer are latest (S2)
	X8		The online retailer uses payment gateways for transactions instead of using its own payment mechanisms (S3)
	X9		The online retailer has not been hacked in the past (S4)
Communication	X10	Quality of information	The online retailer provides high quality information (C1) The information provided by the online retailer contains visual effects (C2) The online retailer clearly mentions all tax, duties, shipping rates and any hidden costs to the customer before purchases are approved (C3) The online retailer only provides relevant information for the customer (C4) The online retailer allows customers to track order status on the website (C5) Minimum number of clicks are required to reach the relevant information (C6) The online retailer provides proofs to support its claims (e.g. mentioning the result of a poll/study) (C7)
	X11		Quality of response The online retailer keeps its customers informed about the latest developments (C8) The response of the online retailer to customer query is immediate (C9) The online retailer regularly seeks feedback from its customers (C10) The customer is able to provide online ratings to products and services offered on the website of the online retailer (C11)

**Table I.**  
List of variables and measures

*(continued)*

Main construct	Variable number	Sub construct	Item measures
	X12	Openness	The online retailer clearly mentions its rules, regulations, policies and practices to the customers (C12) The website of the online retailer creates an open environment where customers can freely interact with other customers and communicate on the products and services of the company (C13)
Opportunistic behaviour	X13	Violation of rules	To accomplish its own objectives, sometimes the online retailer does not adhere to the rules and regulations agreed upon by both parties (OB1)
	X14	Information distortion	The product information on the online retailer's website is not authentic (OB2) The disclaimers are not prominently mentioned on the website (OB3)
Trust	X15	Propensity to trust	I trust this website as a safe medium for transaction and purchase (T1) One should be very cautious when transacting on this website (T2) I believe there is negligible risk that something may go wrong with using this website for purchase (T3) I frequently change password of my account on this website (T4) I always read the online retailer's policies and terms before transacting (T5) This online retailer can be counted on to do what they say they will do (T6)
	X16	Trust in internet technology	New technologies on this website are beneficial for business (T7) New technology in the website like Flash, animation and visual effects fascinate me (T8)
	X17	Confidence in website	I transact with the website only when it is endorsed by someone (T9) I give my personal information only when the online retailer has a good reputation (T10) I use the website when I think it is popular (T11)
Relationship benefit	X18	Personalization of service	The website provides information to the user according to the needs of the customer (RB1) The online retailer gives personal attention to customer complaints (RB2) The advertisements and offers that the customer receives are according to his/her tastes and preferences (RB3)
	X19	Loyalty rewards	The online retailer gives special offers to regular customers (RB4) The online retailer gives redeemable points to regular visitors/buyers (RB5)

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(continued)

Table I.

Main construct	Variable number	Sub construct	Item measures
Relationship termination cost	X20	Contractual obligation	The online retailer has a policy of forfeiting the registration fee on cancellation of membership (TC1)
	X21	Partnership stake	I look for building a long-term relationship while initiating transaction with the online retailer (TC2)
Relationship commitment	X22	Nature of association	I feel a very high degree of association with the online retailer I transact with (RC1) I have a very long association with the online retailer that I transact with (RC2)
	X23	Sense of belonging	I feel a sense of belonging to the online retailer I transact with (RC3)
Behavioural intentions	Y24	Word of mouth	I would like to talk to my friends and acquaintance about the online retailer (BI1)
	Y25	Purchase intention	I would like to increase my share of purchase from the online retailer compared to physical stores (BI2)
	Y26	Continued interaction	I would like to continue using the services of the online retailer through the next six months (BI3) I would like to continue using the services of the online retailer through the next one year (BI4) I would like to continue using the services of the online retailer through the next two years (BI5)

**Notes:** In the LISREL models, X denotes exogenous (or independent) variables and Y denotes endogenous (or dependent) variables. For example, X8 stands for variable 8, which is an exogenous variable in the model. Ten items (C4, C6, C8, C10, T3, T6, T8, T11, RC2, BI5) of the 51 items listed above were subsequently not considered for further analysis based on the Lagrangian multiplier test

**Table I.**

leave scale (Hoffman and Novak, 1996a) to develop our three items for continued interaction. The summary statistics for the model construct items are furnished in Table II.

