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Is Trust Gender Biased? A Bibliometric Review of Trust in E-Commerce

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ABSTRACT

Purpose: The goal of this paper is to critically review studies on trust in e-commerce from the gender perspective.

Methodology: This paper is based on a systematic literature review (SLR) and applies the bibliometric technique. SLR reduces selection bias, which helps to produce more accurate scientific conclusions. We examine 148 published studies in the Scopus database using VOSviewer and the bibliometrix package in the R statistical software program. We summarize previous findings in the form of theories and methodologies in the literature.

Findings: The findings show that trust in e-commerce from the gender perspective is underexplored. Specific underexplored areas include gender differences, information systems, and consumer trust and consumption patterns on social-networking sites, among others. Also, there is considerable scope for developing theories and models of cross-country variations in trust, e-commerce, and gender.

Originality: The previous literature did not identify the methods and the structural research constructs. This study for the first time develops generates scientific insights that will contribute to future research.

KEYWORDS

Bibliometric analysis; e-commerce; gender; trust

Introduction

The internet and ways of conducting business online (e-commerce) are evolving every day. Loebbecke and Schäfer (2001) seminal study defines ecommerce as "the activity of electronically buying or selling of products on online services or over the Internet." E-commerce is also defined as digital marketing that typically involves one or more electronic methods of trading goods or services (Mehrotra et al. 2020). Studying e-commerce is paramount, especially because trust in it fosters loyalty in customers, which supports long-term profits (Ladhari and Leclerc 2013). For instance, according to Kumar, Sikdar, and Alam (2016), the growth of e-commerce reduces operating costs, increases business opportunities, and minimizes lead time. A compelling e-commerce experience also increases customer engagement (Hao Suan Samuel, Balaji, and Kok Wei 2015). Therefore, it is critical to study the adoption of e-commerce in the fast-changing world of technology.

According to Kim, Ferrin, and Rao (2009), trust is a key factor determining the success of e-commerce platforms, which is why online dealers must provide an environment in which online transactions can be conducted safely. E-commerce, like any type of economic or social interaction (from the most basic to the most developed), is built upon trust. Trust is a precondition in e-commerce and any other online transaction (Amin, Rezaei, and Tavana 2015; San Martín and Jiménez 2011). According to Cofta (2006), trust may be defined as an evidence-driven increment in subjective confidence that the actions of independent entities will suit one's needs, where the confidence cannot be justified by one's own control over those actions. It is developed through successful repeated actions that generate confidence in an outcome. And without consumer trust, e-commerce would collapse. For instance, in studying a large sample of consumers in Sri Lanka, Aboobucker and Bao (2018) emphasize that trust is vital for consumers to use e-banking services. Without strong trust in e-commerce, people would not feel confident providing personal information or making payments (Amin, Rezaei, and Tavana 2015). According to Pavlou and Dimoka (2006), the nature and role of feedback as a means for building trust plays a significant role in e-commerce systems. As discussed by Bertea and Zait (2013), risks associated with e-commerce fall if consumers trust it.

People have confidences in conducting certain transactions (trust) than others do. For example, the empirical studies conducted by Cho and Jialin (2008) and Faqih (2016) report significant differences between women and men concerning trust in e-commerce. But while several studies have analyzed how differences in information processing affects how consumers' behavior and attitudes affect their trust in e-commerce (Sahney, Ghosh, and Shrivastava 2013), very few have considered gender as a differentiating factor (Sethna, Hazari, and Bergiel 2017). Studies on the role of trust in ecommerce from the gender perspective include cross-sectional studies of psychological, behavioral, and demographic traits of consumers. Haselhuhn et al. (2015) reveal that gender issues may respond to violations of trust from psychological perception. Similarly, Dobele et al. (2017) consider gender as a factor linking trust and online sources of information. Specifically, given that maternity is affected by demographic factors (for example, education qualifications, income, and age), they study how mothers trust online sources of information on raising children. Along the same lines, Hao Suan Samuel, Balaji, and Kok Wei (2015) analyze the role of gender in shaping consumers' purchasing behavior. As recently stated by Zolait et al. (2018), only a few studies have focused on the role of gender in online consumer shopping behavior. Moreover, the literature has been silent on the impact of gender on trust in e-commerce across countries. Voineagu et al. (2016) is one of the first studies that incorporate institutional differences across countries in exploring trust in e-commerce. As Lazányi and Bilan (2017) note, the gender perspective is mandatory for studying the association between trust and e-commerce and exploring the mindsets, values, attitudes, and behavior of online shoppers.

This literature review highlights important theories, methodologies, and contributions, and it draws implications for trust in e-commerce from the gender perspective. We present a comprehensive analysis of citations, cocitation structures, and trends in the literature between 2002 and 2020. The map analysis identifies the themes of articles by inspecting author-specified keywords. Also, by analyzing Scopus-indexed documents with the bibliometrix package in the R statistical software program, we find an increasing number of annual publications on the study of trust in e-commerce from the gender perspective, such that in 2019, almost twenty-five studies were published. We also find that as the reach of the internet increased and sales subsequently increased, e-commerce grew (Faqih 2016). Most of the publications considered here primarily study the ability of e-commerce to satisfy consumers (Kim and Stoel 2004), consumers' willingness to trust e-commerce (Nabareseh, Osakwe, Klímek, et al. 2014), and the e-shopping habits of men vis-à-vis women (Zolait et al. 2018). This research identifies potential challenges in the study of trust in e-commerce from the gender perspective and opens up future research opportunities (for example, studying the impacts of trust in e-commerce by combining gender and culture factors). Additionally, we identify research gaps.

