



Based on the perception of ethics in social commerce platforms: Adopting SEM and MCDM approaches for benchmarking customers in rural communities

Abdullah Mohammed Sadaa¹ · Yuvaraj Ganesan² · Khai Wah Khaw³ · Alhamzah Alnoor^{3,4} · Sammar Abbas⁵ · XinYing Chew⁶ · Gül Erkol Bayram⁷

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Abstract

The study aimed to determine customers' perceptions of the ethics of social commerce platforms by investigating the role of the impact of information quality, information credibility, website quality, innovativeness, altruism, sense of belongingness, self-enhancement, social support, and valuation of electronic word of mouth (eWOM) on the perception of ethics of social commerce platforms. In addition, the strength of the relationship between these factors and the perception of ethics of social commerce platforms was determined by the mediating role of the perceived risk of ethical violations. To this end, this study complements academic literature by integrating structural equation modeling (SEM) and multi criteria decision making (MCDM) techniques. In order to complete the strategic decisive solution, this study uses a survey to collect data from customers of rural communities in Malaysia and Turkey. The results demonstrate that perceived risk of ethical violations has a partial mediating role in the relationship between dependent variables and the perception of ethics of social commerce platforms for Malaysia and Turkey. Benchmarking and ranking customers from best to worst based on the perception of ethics of social commerce would identify customers with a high perception of the ethics of social commerce platforms and motivate them as opinion leaders of such platforms. Contrarily, social commerce platforms can treat worst-ranked customers with caution and strive to turn a negative perception into positive ethics. Besides, the cross-cluster study at the level of Asia and Europe would contribute to the literature to identify insights into the differences and similarities between the Asian and European contexts based on multiple and diverse cultures regarding social commerce ethics of rural communities.

Keywords Ethics of Social Commerce · Multi-Criteria Decision Making · Social Support · Perceived Risk of Ethical Violations · Rural Communities

✉ Alhamzah Alnoor
Alhamzah.malik@stu.edu.iq

¹ Graduate School of Business, Universiti Sains Malaysia, Penang, Malaysia

² Graduate School of Business, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia

³ School of Management, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia

⁴ Management Technical College, Southern Technical University, Barsah, Iraq

⁵ Institute of Business Studies, Kohat University of Science and Technology, Kohat, Pakistan

⁶ School of Computer Sciences, Universiti Sains Malaysia, 11800 Pulau Pinang, Malaysia

⁷ School of Tourism and Hospitality Management Department of Tour Guiding, Sinop University, Sinop, Turkey

Introduction

Of late, the development of social media and the transformation of digital technologies have revolutionized commercial exchanges. Social commerce is a virtual world of business and a medium of exchange of products and services, substituting electronic commerce (e-commerce). (Biucky et al., 2017). It is a superimposition of a new business model of e-commerce which uses web 2.0 technologies and social media to allow exchange activities based on individual's need in a society (Han et al., 2018). Lin et al. (2017) defined social commerce as “any commercial activities facilitated by or conducted through the broad social media and Web 2.0 tools in consumers' online shopping process or business' interactions with their customers” (p. 191). Social commerce is considered an innovative

channel for consumers to improve purchasing decisions and shopping experiences with enhanced interactions and electronic word of mouth (eWOM) contents among customers (e.g., Abdullah et al., 2022; Busalim & Hussin, 2016; Cheng et al., 2021; Handarkho, 2021; Shanmugam et al., 2016; Soleimani et al., 2017).

The term ‘social commerce’ was first used in 2005 (Bugshan & Attar, 2020; Zhou et al., 2013) to describe a new type of online marketplace in which customers may seek advice and suggestions from others, identify products and services, and purchase goods and services (Lu et al., 2016). It is a form of Web 2.0 technology to enable customer interaction and content creation (Hajli et al., 2017). Since then, it has evolved as a prominent component of the electronic commerce sector (Zhang et al., 2016). As a result, today social commerce is defined as social media and networking methods to purchase and sell goods and services online (Bazi et al., 2020; Bugshan & Attar, 2020; Lin et al., 2019; Wang et al., 2019). The benefit of adopting social media is improving information sharing, enhancing the effectiveness of managing customers’ relationship, advertising, and promotion (Hajli, 2013, 2015; Shanmugam et al., 2016; Zhang et al., 2016). In this context, many firms of social commerce are using photographs and videos to encourage social interaction by providing extensive information (Zhang et al., 2016). Therefore, eWOM may be described as social marketing and promotional strategies that improve information sharing (Yusuf et al., 2018). Furthermore, social commerce information architects fostered trust, loyalty, engagement, and purchase intent between enterprises and customers (Alnoor et al., 2022a; Bianchi et al., 2017; Hajli et al., 2017). The primary characteristics of a social commerce platform are providing guidance and information assistance to the customers (Cross et al., 2001). Previous studies showed that information-sharing activities on social commerce platforms mitigate the perceived risk of users, however, the information sharing on social commerce platforms is influenced by perceived delight, indifference, and utility (Sharma & Crossler, 2014). For instance, Olivero and Lunt (2004) confirmed control and trust as crucial characteristics that must be properly incorporated into the social commerce platform. Thus, the negative perception of ethics of social commerce platforms might lead to negative emotions and loss of faith in accepting information via social commerce platforms (Glover & Benbasat, 2010).

Through consumer’s participation in social platforms such as Etsy, Pinterest, Facebook and Twitter, social commerce provides an innovative and incredible experience to customers that would support firms in establishing brand

loyalty (Liang et al., 2011; Liébana-Cabanillas & Alonso-Dos-Santos, 2017; Phua et al., 2017). Lately, social commerce is considered a worldwide phenomenon (Gvili & Levy, 2021). Consequently, online shopping motivates customers to engage in social commerce activities such as purchasing and paying attention to eWOM regarding products (Chen et al., 2018; Cho et al., 2014; Farivar et al., 2018).

As Internet has become an essential source of information and online commerce, eWOM serves a crucial source for customers to make purchasing decisions (Cheung et al., 2008; Hennig-Thurau et al., 2004; Lee, 2014). EWOM, as described by Hennig-Thurau et al. (2004), is positive or negative comments made by prospective, existing, or earlier consumers about a product or firm, which is made accessible to numerous individuals and institutions for commercial and non-commercial activities. The practice of eWOM has grown in popularity since it allows users to create, modify and share information about social commerce products and services. As a result, eWOM has a substantial persuasive impact on consumers in social commerce and influences customer’s behavior toward using online purchasing (Wang & Yu, 2017). The effects of eWOM on several aspects have been extensively studied, such as eWOM and loyalty (Gauri et al., 2008; Yoo et al., 2013), eWOM and social media (Teng et al., 2014), and eWOM and social commerce (Yan et al., 2016). Furthermore, prior research has adequately proven the effects of eWOM (Daugherty & Hoffman, 2014; Jalilvand & Samiei, 2012). King et al. (2014), Park and Kim (2008), and Rouibah et al. (2021) suggested the effects of eWOM on social media substantially relating to purchasing intentions. In addition, eWOM is seen as a more trustworthy and unbiased source of information that influences pre and post-purchase processes (Luo & Zhong, 2015). Consumers may evaluate options and eliminate ambiguity in the decision-making process using eWOM, which reduces the cost and time (Lee, 2014). Positive eWOM regarding products enhance buyers to be more likely to consider such social commerce channels (Park & Lee, 2008). However, the source legitimacy of the communication determines this favorable effect. Erkan and Evans (2016) advised that attitudes of social media users toward eWOM information may have a good influence on the usability of eWOM details and customer purchasing intentions. The attitude towards eWOM is defined as customers’ positive or negative disposition toward eWOM communication (Fu et al., 2015). Attitude towards information is a crucial element that fosters eWOM involvement (Ali et al., 2020).