In view of the exploratory nature of this study, many scale items from previous studies had to be adapted to our context. Where no suitable measures were found, the scale items had to be specifically developed for the study. Reliability tests were performed on the variables using pilot-test data and on the final data. The Cronbach's  $\alpha$  scores obtained ranges from 0.70 to 0.87, all above the recommended minimum of 0.70 (Nunnally, 1978). The reliability estimates of the latent constructs and their measures used in this study are presented in Tables III and IV.

### Online data collection

Our final survey instrument was emailed to two key web user segments – professionals and students – in their respective e-groups of a large British university. Alumni of medical and business schools (2,043 members with 410 complete responses) and their current students (1,100 members with 241 complete responses) were contacted. Overall, 3,143 e-group members were contacted by e-mail and 651 completed



	Mean	Standard deviation	Role of electronic trust in online retailing
<i>Shared value</i>			
X1	3.82	0.51	
X2	3.99	0.68	
X3	4.07	0.42	
<i>Privacy</i>			
X4	3.44	0.68	
X5	3.50	0.65	
<i>Security</i>			
X6	3.60	0.59	
X7	3.84	0.67	
X8	4.02	0.61	
X9	3.1	0.41	
<i>Communication</i>			
X10	3.47	0.64	
X11	3.39	0.59	
X12	2.99	0.63	
<i>Opportunistic behaviour</i>			
X13	3.56	0.97	
X14	3.17	0.73	
<i>Trust</i>			
X15	3.46	0.48	
X16	3.02	0.57	
X17	3.59	0.83	
<i>Relationship benefit</i>			
X18	3.27	0.61	
X19	3.17	0.85	
<i>Termination cost</i>			
X20	3.04	1.03	
X21	3.16	0.99	
<i>Commitment</i>			
X22	3.35	0.89	
X23	3.17	0.77	
<i>Behavioural intention</i>			
Y24	3.79	0.79	
Y25	3.75	0.41	
Y26	3.87	0.56	

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**Table II.**  
Summary statistics for the model constructs

our survey, signifying a response rate of 21 per cent. The e-mail was accompanied by a covering letter explaining the purpose of the study and a link to the survey questionnaire, which could be filled in online. All the questions asked were pertaining to the most visited online retail website of the respondent. Since our survey employs non-probabilistic convenience sampling with self-selection bias, it is not entirely representative of general web users.

Before running the analysis, the data collected was tested for multivariate normality, linearity, and homoscedasticity. Normal probability plots and

**Table III.**  
Reliability estimates for  
the model constructs

	Cronbach's $\alpha$
Shared values	0.70
Privacy	0.70
Security	0.78
Communication	0.80
Opportunistic behaviour	0.73
Trust	0.72
Relationship benefit	0.79
Relationship termination cost	0.78
Relationship commitment	0.71
Behavioural intentions	0.81

**Table IV.**  
Reliability estimates for  
the sub-construct level  
latent variables

	Cronbach's $\alpha$
Ethics (three items)	0.70
Information protection (two items)	0.70
Safety features (four items)	0.78
Quality of Information (five items)	0.77
Quality of response (two items)	0.87
Openness (two items)	0.70
Information distortion (two items)	0.81
Propensity to trust (four items)	0.75
Confidence (two items)	0.80
Personalization of service (three items)	0.71
Loyalty rewards (two items)	0.77
Continued interaction (two items)	0.84
<b>Note:</b> All other variables (eight variables) have single-item measures, hence Cronbach's $\alpha$ is not calculated	

Kolmogorov-Smirnov (K-S) test were used to assess the multivariate normality. K-S values were significant at 0.05 levels for all measured variables. Graphical methods like scatter plots and test of equal variance dispersion were used to test the assumptions of linearity and homoscedasticity (Hair *et al.*, 1995). Respondents were prompted by the web server to complete any omitted items. So, our final sample size was 651 with no missing responses.

Following Novak *et al.* (2000), our sample was randomly split unevenly into calibration sample ( $n = 400$ ) and validation sample ( $n = 251$ ) for model validation.