We develop a systematic structure to pinpoint both the main characteristics of the process of building trust in e-commerce and the similarities and dissimilarities of men and women in this respect. We find that an integrated approach with mixed methods would reach better results than the previous approaches have, as suggested by Trojanowski and Kułak (2017).

Several studies have generated insights on the pros and cons of consumers' trust in e-commerce (Hao Suan Samuel, Balaji, and Kok Wei 2015). However, as noted, scholars have not adequately studied how trust in e-commerce is generated from the gender perspective.

We describe our methodology in Section "Methodology," establish the relevant theory in Section "Background," and discuss major results in Section "Discussion." Section "Challenges to building trust in e-commerce" develops implications for practitioners, researchers, and policy makers. We provide guidelines for future research in Section "Research agenda" and conclude in Section "Suggestions for future research."

Methodology

There are several types of systematic literature review (SLR), such as structured reviews, which examine the most applied methods, theories, and constructs; reviews for model/framework development; meta-analyses; reviews based on theory; hybrid reviews; framework-based reviews; and bibliometric reviews (Mumu, Tahmid, and Azad 2020; Randhawa, Wilden, and Hohberger 2016). This study applies the bibliometric technique because it enables analysts to examine and visualize networks of sources, authors, and keywords (Corrall, Kennan, and Afzal 2013). SLRs reduce bias, which helps to produce more accurate scientific conclusions. The conclusions derived from SLRs help scholars reach agreement on the best theories and methodologies in the literature.

The bibliometric technique has been widely applied in library science to analyze documents (Corrall, Kennan, and Afzal 2013). Through bibliometric analysis, scholars can visualize the data and observations in the existing literature. Additionally, bibliometric analysis ensures high-quality analysis and provides ample opportunities to take advantage of all of the documents' informational content (De Rezende, Blackwell, and Pessanha Goncalves 2018).

Following Papaioannou et al. (2010), this study applies the search, appraisal, synthesis, and analysis framework to analyze unbiased data. Using the framework requires less time and expense than conducting new experiments does. The purpose of the first stage—search—is to not miss out on any significant content and parameters. This study uses data collected from a Scopus dataset using the following query in the title, abstract, and keyword search fields for articles published between 2002 and 2020: "trust" AND "online" OR "online shopping" OR "online marketing" OR "e-commerce" OR "internet" OR "e-commerce" AND "gender" OR "gender diversity" OR "male" OR "female." Afterward, we limited the search results by subject ("business" OR "economics") and document type ("journal" OR "book"), which resulted in a total of 148 documents.

The second stage—the appraisal—helps us assess the quality of the SLR. In our study, among the 148 documents, 137 were published journal articles, 1 journal article in press, seven book chapters, two reviews, and one conference paper. The third stage—the synthesis—considers the analytical framework and the research trends. For this stage, following Aria and Cuccurullo (2017), we use bibliometrix and VOSviewer. We apply different types of co-occurrence and cocitation matrixes to examine important research areas. Finally, in the fourth stage, we conduct a comprehensive content analysis of the 148 documents.

Background

Trust in e-commerce

Trust in e-commerce has been an important topic of research because trust makes coordination and cooperation possible (Paliszkiewicz and Koohang 2013). A consumer's online-purchase decision is so complex and sophisticated that trust must be a relevant factor (McKnight, Choudhury, and Kacmar 2002). Gender can make a difference, as men are more pragmatic and women experience greater anxiety in new online-shopping contexts (San Martín and Jiménez 2011). Although the direct factors driving trust in e-commerce are universal, gender significantly moderates the trust-building process (Porter, Donthu, and Baker 2012). Gender differences have been of interest to many e-commerce marketers seeking to understand ways to influence men and women differently (Rodgers and Harris 2003).

Summary of methods and techniques

The most popular methods used in the analyzed publications are summarized in Table 1. Sixty-nine articles directly discuss their methods of empirical analysis. Among them, 62.32% use questionnaires and surveys as the primary method of data collection. As the use of the internet has increased, online surveys have become highly popular (Griffiths et al. 2014). Another rising methodology is structural equation modeling (SEM), used in 13.04% of the sixty-nine articles. SEM is gaining attention which tests theories of social practices (Johnson 1998). One particular SEM method is partial least squares (PLS), which is increasingly used and accounts for 5.80% of the sixty-nine papers. For studying trust in e-commerce, the PLS method is adequate (Bitter, Grabner-Kräuter, and Breitenecker 2014). Other popular statistical methods include ANOVA, ANCOVA, and regression analysis, which are used in 7.25% of the sixty-nine articles. Although most of the articles primarily use questionnaires and surveys, scholars are increasingly using regression analysis and other statistical methods, equation modeling, and other quantitative methods.

Summary of theoretical frameworks

Table 2 summarizes the theoretical frameworks used to study trust in e-commerce from the gender perspective. Very few articles are based on a specific theory (Luo 2002; McKnight, Choudhury, and Kacmar 2000).

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Table 1. Methods to study trust in e-commerce.

