

2020

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Recommended Citation

Soleimani, Marzieh and Amrollahi, Alireza, "Trust in Electronic Markets, A Review and Synthesis of Theories" (2020). *ACIS 2020 Proceedings*. 13.

<https://aisel.aisnet.org/acis2020/13>

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Trust in Electronic Markets, A Review and Synthesis of Theories

Completed research paper

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Abstract

Electronic markets have grown substantially, and they are considered as a significant form of retail. Despite this growth, the lack of physical transactions between different parties as well as concerns about the privacy of users and the security of transactions has led to a decline in users' trust in these platforms. This deficiency has motivated many researchers to study the concept of trust in the e-commerce environment. In this paper, we have created a comprehensive and up-to-date framework that synthesises the findings of the previous studies. To achieve this aim, we use a systematic literature review method. We searched 17 top-ranked information systems journals and conferences and reviewed the resultant pool of 127 papers. Beyond investigating the antecedents and consequences of trust in e-commerce, we reviewed the theoretical basis used in the literature. The study concludes with implications of the literature for practice and a critical agenda for future research.

Keywords Trust, Electronic Commerce, Online Shopping, Systematic Literature Review.

1 Introduction

Trust is a concept of grave importance as it has been argued that “a complete lack of trust would prevent [us] from getting up in the morning” (Luhmann 1979). This concept has an ever-evolving history, going from restricted trust to family and friends to strangers in peer-to-peer platforms (Mazzella et al. 2016). Hence, it is of great importance and evolving nature. Especially, in electronic commerce (e-commerce) trust is perceived as a critical factor of success (Chang et al. 2013) as it is a crucial factor distinguishing buyers from non-buyers (Kim and Park 2013).

The importance of trust in e-commerce platforms is considered to be even above the price, according to a survey of 6000 customers (Ernst and Young 2000). However, similar surveys show that a small portion of users can trust these platforms, especially when there is a conflict with their privacy and security (Connolly and Bannister 2007). Considering the growth of e-commerce as a market and economic force over the past two decades (Lim, Sia, Lee, & Benbasat, 2006), the topic of trust has attracted the attention of researchers as well, and several studies have used models from various discipline to study trust in e-commerce.

While there have been several reviews examining antecedents and consequences of online trust, there appears to be confusion regarding various dimensions of e-trust (Kim et al. 2006). This is of importance as it has been estimated that global e-commerce sales in 2018 were of 2.8 trillion U.S. dollars, and this figure is expected to go up by 70% by 2021 (Clement 2019). Therefore, the growing number of studies and changes in online markets necessitates an updated and comprehensive review of the literature which can consider various dimensions of trust, including the theoretical basis of the studies.

The dearth of a comprehensive and current review motivated us to investigate the state of knowledge within existing information systems literature regarding the trust in electronic commerce platforms. To achieve this aim, we drafted three research questions to lead different parts of the current study. First, we considered factors leading to improved trust in e-commerce platforms. Reviewing these antecedents can direct researchers to areas that have not been investigated and help practitioners to develop a framework for improving their platforms. The following research questions have been proposed:

RQ1. What are the factors mentioned in the literature to impact trust in e-commerce platforms?

Furthermore, in this study, we are motivated to investigate the impact of trust on other tangible and intangible features of e-commerce websites. Answering this second research question can help the study to illustrate the impacts and benefits of e-trust better:

RQ2. What are the factors mentioned in the literature as consequences of trust in e-commerce platforms?

Finally, the study is looking at the theoretical concepts and areas used in the literature and synthesise them in a single framework that can inform future studies. A third research question is proposed to cover this aspect of the research:

RQ3. Which insights from the theoretical basis used in the literature can be leveraged to inform future work on trust in e-commerce platforms?

The rest of the paper is structured as follows: an overview of the theme of trust in electronic commerce research is presented in Section 2. Section 3 outlines the steps followed in conducting this literature review and the criteria for including and excluding research papers in our final analysis. In section 4, the results of the literature review are presented and explained. These results are further discussed in section 5 by outlining the contributions to theory and practice with an agenda for future research, and we conclude the paper in Section 6.

2 Background

Various scholars have provided different definitions of trust based on their outlook. McKnight et al. (2002) have listed some of these perspectives including psychology (a tendency to trust others), social psychology (a cognition about the trustee), sociology (a characteristic of the institutional environment). In e-commerce research, an organisational viewpoint is cited most frequently. Based on this perspective, trust is defined as “the willingness of a party to be vulnerable to the actions of another

party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer et al. 1995, p. 712).

