

-RESEARCH ARTICLE-

## CONSUMER TRUST IN E-COMMERCE: FACTORS AFFECTING TRUSTWORTHINESS

**Amani Abbas**

Applied College, King Faisal University,  
Al-Ahsa 31982, Saudi Arabia.  
E-mail: [ammohamed@kfu.edu.sa](mailto:ammohamed@kfu.edu.sa)

**Sobia Talat**

National University of Modern Languages, Aewan E Iqbal, Egerton Road,  
Lahore, Pakistan.  
Email: [imsstalat@numl.edu.pk](mailto:imsstalat@numl.edu.pk)

\*Corresponding author Email: [ammohamed@kfu.edu.sa](mailto:ammohamed@kfu.edu.sa)

### —Abstract—

The objective of this study is to investigate the impact of various factors, namely Website Design and Usability (WDU), Information Security (IS), Perceived Vulnerability Consumer Rating (PVCN), Perceived Product Transparency (PPT), Customer Reliability (CR), and Social Risk (SR), on the level of Consumer Trust in E-Commerce (CTE). This research examines the correlation between these variables and their impact on consumer trust within the realm of online commerce. A reliable and valid structured instrument was used for data collection. A total of 259 individuals with previous experience in E-Commerce participated in the study, using a five-point Likert scale. The participants' involvement in online shopping and E-Commerce transactions made them relevant to the study. The primary analysis technique chosen was structural equation modelling (SEM) in AMOS, due to the utilisation of survey-based instruments with latent variables. The results shed light on the intricate interplay among different variables within the realm of electronic commerce and their impact on consumer trust. The influence of website design and usability on consumer trust in-commerce via social risk is apparent. Furthermore, the influence of Social Risk on Consumer Trust in the realm of E-Commerce is of utmost importance, underscoring the need to effectively address and handle social risk factors in order to foster and sustain Consumer Trust in E-Commerce platforms. Similarly, the study found that social risk plays a mediating

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role in the relationship between Information Security, Perceived Vulnerability Consumer Rating, Perceived Product Transparency, Customer Reliability, and Consumer Trust in E-Commerce. This study investigates the factors that influence Consumer Trust in E-Commerce, contributing to the overall understanding of trust formation in online purchasing. It offers guidance for E-Commerce businesses aiming to enhance consumer trust and trustworthiness in online environments.

**Keywords:** Consumer Trust in E-Commerce (CTE), Website Design and Usability (WDU), Information Security (IS), Perceived Product Transparency (PPT) and social risk (SR)

## INTRODUCTION

The prevalence of electronic commerce has emerged as a significant phenomenon in the modern era, particularly in the 21st century. This specific type of business model involves the conversion of a traditional physical establishment into its digital equivalent. Managers across the globe have faced challenges in understanding the behaviour of consumers in the online environment. The studies mentioned above collectively provide valuable insights regarding customer trust in the context of electronic commerce. [Gashema and Alain \(2023\)](#) asserts that the cultivation of customer trust is a pivotal factor in fostering the prosperity of electronic commerce. In relation to this matter, [Gashema and Alain \(2023\)](#) presents a theoretical framework that establishes a correlation between the calibre of a website and the trust customers place in intermediaries, consequently impacting their inclination to engage in online transactions. [Maulana's \(2023\)](#) study investigates the importance of trust in online reviews and social commerce, specifically in its impact on customer satisfaction, loyalty, and subsequent effects on consumer buying patterns. The main aim of the study conducted by [Mugil et al. \(2023\)](#) is to create a reliable framework for monitoring trust. This framework will allow clients to effectively identify suppliers who can be trusted. The framework achieves this by utilising trust profiles and sentiment analysis. [Zimu \(2023\)](#) examines the impact of cultural factors on consumer behaviour in the E-Commerce setting.

This research focuses on the importance of cultural dimensions, language and communication, trust and security, and social influence. By understanding and managing these factors, businesses can enhance customer trust and optimise their E-Commerce strategies. The internet has greatly changed how customers search for and purchase goods and services. Online shopping, also known as e-shopping, is a form of electronic commerce where customers can buy products or services directly from a vendor through the Internet using a computer browser. Consumers choose to engage in the acquisition of goods and services because it saves time and provides a wider range of options compared to traditional shopping methods. The papers collectively suggest

that various factors impact customer trust in the context of electronic commerce. [Pregoner et al. \(2020\)](#) found that customers perceive competence, compassion, and honesty as key factors in assessing the trustworthiness of internet companies. [Falahat et al. \(2019\)](#) identified various factors that contribute to confidence in E-Commerce among Malaysian online consumers. The factors encompassed in this study are brand recognition, service quality, security, and word-of-mouth.

In addition, [Shettar \(2019\)](#) underscored the importance of proficiently executing online deliveries and mitigating intricacies as crucial tactics for cultivating customer confidence in the domain of electronic commerce. The research conducted by [Rodrigues \(2021\)](#) unveiled a positive association between consumer experience in electronic commerce and social media utilisation, as well as the degree of trust in online purchasing. However, it was noted that the anxiety associated with the act of revealing personal information did not exert a substantial impact on the level of trust. The primary objective of this research framework is to investigate the underlying factors that impact consumer trust within the realm of electronic commerce. The aforementioned factors encompass various aspects such as website design, security measures, product information, customer reviews, and customer support. The research incorporates a mediator variable, specifically referred to as "Perceived Risk," to provide a clearer understanding of how security measures impact consumer trust through the mediation process. The study can utilise quantitative methodologies to empirically investigate these hypotheses and gain a more comprehensive comprehension of the mechanisms that foster trust in the context of electronic commerce.