Furthermore, the continuous growth of Web 2.0 technology has heralded the possibility of altering the way customers engage online (Cova & White, 2010). Web

2.0 technology supports customers to create and manage online social networks and fosters presence and social support (Chen & Shen, 2015). It has given customers the ability to create content and offers interaction amongst users (Jiménez-Barreto & Campo-Martínez, 2018; Lin et al., 2019). Customers frequently create social commerce content via rankings, voting and recommendations on social commerce platforms (Biucky et al., 2017; Cheung & Lee, 2012). The background knowledge shares that the intentions of potential customers towards online purchases are influenced by the eWOM of previous customers (Yan et al., 2018). The research claimed various factors related to social commerce platforms, with a stream of studies investigating trust, privacy, education, perceived quality, time savings, discount pricing, convenience, competitive pricing, expert advice, increased access to information, quality of credibility, website quality, perceived risk, failure to handle complaints, inefficiency of product repair, and inadequate response to customer complaints (Bugshan & Attar, 2020; Chen & Shen, 2015; Hajli et al., 2015; Khaw et al., 2022a; Lee, 2009; Tariq et al., 2021; Xu et al., 2020). Similarly, most previous research investigated customers' intentions towards social commerce. Moreover, previous research streams have predicted the determinants of customer intentions and trust towards social commerce platforms (Alnoor et al., 2022b; Lo et al., 2022; Ng et al., 2022; Wang et al., 2022). However, according to Mangold and Faulds (2009), many Internet users think online buying is fraught with danger and uncertainty. The risks are higher in an online shopping environment than in a physical shopping environment because clients cannot examine the products in person when shopping online—there is a lack of tangible evidence of products' quality, security and privacy (Pelaez et al., 2019; Regner & Riener, 2017; Stouthuysen et al., 2018). The negative consequences of increasing perceived risk include decreased sales (Lee, 2014) and low purchase and repurchase intentions (Chiu et al., 2018; Yang et al., 2019). Customers are more likely to purchase low-value products and services due to reduced trust in social commerce (Maia et al., 2018). Resultantly, two major concerns had been identified in previous literature comprising theoretical and practical and methodological issues.

Theoretically, most of the previous literature focused on customer's intention towards social commerce platforms (Alnoor et al., 2022c; Lo et al., 2022; Ng et al., 2022; Wang et al., 2022). In addition, it also stressed on predicting the determinants of social commerce (Aw et al., 2022; Francisco Liébana-Cabanillas et al., 2021; Loh et al., 2022). However, perceptions of the ethics of customers toward social commerce platforms are seldom studied.

Though using social commerce provides firms with multiple benefits including creation of brand value, brand loyalty and extended markets etc., it has also raised ethical concerns in social commerce. There have been many incidences of unauthorized use of information shared by the consumers on social media platforms. For example, Cambridge Analytica accessed the data of almost 87 million Facebook users without permission. Wang et al., (2020) used 'Trust-Community Theory (TCT)' to explain the mechanism which can help to build trust in social commerce and to motivate the consumers towards social commerce usage. This theory also provides an explanation of how the privacy concerns of consumers shape their attitudes towards the use of social media platforms for shopping purposes. Their study looks through the lens of TCT at the two important components in relation to ethics in social commerce, namely, privacy risk and privacy control as both these significantly influence consumers' trust in social commerce. In the context of social commerce, it can be narrated that the close relationship between the brand and consumers is developed when consumers have trust in the use of social commerce and relationship commitment. This close relationship results in 'brand value co-creation'.

Sharma and Lijuan (2014) carried out a study to investigate the factors which influence consumers' trust and privacy in social commerce and to detect various elements that affect consumers' perception of ethics in social commerce. Their study was based on an online survey from the Second Life users. They argued that firms are expected to establish consumers' trust in online transactions to be considered ethical firms. The study maintains that social commerce ethics are closely related to trust, security and privacy and loyalty of consumers. It concluded that ethical performance of social commerce websites enhances the customers' trust which results into long term relationship and consumers' loyalty. Lee and Charles (2021) discussed consumers' perceptions of ethics of online retailers determining their repurchase intention. They termed consumers' perceptions of ethics as 'consumers' perceptions of ethics of online retailers (CPEOR), which is defined as "consumers' perceptions of integrity and responsibility placed on online sellers/retailers as an effort to protect online customers' interest in a secure, confidential, fair and honest manner" (p.3). Lee and Charles further argued that CPEOR is largely dependent on four factors including security, privacy, non-deception, and fulfilment. Security refers to the concerns relating to the misuse or unauthorized use of the information provided by the consumer. Privacy means uncertainties surrounding the personal information

to be shared with third parties. Non-deception denotes that online sellers will not resort to manipulative and deceptive practices to persuade consumers to purchases which they otherwise do not intend to. Fulfilment is consumers' expectations that they receive the same product which they have ordered online. It was found that violation of these four values dent consumers' trust and perceptions of ethics in online retailers. It was also found that when CPEOR is high, there is an increase in consumers' intention to repurchase online.

Aboul-Dahab et al. (2021) examined the influence of consumers' cultural and ethical ideology on their perception of ethics of online retailers and in turn, their impact on consumers' loyalty. The study used four major cultural dimensions including power distance, uncertainty avoidance, individualism and masculinity and their relation to the ethical ideology of consumers i.e. idealism vs egoism. Idealism refers to the extent an individual believes that correct action/decision can be made under unfavorable and flawed situations while, Egoism refers to the extent individuals prefer their choice over others. The study found that power distance and uncertainty avoidance promote 'idealism' whereas, individualism and masculinity predict 'egoism'. The study further found that idealism is negatively related to the consumers' perception of ethics of online retailers and egoism has positive effects on consumers' perception of ethics.

The above-mentioned studies have investigated various aspects of s-commerce under different scenarios. The present research provides a paradigm for investigating the ethics of social commerce platforms. To this end, this study complements previous studies by investigating customer's perceptions of ethics in social commerce platforms. Practically, many attempts in literature have centered on addressing linear issues of the SEM approach by adopting the dual stage of SEM and artificial neural network (ANN) in order to cover the antecedents of customer' intention to use social commerce (Alnoor et al., 2022a; Aw et al., 2022; Loh et al., 2022; Ng et al., 2022; Wang et al., 2022). However, there is paucity of literature ranking customers based on a perception of the ethics of social commerce platforms. As mentioned previously, benchmarking and ranking customers from best to worst based on the perception of ethics of social commerce platforms would enable the determination and identification of customers with high perceptions of the ethics of social commerce platforms and motivate them to be opinion leaders of such platforms. However, with the worst-ranked customers, social commerce platforms can treat them with caution and strive to turn negative perceptions into positive ones. Methodologically, the attempts of literature reviews to capture linear and nonlinear interaction between determinants of social commerce remain within the context of

developed communities or within a certain community, be it Asian or European (Hew et al., 2019; Leong et al., 2019, 2020). Furthermore, there is a huge gap in previous studies that needs thorough investigation. Hence, a cross-cluster study at a higher level of Asia and Europe will contribute to literature which identify the insights into the differences and similarities between Asia and Europe based on multiple and diverse cultures regarding social commerce ethics of rural communities.