Name of method	Number of articles	References	% influence
Questionnaire and Survey	43	Bertea and Zait (2013) Amin, Rezaei, and Tavana (2015) Chen, Sharma, and Rao (2016) Dennis and Bocarnea (2005) Dobele et al. (2017) Fortes, Rita, and Pagani (2017) Herrando, Jimenez- Martinez, and de Hoyos (2018) Kim, Lee, and Chung (2013) Lawson and Leck (2006) Lazányi and Bilan (2017) Leck and Orser (2013) Lien et al. (2015) J. Luo et al. (2006) Madlberger (2006) Malaquias and Hwang (2017) Mehrotra et al. (2020) Nabareseh, Osakwe, Klímek, et al. (2014) Pudaruth and Busviah (2018) Riquelme and Román (2014) Rodgers and Harris (2003) Russell et al. (2021) Sethna, Hazari, and Bergiel (2017) Sheng and Simpson (2015) Simová and Cinkánová (2016) Valvi and West (2013) Voineagu et al. (2016) Woo and Ramkumar (2018) Yeh and Li (2014) Abbad, Abbad, and Saleh (2011) Abdelrahman, Khamis, and Rizk (2019) Banerjee et al. (2005) Bhullar and Gill (2018) Brun, Rajaobelina, and Ricard (2016) Capell et al. (2018) Charlebois (2018) Cho and Jialin (2008) Clark and Bogdan (2019) Costa-Font, Mossialos, and Rudisill (2009) Donaldson (2019) Faqih (2016) Goyal et al. (2013) Hao Suan Samuel, Balaji, and Kok Wei (2015) Hou and Elliott (2014) Izogo (2016)	62.32%
Structured equation modeling	9	Rialti et al. (2017) Aboobucker and Bao (2018) Aeron, Jain, and Kumar (2019) Akrout and Nagy (2018) Arif, Aslam, and Hwang (2020) Baek, Lee, and Choo (2019) Chou, Chen, and Lin (2015) Ert and Fleischer (2020) Escobar-Rodríguez, Grávalos-Gastaminza, and Pérez-Calañas (2017)	13.04%
Partial least squares	4	Chakraborty et al. (2016) Bitter, Grabner-Kräuter, and Breitenecker (2014) Hur, Ahn, and Kim (2011) Trojanowski and Kułak (2017)	5.80%
Regression analysis	4	Garbarino and Slonim (2009) Haselhuhn et al. (2015) Cordero-Gutierrez and Santos-Requejo (2016) Black (2005)	5.80%
Both qualitative and quantitative methods	4	Ashman and Vazquez (2012) Agren and Barbutiu (2018) San Martín and Jiménez (2011) Hayat et al. (2020)	5.80%
Desk research	1	Alzahrani, Al-Karaghouli, and Weerakkody (2017)	1.45%
Statistical methods (ANOVA, ANCOVA)	1	Mukherjee and Jansen (2014)	1.45%
Cluster analysis	1	Vatnani and Verma (2014)	1.45%
Multigroup analysis Case analysis	1 1	Gong, Liu, and Wu (2018) Nabareseh, Osakwe, Afful-Dadzie, et al. (2014)	1.45% 1.45%

Among the theories used, the theory of reasoned action (TRA), the technology acceptance model (TAM), and various social theories are predominant. Theories such as signaling theory, the warranting principle, and informational-social-influence theories are dominant while comparing the

Theories used	Number of documents	References	% influence
Theory of planned behavior	2	Bitter, Grabner-Kräuter, and Breitenecker (2014) Fortes, Rita, and Pagani (2017)	8.69%
Theory of reasoned action and the technology-acceptance model	5	Amin, Rezaei, and Tavana (2015) Kumar, Sikdar, and Alam (2016) Lien et al. (2015) Madlberger (2006) Vatnani and Verma (2014)	21.73%
Social-role theory, Socialization theory, social-exchange theory, and social-capital theory	5	Chen, Sharma, and Rao (2016) Haselhuhn et al. (2015) Hur, Ahn, and Kim (2011) Mukherjee and Jansen (2014) Rialti et al. (2017)	21.73%
Trust theory and flow theory	2	Benbasat, Gefen, and Pavlou (2010) Herrando, Jimenez-Martinez, and de Hoyos (2018)	8.69%
Gender-role theory	2	Rialti et al. (2017) Russell et al. (2021)	8.69%
Transaction-cost theory	1	Kim, Lee, and Chung (2013)	4.34%
Communication theory	1	Dobele et al. (2017)	4.34%
Patterson's servant-leadership theory	1	Dennis and Bocarnea (2005)	4.34%
Cue-utilization theory	1	Baek, Lee, and Choo (2019)	4.34%
Signaling theory	1	San Martín and Jiménez (2011)	4.34%
Uses-and-gratification theory	1	Sethna, Hazari, and Bergiel (2017)	4.34%
Expectation-confirmation theory	1	Valvi and West (2013)	4.34%

 Table 2. Theories used in at least one article.

user-generated information and information originating from traditional experts might be privileged in e-commerce platforms (Flanagin and Metzger 2013). The TAM seems to be the most important theory (Yuen and Ma 2002). Haselhuhn et al. (2015), applying various social and socialization theories (such as social-role theory, commitment-trust theory, the TRA, and gender-role theory), note that women are more likely to exhibit trust than men are. These theories help us understand how men and women react to online marketing and develop trust. Only a few papers, such as Rialti et al. (2017), conduct research with more than one theory.