The notion of trust has been an area of interest in organisation studies and information systems (Li et al. 2008; Mayer et al. 1995). In particular, the concept of electronic commerce trust has been initiated in the 1990s with studies focusing on the antecedents of trust (Fung and Lee 1999). Earlier reviews on trust have studied some limited aspects including the impact of uncertainty, the (new) meaning and typology of trust (Grabner-Kräuter and Kaluscha 2003; McKnight and Chervany 2001), used theories (Huang et al. 2007), and the early models of trust (Papadopouou et al. 2001). However, considering the recent advancement and changes in electronic markets, as well as the massive amount of work published in past years, these reviews do not seem to be beneficial in providing an insight about the state-of-the-art research. Despite the vast literature, none of the previous literature review works provides a comprehensive review of antecedents and consequences of trust in electronic commerce. The current study looks deep into this area by focusing not only on the components of research models but also the used theoretical concepts.

3 Methodology

To investigate the factors leading to and impacted by trust in electronic commerce environment, we adopted the Systematic Literature Review (SLR) approach; a methodical way to identify, evaluate, and interpret the available empirical studies conducted on a topic, research question, or phenomenon of interest (Kitchenham 2004). The following process was followed to conduct a systematic literature review are: (1) identify resources, (2) select the studies, (3) extract the data, (4) synthesise the data, and (5) write-up the review as a report (Brereton et al. 2007; Kitchenham 2004).

To follow the above process, we first identified 17 high ranked IS journals and conferences¹ and searched them with our predefined set of keywords. These journals and conferences were selected based on available rankings of IS journals (Fisher et al. 2007), previous SLR work (Amrollahi et al. 2013; Tallon et al. 2019), and their focus on electronic commerce and related areas. Our initial search resulted in 599 papers. Following this initial step, we excluded irrelevant articles when reviewing papers’ titles, abstracts, and full text. The final pool of research studies was investigated against the research questions in this study. We searched the following terms and limited the search to titles, keywords, and abstracts in the searched references:

Trust AND (retail OR e-commerce OR “electronic commerce” OR “electronic business” OR e-business OR shop OR sale OR buy OR purchase OR e-Trust OR market)

The initial search for the above phrases resulted in 599 papers. We then read the titles, abstracts, and full-text of the papers and excluded irrelevant papers at each of these stages to formulate the final list of 127 papers. Our main criterion for selecting relevant papers was their focus on the role of trust, how it can be developed, and what are its consequences in an electronic commerce environment. For this reason, we excluded technical papers, those investigating trust in contexts other than electronic commerce, and those that focused on other aspects. After forming the final list of papers, the analysis of research studies started. At this stage, we tried to distinguish papers based on their perception of trust and different theories used. We then categorised these factors in multiple groups. A triangulation process was used to verify the accuracy of the developed categories in which the recognised factors are assigned to various categories by two authors, and any conflict among authors was settled in a session.

4 Results

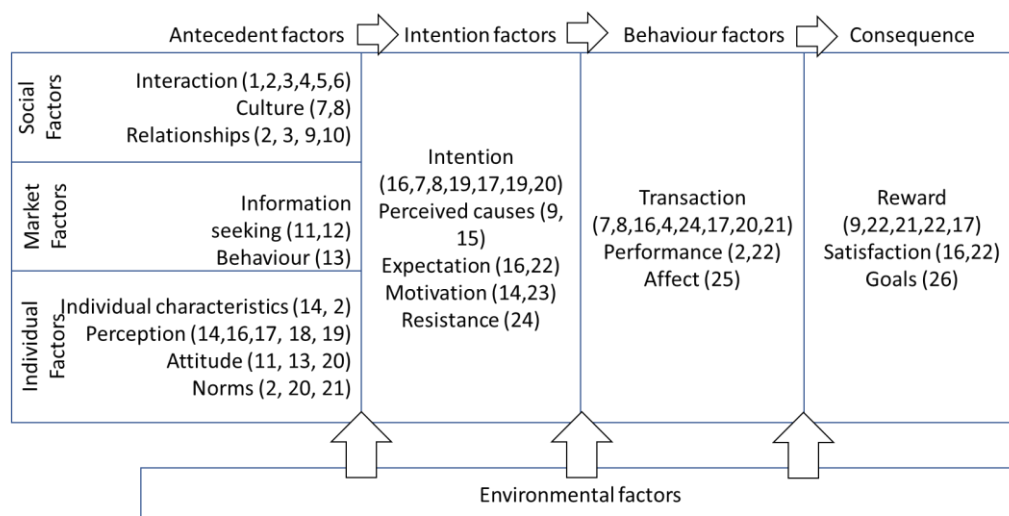
4.1 Theories

As part of our literature review, we found 29 theories from various disciplines, including Marketing, Psychology, Economy, Sociology, Management and Organization Science, Computing, Information Systems, and Philosophy. It should be noted that many theories are interdisciplinary in nature and