Multi criteria decision making (MCDM), used for the benchmarking and ranking of customers with regard to perception of social ethics, provides a comprehensive solution to the nature of such a complex issue. As described earlier in Sect. 7.2, benchmarking and ranking customers from best to worst based on the ethics of S-commerce would identify customers with a high perception of the ethics of S-commerce platforms and motivate them as opinion leaders of such platforms. However, with the worst-ranked customers, S-commerce platforms can treat them with caution and strive to turn a negative perception into a positive one towards the ethics of such platforms. Additionally, MCDM helps policymakers in determining customers who have positive perceptions of social commerce ethics, and identifies the negative perceptions of customers in rural communities towards social commerce ethics (Djenadic et al., 2022). Therefore, the use of a hybrid analytical approach SEM-MCDM contributes to developing linear relationships, developing social commerce ethics, confirming the validity of SEM results, and providing insight to practitioners and academics on the issue of customer perception of commerce trade ethics in rural communities. This study complements existing literature by using a dual stage PLS-SEM and MCDM approach to capture causal relationships and benchmark customers of rural communities based on their perceptions of the ethics of social commerce platforms. The use of the SEM and the MCDM approaches address the shortcomings of previous studies in terms of multivariate assumptions.

Literature review

Information quality

Information quality is a vital variable to the performance of the information system model, and is described as the suitability of information features for the consumers (Wang & Strong, 1996). According to this definition, information quality relates to users' evaluation of information features whether they suit their needs and intended usage. In online buying, studies have identified information quality as the characteristics of the content quality of customer's reviews (Park et al., 2007). In this respect, the center of focus in

most prior studies has been primarily on the variables that inspire consumers to embrace social commerce platforms which include information availability (Grabner-Kräuter & Breitenecker, 2011; Jalal et al., 2011; Safeena et al., 2013). Information is a means for improved purchase decision-making to lower perceived risk (Chaouali et al., 2016). Perceived risk is about customer's emotions with regards to probability and unpleasant outcomes, which are vital and pivotal in the process of decision making (Cunningham et al., 2005). People strive to regulate perceived impacts before combating their anxieties. At the same time, with substantial replacements or alternatives, customers seek information from diverse sources to lower anticipated risk and form better judgments of products (Zhang et al., 2012). Therefore, high-quality information enables consumers to obtain information related to a specific issue and helps customers avoid spending unwarranted effort digesting meaningless information (Zheng et al., 2013). Additionally, information quality might alter interaction with perceived risk in product assessment (Park & Lee, 2008), website evaluation (Awad & Ragowsky, 2008), and purchase prediction (Park et al., 2007). Because of this fundamental relationship between information quality and perceived risk, various articles have sought to characterize information quality as a multi-dimensional notion (Chen et al., 2017; Cheng et al., 2021).

Information credibility

Another aspect determining the acceptance of social commerce platforms services is Credibility. It is defined as the ability of a system to be trusted in transmitting and completing transactions (Erdem & Swait, 2004). Bhattacharjee and Clive (2006) mentioned information credibility as the level at which information is deemed to be credible, competent, and trustworthy (Bhattacharjee & Clive, 2006). Information credibility is a crucial predictor of the efficacy of information, and is regarded as the recipient's judgment of the credibility of the message (Baber et al., 2016). According to Wu and Wang (2011), credibility reveals a critical aspect in decision making of social commerce purchasing. Resultantly, information credibility is considered an important factor in online context (Mak et al., 1997), because the positive character of the information promotes the recipient's acceptance of the information (Ohanian, 1990). A firm or brand's reputation may minimize projected expenses and perceived risk, and enhance brand choice (Erdem & Swait, 2004). Many studies have claimed that trustworthiness and expertise are essential components of source credibility (Erdem & Swait, 2004; Wu and Wang, 2011). On the topic of credibility, trust and expertise are firm's basic yardsticks of gauging credibility. Therefore, information credibility is raising the trustworthiness of social commerce platforms (Ohanian, 1990).

In this regard, experience plays an important role in increasing information credibility and enabling customers to solve problems efficiently (Wu and Wang, 2011).

Furthermore, the advancement of online communication technology has enabled customers to increase content creation on social commerce websites and platforms. As a result, consumers may provide more accurate descriptions of the actual experiences with social commerce platforms (Abdullah et al., 2022). On the other hand, negative content creation is increasing on social commerce platforms that provide poor services (Kang & Namkung, 2019). As a result, the adoption of social commerce is strongly linked to information trustworthiness. In other words, a lack of reliability in information reduces the likelihood of adoption.

Website quality

The idea of website quality is crucial in social commerce because it immediately promotes favorable impressions and attitudes about online transactions (Chang et al., 2012; McCoy et al., 2009). Website quality reduces perceived risks facing consumers and encourages online purchase (Liang & Chen, 2009). Aladwani and Palvia (2002) describe website quality as customer's perception of website's features satisfying their demands and reflecting overall superiority of the website. For the user, the understanding of the website quality is important. Moreover, website quality has become a priority for companies that intend to use successful online strategies (Beh et al., 2021; Hernández et al., 2009). Consequently, users' perception of website quality can significantly influence their belief and intention to use social commerce firms (Hsu et al., 2018).

Social commerce involves using social networking platforms for commercial purposes (Liang et al., 2011). Various studies in online business have shown the relevance of website quality in conducting online business (Liébana-Cabanillas & Alonso-Dos-Santos, 2017). Website quality is a user-friendly system in online commerce that is assessed based on customer's view of accessibility, ease of use, service quality, and dependability (Ahn et al., 2007; Lal, 2017; Soleimani et al., 2017; Tzavlopoulos et al., 2019). Heinze et al. (2017), and Lin (2007) argue that user-friendly website specifications may help develop favorable relationships between online vendors and customers. Furthermore, according to Ahn et al. (2007), website quality impacts customer's confidence in online retail and lowering the perceived risk of online purchases. Users rate a website service quality in terms of problems solving and management for customers. Customer support representatives can assist customers in resolving the problem and mitigate confusion with technical jargon and procedures. As a result, the website's dependability is necessary to assure users that their personal information and payment information will be secured.