### Structural model construction and validation

We followed a two-stage approach of structural equation model construction and cross-validation as prescribed by Gerbing and Anderson (1988) and applied by Novak *et al.* (2000). First, we assessed the goodness-of-fit for the model using confirmatory factor analysis (CFA). We used the correlation matrix of the calibration sample as the input for model estimation rather than the covariance, as correlations are much more easily interpreted and give the pattern of relationships among the exogenous and endogenous constructs (Hair *et al.*, 1995). The results were inspected for negative

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variances, standardized coefficients exceeding 1, and large standard errors associated with any estimated coefficient and the measurement fit was obtained using absolute fit measures of the adjusted goodness-of-fit index (AGFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA). Composite mean values of sub-constructs were used for analysis.

The RMSEA value of our structural model (see Figure 2) turned out to be 0.058, where the recommended RMSEA value should be below 0.08 for reasonable fit and below 0.05 for a close fit (Browne and Cudeck, 1993). The incremental fit measured by AGFI was 0.91, which was marginally above the recommended value of 0.9 (Hair *et al.*, 1995). The parsimonious fit measured by the CFI was 0.922, which should have a minimum value of 0.9 for a close fit (Bentler, 1990).

In the second stage, we used the Lagrange multiplier (LM) test as suggested by Novak *et al.* (2000) to identify the measured variables that are loaded on multiple latent factors. For each of the latent variables (Xs), we estimated a restricted regression using some of the measured items and obtained the residuals. The residual values are then regressed on all the measured items as the regressors. We identified two items of X10 (C4 and C6), two items of X11 (C8 and C10), two items of X15 (T3 and T6), one item of X16 (T8), one item of X17 (T11), one item of X22 (RC2), and one item of Y26 (BI5) as the surplus measured variables loaded on the same latent factor and thus deleted them. Thus, the initial 51 items in the measurement scale were reduced to 41 items. The RMSEA of the modified model was 0.054, AGFI was 0.921 and CFI was 0.929, which closely satisfied the requirements for an excellent fit.