Role of contributing authors

In considering the h-index, the g-index, the m-index, and other indicators, Table 3 sheds light on the most prominent authors in the studies in this SLR. The h-index is a matrix that attempts to measure both productivity and citation count. The g-index quantifies productivity based on publication records. The m-index considers the number of years since an author published their first paper. Soyoung Kim is the most prominent author, having contributed three papers in this research area. Kim's first paper (Kim and Stoel 2004) was "Apparel Retailers: Website Quality Dimensions and Satisfaction." Kim's other two are "Online Shopping and Moderating Role of Offline Brand Trust" (Kim and Jones 2009) and "Influences of Retail Brand Trust, Off-line Patronage, Clothing Involvement and Website Quality on Online Apparel Shopping Intention"

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	Number					
Name of author	of documents	References	h-index	g-index	m-index	Total citations
Soyoung Kim	3	Kim and Stoel (2004) Jones and Kim (2010) Kim and Jones (2009)	3	3	0.176	319
Amresh Kumar and Alok Kumar	3	Aeron, Jain, and Kumar (2019) Kumar, Sikdar, and Alam (2018) Kumar, Sikdar, and Alam (2016)	2	3	0.400	9
Md. Moddassir Alam	2	Kumar, Sikdar, and Alam (2018) Kumar, Sikdar, and Alam (2016)	1	2	0.200	7
Sharmistha Bagchi-Sen	2	Banerjee et al. (2005) Chakraborty et al. (2016)	0	0	0.000	0
Miloslava Chovancová	2	Nabareseh, Osakwe, Afful- Dadzie, et al. (2014) Nabareseh, Osakwe, Klímek, et al. (2014)	1	1	0.143	2

Table 3. Most prolific authors and their documents.

(Jones and Kim 2010). Next most prominent are Amresh Kumar and Alok Kumar, who contributed three papers: "E-retail Adoption in Emerging Markets: Applicability of an Integrated Trust and Technology Acceptance Model" (Kumar, Sikdar, and Alam 2016), "E-retail Adoption in Emerging Markets: A Perspective on Predictive Constructs" (Kumar, Sikdar, and Alam 2018), and "Revisiting Trust toward E-retailers among Indian Online Consumers" (Aeron, Jain, and Kumar 2019). These authors have more than two publications with coauthors with more than one publication each, such as Md. Moddassir Alam (Kumar, Sikdar, and Alam 2016; Kumar, Sikdar, and Alam 2018), Sharmistha Bagchi-Sen (Banerjee et al. 2005; Chakraborty et al. 2016), and Miloslava Chovancová (Nabareseh, Osakwe, Afful-Dadzie, et al. 2014; Nabareseh, Osakwe, Klímek, et al. 2014). It is a relatively new research area, which may explain why only a few single-authored publications are identified here.

Of the five most prolific authors, three are affiliated with universities in India. India's large cities with appreciable literacy rates, its gigantic rural population with very fast-growing literacy rates, the rapid increase in its use of the internet, and its advancement in and adoption of technology, among other factors, have made it a dream destination for e-commerce players, as suggested by Sahney, Ghosh, and Shrivastava (2013). Soyoung Kim is in the top position with an h-index of 3, meaning he has three publications on trust in e-commerce, each of which has received at least three citations. He has also been cited 319 times. Both facts indicate his dominance in the literature.

Recent literature on trust in e-commerce from the gender perspective

The major characteristics of the literature on trust in e-commerce from the gender perspective are focused on developed countries (Abbad, Abbad, and

Saleh 2011; Faqih 2016). Countries such as India, China, and Pakistan exhibit more differences between men and women in their trust in e-commerce. Table 4 summarizes content from the most recent literature on trust in e-commerce that mainly focuses on gender differences. The most popular methods in this literature are the multigroup comparison (Kim 2020) and PLS-SEM (Paul and Jacob 2018). Both methods are very effective for studying this topic. Some of the literature uses famous theories such as consumerbehavior theory and trust theory. However, theoretical models such as the selectivity hypothesis and the hierarchical-latent-variable model are also getting attention. Most of the papers in this SLR find that gender differences play a paramount role in determining consumer trust in e-commerce (Dai et al. 2019).

Factor analysis

Figure 1 identifies documents that made the greatest contributions in this SLR. Using multiple-correspondence analysis, with the abstract as the main field for factorial analysis and with a word limit of fifty, we find that k-means clustering yields four clusters-red, blue, green, and purple-which are plotted on two dimensions (Dim 1 and Dim 2). The dimensions explain variation among the identified papers in terms of their contributions. The 59.09% figure means that the first principal component accounts for 59.09% of the variation. The second principal component accounts for 20.23% of the variation. Together they account for 79.32% of the variation. The red cluster includes documents with similar purposes and findings and includes Sahney, Ghosh, and Shrivastava (2013), Marakarkandy, Yajnik, and Dasgupta (2017), and Izogo (2016), all of which apply SEM to derive new insights. The blue cluster includes Ahuja and Lyons (2019) and Woo and Ramkumar (2018), both of which study predictors affecting trust from the gender perspective. The green cluster includes Chou, Chen, and Lin (2015), Hur, Ahn, and Kim (2011), and Upadhyay and Chattopadhyay (2015), all of which explain female customers' e-trust and privacy concerns. The purple cluster contains Baek, Lee, and Choo (2019) and B. Jin, Park, and Kim (2008), which examine e-trust among shoppers from China, the United States, and Korea from a cross-cultural and cross-border perspective.

Discussion

Trust in e-commerce has been a significant research topic in recent years. Regarding the query on the Scopus database that found 148 documents (see section 2), note that 382 authors wrote the documents and published in 102 different outlets. Only 14 documents were written by a single author, and