Innovativeness

Agarwal and Prasad (1998) were the first to suggest innovativeness as an important factor in technology adoption models. Innovativeness is defined as the degree to which a person is receptive to new ideas and freely adopts novice judgments before others (Singh et al., 2020; Thakur & Srivastava, 2014). Consumers with a high degree of innovativeness are more likely to utilize innovative services and increase their willingness to undertake risks via new services. As a result, consumers adapted to innovation have high perceived satisfaction (Jianlin & Qi, 2010; Korea & Park, 2013). Despite increased degrees of uncertainty and risk, consumer views that social commerce platforms provide new services for purchasing items which may provide benefits, such as reduced pricing, convenience, and a wider variety, that would likely attract customers. The glossary of an individual's views of innovation is a significant factor in adopting new technology (Khaw et al., 2022b). An individual's perceived creativity elicits good emotional responses, resulting in more referrals and favorable information about social commerce services (Tokunaga, 2013). Positive comments on social commerce innovations increase from consumers as they view innovations as incentives to increase online purchasing intentions (Aransyah et al., 2020). Positive information, comments, and recommendations for social commerce result in more favorable emotional reactions and perceptions about using social commerce platforms.

Altruism

The evidence from wide from of disciplines, such as sociologists, finance, political science and psychology supports the idea that altruism is one of the basic instinct of human nature (Ali et al., 2020). According to Piliavin and Charng (1990), altruism is defined as a behavior trait that involves situations pertaining to others. Ismagilova et al. (2021) defined altruism as the drive to enhance the well-being of others without expecting returns. Individuals have an innate urge to support or assist others, regardless of any compensation (Wasko & Faraj, 2005). Researchers claim in the context of social commerce that consumers have a comparable urge to assist others in the online environment (Baethge et al., 2016). Following the purchase of a product or service, customers may be driven to share information of the experience to assist others in making a choice in buying or supporting the company to attract new customers (Beaver & Engel, 1996). The exchange of information in online purchasing portals improves product and service transparency. Customers have a higher regard for information that can be realized. The consequences of assisting others without expecting a return raise confidence in purchasing via social commerce platforms (Ismagilova et al., 2021). Customers' confidence in purchasing online is increased by receiving

support and altruistic suggestions from previous customers on social commerce platforms (Hsieh & Tsao, 2014). Altruism has been identified as an essential element in creating eWOM that supports the intentions of potential customers (Cui et al., 2014; Kim et al., 2017; Luarn et al., 2015). It is a driver of customer's intention in online commercial activities (Cheung & Lee, 2012). According to Hennig-Thurau et al. (2004) altruism encourages customers to use social commerce channels. Yusuf et al. (2018) explained it as a motivation for promoting positive eWOM communication by. However, there is slight evidence that altruism affects the perceived risk of using social commerce networks. To address this gap in literature, altruism must be adopted to extend the knowledge of the perception of social commerce platform ethics.

Sense of belonging

The realization of personal connection in a system or environment that makes people feel like an intrinsic part of the system or environment is referred to as a sense of belonging (Hagerty et al., 1992). Previous research has identified a sense of belonging as an element of critical success in virtual communities. For example, Hagerty et al. (1996) stated a sense of belonging is a psychological experience combining cognitive and emotional components. Hence, a sense of belonging helps increases customers' engagement of using social commerce, it has been shown to influence social media use as well (Chai & Kim, 2012; Lin et al., 2014). A user's sense of cohesiveness or loyalty to a group or community is referred to as a sense of belonging (Chu et al., 2019). According to the social identity theory, a sense of belonging is described as user interaction that leads to the user identification as a part of a social circle or group. A sense of belonging is a strong and long-lasting emotional response by users in a social media that reflects user identification and connection to a social community (Lin et al., 2014). Social media studies discovered that a customer's sense of belonging represents a useful subjective experience of the interaction with other customers (Zhao et al., 2012).

A sense of belonging is recognized as a significant component impacting user's sentiment, stickiness, and future behaviour in social commerce platforms (Hsu & Liao, 2014; Lin et al., 2014). In this research, a sense of belonging is defined as an emotional reaction that explains customers connection and participation on social commerce platforms. The sense of belonging reveals that the use of social commerce platforms is essential in the lives of customers. Consequently, customers who have strong sense of belonging will struggle harder to participate in social media activities, such as reading other customers' comments, exchanging information, making new connections, and preserving current relationships. In

the words of Lin et al. (2014) a sense of belonging is a critical emotional response. Therefore, sense of belonging affects consumers' continuous use of social commerce services. According to Xu and Li (2015), a sense of belonging significantly influences an Internet customers' involvement on Wikipedia. A sense of belonging has been admitted as a significant antecedent of user behaviour on social commerce platforms (Liu et al., 2018). However, previous research has neglected the relationship between a sense of belonging and perceived risk in social commerce (Rosen et al., 2011). This study aims to bridge the gap in the literature by investigating the relationship between a sense of belonging and social commerce perceptions of ethics through the mediating role of perceived risk.

Self-enhancement

Social platforms have become significant conduits that allow customers to use online channels to increase customer's convenience (Chu et al., 2019). Social media offers customers a venue to exchange varied experiences with goods or services (Chang, 2015). Therefore, social media plays a critical role in developing a consumer's identity and articulating self-enhancement (Cui et al., 2020; Moore & McElroy, 2012). In this sense, customers may exchange comments and photographs in a post on social networks. Thus, consumers wisely choose the images of purchased items in order to develop favorable self-enhancement. Self-enhancement was highlighted as a key element that enables Internet users to enhance success (Packard et al., 2016). Self-enhancement is defined as a strong desire to maintain and increase the positivity of the self-concept. It refers to the circumstances in which customers seek to demonstrate positive attitudes by sharing information (Berger, 2014). By utilizing online feedback, customers may enhance their image and earn the recognition of others by providing information about products and services (Tong et al., 2013). Self-enhancement is linked with motivation to submit information regarding services and products in online feedback systems (Cui et al., 2020). According to Sundaram et al. (1998) customers discuss exciting experiences online would increase self-enhancement. Positive self-enhancement involves respect and acceptance by peers of a customer for possessing outstanding traits (Milaković & Mihić, 2017; Wu et al., 2021). Thus, positive self-enhancement by customers motivates the use of social commerce platforms and increases content creation around social commerce items and services. Therefore, self-enhancement offers clear and succinct images that may build reasonable opinions of new social commerce users.

Social support

The social commerce community has been extensively utilized to facilitate online transactions between vendors and customers (Chen & Shen, 2015). Consumers may communicate with other customers to benefit from sharing information, which increases the desire to engage in online commercial activities (Liang et al., 2011). As a result, social values offered by customers, such as information and emotive inclinations associated with a product or service are beneficial in creating customers purchasing decision (Orso et al., 2017; Zhou et al., 2013). Social support is defined as resources supplied to customers in social commerce platforms to enhance social support and presence. Social support may promote collaboration, reciprocity, and trust among vendors and customers (Oh & Syn, 2015). Social exchange theory argues that the customer is influenced by the presence and social support of previous customers on social commerce platforms (Liang et al., 2011).

Social support is a multifaceted entity that comprises three components: informational, emotional and tangible assistance (Schaefer et al., 1981). Online social support is informational and emotional support since interactions in social media occur via technological methods such as computers and smartphones rather than tangible (Jiang et al., 2019; Liang et al., 2011). Informational assistance includes making suggestions, offering advice, and sharing expertise to assist potential customers in solving difficulties. Emotional support conveys feelings such as benevolence, compassion, kindness, understanding, and empathy toward others (Yang, 2021). Customers having strong perceptions of emotional support increase the sense of belonging to the social commerce community (Sheikh et al., 2019). Consumers may obtain social support from their peers on social media networks (Yahia et al., 2018). Peers in online communities may help by providing product or service-related information, shopping experiences, and emotional support (Jiang et al., 2019; Wang et al., 2020). Recommendations, suggestions, and emotional concerns assist customers in reducing the perceived risk (Alnoor et al., 2022a; Yahia et al., 2018). Consumer's confidence in social commerce increases due to the assistance acquired via social engagement (Hajli, 2014; Liang et al., 2011).