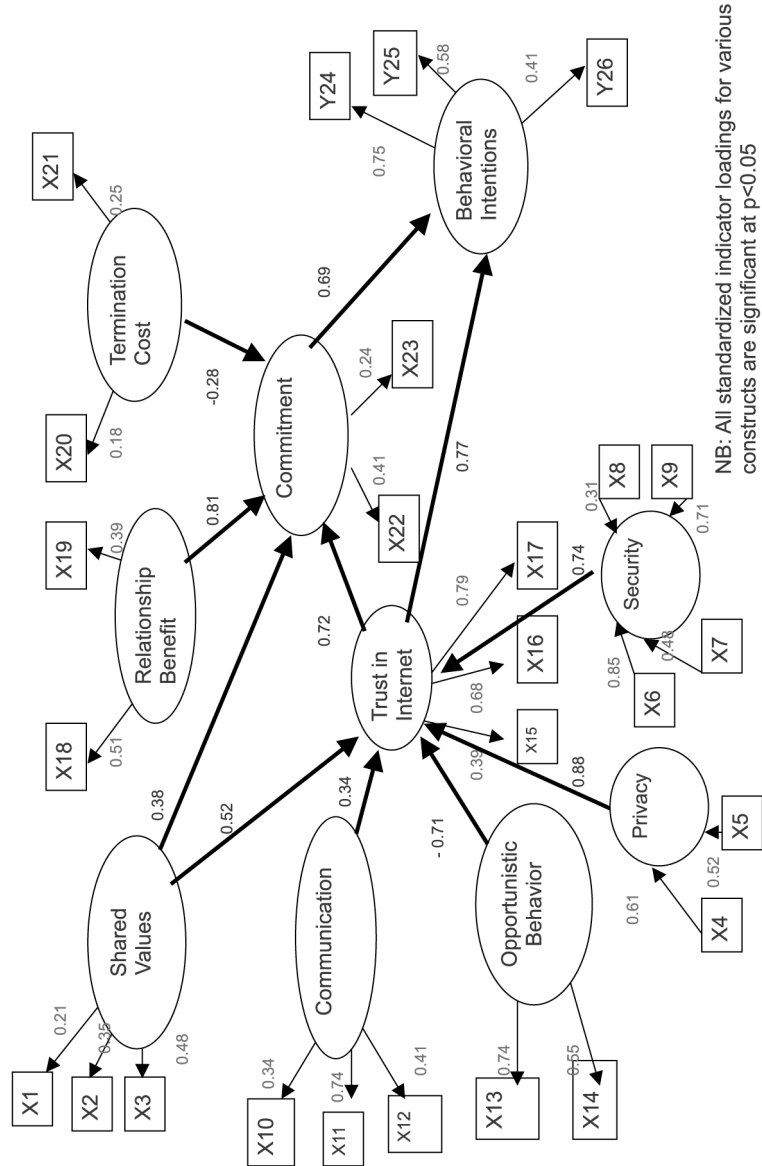
#### *Cross-validation of the model*

For the purpose of cross-validating our model, we re-estimated the model parameters with our validation sample of 251 respondents. The overall goodness of fit parameters with the validation sample was as follows: RMSEA = 0.058, AGFI = 0.921 and CFI = 0.928. All these indices were within the specified limit suggesting cross validity of our structural model. We conclude that the model fits well and represents a close approximation to the population. The standardized path coefficients, all significant at  $p < 0.05$  are given in the LISREL results. The LISREL results for the structural model are presented in Figure 2.

#### *A rival model*

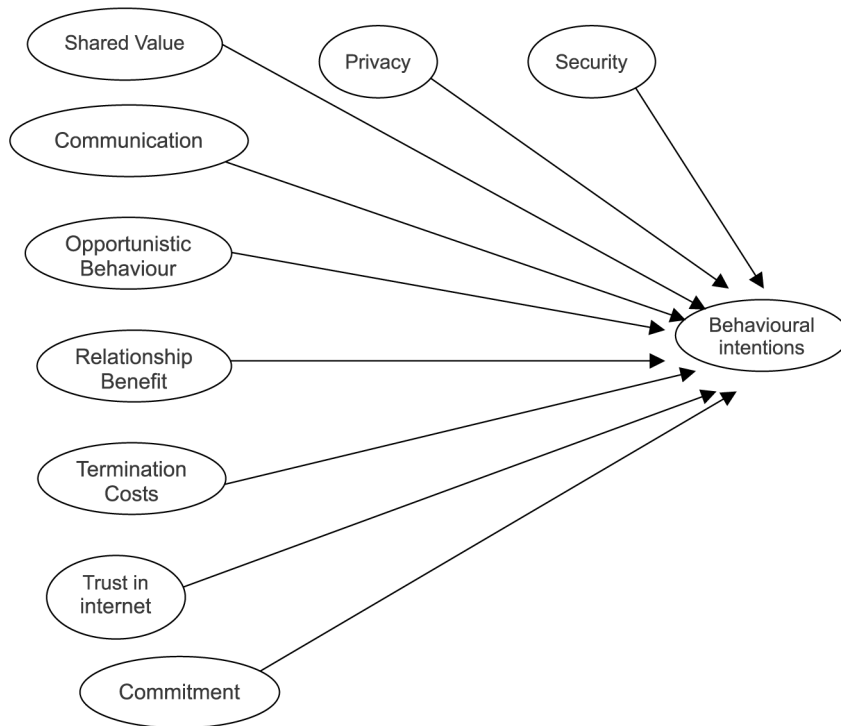
Following Morgan and Hunt (1994), we propose a rival model as shown in Figure 3, where trust and relationship commitment do not act as mediators between the five independent variables and behavioural intention but rather act as antecedents along with the independent variables. Although there is no theoretical justification for this rival model, the effects of the individual antecedents on outcome variable are well researched (Morgan and Hunt, 1994).

We evaluate the rival model on the basis of absolute fit (RMSEA = 0.11), incremental fit (AGFI = 0.798), and parsimonious fit (CFI = 0.712) (see Table V). All the goodness-of-fit measures fall below acceptable levels. We also find that only four out of nine (44 per cent) of the model's hypothesized relationships are statistically significant at the  $p < 0.05$  level. We further examined the mediation effect of trust and commitment using the procedures recommended by Baron and Kenny (1986) and Sobel (1982). The Baron and Kenny tests involve regressing:



NB: All standardized indicator loadings for various constructs are significant at  $p < 0.05$