Reference	Purpose	Method	Theory	Industry/country	Findings	Research gaps and implications
Kim (2020)	The study examines how men and women differ in their perceptions of the quality of luxury-fashion e- retailing websites.	Multigroup comparison using survey of 287 respondents	Selectivity hypothesis	Luxury fashion	The study finds that male luxury consumers seem to be goal oriented and pay attention solely to information that directly assists them in their purchase decisions. Female luxury consumers are likely to engage in comprehensive information processing by evaluating a wide range of service attributes when purchasing luxury- fashion doods online.	To understand consumers' perceptions of luxury- fashion retailers' website quality, the study recommends research on a wide range of consumers and their usage of luxury- fashion websites.
Dai et al. (2019)	The study examines why female customers show less trust in e-commerce than male customers do.	Self-reporting and implicit- association test	Consumer- behavior theory	Chinese beverages	The study finds consumers engage in online shopping but dislike it.	Exploration of the possible interaction between gender and cultural setting (Eastern vs. Western)
Zhang et al. (2019)	This study explores the interaction of trust and perceived usefulness to understand how gender- based differences in multimedia word of mouth influence consumer trust and the dissemination of information.	Partial-least-squares regression analysis	Trust theory and dissemination- intention test		The results indicate that trust and usefulness can enhance each other. Additionally, women's perception of the usefulness of word of mouth is greater than that of men, particularly online.	The effects of culture in determining the usefulness of word of mouth in e-commerce along with gender diversity
Paul and Jacob (2018)	This study examines postadoption attitudes and loyalty in e-shopping.	Partial-least-squares regression analysis	Hierarchical-latent- variable model	Indian websites	The results show that value, trust, satisfaction, and habit strongly augment customer loyalty. The results also indicate that the effect of satisfaction on habit is significantly stronger for women.	E-commerce marketers can benefit by learning how to augment customer loyalty and why trust is stronger for women than men.
Gong, Liu, and Wu (2018)	This study explores the driving forces of men's and women's trust in mobile social-network services.	Multigroup comparison	Social-role theory	Chinese social media (WeChat)	The study concludes that social ties and reputation have dominant effects on male users' trust, whereas structural assurance has a greater effect for female users.	Practitioners can find the reasons why social ties have less effect on women than on men and apply it to their e- commerce businesses.

Table 4. Content analysis of recent literature on trust in e-commerce from the gender perspective.

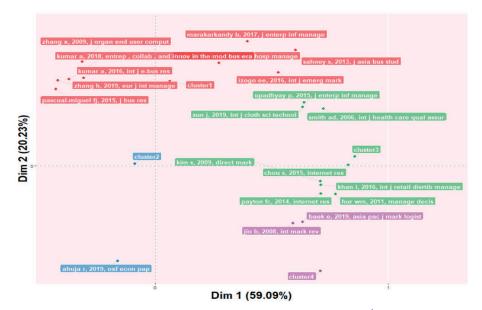


Figure 1. Factorial map of the documents with the highest contributions.¹

the collaboration index among authors is 2.75. Regarding average citations per document, we find ups and downs over the years, with a pronounced drop in 2007. It is plausible that the Great Recession of 2007 resulted in worse logistics, more faulty internet connections, higher technology costs, and other factors that created more trust issues and consequently less scientific research on the topic. Despite low average citations per document, the figure grew annually by 4.16% during our period of analysis, which implies that the research community is recognizing this topic as promising.

Regarding publication outlets, the *Journal of Retailing and Consumer Services* and the *Journal of Internet Commerce* have published more than five documents each. Table 5 reports the papers with the most local and global citations. Although the topic is rising in popularity, most journals have published very few papers on it.

Thematic map

Figure 2 visualizes four different types of themes, defined by the semantic strength of their internal (density; y-axis) and external (centrality; x-axis) associations (Grivel, Mutschke, and Polanco 1995). Being in the upper-right quadrant signifies maximum density and centrality of the themes in this literature review. Information and health satisfaction had maximum impact as themes in the study of trust in online marketing from the gender perspective. The upper-left quadrant displays high-density themes with unimportant external links, indicating limited importance for the topic. Less

attention has been paid to themes related to social media and perceived ease of use. The lower-left quadrant displays themes with high centrality and low density, meaning the themes will have a huge impact on future research but are quite under-researched. Focusing more on themes such as consumer satisfaction and internet banking might be fruitful. Focusing on generating trust in online-shopping platforms may spur future research, as indicated by the bottom-right quadrant.

Historiograph

A historiograph interprets a specific research topic by identifying influential scholars. It reveals the shape of the scholarly debate. Figure 3 shows that Menon et al. (2002), Kolsaker and Payne (2002), Rodgers and Harris (2003), and Kim and Stoel (2004) were the pioneers in research on trust in e-commerce. Menon et al. (2002) systematically examined why consumers trust online prescription-drug information and how online prescribed drugs; their study prepared the ground for other studies on the topic. Their article was the first to focus on trust in online platforms. Kolsaker and Payne (2002) studied how consumer trust in e-commerce appears to differ by gender. Rodgers and Harris (2003) conducted an exploratory study on how e-commerce and gender are connected and in what ways they influence each other; their study laid the foundations for this SLR. Finally, Kim and Stoel (2004) identified ways to ensure customer satisfaction along six dimensions of website quality. They also discussed how to improve those six dimensions to ensure shopper satisfaction. The latest articles on this topic are by Alzahrani, Al-Karaghouli, and Weerakkody (2017), Marakarkandy, Yajnik, and Dasgupta (2017), and Liébana-Cabanillas, Muñoz-Leiva, and Sánchez-Fernández (2018). Alzahrani, Al-Karaghouli, and Weerakkody (2017) analyzed critical factors that influence citizens' trust in e-government. Marakarkandy, Yajnik, and Dasgupta (2017) helped to study the adoption of online banking by extending the TAM. Their paper determined the influence of several factors, such as trust, image, bank initiative, internet facility, self-efficacy, and perceived risk. Liébana-Cabanillas, Muñoz-Leiva, and Sánchez-Fernández (2018) studied user behavior in mobilepayment systems. The historical direct-citation network in Figure 4 links all the authors from 2002 to 2020 who contributed research on this topic.