Perceived risk

Perceived risk is customers' perception of unsatisfactory outcomes while acquiring a product or service (Dowling & Staelin, 1994; Yang et al., 2016). In social commerce, the concept of perceived risk is consumer's anticipation of loss (Forsythe & Shi, 2003). Many academics recognize perceived risk in the online commerce as a significant aspect of the interaction between customers and social commerce

platforms (Chung et al., 2015; Razak et al., 2014). Moreover, several studies have revealed perceived risk as a crucial factor in purchasing intention of social commerce (Vainikka, 2013). The idea of perceived risk was initially expanded from psychology by Bauer in 1960. Bauer argues uncertainty of customers' purchase choices would lead to the risk. Perceived risk involves two factors, namely the uncertainty of customers' choices, and the repercussions of making unsatisfactory judgments (Stigler, 1961). According to Zhang and Hou (2017) perceived risk include two components. The first component is the expected harmful effects of the transaction. The second component is the perceived magnitude of loss.

Consumers view internet purchasing as more dangerous than conventional shopping (Bhatnagar & Ghose, 2004; Cho et al., 2014; Featherman & Pavlou, 2003). Greater risk and less trust are expected in the context of social commerce because of the lack of visual indications of product quality, insufficiency of interaction, and security concerns (Hawes & Lumpkin, 1986; Laroche et al., 2005). Accordingly, San Martín and Camarero (2009) indicated significant levels of perceived risk adversely influencing online purchasing intention. Previous research has shown the negative relationship between perceived risk and customers' online purchase intention (Lee & Tan, 2003; Pavlou, 2003). Several studies have indicated the influence of perceived risk on online purchasing (Bhatnagar & Ghose, 2004; Forsythe & Shi, 2003). Dowling (1986), Glover and Benbasat (2010), and Rosillo-Díaz et al. (2020) argue that perceived risk to privacy and security is highly characteristic of purchases made through online commerce platforms. The concerns of customers toward inappropriate sharing or losing personal information are increased based on the ethical violations of social commerce platforms.

Theoretical perspective of study

Theoretically, this study is inspired from three major theories which offer explanation of consumers' attitudes, behavior, and perceptions in an online environment of social commerce. These theories include Elaboration Likelihood Model, Theory of Reasoned Actions, and Social Support Theory.

Elaboration Likelihood Model (ELM) explains how individuals process the same information differently and the outcomes of information processing cause change in attitudes, and consequently the change in behaviors. When information is received, it starts impacting the person in a subliminal process internally (Xu, 2014; Beneke et al., 2016). ELM offers an explanation and effectively advocates for human attitude and behaviour. The main factor which influences an

individual's attitude and behavior to change is whether the individual would be persuaded by the information. ELM describes two routes which cause persuasion and thus change in behaviour, namely central route, and peripheral route. Central route relates to the processing of persuasive information, whereas peripheral route is relevant to cognitive effort involved when deliberating a message. Considering the fact that information quality, information credibility and website quality can persuade the consumers' attitudes and thus can alter their behaviors, ELM provides sufficient theoretical justification to the extent these factors influence perceived risk of ethical violation and perception of ethics on social commerce platforms (Alnoor et al., 2022c; Hadi et al., 2018; Khaw et al., 2022a).

Theory of Reasoned Action (TRA) suggests that an individual's action is the outcome of his/her intention to perform a particular action. The theory also posits that the resultant action is the product of the attitude. Accordingly, attitude towards a certain behavior to be performed is largely dependent on the individual's beliefs about the outcome behavior[s] and hence, attitudes can be transformed by influencing the beliefs (Cheung & Lee, 2012; Reichelt et al., 2014). In case of our study, innovativeness, altruism, and sense of belonging are assumed to influence the consumers' attitudes towards risk perception about ethics which results in perception of ethics of social commerce platform.

Social Supports Theory argues that consumers receive social support (care, advice etc.) from the community of online customers. This social support and exchange of information about products and services drive consumers to join social commerce platforms. Consumers receive emotional and informational support from other online consumers (Huang et al., 2020). Perceived social support helps consumers to deal with the social commerce challenges (perceived risk of ethical violation and perception of ethics). In case of our study, we argue that self-enhancement, social support and eWoM offer consumers social support on social commerce platforms and thus help in understanding their risk perception of ethical violation and perception of ethics on social commerce platforms (Khaw et al., 2022a, b).

Hypothesis development

Relationship between information quality and perceived risk

In implementing social commerce platforms evaluations, customers risk link with economic advantages, including product quality and service level (Hussain et al., 2017). Customers, who confront high perceived risks and high prices,

will analyze the relevant information on the chosen items of social commerce platforms attentively to minimize losses (Wang & Chang, 2013). Gu et al. (2007) revealed that consumers prefer high-quality information to minimize information-processing costs, time, and effort. Thus, high-quality information enables users to make better judgments quickly (Kim et al., 2017) and helps lower consumers' perceived risk levels connected to privacy issues (Malhotra et al., 2004). Nicolaou and McKnight (2006) confirmed improving information quality decreases the perception of risk. The high-quality information would mitigate uncertainty and risk connected with the online purchase (Yi et al., 2013). Therefore, information quality is beneficial for consumers to determine the quality of items or services on social commerce platforms. Customers with a perceived high risk require trustworthy and quality information to decrease perceived losses. For that reason, the first research hypothesis is presented:

H1: Higher the quality of information lesser the perceived risk of ethical violation in using social commerce platforms.

Relationship between information credibility and perceived risk

Potential consumers must depend on past customers' views and experiences rather than manufacturers' information to achieve high-credibility information. Such information lowers consumers' perceived risk and increases their confidence in social commerce (Lu et al., 2016). On the other hand, the growth of the virtual environment has resulted in perpetual flexibility for consumers to communicate their experiences in the absence of face-to-face encounters. As a consequence, the information credibility of such communication is difficult to determine (Reichelt et al., 2014). In other words, the credibility and trustworthiness of information in an online environment affect perceived risk of ethical violations (Liu et al., 2020). In the context of online consumer reviews, the information credibility is considered a critical determinant of perceived risk of ethical violations (Sen, 2007). Consumers' confusion and hazards of using online commerce services are increased due to lack of reliable information on social commerce platforms (Xu et al., 2020). Increased information credibility removes the fear barrier and increased trust in online commerce platforms (Trumbo & McComas, 2003). Adverse responses to adopting social commerce items and services may be mitigated by discussing thoughts and collecting honest feedback from previous consumers (Cheng et al., 2021). As a result, the current study indicates that:

H2: Credibility of information mitigates the perceived risk of ethical violation on social commerce platforms.