## LITERATURE REVIEW AND HYPOTHESIS

Despite the myriad benefits that electronic commerce (E-Commerce) provides to businesses, a notable obstacle encountered by numerous enterprises revolves around the constrained adoption and utilisation of E-Commerce platforms by consumers. Previous studies have indicated that users' inclination to participate in online transactions is influenced by two crucial factors: the user's perception of the technology's usability and the user's assessment of the online merchant's trustworthiness. Considering the web interface's role as the principal medium of interaction between consumers and merchants, it is crucial for the interface to establish a sense of trust in the merchant and optimise the user experience through seamless utilisation of the technology. The literature collectively suggests a positive correlation between website design and usability, as well as consumer trust within the realm of electronic commerce. Based on the research conducted by [Oorni et al. \(2004\)](#), it was noted that the inclusion of superior design and optimal usability in the websites of vendors has the capacity to reduce customer uncertainty and function as an indicator of trust in the context of electronic commerce. The importance of website design in influencing users' perceptions of trust is emphasised by both [Fimberg and Sousa \(2020\)](#). The authors specifically highlight the

importance of a professionally designed website that incorporates visually appealing elements in order to create a positive initial impression, thereby increasing the likelihood of users engaging in purchasing behaviour on the website. [Hwang \(2008\)](#) conducted a study that identified several design variables that exerted a significant influence on the perceived trustworthiness of E-Commerce websites. The study revealed that the influence of these factors on trust exhibited variability contingent upon the gender and age demographics of the customers.

**H1:** Website Design and Usability (WDU) positively influences Consumer Trust in E-Commerce (CTE).

There are a number of noteworthy characteristics that set the advent of internet commerce apart, including anonymity, uncertainty, lack of control, and the potential for opportunistic behaviour. Therefore, the effectiveness of electronic commerce relies significantly on the implementation of strong security measures and privacy safeguards to safeguard the sensitive personal information of its users. The prevailing deficiency in consumer acceptance pertaining to the implementation of Electronic Commerce can be attributed to apprehensions surrounding the security and privacy of personal information, as well as a dearth of confidence and reliability in online merchants. The establishment and maintenance of consumer trust in online transactions are crucial factors that contribute significantly to the continuous growth and progress of Electronic Commerce. The incorporation of technological advancements in the realm of Business-to-Consumer (B2C) E-Commerce necessitates active involvement and participation from consumers, thereby exposing them to a wide range of potential security risks. The articles collectively suggest that a correlation exists between information security and consumer trust within the realm of Electronic Commerce.

According to a study by [Girsang et al. \(2020\)](#), the domains of information security and privacy have a significant impact on consumer satisfaction and trust in the context of electronic commerce. The study conducted by [Shahibi and Fakeh \(2011\)](#) aimed to assess and prioritise security factors that can engender trust among users. The research findings indicate that incorporating the identified security elements into E-Commerce systems is recommended. [Jeong and Choi \(2015\)](#) conducted a study that investigated the influence of information security awareness on consumer confidence within the realm of E-Commerce. The findings of the study indicated a noteworthy impact on trust. The present study, conducted by [Suh & Han \(2003\)](#), aimed to examine the impact of customer perceptions of security control on the level of acceptability of E-Commerce. The study's findings indicate that trust serves as a mediator in this particular relationship. Overall, the findings of this study offer empirical support that emphasises the importance of information security in cultivating consumer trust in the context of Electronic Commerce.

**H2:** Information Security (IS) positively influences Consumer Trust in E-Commerce (CTE).

The issue of trust difficulties remains widely recognised as a substantial obstacle in the effective implementation of Electronic Commerce. Due to the increasing incidence of cybercrimes in modern society, individuals are faced with a sense of ambiguity when considering engagement in online purchasing endeavours. To ensure personal safety, consumers engage in specific procedures aimed at safeguarding their information. These procedures involve evaluating and assessing the reliability of websites prior to making a purchase. The collective results of the conducted studies suggest a positive correlation between the perceived vulnerability consumer rating (PVCR) and consumer trust in E-Commerce (CTE). [Thaw et al. \(2012\)](#) study demonstrated that the impact of web vendors' trustworthiness on consumers' confidence in participating in E-Commerce transactions was found to be statistically insignificant. [Zhang et al. \(2010\)](#) study presents empirical findings that substantiate the proposition that the reputation of sellers exerts a favourable impact on consumer trust in the realm of consumer-to-consumer (C2C) Electronic Commerce. A study conducted by [Corbitt et al. \(2003\)](#) revealed the identification of several factors related to trust within the context of business-to-consumer (B2C) electronic commerce. The factors considered in this study included perceived market orientation, site quality, technical trustworthiness, and the user's web experience. The findings of [Rodrigues' \(2021\)](#) study indicate a significant positive relationship between consumers' E-Commerce experience and their utilisation of social media, as well as the extent of trust they demonstrate when engaging in online purchasing. The impact of anxiety arising from perceived threats does not exhibit a moderating influence on consumer trust in the realm of Electronic Commerce.

**H3:** Perceived Vulnerability Consumer Rating (PVCR) positively influences Consumer Trust in E-Commerce (CTE).

[Jones and Leonard \(2008\)](#) established and evaluated the concept of trust in consumer-to-consumer (C2C) electronic commerce (E-Commerce). The researchers proposed that several factors would affect individuals' trust in C2C E-Commerce. These factors include their natural inclination to trust (NPT), their evaluation of website quality (PWSQ), the trustworthiness attributed to buyers and sellers by others (OTBS), and the recognition of a third party (TPR). The researchers found supportive evidence for the PWSQ and TPR. The sharing economy has undergone significant changes in the past decade, coinciding with the duration of this research. The fundamental principles that underlie collaborative consumption and social commerce are centred on the concept of trust between individuals who lack prior familiarity with one another. The research papers collectively suggest that the perception of product transparency has a positive influence on consumer trust within the realm of electronic commerce. The study conducted by [Siregar \(2015\)](#) found that transparency plays a crucial role in cultivating customer trust in the context of E-Commerce. In a more specific manner, the research has identified three distinct dimensions of transparency that have a positive impact on consumer trust: The concepts of product transparency, price transparency, and supplier

openness are important factors to consider in academic discourse. According to [Jones and Leonard \(2008\)](#), recognising the importance of perceiving website quality is essential for establishing trust. [Xiao-bo \(2011\)](#) underscored the importance of perceived investment in the website and reputation in influencing trust intention. The aforementioned research outcomes highlight the significance of transparency in fostering consumer trust in the domain of electronic commerce.