Collaboration network

In today's fast-paced world, collaboration encourages creativity, improves the shopping experience, and optimizes resources. The extent of collaboration may predict online-networking success (Ramayah, Lee, and In 2011). Although there is little collaboration across countries, higher collaboration

Document	Year	Journal	TC	Local citations	Global citations
Awad and Ragowsky (2008)	2008	Journal of Management Information Systems	322	11	322
Kim and Stoel (2004)	2004	Journal of Retailing and Consumer Services	246	3	246
Rodgers and Harris (2003)	2003	Journal of Advertising Research	224	20	224
Riedl, Hubert, and Kenning (2010)	2010	MIS Quarterly: Management Information Systems	181	0	181
Chai, Das, and Rao (2011)	2011	Journal of Management Information Systems	168	0	168
Jin, Park, and Kim (2008)	2008	International Marketing Review	141	2	141
Sanchez-Franco, Ramos, and Velicia (2009)	2009	Information and Management	130	12	130
Kolsaker and Payne (2002)	2002	Marketing Intelligence and Planning	119	0	119
Hur, Ahn, and Kim (2011)	2011	Management Decision	114	0	114
Dennis and Bocarnea (2005)	2005	Leadership and Organization Development Journal	105	0	105

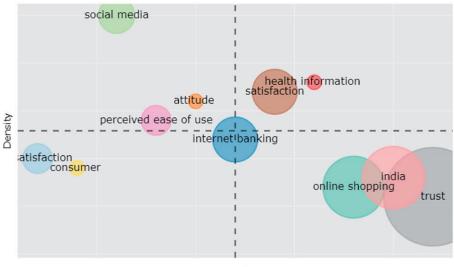
Table 5. Most significant documents.

can be observed among authors on this topic. Figure 4 shows the web of collaboration connecting prolific authors. On this topic, for which the minimum number of citations of an author is twenty, the collaboration index is around 2.75 and there are 2.69 authors per document. Kim and Stoel (2004), Lee and Schumann (2009), Benbasat, Gefen, and Pavlou (2010), Chen, Foster, and Putterman (2019), Wang and Yu (2015), and McKnight, Choudhury, and Kacmar (2002) are pioneers with more collaboration with other authors. Benbasat, Gefen, and Pavlou (2010) and McKnight, Choudhury, and Kacmar (2002) focused on consumer trust in information systems and websites. Wang and Yu (2015) and Chen, Foster, and Putterman (2019) focused on the trust-and-identity crisis concerning personal data and microfinance lending. Kim and Stoel (2004) and Lee and Schumann (2009) focused on gender in their study of website dimensions and computer agents. As noted, collaboration among prolific authors studying diverse aspects of trust in e-commerce from the gender perspective is increasing.

Challenges to building trust in e-commerce

Over the past few years, e-commerce has expanded exponentially (Agren and Barbutiu 2018). There are a few challenges in studying trust in e-commerce from the gender perspective (Figure 5). Although trust has gained a distinguished position as an important theoretical concept in research on e-commerce since online transactions and social relationships are increasingly mediated by information technology (Benlian and Hess 2011). For instance, Arif, Aslam, and Hwang (2020) identified the value barrier, the

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Centrality

Figure 2. Thematic-map analysis.

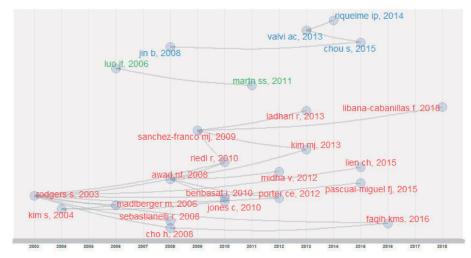


Figure 3. Historical direct-citation network.

image barrier, and the risk barrier as three major challenges in building econsumers' trust. These challenges are faced by both men and women (see Figure 2). Along the same lines, according to Aboobucker and Bao (2018), perceived trust among male users varies more it does among female users, but perceived risk and internet usability vary more among female users than among male users. Women report high trust in e-commerce and are more loyal to online platforms than men are (Ladhari and Leclerc 2013). Thus, while both men and women face similar challenges in building trust in e-commerce, they react differently and reach dissimilar outcomes.

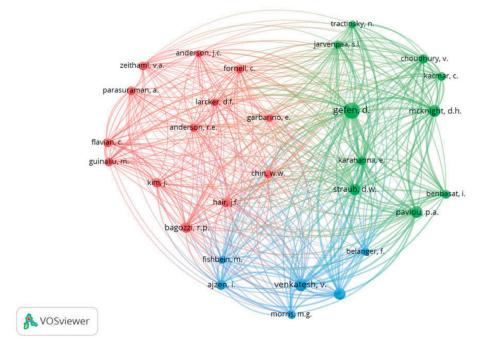


Figure 4. Collaboration among prolific authors.

In addition to gender differences in perceived trust in e-commerce, another thing that influences the trust response is the mix of culture and gender. Although some theories suggest that national culture and trust are interrelated (Hofstede 1980; Kim, Ferrin, and Rao 2009), Hallikainen and Laukkanen (2018) showed that studies that focus on how national culture impacts trust in e-commerce platforms are very sparse. Their study also portrayed how national culture combined with gender diversity influences the trust response. They focused on three dimensions of trustworthiness: ability, integrity, and benevolence. However, more-thorough research is needed to identify how trust in e-commerce is influenced by a combination of gender and culture.