Relationship between website quality and perceived risk

Websites are critical to the online business's success since social commerce platforms serve as a communication route between the organization and consumers (Chen et al., 2017; Kleinlercher et al., 2018). Di Fatta et al. (2016) conducted a meta-analysis on the user-perceived website quality and concluded the impact of website quality on ease of use, usefulness, and fun. The quality of a website motivates consumers to purchase online. In this context, Qalati et al. (2021) contended that excellent website quality might boost positive perceptions and beliefs about online retail items, lowering the consumer's perceived risk of ethical violations. Caruana (2004) discussed customers cherishing a positive perception of the quality of the website increase confidence in online commerce. With the growing influence of online service quality on customer attitudes and satisfaction, online commerce research has highlighted website quality as critical for lowering levels of perceived risk (Cenfetelli et al., 2008). Further study revealed that the quality of a website is a significant predictor of perceptions of online product quality (Nowak & Newton, 2008). As a result, website quality may impact views about the quality of social commerce services. Consequently, this research anticipates that website quality will mitigate the influence of perceived risk on online purchase. We suggest the following assumption:

H3: Quality of website contents decreases the risk perception of customers while using social commerce platforms.

Relationship between innovativeness and perceived risk

The followers of innovation adoption approach believe that novel social commerce attributes, such as technological sophistication, low price, newness, security, and service quality can create consumers' satisfaction with online commerce (Li et al., 2021; Singh et al., 2020). Innovativeness that corresponds to consumers' perceived beliefs would reduce perceived risk of ethical violations (Chauhan et al., 2019; Zhang & Hou, 2017). Customer's positive views of adopting innovations for social commerce platforms decrease perceived risks of desirable and unpleasant consequences of adoption (Thakur & Srivastava, 2014). Thus, the perceived risk resulting from the unexpected adoption results will diminish (Aldás-Manzano et al., 2009; Mathew et al., 2021). Consumer awareness and favorable impression of innovations promote the continuation of usage of social commerce services and mitigate perceived risk of ethical violations (Yang et al., 2019). Besides, acceptance and readiness to embrace new goods and services diminish

resistance to adoption and lessen the risk of ambiguity. Therefore, the present research reveals that:

H4: Innovativeness in social commerce platforms reduces the level of perceived risk of using such platforms among customers.

Relationship between altruism and perceived risk

According to social exchange theory, individuals develop a connection based on reciprocity with one other by freely offering advantages and expecting rewards such as trust and pleasure. This altruistic tendency reduces the risk of online purchases because customers' deliberately involve themselves to enhance online buying processes for potential customers and reduce the danger of malpractices in online activities (Liao et al., 2019; Wang et al., 2021). Trust is seen as an essential aspect (Beldad et al., 2010). In addition, the voluntary assistance in the form of altruistic informational in the name of social support includes suggestions, knowledge, and helpful advice to lower the perceived risk of making an adoption choice (Liu et al., 2021). Altruistic persons' knowledge and recommendations concerning social commerce items promote integrity and minimize ambiguity (Shiau & Chau, 2015). Moreover, discussing altruists' thoughts regarding product purchase and delivery boosts confidence in social commerce platforms. Ultimately, altruism promotes positive attitudes about adopting social commerce services (Lal, 2017). As a result, the existing research adopted that:

H5: Presence of altruistic individuals on social commerce platforms lessen the risk perception among social commerce platforms users.

Relationship between the sense of belonging and perceived risk

Several studies have analyzed the sense of belonging as a motivator of eWOM within online groups. In particular, Cheung and Lee (2012) view the sense of belonging as a factor that motivates customers to participate in eWOM. Sense of belonging significantly impacts consumer eWOM interactions in social commerce. Ali et al. (2020) suggested that customers possessing a strong sense of belonging increase the tendency to share knowledge on social commerce platforms. Thus, sense of belonging reduces perceived risk. Moreover, information communicated by other customers significantly impacts users' purchasing choices and behaviour (Rosen et al., 2011; Zhou et al., 2019). A modern social commerce user could act and behave depending on the sense of belonging to their group of acquaintances on

social commerce platforms. For example, many customers are influenced by the opinions of friends and family about social commerce products and services. Hence, choosing a product or service is related to a sense of belonging, because it reduces perceived risk of ethical violations of social commerce platforms (Liu et al., 2018). Consumers having a sense of belonging for social commerce platforms inspires confidence in online commerce and changes perceived negative risk to positive towards online purchasing. Based on the above, the study suggests that:

H6: The more the sense of belonging customers have towards social commerce platforms, the lower the level of perceived risk of using social commerce platforms.

Relationship between self-enhancement and perceived risk

Wojnicki and Godes (2011) indicated that customers with positive self-enhancement prefer to share fulfilling results with brands, producers, and services. In online reviews, customers express positive feelings, such as trust, delight, and anticipation (Felbermayr & Nanopoulos, 2016). In the context of social commerce platforms, consumer self-enhancement is a powerful catalyst for creating positive perceptions towards social commerce platforms and gaining social standing. Therefore, self-enhancement supports the development of positive perceptions of the customer and reduces perceived risk of ethical violations (Chung & Darke, 2006; Grange et al., 2020; Vargo et al., 2019). Consumers with high self-enhancement are more likely to share positive insight into their experiences with social commerce products and services. Additionally, consumers share accurate feedback that can support the users' sense of social interaction (Gremle, 2004; Wang et al., 2020; Yan et al., 2021). Consumers' self-enhancing is sufficient to result in positive adaptive behavior that minimizes users' risk perceptions of adopting social commerce goods and services. As a result, the following hypothesis is proposed in this study:

H7: Self-enhancement reduces the level of perceived risk of using social commerce platforms among customers.

Relationship between social support and perceived risk

Ratings, reviews, and suggestions are vital for social commerce users since customers cannot obtain firsthand experiences of the items through sensation (Molinillo et al., 2020; Yang, 2021). As a result, social support offers customers suggestions, information, and helpful advice to assist in making an informed purchasing choice (Liang et al., 2011; Yahia et al., 2018). Customer's experiences assist potential

customers in making purchasing choices and improving social commerce's integrity (Park et al., 2007). Furthermore, confidence in online commerce grows as a result of emotional interactions between consumers (Leong et al., 2020). Consumers, who share their purchase experiences, lead to excellent opinions of social commerce products and services for prospective potential customers (Lal, 2017). According to Liang et al. (2011), online social support influences customers' inclinations to engage in social commerce. Hence, social support motivates customers to make excellent and informed purchase decisions. As a result, informational and emotional support will have fantastic attitudes regarding social engagement. On that basis, we propose:

H8: More social support found on social commerce platforms help customers to perceive lower levels of risk in using such platforms.

Relationship between eWOM and perceived risk

According to Rational Choice Theory, customers entertain opinions on social commerce platforms from the opinion leaders. Customers' intentions are influenced by the comments and reviews of previous customers known as eWOM (Zainal et al., 2017). In social commerce, consumer's attitude toward eWOM is a marginally important factor determining customers' intentions (Xu, 2014). EWOM likely affects customers' perceptions of perceived risk of ethical violations. It significantly impacts customer's attitudes toward online commerce (Ismagilova et al., 2021; Wu and Wang, 2011). Individuals having a positive attitude toward eWOM are likely to be willing to participate in social commerce and purchase goods and services (Ali et al., 2020). EWOM would impact users' desire to purchase online. For instance, Fu et al. (2015) observed that positive sentiments regarding eWOM encouraged customers depend on eWOM as a source of online purchases. Similarly, Chu (2011) discovered that vibrant sentiments regarding Facebook might lead to more positive attitudes toward social media and advertising. Therefore, this research argues that:

H9: Positive attitude to and participation in electronic WOM by the customers decreases perceived risk of using social commerce platforms.