¹ European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, Journal of the Association for Information Systems, MIS Quarterly, Information and Management, Communications of the Association for Information Systems, Information Technology and People, Electronic Commerce Research, International Conference on Information Systems (ICIS), Pacific Asia Conference on Information Systems (PACIS), European Conference on Information Systems (ECIS), Americas Conference on Information Systems (AMCIS), Hawaii International Conference on System Sciences (HICSS)

have widely used in different areas. Therefore, in most cases where the sources were checked to trace the discipline. We then further studied each theory to see the constructs they are referring to and how it has been related to the notion of trust in e-commerce. Among all of these theories, Technology Acceptance Model (Davis et al. 1989; Venkatesh and Davis 2000) and Theory of Planned Behaviour (Ajzen 1991) were cited most to explain the process leading to a trust-related behaviour and how technological components can be trusted in an e-commerce environment.

Also, theories from marketing such as signalling theory (Spence 1974) and expectation confirmation theory (Li et al. 2015) are cited in the literature to explain the behaviour of customers in seeking relevant information and model factors leading to their satisfaction. While psychological theories are mainly focused on customer trust behaviour on individual behaviour, marketing theories are looking at social factors influencing trust. Finally, sociological and organisational theories such as Social Exchange Theory (Woisetschläger et al. 2011) and Social Capital Theory (Coleman 1988) are used to model social relationships between human actors and how trust can be developed as a result of these interactions. The theories in the final pool of research studies are synthesised in Figure 1. The number in front of each components shows the theories used that particular component.



1. Stakeholder Theory, 2.Social Capital Theory, 3.Social Network Theory, 4.Social Presence Theory (SPT), 5. Theory of Social Responses to Computers, 6. Toulmin's Model of Argumentation, 7. Hofstede Cultural Theory, 8. Fukuyama Theory of Trust, 9. Social Exchange Theory, 10. Trust Transfer Theory, 11. Attribution Theory, 12. Economics Of Information Theory, 13. Elaboration Likelihood Model, 14. Theory of Impression Management, 15. Attribution Theory, 16. Associative Network Model of Memory 16. Cognitive Dissonance Theory, 17. Tam, 18.Attraction Theory, 19. Social Presence Theory (SPT), 20. Theory of Planned Behavior, 21. Theory of Reasoned Action, 22. Expectation Confirmation Theory, 23. Commitment Theory of Relationship Marketing, 24. Status-quo Bias Theory, 25. Social Cognitive Theory, 26. Cognitive-affective Mediating Process

Figure 1 Synthesis of theories in the final pool of research studies

As illustrated in the above figure, we have distinguished four elements of antecedents, intention, behaviour, and consequence, along with environmental factors in these theories. Antecedents factors in these theories are those factors which can result in specific behaviour. In e-commerce trust literature, we found three different types of *antecedent* factors based on the level and origin of the theory (individual, market-related, and social factors). According to the found theories, these antecedents usually lead to a set of factors that we have broadly named them *intention* factors. Still, they can include any intrinsic motivation or resistance to perform a *behaviour*. Some of the theories have also considered *consequences* for these theories, such as reward or satisfaction.

4.2 Antecedents to trust

Understanding the antecedent of customers' trust can provide insight into the factors that create trust and improve their intentions to perform an online transaction. Antecedents to trust are categorised based on various actors in an online transaction.

4.2.1 Customer-related antecedents

Based on the reviewed literature, we found customer concerns, a disposition to trust, trusting beliefs, familiarity, calculative-based trust, accessibility of information and synonyms of these terms as the main antecedents in this category. In electronic commerce, the process of building trust for customers

is affected by customers' concerns which are considered an enormous obstacle in electronic transactions (Agag et al. 2020; Kim 2008b). According to the literature, four primary concerns for online customers are privacy, security, perceived technology risk, and integrity concern (Connolly and Bannister 2007; Shukla 2014).