**Figure 2.**  
Structural model and findings



**Figure 3.**  
A rival model

Path	Proposed model	Estimate	Path	Rival model	Estimate
Termination cost-commitment		-0.28	Shared value-behavioural intentions		0.19
Relationship benefit-commitment		0.81	Privacy-behavioural intentions		0.24 <sup>a</sup>
Shared value-commitment		0.38	Security-behavioural intentions		0.21 <sup>a</sup>
Shared value-trust		0.52	Communication-behavioural intentions		0.11
Communication-trust		0.34	Opportunistic behaviour-behavioural intentions		-0.02
Opportunistic behaviour-trust		-0.71	Relationship benefit-behavioural intentions		0.06
Privacy-trust		0.88	Termination cost-behavioural intentions		-0.11
Security-trust		0.74	Trust-behavioural intentions		0.41 <sup>a</sup>
Trust-commitment		0.72	Commitment-behavioural intentions		0.37 <sup>a</sup>
Trust-behavioural intentions		0.77			
Commitment-behavioural intentions		0.69			
RMSEA = 0.054			RMSEA = 0.11		
AGFI = 0.921			AGFI = 0.798		
CFI = 0.929			CFI = 0.712		

**Notes:** For the proposed model, all loadings are significant at  $p < 0.05$ ; <sup>a</sup>loadings significant at  $p < 0.05$

**Table V.**  
Analysis of competing structural models

- the antecedents on the mediating variable;
- the mediating variable on the outcome variable;
- the antecedents on the outcome variable; and
- the antecedents and mediating variable on the outcome variable.

For mediation to be established, the antecedents should be related to the mediating variable, the mediating variable should be related to the outcome variable, and the effect of the antecedents on the outcome variable should be diminished by the mediating variable. In our analyses, all the conditions for mediation are met, and the tests show that the influences of shared value, communication and opportunistic behaviour on behavioural intentions are completely mediated through trust and commitment, and the influences of privacy and security are partially mediated. Thus, we find that trust and relationship commitment act as mediators between the antecedents and behavioural outcome, and the superiority of our proposed model over the rival model is established.

### **Key findings**

There is a strong positive linkage between trust and relationship commitment. This re-confirms the fundamental tenet of the commitment-trust theory. *H1* is established. Measures of relationship commitment like nature of association and sense of belonging have significant impact on the construct. Trust is significantly influenced by all its measures with confidence in website playing a crucial role.

Shared value is a significant determinant of trust. It enhances the feeling of association, develops bonding and builds long-term relationships. Thus, *H2* is confirmed. Within shared values, maintaining highest level of ethics in all business transactions is the most significant issue.

Communication also plays a significant role in creating trust. Thus, *H3* is confirmed. Quality of response is most critical to communication.

Opportunistic behavior tends to have a significant negative impact on trust. Thus, *H4* is confirmed. Violation of rules plays a significant role in fostering opportunistic behaviour.

Privacy turns out to be the most significant determinant of consumer trust. It is an expected result as privacy is the key factor affecting the trustworthiness of an online retailer. Thus, *H5* is confirmed. Revealing or selling consumer information for commercial purpose is the crucial determinant of trust.

Security is the second most important determinant of consumer trust. Use of secured payment mechanisms, no leakage of credit card information, and past attempt on website hacking all played significant role in developing a sense of security in the consumers mind. Thus, *H6* is confirmed. Secured credit card transaction information is the most important determinant of security.

Shared value has significant impact in developing relationship commitment. The impact, however, is less for relationship commitment than for trust. Nevertheless, *H7* is confirmed.

Relationship benefit has very high positive impact on commitment. Therefore, *H8* is confirmed. Personalization of service and loyalty rewards significantly impact relationship benefit.



Termination cost is negatively correlated with relationship commitment. This goes against our hypothesis that there is a positive relationship between relationship termination cost and commitment. Thus, *H9* is disproved. Both contractual obligation and partnership stake constitute termination cost.

Both trust and commitment have significant impact on customers' behavioral intentions. Higher values of consumer trust leads to higher intentions to engage in e-transactions. Thus, *H10* is confirmed.

Behavioural intentions are positively affected by higher level of commitment. This establishes *H11*. It is worth noting that trust has a greater impact on consumer behaviour than commitment.

The results of the 11 hypotheses and their comparison to Morgan and Hunt's (1994) propositions are summarized in Table VI.