**H4:** Perceived Product Transparency (PPT) positively influences Consumer Trust in E-Commerce (CTE).

The significant growth of e-tail sales can be primarily attributed to high levels of consumer satisfaction, while a lack of trust is often recognised as a major obstacle. Extensive research has been devoted to examining the effects of identity theft, online privacy, and perceived security on consumer trust. Nevertheless, there has been a discernible dearth of attention devoted to investigating the impact of these variables on alternative dimensions of organisational dependability, specifically those that are unrelated to the realm of safeguarding. The studies' findings collectively suggest a positive correlation between customer reliability (CR) and consumer trust in E-Commerce (CTE). According to a study by [Falihat et al. \(2019\)](#), a number of factors, including brand recognition, service quality, security, and word-of-mouth (WOM), have a favorable effect on consumer trust in an E-Commerce setting. [Corbitt et al. \(2003\)](#) identified various factors that play a significant role in establishing trust in E-Commerce. The factors encompass perceived market orientation, site quality, technical trustworthiness, and user web experience. The study conducted by [Ruimei et al. \(2012\)](#) underscored the importance of consumer perceptions of reputation and security in shaping e-trust in the realm of online shopping. [Maulana et al. \(2023\)](#) emphasised the importance of trust in online reviews and social commerce as influential elements that contribute to customer satisfaction and loyalty, ultimately affecting consumer purchasing decisions. The findings of this research offer empirical support for the proposition that customer reliability exerts a positive influence on the cultivation of consumer trust within the domain of electronic commerce.

**H5:** Customer Reliability (CR) positively influences Consumer Trust in E-Commerce (CTE).

Within the burgeoning domain of electronic commerce within consumer markets, effectively managing customer interactions across new channels presents a significant challenge in understanding the factors that contribute to the formation of buyer-seller relationships in online environments. The importance of consumer trust in e-retailers has been acknowledged in terms of its impact on the likelihood of participating in online purchasing behaviours. The actualization of the internet's complete potential as a mass-market electronic commerce medium relies on the establishment and maintenance of

trust between consumers and electronic retailers. The collection of papers provides valuable insights into the complex relationship between various factors that impact trustworthiness, social risk, and consumer trust in the realm of electronic commerce. The findings of Rodrigues' (2021) study demonstrated a notable and favourable correlation between the consumer's experience in electronic commerce and their utilisation of social media, as well as their level of trust in online shopping. Nevertheless, the research did not observe a significant influence of anxiety arising from perceived risk on consumer trust. Gefen and Straub (2004) conducted a study that emphasised the importance of trust and familiarity in reducing social uncertainty in the context of E-Commerce, particularly when face-to-face interactions are absent. In a study conducted in 2012, Mudassir highlighted the substantial significance of confidence in internet merchants as a critical determinant in the acquisition of clients' participation in online shopping. In a study conducted by Cheng et al. (2017), the objective was to investigate the characteristics of social commerce that influence customer trust. The results of this study suggest that these characteristics exert a significant impact on trust, which in turn has implications for trust outcomes.

The global popularity of electronic commerce is on the rise as a result of the convenience it provides to both online retailers and customers. However, the proliferation of electronic commerce has given rise to a multitude of significant concerns. These concerns encompass issues related to privacy, customer dissatisfaction, ineffective delivery procedures, and, notably, difficulties pertaining to trust. Numerous previous studies have provided evidence that the purchase intention and behaviour of online consumers are influenced by their perception of risk and the quality of their shopping experience in the context of electronic commerce. Numerous studies have demonstrated that purchasers commonly evaluate the credibility of E-Commerce enterprises by considering factors such as personal data, product excellence, security measures, and corporate standing. This current qualitative study is centred around the investigation of the perceived trustworthiness of electronic commerce. The primary aim of this study is to assess the consistency of the results with prior research and provide valuable insights to individuals engaging in online buying or selling activities, thereby enabling them to make well-informed decisions. The studies collectively posit that there are multiple factors that have an impact on customer trust within the domain of electronic commerce.

In his study, Franco (2014) investigates various internal and external factors that influence the overall performance of a corporation. The internal factors consist of consumer characteristics, website characteristics, and firm characteristics, whereas the external factors encompass policy and technology. Jha et al. (2014) highlights the considerable significance attributed to the perceived security, privacy, familiarity, and reliability of electronic suppliers (e-vendors) in the formation of trust. In Fan et al. (2021) study, it was found that the foremost determinant of customer trust is the individual's predisposition to trust. Additionally, brand-related and platform-related factors were identified as significant contributors to the

establishment of trust. In Yan's (2012) study, an exploration is conducted of several key factors that hold importance within the domain of online trust. These factors encompass privacy policy, antecedents of trust, risk-taking behaviour, customer loyalty, brand reputation, and web interface design. The aforementioned studies provide valuable insights into the diverse factors that impact consumer trust in the domain of electronic commerce. The aforementioned findings enhance our understanding of trust dynamics in the context of online transactions and offer potential strategies for strengthening trust in this particular domain.

The domain of social commerce, a subset of electronic commerce, is currently witnessing a significant surge in popularity owing to the expanding user base. The level of trust that consumers have in social commerce businesses has become a crucial factor in their overall performance and has a substantial impact on their choices when making purchases. The objective of this study is to examine the fundamental characteristics of social commerce, specifically focusing on transaction safety, concentration and enjoyment, communication and information quality, and their influence on consumers' trust. Furthermore, this study aims to assess the impact of trust-on-trust performance, specifically in terms of purchase intentions and word-of-mouth intentions. The results pertaining to trust performance will provide a fundamental basis for consumers when making purchasing choices and will additionally provide actionable suggestions for social commerce enterprises. The scholarly articles provide valuable insights into the relationship between various factors that affect trustworthiness and consumer trust in the context of electronic commerce. These articles specifically examine the intermediary role of social risk in this relationship. The research conducted by Al-kfairy and Shuhaiber (2022) unveiled a robust association between security threats and the level of trust exhibited by users in the context of social commerce. Mudassir and Rahim (2012) highlighted the importance of instilling confidence in internet merchants as a strategy to attract customers and encourage their participation in online shopping activities. However, the findings of Rodrigues' (2021) study indicate that the presence of anxiety stemming from perceived risk does not play a moderating role in the impact on customer trust in E-Commerce and the utilisation of social media platforms. Sanghvi et al. (2016) emphasised the importance of trust mechanisms in the context of electronic commerce as a strategy to effectively address the increasing risks associated with online transactions.