Disposition to trust also known as the *propensity to trust* is "the extent to which a person displays a tendency to be willing to depend on others across a broad spectrum of situations and people" (McKnight et al. 2002, p. 339). McKnight and Chervany (2002) suggested that the effects of dispositional factors on trust are more than other factors such as institution-based trust and this general propensity to trust to others can influence intentions and beliefs of trustors about e-vendors.

Another type of customer-related antecedents is familiarity, which relates to a customer's past behaviour. Bhattacharjee (2002) noted that "familiarity refers to one's understanding of another's behaviour based on prior interactions or experiences". They also mentioned that familiarity develops gradually over time as the trustors accustomed to the trustee's behaviour and leads to improve trust in online buyers.

Based on calculative-based trust, an online customer can build trust through cost-benefit analysis of a trustee who shows cheating or cooperative behaviour. Since calculative-based trust is deterrence based, when the customer feels that e-vendor is untrustworthy, they will not engage in opportunist behaviour. Customers will trust e-vendors when they believe that the e-vendor has more to lose by cheating or has nothing to gain by breaking consumers trust (Gefen et al. 2003a).

4.2.2 Seller related antecedents

We find elements such as institution-based trust, reputation, and communication and interaction as the characteristics of sellers referred to in the literature to impact trust in online markets. We find that reputation or trustors beliefs about the integrity of a trustee (Kit et al. 2013) as an antecedent of trust in the literature. Researchers referred to reputation with different terms such as perceived effectiveness of feedback mechanism, brand awareness, brand image, perceived accreditation, portal affiliation, and online aesthetic appeal. These studies indicated that reputation leads to trust in e-commerce context and there is a positive relationship between reputation and online trust (Hoffmann et al. 2014; Kit et al. 2013; Shiau and Chau 2015). Others suggest that reputation has a vital role in engendering trust and repurchase intention (Qureshi et al. 2009).

Effective communication is regarded as a crucial element for developing trust in e-commerce. Interpersonal relationships or a close personal connection in social networks are examples of trust antecedents in this category. Institution-based mechanisms such as warranty and structural assurance are also considered as significant factors leading to trust in e-commerce (Huang et al. 2005; Wang and Benbasat 2008).

4.2.3 Technology and third-party related antecedents

The positive impact of website quality and third-party institution on trust is supported in many studies. For instance, Jones and Leonard (2008) examined trust in customer to customer (C2C) environments and confirmed that when customers do not know each other, they take cues from social signals, including website quality and third-party institution. Perceived website quality demonstrates user's perceptions of some features such as the ease of use and usefulness of information (Awad and Ragowsky 2008). Web users need to feel the website is well designed, organised, timely and accurate to believe the trustworthiness of web vendors (Qureshi et al. 2009).

The role of intermediaries in developing consumers trust in the e-commerce market is overwhelming, especially for small e-vendors (Datta and Chatterjee 2008). McKnight and Chervany (2002) believe that since trust is transferable, an intermediary can transfer consumers trust of its brand to e-vendors. Pavlou and Gefen (2004) defined online intermediary as a "third-party institution that uses internet infrastructure to facilitate transactions among buyers and sellers in its online marketplace by collecting, processing, and disseminating information". Consumers need to receive strong signals in order to trust other parties. A trusted third party can play this role and serve as a signal and facilitate transactions (Clemons et al. 2016). Intermediaries can reduce the risk in an e-commerce transaction by producing a reliable and secure environment, institute fair and open rules and procedures, accredit, evaluate, or weed out problematic sellers, also encourage benevolent transaction norms. For instance, some intermediaries such as eBay and Amazon try to reduce transaction risk to help reduce buyers' actual risk, including providing coverage up to a limit of \$250 as a guarantee of their auction transactions (Jarvenpaa et al. 2000; Pavlou and Gefen 2004).

For sellers, online intermediaries can help them obtain market signals, reduce search costs, discover better prices, deliver products at a lower price, facilitate transaction settlements, and monitor buyers (Giaglis et al. 2002). Sellers need to trust that the intermediary performs these functions honestly, competently, and with the sellers' best interest in mind.

4.2.4 Environment-related antecedents

According to the literature, environment antecedents consist of word of mouth (WOM), culture, trusting beliefs and perceived size. E-WOM is the centre of consumer behaviour and defined as any positive, negative or neutral comments, recommendation or statements about a product, service, brand or company based on experiences that created by former, potential or actual web users. E-WOM will usually spread via the internet and social networks (Hennig-Thurau et al. 2004). A prominent study of e-WOM and its effect on trust by Awad and Ragowsky (2008) approved that e-WOM quality has a positive impact on online trust. Kim (2008a) also supported the hypothesis that positive referral and posts have a direct effect on customers' trust in an e-vendor. Previous studies about the impact of culture on trust and consumer behaviour have considered various surveys of national cultures (Hofstede et al. 2010). In particular, dimensions such as uncertainty avoidance, power distance, collectivism as a primary antecedent of trust the internet shopping (Sia et al. 2009).