### Discussion of results

The major objective of this study was to re-examine the commitment-trust theory proposed by Morgan and Hunt (1994) in the online retailing context. We theorized a model in which shared values, communication, opportunistic behaviour, privacy and security act as antecedents to trust between an online retailer and its consumers. Relationship benefit and termination cost act as antecedents to commitment.

Hypothesis	Our results	Results from Morgan and Hunt (1994)
<i>H1</i> There is a positive relationship between trust and relationship commitment	Supported	Supported
<i>H2</i> There is a positive relationship between shared values and trust	Supported	Supported
<i>H3</i> There is a positive relationship between communication and trust	Supported	Supported
<i>H4</i> There is a negative relationship between opportunistic behaviour and trust	Supported	Supported
<i>H5</i> There is a positive relationship between privacy and trust	Supported	Not proposed
<i>H6</i> There is a positive relationship between security and trust	Supported	Not proposed
<i>H7</i> There is a positive relationship between shared values and relationship commitment	Supported	Supported
<i>H8</i> There is a positive relationship between relationship benefits and relationship commitment	Supported	Not supported
<i>H9</i> There is a positive relationship between relationship termination costs and relationship commitment	Not supported	Supported
<i>H10</i> There is a positive relationship between trust and behavioural intentions	Supported	Not proposed
<i>H11</i> There is a positive relationship between commitment and behavioural intentions	Supported	Not proposed

**Table VI.** Summary of hypotheses testing

Relationship commitment and trust act as key mediator variables which significantly affect the user's behavioural intentions, like the propensity to spread positive word-of-mouth, purchase intentions and continued interaction with the online retailer. Investigation of the hypotheses with survey data from internet users ( $n = 651$ ) reveals that trust and commitment are the central constructs in building successful long term relationship in the online retailing context.

#### *Shared values*

Our research reveals that shared value is a significant determinant of electronic trust. Shared value also leads to increased commitment from the customer. The customer on the net looks for a better association with the online retailer. Shared values enhance the feeling of association, develop a bonding and nurture an associative long-term relationship. This then leads to the birth of trust. Thus, in order to develop a trust-based relationship, the online retailer must strive to foster a culture of ethics to inculcate positive shared values in the relationship.

#### *Communication*

Communication is also found to play a critical role in building retailer-consumer trust relationship on the internet. Customers expect a high quality of response and information, openness in communication, feedback and speed of response from an online retailer. Responding effectively to customer complaints and providing real-time information on order fulfilment are critical examples of online communication. Dutta and Segev (1999), based on a survey of leading websites, found that nearly all encouraged customer feedback, typically via the website. Since online communication is inherently two-way, a personalised and customised customer dialogue that is helpful, positive, timely, useful, easy, and pleasant can go a long way in cementing a trust-based customer relationship.

#### *Opportunistic behaviour*

As expected, opportunistic behaviour, measured by attributes like distortion of information and violation of rules and regulations, has a negative influence on trust. Online retailers should ensure dissemination of authentic information to the consumers to prevent negative images in the minds of the users. Coherence between what the online retailer promises and delivers, and hosting correct product related information with appropriate disclaimers, can reduce the perception of opportunistic behaviour amongst web-users. Track records of order fulfilment and respecting price promotions and deals with fairness help to reduce perceptions of opportunistic behaviour. No wonder that online retailers can increase customer trust by means of personal integrity, upheld promises, and forgone opportunistic behaviour (Yoon, 2002).

#### *Privacy*

Privacy is the most significant determinant of consumer trust. The importance of online privacy in terms of protection of individual information (personal or financial) can hardly be overemphasized (Hoffman *et al.*, 1999). Information on privacy policies, disclosures, and consent of the visitors is greatly emphasized in the e-commerce literature (Bart *et al.*, 2005). Consumers expect that online retailers have a clearly visible privacy policy that they will not divulge or sell customers' personal information

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without their consent, but that they will provide them with the opportunity to opt out of the reselling of personal information, and send no unsolicited promotional e-mails. Privacy turns out to be more crucial for retail websites that require detailed customer information, particularly financial information.