Relationship between perceived risk and ethics of social commerce

Despite the apparent advantages of online purchasing, many customers still hesitate to acquire items or services in web-based marketplaces because of the perceived risk of ethical violations for online commerce (Bhatnagar & Ghose,

2004; Chang & Chen, 2008; Cho et al., 2014). Literature review has demonstrated that the perceived risk decreases the propensity to implement social commerce purchases (Bauer et al., 2006). The possibility of loss to the customer is affected by the absence of knowledge and experience in online shopping. Increasing people's sense of risk reduces the willingness to close the deal. Psychologically, customers are concerned about ethical violations of rules and procedures by online commerce companies (Chen et al., 2018; Mitchell, 1999). Hence, perceived risk is regarded as the key hurdle in social commerce purchase choices (Forsythe & Shi, 2003). Prior research found that personal economic risk (Hirunyawipada & Paswan, 2006), perceived product risk (Tzavlopoulos et al., 2019), perceived privacy risk (Mathew et al., 2021), and dangers associated to perceived risk (Hsieh & Tsao, 2014) had a negative influence on social commerce (Forsythe & Shi, 2003; Vos et al., 2014). Furthermore, Ye (2004) discovered that delivery risk deters online purchases. Um (2019) investigate the effect of social risk on purchase intent. Social risks have a negative impact on online shopping intentions. According to Zhang et al. (2012), sale risk has a detrimental influence on customer purchasing choices. Based on the above explanation, we hypothesize that:

H10: Perceived risk of ethical violations on social commerce platforms significantly influence perception of ethics on social commerce platforms.

The mediating role of perceived risk

Difficulties in evaluating online products and services increase the risk of ethical violations. Thus, the issue of consumer protection over the Internet weakens. Moreover, there are more risks to customers in online commerce compared to physical shopping. Poor provision of tangible indicators of product quality in online purchases and a lack of interaction would enhance the negative perception of ethics of social commerce platforms (Bölen, 2020; Merhi et al., 2020). Furthermore, security and privacy are particularly significant and effective in consumers' purchase choices (Laroche et al., 2005; San Martín & Camarero, 2009). The perceived risks of social commerce include many components, for example, technical, financial, physiological, personal, emotional, and mental risks. The mentioned risks pose huge dangers to consumers while buying online (Hirunyawipada & Paswan, 2006). Perceived risk has an important role in understanding consumer's behavior and purchasing decisions. Previous research found that perceived risk lowered customer's desire about the online purchase (San Martín & Camarero, 2009). Previous research in online commerce has investigated the negative influence of perceived risk on virtual customer's behavior (Glover & Benbasat, 2010). In social commerce, social media has enabled users to

communicate with previous customers in order to mitigate the perceived risk of ethical violations. As a result, perceived risk in social commerce is an indicator of high trust for online commerce companies (Featherman & Hajli, 2016). Social commerce models reveal the importance of trust and risk to assess the behavior of social media users and reduce online ethical violations (Hajli, 2014; Korea & Park, 2013; Liang et al., 2011). Furthermore, prior research works contend that lowering perceived risk promotes purchase processes on social commerce platforms. Hence, lowering perceived risk helps in increasing consumer's confidence in social commerce platforms (Chang & Chen, 2008; Marakanon & Panjakajornsak, 2017). Consequently, we suggest:

H11: Perceived risk of ethical violation mediates the relationship between predictors and outcome variables.

The context: Social commerce in Turkey and Malaysia

Social commerce in Turkey

Turkey is world 19th largest economy and according to the World Bank, in 2021, the Gross Domestic Product (GDP) was recorded at US \$815.27 billion, which represented 0.61 percent of the total World's economy. Total population of Turkey has been estimated at 86.433 million in 2022. As in January 2022 there were 69.95 pc internet users in Turkey and the internet penetration rate was recorded at 82 pc. At the start of 2022 there were 68.90 social media users which represented 80.8% of its total population. People use all types of social media platforms for a variety of purposes including online sale and purchase of products. A report revealed that there are 34.40 million Facebook users, 57.40 million You Tube, 52.15 million Instagram, 26.56 TikTok, 16.80 Facebook Messenger, 12 million LinkedIn, 16.10 million Twitter users on these social media platforms. All this offers greater opportunities for more social commerce activities and allows firms to reach out to a wider online market. E-commerce activities in Turkey began in the late 1990 and since then, it has seen a significant growth in online marketing activities. This is mostly because of the use of a wider array of different social media apps (as stated above) (Al-Abrow et al., 2019, 2022; Albahri et al., 2021b; Alhamdi et al., 2019). With the improved banking infrastructure and secured payment systems, consumers show greater confidence in online purchases. Also, the widespread use of mobile devices has been significant increase in online business activities. In recent years Turkey has shown a remarkable growth in usage of social commerce. Of late, it has not been limited to major cities, rather it showed a significant proliferation to and growth in the small cities

as well. It is expected that by the end of 2022, the volume of social commerce will reach the tone of US \$2,723 m which indicates an annual growth rate of almost 56% and by 2028 it will reach US \$ 26,604 m. In order to promote social commerce activities, Turkish Government has placed some greater initiatives, for instance, Commerce Trust Certification has been waived off for e-commerce businesses; Government has also introduced Electronic Commerce Information System and Data Controller Registry System to provide relevant information on e-commerce initiatives and to comply with the consumers' data protection rules respectively (Al-Abrow et al., 2021; Albahri et al., 2021a; Alnoor, 2020; Fadhil et al., 2021).

Social commerce in Malaysia

Malaysia is considered as one of the fastest growing markets for social commerce. It has been reported as the fourth largest social commerce market. The country has a population of approximately 32 million and almost half of the population is adaptive to digital technologies. The internet penetration rate in Malaysia is 83% and whereas there are 26 million active social media users. In addition to this, there is a greater tendency to e-commerce adoption. It has been estimated that in 2020, almost 70% of the consumers preferred online shopping (Alharbi & Alnoor, 2022; Alnoor et al., 2020; Khaw et al., 2022b). The usage of social media is mostly for searching for information about online products and services. A survey conducted by Econsultancy and Magento revealed that 8 out of 10 people in Malaysia use Facebook to see the reviews and recommendations about the online products, and 5 out of 10 users of Instagram and You Tube utilize apps for the same purposes. The survey also reported that 7 out of 10 consumers agreed that they prefer to purchase products online only after they see them on social media platforms and reading the reviews and recommendations. According to the Q1 2022 Social Commerce Survey, Social Commerce activities are expected to grow at a rate of 45% per year and the total worth of social commerce is expected to be US \$1,327.5 million by the end of year 2022. The survey also predicted that there would be annual increase of 41.2% from the year 2022 onward, the total volume of social commerce will reach to the tone of US \$10,232.9 million till 2028. The most often used social media platforms in Malaysia include Instagram, Facebook, WeChat, WhatsApp and Telegram. With the rapid increase in social media users, there has been an increase in the number of social media influencers who promote and marketize products on various social media platforms. The 'digi-savvy generation, aged 18 – 54, spend almost 3 h daily on social media, which has triggered social commerce to be a major force shaping the Malaysian digital economy. Many of the Malaysian firms believe that they can enhance their sales and

brand awareness significantly through efficient and effective use of social media. With the recent e-commerce developments in Malaysia and adoption to the digital technologies by the Malaysian consumers, it is forecasted that social commerce will be major force to decide the fate of digital economy in Malaysia (Alnoor et al., 2022a, b; Eneizan et al., 2019).