4.3 Consequences of trust

Different studies demonstrate various outcomes for online trust. McKnight et al. (2002), for instance, stated that online trust significantly affects online consumers purchase intention and Sun (2010) also mentioned the positive impact of trust on repurchase intention. Trust can change risk perception, consumer attitude and perception regarding website and seller (Jarvenpaa et al. 2000). Trust can also be converted into e-loyalty and satisfaction in the online shopping procedure (Li et al. 2015; Shankar et al. 2002). Each of these categories is explained in more details in this section.

4.3.1 Transaction intention

Transaction intention is the trustor willingness to participate in an online transaction with a trustee (McKnight et al. 2002; Pavlou and Gefen 2004). According to the theory of reasoned action (TRA), trust can be regarded as a behavioural belief that makes a positive attitude towards purchase intention (Jarvenpaa et al. 2000; Pavlou and Gefen 2004). As discussed before, this behavioural intention is a common component in many other theories used in online trust literature. Consistent with the outcomes of previous literature, online consumers trust demonstrates a substantial positive influence on transaction intention (Kim et al. 2015).

4.3.2 Retention and Loyalty

Customer retention can be achieved when they trust an e-vendor can fulfil their promises (Hong and Cho 2011; Liu and Tang 2017). Customer loyalty in an online environment, also known as e-loyalty, refers to "an enduring psychological attachment by a customer to a particular online vendor or service provider" (Cyr et al. 2007, p. 44).

The direct impact of trust on retention (Qureshi et al. 2009) and e-loyalty (Carter et al. 2014) have been discussed in previous literature. For example, trust has been considered as a factor engendering affective commitment, which develops an intention in online customer to revisit the website and purchase in the future (Liu and Tang 2017). When trusting beliefs are formed in online consumers, there is a high possibility that they will not switch to another e-vendors because of the risk and uncertainty involved with finding new online seller and difficulties associated with establishing a new trusting relationship (Carter et al. 2014).

4.3.3 Perception about seller

Customers, through time, will develop a perception about the seller, the technology used by seller, and the type of provided services. This feature includes perceived usefulness of used technology, perceived enjoyment, perceived benefits, perceived value, price premium, and e-WOM intention about the seller. When buyers trust sellers, as a result of an improved perception, customers allow sellers to obtain price premium and yield above-average profits (Klein and Leffler 1981; Shapiro 1983), to compensate seller transaction risks (Ba and Pavlou 2002).

4.3.4 Satisfaction

A critical outcome of a trust-based relationship is satisfaction (Cannon 1999). When online customers trust a web vendor, they are likely to be satisfied with their transactions (Pavlou 2002). The

relationship between trust and satisfaction has been studied in previous studies. For instance, Chang et al. (2016) investigated the effect of trust on satisfaction, and their study indicated that customers' trust significantly and positively impacts perceived satisfaction and transaction intention. Pavlou (2002) stated that trust in the sellers' credibility positively influences buyers' satisfaction, as well. More recent studies have investigated a complex relationship between trust, satisfaction, and transaction (Chang et al. 2016).

4.3.5 Risk Perception

Finally, according to the literature, customers' and sellers' perception of the risks involved in an online transaction can be impacted by their trust to the other party. This relationship is different from research studies that considered risk perception as an antecedent of trust (Gefen et al. 2003b). Perceived risk has been defined as "the possibility of loss" and is "an inherently subjective construct". Although risk relates to more general items and emphasise on the possibility of economic loss (Dinev and Hart 2006). Electronic vendors try to reduce risk perception of e-consumers through IT tools e.g., third-party insurances (Gefen et al. 2008). In summary, according to the literature, trust can substantially decrease negative risk perceptions in an e-commerce context (Connolly and Bannister 2007; Guo et al. 2018; Heijden et al. 2001; Shukla 2014; Verhagen et al. 2006).

5 Discussion

This paper presented a comprehensive and systematic review on antecedents and consequences of trust in online markets. Unlike the previous review studies, this study considers both antecedents and consequences of trust and added much new research to the final pool. Although the factors found in our study are repeated with different frequency in the literature, they can be useful in creating a big picture of research studies conducted before.