Research agenda

Following Grabner-Kräuter and Bitter (2015), we develop a research agenda to understand the embeddedness of trust in e-commerce from the gender perspective. Future research might highlight unique patterns for studying trust in e-commerce by considering the role of gender perception. Earlier research on this topic mainly focused on consumer trust (Aeron, Jain, and Kumar 2019) and barriers in online marketing (Agren and Barbutiu 2018), especially in mobile banking (Arif, Aslam, and Hwang 2020) and e-shopping (Chakraborty et al. 2016), and moderating factors such as gender, occupation, and age (Zolait et al. 2018). Figure 6 summarizes findings in this field

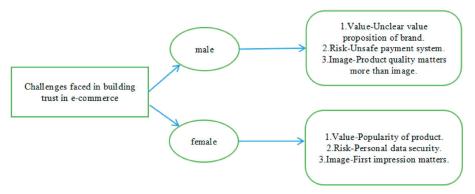


Figure 5. Challenges in building trust in e-commerce from the gender perspective.

from the gender perspective. The findings are classified into similar features compared between men and women (crossing points), unique features of men and women (salient features), and basic characteristics of men and women regarding building trust in e-commerce (characteristics).

Table 6 identifies industries in which e-commerce has been well developed. The papers examined here address e-commerce in several sectors and industries. Most of the papers concern website development and social-networking platforms. E-retailing and e-banking are rising in popularity as objects of study, but more studies are needed. The grocery, flower, and food industry, the sustainable-development industry, and the gaming industry are quite under-researched.

Suggestions for future research

E-commerce professionals

This study has shown that considering the role of gender in building trust in e-commerce is mandatory for management information systems and decision-making processes. Also, this review has suggested that trust in ecommerce varies greatly by gender. As a result, future studies should seek to understand consumer behavior and consumption patterns to help develop online businesses. Our analysis of data from previous studies has provided insights that can increase market opportunities, sales, and productivity by ensuring trust in e-commerce on the part of both men and women. Practitioners need to find new marketing strategies to make customers more loyal, make them feel more connected, improve their online experience, gain their trust, and develop their online businesses. Also, they should develop ways of predicting the preferences of men and women and identifying what makes them feel more secure while shopping online.

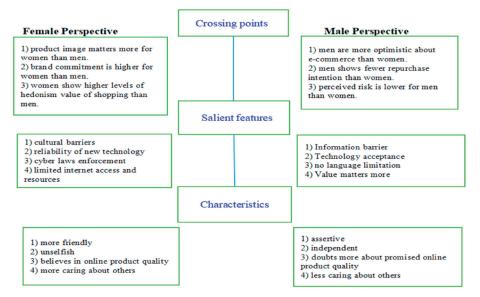


Figure 6. Research on trust in e-commerce from the gender perspective.

Table 6. Practical implications of trust in e-commerce from the gender perspective for industries and sectors.

Practical implications	References
Finance and banking	Aboobucker and Bao (2018) Arif, Aslam, and Hwang (2020) Brun, Rajaobelina, and Ricard (2016) Chen, Foster, and Putterman (2019) Kivijärvi, Laukkanen, and Cruz (2008) Ladhari and Leclerc (2013) Malaquias and Hwang (2017) Liébana- Cabanillas, Muñoz-Leiva, and Sánchez-Fernández (2018) Marakarkandy, Yajnik, and Dasgupta (2017) Terzidis, Papadopoulou, and Kosmidis (2013) Upadhyay and Chattopadhyay (2015) Vatnani and Verma (2014)
Retail and service	Aeron, Jain, and Kumar (2019) Amin, Rezaei, and Tavana (2015) Baek, Lee, and Choo (2019) Baek, Lee, and Choo (2019) Cho and Jialin (2008) Dai et al. (2019) Goyal et al. (2013), Kumar, Sikdar, and Alam (2018) Madlberger (2006) Mukherjee and Jansen (2014) Raman (2019) Prendergast, Paliwal, and Chan (2018) Paul and Jacob (2018) Peña-García, Gil-Saura, and Rodríguez-Orejuela (2018)
Social-networking sites (Facebook, Instagram, Twitter, and others), websites, and blogs	Akrout and Nagy (2018) Bitter, Grabner-Kräuter, and Breitenecker (2014) Chai, Das, and Rao (2011) Chen, Sharma, and Rao (2016) Gong, Liu, and Wu (2018) Herrando, Jimenez-Martinez, and de Hoyos (2018) S. Jin and Ryu (2019) Konstantopoulou et al. (2019) McKnight, Choudhury, and Kacmar (2002) Riedl, Hubert, and Kenning (2010) Rialti et al. (2017) Ranganathan et al. (2013) Rondán-Cataluña, Sanz- Altamira, and Peral-Peral (2017) Sanz-Blas, Ruiz-Mafé, and Perez (2014) Su et al. (2017) Tijunaitis, Jeske, and Shultz (2019) Valvi and West (2013) Zhang et al. (2009)
Health care and public sectors	Alzahrani, Ál-Karaghouli, and Weerakkody (2017) Dobele et al. (2017) Galeshi, Sharman, and Cai (2018) Payton, Kvasny, and Kiwanuka-Tondo (2014) Menon et al. (2002) Rodrigues, Sarabdeen, and Balasubramanian (2016) Sheng and Simpson (2015) Zein, Putri, and Ridlo (2020)
Education, IT, and management information systems	Abbad, Abbad, and Saleh (2011) Benbasat, Gefen, and Pavlou (2010) Bertea and Zait (2013) Lee and Schumann (2009) Mehrotra et al. (2020) Schell and Holt (2009) Sethna, Hazari, and Bergiel (2017) Soon and Kadir (2017) Wang and Yu (2015) Yuen and Ma (2002)
Fashion and luxury	Kim (2020) Simová and Cinkánová (2016) Sun and Chi (2019) Walsh, Schaarschmidt, and Ivens (2017) Woo and Ramkumar (2018)
Hospitality and tourism	Ert and Fleischer (2020) Escobar-Rodríguez, Grávalos-Gastaminza, and Pérez-Calañas (2017) Kim, Lee, and Chung (2013) Kakar et al. (2018) Lien et al. (2015) Li and Chang (2016) Manganari, Siomkos, and Vrechopoulos (2014) Wu, Ma, and Xie (2017)
Sustainable-development sector	Abdelrahman, Khamis, and Rizk (2019)
Grocery, food, and flowers Gaming	Loketkrawee and Bhatiasevi (2018) Pudaruth and Busviah (2018) Haselhuhn et al. (2015) Liu (2016)