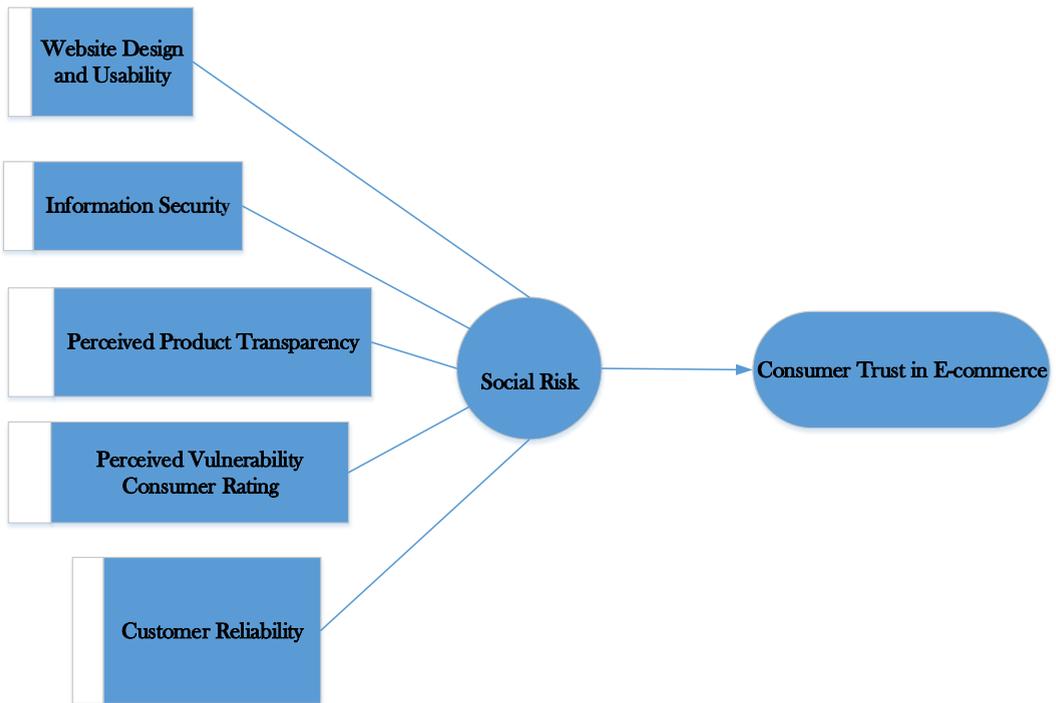
**H6:** Social risk mediates the relationship between website design & usability and Customer Trust in E-Commerce (CTE).

**H7:** Social risk mediates the relationship between website information security and Customer Trust in E-Commerce (CTE).

**H8:** Social risk mediates the relationship between website perceived product transparency and Customer Trust in E-Commerce (CTE).

**H9:** Social risk mediates the relationship between website perceived vulnerability and Customer Trust in E-Commerce (CTE).

**H10:** Social risk mediates the relationship between website customer reliability and Customer Trust in E-Commerce (CTE).



Measurement Factors	References
<b>Consumer Trust in E-Commerce (CTE)</b>	Teo and Liu (2007)
1. This E-Commerce vendor is trustworthy.	
2. This E-Commerce vendor provides reliable information.	
3. This E-Commerce vendor keeps promises and commitments.	
4. This E-Commerce vendor keeps my best interests in mind. This E-Commerce vendor's behaviour meets my expectations.	
<b>Website Design and Usability (WDU)</b>	Procter and Symonds (2001)
1. Ease of finding specific information	
2. Ease of reading data	
3. Ease of concentrating on the data search (distractions)	
4. Logic of navigation	
5. Ease of search	
6. Appearance of site	
7. Quality of graphics	
8. Relevance of graphics	
9. Speed of data display	
10. Timeliness of data (is it current?)	
11. Quality of language	
12. Fun to use?	
13. Explanations of how to use site	
14. Overall ease of use	
15. Completeness with which the site's subject is treated	
16. Your overall productivity with the site	
<b>Information Security (IS)</b>	Wright (2015)

1. IS1, I feel secure in providing sensitive information when transacting with electronics websites.	
2. IS2 I would feel totally safe providing information about myself to electronics websites.	
3. IS3 I would feel secure sending sensitive information to electronics websites.	
4. IS4 The security issue of sensitive information was a major obstacle to my online purchases from electronics websites.	
<b>Perceived Vulnerability Consumer Rating (PVC R)</b>	
1. CR1: Authentication of users by E-Commerce websites	Saeed (2023)
2. CR2: Authentication of vendors by customers	
3. CR3: Fraud protection provisions	
4. CR4: Provision of secure communications by E-Commerce websites	
<b>Perceived Product Transparency (PPT)</b>	
1. Provision of the information related to product price	Zhou et al. (2018)
2. Provision of the information related to product features	
3. Provision of the information related to product quality	
4. Provision of the information related to product availability	
<b>Customer Reliability (CR)</b>	
1. The reputation of the company is [important]. I know who Lands' End is, I know who L.L. Bean is.	Jarvenpaa and Todd (1996)
2. I have seen a lot of "scams" -type WWW sites, maybe if more reliable name products are available, I would trust it more.	
3. I would not purchase goods or services from a merchant which doesn't have evidence of a physical address and phone.	
4. Some of the sites did not appear to be owned by a company, but rather an individual. How do I know that some inmate in Huntsville [a prison] hasn't set up some phony site in order to get a Flow of active credit-card accounts?	
<b>Social risk (SR)</b>	
1. SR1 product purchased may result in disapproval by family	Masoud (2013)
2. SR2 Online shopping may affect the image of people around me.	
3. SR3 Online products may not be recognized by relatives or friends.	
4. SR4 Online shopping may make others reduce my evaluation."	