### *Security*

Security proved to be the second most important determinant of consumer trust in the online retailing context. Consumers consider security to be a key issue in making any purchase online and look for authentication seals as a measure of trustworthiness (Bart *et al.*, 2005). We found that consumers are extremely concerned about the possibilities of technological loopholes leading to credit card information leakage and incidents of any hacking attempts on the website. Use of the latest security features is also a significant requirement to make the website more trustworthy.

The issues of privacy and security as antecedents to trust and commitment are not explored in the model of Morgan and Hunt (1994). In traditional relationship marketing literature, trust is dependent on the buyer-seller relationship and evolves over time on the basis of the seller's reliability, honesty and integrity. The issue of trust in the online context is quite different as it is more dependent on the technology (or the website) rather than physical interaction between the buyer and the seller. A consumer's trust and commitment towards a website depends on his/her perception of how the website meets his/her expectations on integrity, delivers as per the promises made, and how dependable it is (Bart *et al.*, 2005). So, we are not surprised to see the dominance of privacy and security in our attempt to re-examine the model of Morgan and Hunt (1994) in an online retailing context.

### *Relationship commitment*

Our findings relating to relationship commitment differ from Morgan and Hunt (1994) in two significant ways. Morgan and Hunt (1994) found no support for their hypothesis of positive relationship between relationship benefits and commitment. They attributed this result to their comparative measure of relationship benefits, which required respondents to evaluate the benefits of suppliers compared to the alternatives. Our measure concerned absolute level of benefits in areas such as personalization of service and loyalty rewards. Our findings lend support to the positive relationship between relationship benefits and commitment.

On the other hand, our hypothesized positive effect of relationship termination costs on relationship commitment is not supported. This is in contrast to Morgan and Hunt (1994), who concluded that relationship termination cost increased relationship commitment. One possible reason for this is our conceptualisation of termination costs not just as economic cost but psychic cost as well. Another explanation of this result is that our conceptualisation of commitment is more of the affective type, as opposed to normative or continuance type according to the three-component model of commitment (Allen and Meyer, 1990). Relationship termination cost would normally increase continuance commitment, which is not included in our commitment scale. A third possibility as suggested by the literature regarding online loyalty is that relationship termination costs may simply be substantially lower in the online environment for most lesser-known websites with competition only a mouse-click away (Danaher *et al.*, 2003).

*Customers' behavioural intentions*

Both trust and commitment have a significant influence on customers' behavioural intentions. A customer who trusts an online retailer shall give positive recommendations to others. Hence, positive relationship is found to exist between trust, commitment and word of mouth. A trusting customer will always consider to buy from the website. Hence, trust and commitment have significant positive influence on the purchase intentions of the customer. Higher trust and commitment also promote continued interaction between the online retailer and the buyer. Chircu *et al.* (2000) also found that trust has a direct positive and significant effect on customers' online behavioural intention, thus fostering initial and repeat purchase, continued interaction and encouraging word-of-mouth recommendation (Rutter, 2000).

**Contributions, limitations, implications and conclusion**

The contributions of this study in the discipline of relationship marketing in the online retailing world are manifold. First, we demonstrate that an extended KMV model of the commitment-trust theory of Morgan and Hunt (1994) explains perfectly well the role of electronic trust in online retailing. Second, taking a lead from the limitations of Morgan and Hunt's (1994) study, we developed different sets of measures for the antecedents and consequences of trust and commitment. The measures were developed based on extensive pre-tests with online retail companies and their users, which helped us to check the face validity of the scales. The measure for relationship benefits as proposed by Morgan and Hunt (1994) was modified to include personalization of service and loyalty rewards. Morgan and Hunt (1994) measured relationship benefit using a comparative measure between the major and alternate suppliers. We found that an absolute measure works better, as satisfied customers are unwilling to switch to alternative retailers for short-term benefits. Third, since none of the three antecedents of Morgan and Hunt (1994) – i.e. shared value, communication, and opportunistic behaviour – directly addresses privacy and security, adding them to our enhanced model helped to explain trust and commitment better in the online retailing context. We found both privacy and security to have significant impacts on trust and commitment. Fourth, our study confirms that trust significantly affects customers' intention to engage in online retail transaction. The research also throws new light on the impact of relationship benefits and termination costs on commitment. Finally, we demonstrate the superiority of our proposed model when compared to an alternative base model.