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Researchers

Based on the discussions and findings of this study (Table 4), we make the following suggestions for future research:

- Future studies should compare the results of different methodologies in the study of trust in e-commerce (Zhang et al. 2017). For example, comparative studies could measure the ability of SEM and regression analysis to predict the role of gender.
- Although various theories explain the factors influencing trust in e-commerce, technology-adoption models play an especially substantial role in this literature. Thus, more research should focus on this theory, and new theories must be developed to study the role of gender in trust in e-commerce (Lee and Schumann 2009).
- Future research with a focus on gender can identify barriers to generating trust in e-commerce (Agren and Barbutiu 2018). It should aim at developing a gender-based framework to yield insights into what men and women want to buy and why they build or lose trust in online marketing platforms.
- Future research can study how people who are gay, lesbian, or third gender develop trust in e-commerce (Russell et al. 2021).

Policy makers

Considering the high risks and security issues involved in online marketing, many men and women do not feel safe sharing personal information, which shakes their trust in e-commerce (Wang and Yu 2015). Therefore, policy makers can learn about the challenges in this field to ensure privacy and reduce risk. Policy makers can develop rules and norms concerning safe online credit card-based transactions, privacy, encrypted information, and computer crimes, and other cyber abuses that erode online consumers' trust.

Conclusions

This SLR was based on bibliometric analysis of published articles (available through the Scopus database) on trust in e-commerce from the gender perspective between 2002 and 2020. The results from the factorial analysis suggest that the field is predominately inward-looking and focuses insufficiently on external attributes such as consumers' gender and age. Studies have mainly focused on e-commerce, barriers in online marketing, consumer trust and satisfaction, and consumer behavior, among other business aspects. We have shown that incorporating theories and methods solely based on the gender perspective would provide a more holistic view of trust in e-commerce. The thematic-map analysis showed that other areas that require further research include consumer satisfaction, internet banking, and online shopping. To address these gaps, social theories, the TRA, and the TAM, among other theories, could play an important role. Integrating the gender perspective will help other researchers to contribute more to this topic and enrich our understanding of trust in e-commerce.

This SLR has a few limitations. Although it minimized bias compared with other literature-review approaches, the findings are affected by the nature of the research design (Randhawa, Wilden, and Hohberger 2016). For instance, it analyzed Scopus-indexed journals only; therefore, publications under the umbrella of the Journal Citation Reports were disregarded. Additionally, the search was restricted to certain keywords, which may have affected the results. Also, this research mainly focused on business and economics, ignoring relevant publications in other fields. Future studies can include other databases with other keywords and fields. Future research could also pursue empirical testing.

Note

1. For further detail, see Table A in the Appendix.

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Appendix

Table A.	Та
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Paper	dim1	dim2	contrib	TC	Cluster
awad nf, 2008, j manage inf syst	-0.34	-0.09	0.67	322	2
kim s, 2004, j retail consum serv	-0.12	-0.37	1.12	246	2
rodgers s, 2003, j advert res	-0.14	-0.15	0.28	224	2
riedl r, 2010, mis quart manage inf syst	-0.21	-0.12	0.34	181	2
chai s, 2011, j manage inf syst	-0.4	-0.25	1.32	168	2
jin b, 2008, int mark rev	0.59	-0.36	2.85	141	4
sanchez-franco mj, 2009, inf manage	-0.34	0.28	1.22	130	2
kolsaker a, 2002, mark intell plann	-0.11	-0.34	0.93	119	2
hur wm, 2011, manage decis	0.77	-0.18	3.45	114	3
dennis rs, 2005, leadersh organ dev j	0.51	0.05	1.41	105	3
pascual-miguel fj, 2015, j bus res	-0.43	0.48	2.69	73	1
alzahrani I, 2017, int bus rev	0.09	0.14	0.18	57	2
menon am, 2002, health mark q	-0.07	0	0.03	55	2
lien ch, 2015, asia pac manage rev	-0.29	-0.33	1.26	51	2
jones c, 2010, int j consum stud	0.21	-0.08	0.28	51	2
faqih kms, 2016, j retail consum serv	-0.11	0.43	1.47	45	1
chou s, 2015, internet res	0.83	0.01	3.68	43	3
midha v, 2012, decis support syst	-0.22	-0.56	2.57	42	2
goyal a, 2013, j indian bus stud	0.38	0.07	0.81	42	2
rodrigues g, 2016, j internet commer	-0.15	0.47	1.76	40	1
ahuja r, 2019, oxf econ pap	-0.15	0	0.33	0	1
woo h, 2018, j retail consum serv	-0.16	0.21	1.71	6	1
ladhari r, 2013, j retail consum serv	-0.14	-0.07	0.46	36	1
chakraborty r, 2016, decis support syst	-0.19	0.01	0.5	28	1