## METHODOLOGY

### Measurement

The researcher employed a meticulously crafted instrument for the purpose of data collection. The researcher placed significant reliance on a well-developed instrument due to its high levels of reliability and validity. The researchers employed a Five-point Likert scale to capture the participants' responses. The questionnaire consisted of inquiries pertaining to the constructs under investigation in the present study.

### Data Collection and analysis

A total of 259 questionnaires were completed in the study. The data suggests that a total of 259 participants were involved in the study, either by responding to a series of inquiries or by offering their perspectives and feedback. The study included participants who possessed a minimum of one or more prior experiences

with E-Commerce. This implies that the research centred on individuals who possessed previous familiarity with E-Commerce, encompassing engagements like online shopping, conducting transactions on E-Commerce websites, or utilising E-Commerce platforms to some extent. The research is focused on comprehending consumer trust in the domain of electronic commerce, with a specific emphasis on individuals who possess prior experience in this field. This approach holds significance as individuals who have participated in E-Commerce are more inclined to possess valuable perspectives regarding the determinants that impact trustworthiness in online shopping or E-Commerce transactions. The set of 259 questionnaires that have been filled out would encompass the assortment of responses and feedback provided by the participants. The responses provided in the study were likely utilised for the purpose of analysing and deriving conclusions pertaining to the various factors that influence trust within the realm of electronic commerce.

This statement provides information regarding the sample size and demographic characteristics of the study participants. The statement implies that the research is primarily concerned with comprehending the intricacies of trust dynamics within the realm of electronic commerce. The data obtained from the 259 participants will play a pivotal role in the study's outcomes and the subsequent deductions made regarding the elements that influence trustworthiness in E-Commerce. The present investigation incorporates latent variables, which are comprised of numerous items. Therefore, the current study will utilise structural equation modelling (SEM), a multivariate technique, for data analysis. The researcher employed structural equation modelling in AMOS to estimate the necessary measurement model. The use of structural equation modelling (SEM) is recommended for analysing data collected through a survey-based instrument that involves latent variables. Researchers have found that structural equation modelling (SEM) in AMOS yields more accurate results (Byrne, 2013).

## Reliability and Validity

**Table 1. Factor Loadings Reliability, Convergent Validity**

	CR	AVE	$\alpha$
Consumer Trust in E-Commerce (CTE)	0.766	0.59	0.811
Website Design and Usability (WDU)	0.701	0.55	0.794
Information Security (IS)	0.834	0.60	0.847
Perceived Vulnerability Consumer Rating (PVCR)	0.759	0.53	0.768
Perceived Product Transparency (PPT)	0.738	0.51	0.755
Customer Reliability (CR)	0.809	0.53	0.840
Social risk (SR)	0.822	0.57	0.850

**Table 2. Discriminant Validity**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>CTE</b>	<b>0.61</b>						
<b>WDU</b>	0.48**	<b>0.58</b>					
<b>IS</b>	0.31*	0.51	<b>0.45</b>				
<b>PVCR</b>	0.29**	0.45**	0.40*	<b>0.51</b>			
<b>PPT</b>	0.48	0.24**	0.34**	0.44*	<b>0.61</b>		
<b>CR</b>	0.54	0.39**	0.24**	0.36**	0.53	<b>0.49</b>	
<b>SR</b>	0.50	0.44*	0.39*	0.42*	0.44*	0.29**	<b>0.50</b>

Note: values of AVE on diagonal higher than squared correlations values. †  $p < 0.100$ ; \*  $p < 0.050$ ; \*\*  $p < 0.010$ ; \*\*\*  $p < 0.001$

The Comparative Fit Index (CFI) value of 0.94 exceeds the predetermined threshold of acceptability, which is set at 0.90. This result suggests that the model exhibits a favourable level of fit. A score of 0.85 on the Adjusted Goodness of Fit Index (AGFI) exceeds the minimum threshold of 0.80. The root means square error of approximation (RMSEA) value of 0.048 falls below the commonly accepted threshold of 0.08, indicating its acceptability.

The Chi-square test with a degrees of freedom (CMIN/df) value of 2.34 falls within the threshold of 3 or less, indicating statistical significance. The Tucker-Lewis Index (TLI) and the Incremental Fit Index (IFI) exhibit values above 0.90, specifically 0.91 and 0.93, respectively.

The results of this study offer validation for the measurement model, indicating that the measurement instruments utilised in the study effectively capture the intended constructs. The aforementioned evidence substantiates the validity and reliability of the study's model for effectively investigating trust-related matters within the realm of online transactions.

The obtained Comparative Fit Index (CFI) score of 0.96 surpasses the generally accepted threshold of 0.90. The AGFI score, which measures the adjusted goodness of fit, is 0.96, surpassing the minimum threshold of 0.80 that is considered acceptable. The Root Mean Square Error of Approximation (RMSEA) score is 0.034, which is considerably below the established threshold of 0.08. The value of CMIN/df (Chi-square divided by degrees of freedom) is 1.25, which falls significantly below the established threshold of 3. The Tucker-Lewis Index (TLI) and Incremental Fit Index (IFI) exhibit scores of 0.94 and 0.96, respectively, thereby surpassing the minimum threshold of 0.90.

These findings indicate that the structural model employed in the study exhibits a high degree of congruence with the observed data. This observation suggests that the model accurately depicts the connections among the variables under investigation within the domain of trustworthiness in electronic commerce. The robust alignment between the

model and the study's findings contributes to the heightened dependability and credibility of the research outcomes.