Apart from the re-examination of commitment-trust theory in the online retail context, our study attempts to make some other fundamental contributions in understanding online consumer behaviour. Consumer trust plays a key role in success of any retail business. We find that generating confidence in websites through endorsement by celebrities and trust in technological features has significant impact in building consumer trust towards a website. Developing reputation of the online retail brand acts as assurance to the customers (Jarvenpaa *et al.*, 1999; Stratford, 1999). The best way to create customer confidence is through third party endorsement. This is more significant if the third party is a peer consumer (Li *et al.*, 2001). This has immense implications for commercial retail website design and long-term internet retailing strategies.

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Privacy is found to be the most important determinant of trust. Co-operative interaction between the customer and the online retailer (Li *et al.*, 2001; Novak *et al.*, 1999), and use of privacy programmes (Li *et al.*, 2001) can improve the trustworthiness of the website. A consumer visiting a website will expect clear guidelines on consumer privacy on non-disclosure of private information and receiving unsolicited e-mails.

Customers are more willing to provide information and make purchases online with higher perceived security (Ackerman *et al.*, 1999). While credit card brands and web-based seals of approval provide security, it has been found that web-based security seals such as the Better Business Bureau, Verisign, and TRUSTe, which are recognised by customers, are more effective than credit card logos (Jarvenpaa *et al.*, 1999; Stratford, 1999). Security perceptions can be enhanced through explicitly mentioning the use of encryption (Stratford, 1999). Guarantee of online transactions by major financial institutions or vendors increases customers' trust (Rutter, 2000), which encourages them to engage in online information search and purchase.

Our study showed communication between the online retailer and its users is a significant determinant of consumer trust. A greater number of links with other established websites and the presence of a virtual advisor (Sultan *et al.*, 1999; Jarvenpaa *et al.*, 1999) can improve communication and reinforce consumer trust. In addition, integrating human assistants into web systems is a way to provide efficient user support and increase online customers' trust in a retailer (Aberg and Shahmehri, 2001).

Virtual communities of online retail customers are also valuable resources for promoting quality of response through providing reviews, hints, tips and buying advice (Rutter, 2000). Through virtual communities, there can be interaction among the members and more importantly, trust is heavily linked to the development, fostering and maintenance of online community relationships. Facilitating flow in online customers to a site through combination of goal orientated challenge, feedback, and interaction with other online customers in the community encourages the development of trust. Role of online community is emphasized in Bart *et al.* (2005). Finally, as the studies conducted by Dutta and Segev (1999) show, enhancing, developing and maintaining customer relationships remains a priority for all retailers online. Thus, our research reinforces the importance of trust as a key driver to developing online customer relationships.

Like any other study, this study is also not without its limitations. Customer variables such as knowledge, expertise, familiarity, satisfaction, and technology receptivity, which may affect trust, have not been included in this study. Trust is likely to increase with greater "know-how" regarding online searching, shopping, matching, determining product quality, and monitoring the fulfillment of transactions (Yoon, 2002). Future studies can compare the effects of website design variables with such customer personal variables on trust formation.

The nature of the transacted product is acknowledged as an important variable. It is likely that customers' trust-related cognition and behaviour are different depending on the type of goods: price, commodity status, risk involved, etc. Our research has focused more at the level of the online retailer's website rather than individual products. It is possible that customers would develop different levels of trust when transacting for different products on the same website (Bart *et al.*, 2005). This remains an area that only further empirical work can confirm or disconfirm.

Another limitation is the cross-sectional research design employed. In any model in which causality is suggested, longitudinal studies provide for stronger inferences (Morgan and Hunt, 1994). Thus, the model tested in this paper can subsequently be tested in a longitudinal design. Also, the study can be replicated in other countries and contexts for greater generalizability.

In conclusion, we find that the commitment-trust theory of relationship marketing can be applied successfully in the online retailing context, with few enhancements specific to the context like online privacy and security. We demonstrate how trust can be developed through creating perceptions of shared values, privacy, security, and communication in online retailing. The behavioural intentions of online retail customers depend on perceived trust and commitment. The issue of trust is therefore increasingly recognized as a critical success factor in the emerging retail “marketspace”.

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