5.1 Implications for research

In this study, beyond investigating the factors to impact or be impacted by online trust, we looked at the theoretical concepts and contextual dimensions in the literature. The current study can benefit future research in several different ways. First of all, the review of the used theories can be beneficial for future studies to identify similarities and differences between the used theories.

Synthesis of theories in our review can direct some of the factors which have been less studied. For example, the current literature is less focused on the interpretation of trust by different parties. Therefore, in the current study, we suggest three future directions for studies on online trust. First, future research can refer to references such as motivational model (Keller 1983) and accountability theory (Lerner and Tetlock 1999) to investigate less studied factors such as social presences, accountability, relevance, and confidence on online trust.

Furthermore, the theoretical perspective can be extended to a critical perspective to explore the unobservable events impacting, creating trustworthiness in an online environment and inter-subjective meaning given to trust in various contexts by different stakeholders (Dobson et al. 2007; Phillips and Brown 1993). In terms of research approach and perspective, a lack of focus on prescriptive and design approaches is observable in the current research. Future studies can benefit from available design methods (Hevner 2007) and extend the current literature on prescriptive work on how to improve trust in e-commerce.

Furthermore, as mentioned in the previous sections, the majority of studies in the literature (almost 96%) have focused on the mechanisms using which customers trust buyers, technology, and a community. Unlike customers, other stakeholders in an online transaction, have been received less attention. In particular, sellers should be subject of attention as trustees in future research. Future studies should go beyond available research on B2B e-commerce (Pavlou 2002; Tsatsou et al. 2010) and online auctions (Pavlou and Dimoka 2006) and focus on the disruptive technologies that promote the position of customers in e-commerce (Hawlitschek et al. 2018). This change of focus is more important considering the new changes in electronic markets in which customers are put in a central position. Furthermore, we call future research to focus on new transaction and payment technology such as blockchain and distributed ledger (Lacity 2018; Lindman et al. 2017) and how customers trust these technologies. Furthermore, the impact of new technologies such as blockchain the Internet of Things (IOT) on improving trust behaviour in various contexts should be studied.

The current literature also seems to be very limited in terms of demographic characteristics and the majority of studies have focused on North American, European, and East Asian contexts. While rare studies in other contexts have reported significant differences among developed and developing

contexts (Hajli 2019; Shareef et al. 2018), future studies should consider collecting data in these countries. In terms of respondents' age, although there are studies in the literature with more age-diverse subjects (Hoffmann et al. 2014), many studies have used "students samples" as their source of data which usually includes respondents from young-age groups. This type of research, in the long term, will result in the exclusion of certain parts of the society (Cushman et al. 2008). Therefore, in this study, we call for considering higher diversity of study subjects in future research, and a specific focus on older generations of users and their trust in e-commerce.

5.2 Implications for practice

Other than researchers, this study can also benefit practitioners. First, the study provides a classification of factors that will lead to customers' trust. This classification is beneficial for managers and owners of e-commerce platforms and online businesses to create a list of considerations for them. It will also help them to form approaches to develop trust in e-commerce. Also, by categorising the potential outcomes of trust, the study can better show the significance of trust to practitioners. Practitioners can use this framework and match it with specific dimensions of their business.

E-commerce platform developers can also benefit from this study by focusing on technology-related factors and how they can be implemented in their projects. In this study, we reviewed factors such as reliability, coherence, visual appearance, and website quality as factors which can impact customers' trust in e-commerce. According to our review, the role of third-party and intermediaries is also highlighted in the literature. Therefore, practitioners need to consider online seals, encryption certificates, assurance, and guarantees as crucial trust development mechanisms. Finally, owners and managers of online marketplaces can benefit from this study as it reviews factors leading to both buyers and sellers' trust.

6 Conclusion

Despite long-standing research conducted in the past two decades on trust and e-commerce, no comprehensive study has examined the body of research to develop a comprehensive framework. In this paper, we used a systematic literature review approach to investigate the factors that can impact trust on e-commerce platforms and the possible consequences of this trust. Based on the review of 127 papers in high-ranked IS journals and conferences, we identified various categories of antecedents and consequences of trust.

Like any other review research, this study may have some limitations. For example, while the focus of this study was high-ranked outlets, studies which do not satisfy the identified metrics are not included. Also, despite our attempts to form a comprehensive set of keywords, some studies may have been missed as a result of using different terms. The study, however, was successful in developing a comprehensive framework of trust as well as a review and Synthesis of theories which can be beneficial in future research and practice.

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