### Model Testing:

Following the completion of confirmatory factor analysis, an assessment was conducted to ascertain the construct's validity and reliability. Once the data had been cleaned and the reliability and validity of the data had been tested, the researcher proceeded to conduct structural equation modelling using AMOS for the proposed model. The results obtained from the analysis are presented below.

**Table 3. Summary of Effects**

Variables	Direct Effects	Indirect Effects	Total Effects
Website Design and Usability (WDU) → Social risk (SR)	0.458	0.647	1.105
Information Security (IS) → Social risk (SR)	0.341	0.540	0.881
Perceived Vulnerability Consumer Rating (PVCR) → Social risk (SR)	0.211	0.497	0.708
Perceived Product Transparency (PPT) → Consumer Social risk (SR)	0.335	0.401	0.736
Customer Reliability (CR) → Social risk (SR)	0.249	0.446	0.695
Social risk (SR) → Consumer Trust in E-Commerce (CTE)	0.587	-----	0.587

Table 4 presents a comprehensive overview of the acceptance or rejection status of all the hypotheses in the study, based on the results presented in the preceding Table 4.

**Table 4. Result of Analyses and Hypotheses**

Hypotheses	P-value	t-value	Accept or reject
<b>H1</b> Website Design and Usability (WDU) positively influences Consumer Trust in E-Commerce (CTE).	1.24	1.00	<b>Reject</b>
<b>H2</b> Information Security (IS) positively influences Consumer Trust in E-Commerce (CTE).	0.014	2.67	<b>Accept</b>
<b>H3</b> Perceived Vulnerability Consumer Rating (PVCR) positively influences Consumer Trust in E-Commerce (CTE).	0.023	3.24	<b>Accept</b>
<b>H4</b> Perceived Product Transparency (PPT) positively influences Consumer Trust in E-Commerce (CTE).	0.011	2.97	<b>Accept</b>
<b>H5</b> Customer Reliability (CR) positively influences Consumer Trust in E-Commerce (CTE).	0.241	1.24	<b>Reject</b>
<b>H6</b> Social risk mediates the relationship between website design & usability and Customer Trust in E-Commerce (CTE).	0.02	2.64	<b>Accept</b>

<b>H7</b>	Social risk mediates the relationship between website information security and Customer Trust in E-Commerce (CTE).	0.034	2.97	<b>Accept</b>
<b>H8</b>	Social risk mediates the relationship between website perceived product transparency and Customer Trust in E-Commerce (CTE).	0.011	3.47	<b>Accept</b>
<b>H9</b>	Social risk mediates the relationship between website perceived vulnerability and Customer Trust in E-Commerce (CTE).	0.024	2.64	<b>Accept</b>
<b>H10</b>	Social risk mediates the relationship between website customer reliability and Customer Trust in E-Commerce (CTE).	0.020	2.22	<b>Accept</b>

p-value < 0.05 (Hair et al., 2007), t-value > 1.96 (Bhatti & Sundram Kaiani, 2015)

The acceptance or rejection of hypotheses was determined using established guidelines, which relied on p-values (with a significance threshold of  $p < 0.05$ ) and t-values (with a critical value of  $t > 1.96$ ).

## DISCUSSION

This discussion centres around a specific study that examines the implications and insights provided by its results. The discussion primarily focuses on the hypotheses that were accepted and rejected, as well as the reliability and validity of the model used in the study. The discovery that there is no significant impact of Website Design and Usability (WDU) on Consumer Trust (CTE) contradicts prior scholarly investigations. This suggests that consumers might assign greater significance to additional factors in their evaluation of trustworthiness, such as information security and social risk. The correlation between Information Security (IS) and Consumer Trust (CTE) is consistent with prior scholarly works. The aforementioned statement highlights the significant importance of implementing strong security protocols in order to establish and maintain consumer confidence in electronic commerce platforms. The validation of this hypothesis underscores the significance of consumer ratings in exerting an impact on trust. The presence of favourable perceptions regarding vulnerability ratings is associated with increased levels of trust.

The notion that transparent product information has a positive impact on consumers' trust in E-Commerce is supported by the positive influence of Perceived Product Transparency (PPT) on Consumer Trust (CTE). The nullification of this hypothesis implies that the influence of customer reliability on consumer trust may not be statistically significant. Additional factors, such as social risk and information security, may assume more prominent roles. This study examines the mediating role of social risk in the associations between different factors related to websites (WDU, IS, PVC, PPT, CR) and Consumer Trust (CTE). This discovery highlights the intricate interaction

between these variables. The impact of website factors on consumer trust is mediated by social risk, highlighting the significance of social influence, consumer perception, and reputation in shaping trust within the realm of electronic commerce. The strong fit of the measurement model fit (as indicated by CFI, AGFI, RMSEA, CMIN/df, TLI, and IFI) implies that the constructs examined in the study are dependable and that the measurement instruments successfully capture the factors being studied.

This improves the validity of the study. In conclusion, this study offers significant insights into the determinants of consumer trust in the context of electronic commerce. The acceptance of certain hypotheses, such as the positive impact of Information Security, Perceived Vulnerability Consumer Rating, and Perceived Product Transparency, underscores the significance of these factors in fostering trust. The rejection of the hypothesis pertaining to Customer Reliability indicates the necessity for additional investigation. The mediating role of social risk highlights the importance for E-Commerce platforms to effectively manage their social reputation and take into account the influence of consumer perceptions and social factors on trust. This study enhances the understanding of trustworthiness in E-Commerce and provides guidance for businesses to improve their online trust-building strategies. Additional research is necessary to investigate the complex dynamics of these relationships in various E-Commerce settings.

The hypothesis was rejected at a significance level of 0.01. The statistical evidence does not support the notion that website design and usability have a positive impact on consumer trust in E-Commerce. The study concluded that there was no significant impact of website design and usability on consumer trust in E-Commerce. The failure of the hypothesis indicates that factors such as security, cost, and customer service may have a greater impact on consumer trust in E-Commerce. These factors may have had a dominant influence on website design and usability. The limited sample size of the study may have hindered the identification of a statistically significant correlation. Increasing the sample size may have led to more precise and reliable findings. Consumer trust and preference exhibit significant variability. Consumer trust in websites can vary. The study may have failed to consider this diversity. Potential contextual impact. Industries and E-Commerce sites exhibit distinct characteristics. The effectiveness of a product or service may vary depending on the specific circumstances. The study's design or execution may have influenced the results. Website design and usability data can be inaccurate. Trust in E-Commerce evolves over time, and the impact of website design and usability may vary across different product categories.

The hypothesis was supported with a p-value of 0.014. Statistical studies show that information security measures increase consumer trust in E-Commerce. Information security safeguards customer data and personal information on E-Commerce platforms. This encompasses encryption, prevention of data breaches, and secure processing of

payments. The acceptance of this theory by consumers highlights the significance of information security. E-Commerce platforms that prioritise data security enhance consumer trust. Trust and security are integral aspects of E-Commerce. Consumers require robust protection for their financial and personal information. Violating this trust may result in the loss of customers and damage to your reputation. Information security has an impact on online shoppers. Consumers tend to favour electronic commerce platforms that prioritise the protection of their personal data. Recent data privacy laws, such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), prioritise the importance of ensuring security measures. The legal protection of user data on the platform can enhance user confidence. E-Commerce platforms that prioritise information security can establish trust and retain customers.

The hypothesis was accepted at a significance level of 0.023. The statistical analysis of this hypothesis supported the idea that perceived vulnerability enhances consumer trust in E-Commerce. PVCR is an innovative electronic commerce concept. Their assessment of an E-Commerce platform's vulnerability has a positive impact on consumer trust. The results indicate that buyers have concerns regarding the security, validity, user experience, and perceived vulnerability of E-Commerce platforms. This suggests that individuals actively evaluate the security of website data and transactions. Risk perception influences trust in E-Commerce. The perceived vulnerability of a platform can lead to distrust among users. Trust is fostered when the platform is secure and dependable. E-Commerce systems that proactively seek user vulnerability ratings are more likely to gain trust. High ratings signal to prospective clients that the platform effectively resolves challenges. E-Commerce platforms can enhance trust by effectively communicating their risk mitigation and security protocols. Online companies should actively work to minimise vulnerability. Security, adherence to industry standards, and incorporation of client input are crucial factors to consider.

The hypothesis was accepted at a significance level of 0.011. The statistical research conducted on this hypothesis provided confirmation that product openness has a positive impact on consumer trust in E-Commerce. PPT assesses the level of product transparency on E-Commerce platforms. This encompasses information regarding the product's specifications, pricing, availability, and terms. The research indicates a preference for transparency in product information among individuals. Online retailers that provide product disclosure foster consumer trust. Consumers can make informed decisions by considering the transparency of a product. The confidence and purchasing behaviour of consumers are positively influenced by the availability of precise and comprehensive product information on platforms. Asymmetry in buyer-seller information is reduced via transparency. Information parity between buyers and sellers boosts trust. Trust builds on honest E-Commerce platforms that disclose product constraints and drawbacks. Consumers trust honest platforms. Product openness creates

trust and satisfaction. Product openness boosts customer satisfaction, return rates, and platform trust.

The hypothesis that Customer Reliability (CR) positively influences Consumer Trust in E-Commerce (CTE) was rejected based on a p-value of 0.241. The statistical examination of this hypothesis found no indication that customer reliability increases E-Commerce consumer trust. Trust is linked to customer reliability. Consumer consistency, policy compliance, and reliable payment are essential. This hypothesis challenges the idea that E-Commerce consumer trust increases customer reliability. Customer behaviour may not affect E-Commerce trust. E-Commerce security, openness, and product information affect confidence. These variables may erode consumer trust. Product quality, platform reputation, and user experience impact E-Commerce. Variables may affect trust more than customer reliability. Analytical data may disprove supposition. Different datasets or larger investigations may yield different results. H6 Social risk mediates website design and usability and E-Commerce customer trust (CTE).

The hypothesis was significant with a p-value of 0.02. Social risk affects website design, usability, and E-Commerce client trust, according to statistical studies. The subjective assessment of social repercussions of a buying choice is called social risk. Social risk affects website usability and customer trust, according to the hypothesis. Website design and usability affect client trust by affecting social risk perception. E-Commerce website design and usability might affect consumers' sense of social hazards associated to their transactions, affecting trust. Social elements like reviews, ratings, and peer recommendations affect E-Commerce shoppers. Website design and usability help consumers interpret social signals. E-Commerce platforms can lose user trust due to social risks like concerns about others' purchases. According to the mediation effect, website design and usability can indirectly minimise or enhance social hazards. Website design and usability promote platform social relationships. Customers may feel safer utilising E-Commerce. Social risk mediation can help E-Commerce companies increase consumer trust in social signals and promote good social interactions, decreasing social hazards.

Hypothesis accepted at 0.034 significance level. Statistical study supported the notion that social risk mediates website information security and E-Commerce client trust. Social risk refers to the perceived risks of a purchase based on others' opinions. The hypothesis states that social risk mediates website information security and customer trust. E-Commerce website security affects perceived social risk, which affects client trust. A secure website might affect users' views of social hazards involved with transactions, affecting trust. Information security is key to E-Commerce trust. Data and transaction security boosts consumer trust in the platform. E-Commerce relies on social media because purchasers regularly read reviews and recommendations. Secure

websites can improve social risk perceptions and platform trust. E-Commerce platforms may lose consumer trust due to social hazards, such as others' opinions of their purchases. Information security can mediate social dangers. Secure websites improve platform user experience and social interaction. Customers may feel more secure using E-Commerce platforms. E-Commerce enterprises can improve information security and trust by acknowledging social hazards as mediators. High-quality security and a safe social environment can achieve this.

A p-value of 0.011 validated the hypothesis that "Social risk mediates the relationship between website perceived product transparency and Customer Trust in E-Commerce (CTE)". The statistical examination of this hypothesis shows that social risk mediates the relationship between website product transparency and E-Commerce confidence. Social risk is the perceived dangers of a purchase decision based on others' perceptions and judgements. The hypothesis states that social risk mediates online product transparency and customer trust. The transparency of products on E-Commerce websites can indirectly influence customer trust through its impact on perceived social risk. The provision of transparent product information has the potential to alter consumers' perceptions of social hazards associated with their purchases, thereby impacting their level of trust. Transparency, truthfulness, and completeness of products are essential for fostering trust in the realm of E-Commerce. Accurate product information contributes to an increase in consumer trust in the platform. Online customer reviews are significant. Consumers frequently make purchasing decisions influenced by peer reviews and recommendations. Consumers may lose trust in an E-Commerce platform if they perceive social risks associated with how their product information-based purchases are perceived by others. Product transparency can mitigate societal risks through mediation. Product transparency enhances the user experience and facilitates social interactions on the platform, such as reviews and recommendations. Customers may experience increased comfort and trust when engaging with E-Commerce platforms. This insight has the potential to enhance product transparency and instil confidence in E-Commerce enterprises. Enhance product transparency and cultivate a reliable social atmosphere.

Hypothesis accepted at 0.024 significance. This hypothesis' statistical research supported the idea that social risk mediates website vulnerability and E-Commerce client trust. Social risk is the anxiety of making a purchase based on others' opinions. Website vulnerability and client trust may be affected by social risk. E-Commerce website vulnerability might damage client trust owing to social risk. Vulnerability and social hazards associated with purchases affect consumer trust. Buyers' safety or risk perceptions greatly affect their vulnerability. Perceptions of risk and security impact trust in E-Commerce. Perceived consumer vulnerability can lead to a loss of confidence in the platform. E-Commerce consumers take into account reviews, ratings, and recommendations from their peers. Consumers commonly seek advice. E-Commerce

consumers may lose trust in a platform if they perceive social risks, such as worries about how their purchases would be perceived by others, due to the platform's perceived susceptibility. The mediation effect shows that perceived vulnerability can raise or decrease social dangers. User experience and platform socialisation can improve with perceived vulnerability. Customers may feel more secure using E-Commerce platforms. It can boost E-Commerce enterprises' perceived vulnerability and trust. Addressing vulnerabilities and creating a safe environment builds client trust.

The hypothesis was accepted at 0.020 for significance. Statisticians found that social risk affects online customer reliability and E-Commerce consumer trust. In this context, social risk refers to the perceived risks of a purchase, especially by others. Social risk affects online consumers' trust in a business, according to the hypothesis. Through perceived social risk, an E-Commerce website's perceived consumer reliability can indirectly influence client trust. Customer reliability influences trust by influencing consumers' attitudes towards social threats from interactions. Dependability demands consistency and integrity. Consumer reliability may not affect E-Commerce trust, but other factors do. E-Commerce shoppers consider ratings, reviews, and peer advice. The opinions and experiences of others influence consumer purchasing. E-Commerce customers may lose faith in a platform due to social risks, such as concerns about how others would judge their customer reliability decisions. The mediation effect suggests that customer reliability can indirectly influence social dangers. Loyal customers enhance platform and social engagement. Customers may experience increased feelings of security when utilising E-Commerce platforms. This knowledge can enhance client trust for E-Commerce companies. Developing customer reliability and fostering a secure social environment are crucial factors in cultivating consumer trust.

### **Theoretical Implications**

According to the accepted hypotheses, the study on E-Commerce trustworthiness factors aids in our understanding of how trust develops in online shopping contexts. It offers insights into the intricate interaction of multiple factors, such as security, transparency, user experience, and social risk. The acceptance of hypotheses regarding the mediating role of social risk in trust formation underscores the importance of social influences in the field of E-Commerce. This highlights the significance of taking into account the social context in the examination of consumer trust and trustworthiness. The research indicates that trust is a complex concept with multiple dimensions. The outcome is not determined by a single factor but rather by a combination of various elements. Further research should continue to investigate the intricate connections among these variables.

### **Practical Implications**

E-Commerce platforms should maintain their focus on and allocate resources towards

information security. Securing customer data and transactions is crucial for establishing and sustaining trust. E-Commerce enterprises should prioritise the provision of comprehensive and transparent product information to their customers. These outcomes include higher trust levels, reduced return rates, and improved customer satisfaction. Designing a user-friendly interface and ensuring usability are crucial factors in enhancing trust and fostering a positive user experience. A user-friendly and aesthetically pleasing website can enhance customer confidence. E-Commerce platforms should proactively oversee the social environment to promote favourable user interactions. Promoting and featuring reviews and recommendations can bolster trust.

### **Limitations**

The study's findings may be limited to the characteristics of the sample population. Consumer groups and regions may exhibit diverse preferences and perceptions regarding trust factors. Measuring trust and trustworthiness can be a complex task. Ensuring measurement validity and reliability is essential for obtaining accurate results. Trust in E-Commerce is subject to fluctuations influenced by evolving technologies, consumer behaviour, and external events. The study may fail to capture long-term changes in trust dynamics.

### **Future Directions**

Studying trust dynamics in E-Commerce across diverse cultures and regions can enhance our understanding of trust formation and its cultural intricacies. Longitudinal studies can be employed to monitor trust dynamics in E-Commerce, enabling the identification of trends and factors that contribute to changes in trust. Future research can investigate the effects of integrating artificial intelligence and personalisation on trust. It is essential to comprehend the impact of AI-driven recommendations and experiences on consumer trust. Applying behavioural economics principles to study trust and trustworthiness is a promising field of research. Behavioural insights can provide valuable insights into the decision-making processes of consumers in the context of E-Commerce. Studying trust repair strategies and mechanisms in E-Commerce is crucial. Research on rebuilding trust after a breach or negative experience is crucial.

In a nutshell, the examination of factors impacting trustworthiness in E-Commerce holds significant importance from both theoretical and practical perspectives. The practical implications of trust-building in E-Commerce businesses and the theoretical insights gained from studying trust dynamics in the digital marketplace can inform future research and improve our understanding of this subject.

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