Methodology

Sample size and measurements

The users of social commerce in rural communities, who have experience purchasing online using social media platforms such as Instagram, Twitter, Facebook, etc., constitute the study population. Because of the difficulty in determining the numbers of social commerce users, a non-probability sampling technique was adopted. Similar to Leong et al. (2020), data was collected from five states in Malaysia, which include Kedah, Perlis, Perak, Kelantan, and Terengganu. Besides, data were collected from 12 cities in Turkey: Hayriye, Çakırlar, Harbiye, Denizciler, Mordoğan, Cimilli, Limonlu, Selimiye, Marmaris, Dalyan, Ayvalı, Kumbağ and Altıntaş. The cities mentioned in Malaysia and Turkey constitute the largest proportion of social commerce users in rural communities. The rationale behind conducting the study in Malaysia and Turkey is that most of the previous studies focused on the context of a single country without consideration the cultural differences between the countries (e.g., Alnoor et al., 2022a; Hew et al., 2019; Khaw et al., 2022b). The issue of generalizing the results to other countries is still a concern that needs to be resolved. Therefore, the present study opens new horizons for understanding the European and Asian contexts on the basis of an investigation into the ethics of social commerce platforms for rural communities. The literature overview recommends comparing more than two countries in the context of social commerce. Moreover, one single country presents a challenge because it is linked to cultural context. As described earlier that Turkey and Malaysia are countries with fast growing social commerce in Europe and Asia respectively, hence, they invite the attention of scholars to investigate the social commerce dynamics in these two countries' domains. The statistics presented above show that social media users in both countries have more tendency towards online shopping by using various social media platforms. Various surveys in both countries suggest that social commerce can be a game changer for them because social media platforms are playing major roles in influencing the purchase decisions of the customers. we also mentioned earlier that culture and ideology of consumers significantly influence the consumers' buying decisions—Turkey and Malaysia represent two different

cultures with different ideological perspectives; hence this study can provide some interesting insight as to how the consumers in those countries are differently behaving with respect to adoption and use of social commerce activities.

The content validity was confirmed by conducting a preliminary survey of three academic experts in the field of information systems leading to minor modifications. Cronbach's alpha results exceeded 0.70 which indicates adequate construct reliability. The survey was conducted for two months on 20 participants in a large shopping center in Malaysia and Turkey. This study used the market intercept method similar to the previous literature (e.g., Alnoor et al., 2022a; Khaw et al., 2022a). It is a commonly used method in marketing research to collect data from customers on the site while they are shopping (intercepting customers), also known as store intercept method. A filtering question of "Have you ever purchased on social media?" was asked to verify that respondents had online purchasing experience before they were recruited.

A total of 500 questionnaires were distributed to each of the social commerce users in Malaysia and Turkey. Of the total, 31 incomplete questionnaires in Malaysia and 17 in Turkey were received. In this context, the final sample size for Malaysia was 469 and 483 for Turkey. The sample size conveniently meets the minimum recommended by Hair et al. (2017) whereby the sample size should be ten times the largest number of formative indicators used in a construct measurement. For Malaysia, the demographics of the respondents include 53% males and 47% females. In addition, 57% of the respondents were aged 15–24 years, 24% were 25–34 years old, 8% were 35–44 years old, 6% were 45–54 years old, and 5% were 55–64 years old. 68% of them are unmarried and 32% are married. Among the educational levels, 42% had a diploma, 46% had a bachelor's degree, 11% had a master's degree, and 1% had miscellaneous qualifications. As for the monthly income, 44% of the respondents got a thousand or less (USD), 29% got between a thousand and 3 thousand (USD), 18% got between 3 and 5 thousand (USD), and 9% got more than 5 thousand (USD) in a month. For Turkey, the demographics of the respondents include 49% males and 51% females. In addition, 51% of the respondents were aged 15–24 years, 19% were 25–34 years old, 13% were 35–44 years old, 9% were 45–54 years old, and 8% were 55–64 years old. 70% of them are unmarried and 30% are married. Of educational levels, 36% had a diploma, 44% had a bachelor's degree, and 20% had a master's degree. As for the monthly income, 39% of the respondents got a thousand or less (USD), 32% got between a thousand and 3 thousand (USD), 24% got between 3 and 5 thousand (USD), and 5% got more than 5 thousand (USD) in a month.

A 5-point Likert scale was used from "strongly agree (5)" to "strongly disagree (1)". Adoption of the 5-point Likert

scale is intended to reduce respondents' confusion about completing the questionnaire. Information quality was measured with 6 items and information credibility was measured with 4 items adapted from Filieri et al. (2018) and website quality with 8 items adapted from Liang et al. (2011). Innovativeness is measured using 4 items revised by Sun et al. (2006). Altruism is gauged using 4 items that were revised by Shiau and Chau (2015). A sense of belonging and self-enhancement were measured with 3 and 4 items respectively by Chu et al. (2019). Social support was measured with 4 items adapted from Khaw et al. (2022b). Positive and negative eWOM was adapted 9 items from Hennig-Thurau et al. (2004). For the perceived risk of ethical violations, this study adapted 3 items of Limbu et al.'s (2012) work. Finally, this study adapted 13 items from Roman (2007) in order to measure perception of ethics of social commerce platforms.

Statistical approach

In order to investigate the in-depth perception of ethics of social commerce platforms within the Malaysian and Turkish contexts, Structural Equation Modeling (SEM) was adopted. SEM is a second-generation statistical technology widely used to capture the linear relationship between constructs (Hair et al., 2017). This study adopted SmartPLS software to capture linear relationships between variables. However, the common issue of bias remains and needs to be resolved. To address the common issue of bias, Harman's one-factor test was adopted to examine the common bias method. The results confirm the first factor representing 30% of the variance. In this context, the variance was less than 50%, therefore, CMB is not a concern in this study. As mentioned in the introduction, the issue of classifying customers on the basis of the perception of ethics of social commerce platforms is a complex issue that needs to be resolved; MCDM methods deal with the complex issues of ranking alternatives and assign weight to criteria. Moreover, there are two approaches to MCDM (Krishnan et al., 2021): the first is to assign the weight, and the second is to rank the alternatives. For weight methods, there are many types, such as Best Worst Method (BWM), Analytic Hierarchy Process (AHP), Analytic Network Process (ANP), and Fuzzy Weighted with Zero Inconsistency (FWZIC) (Alsalem et al., 2022). However, the BWM method is commonly used to assign weight to criteria, and many scholars support the use of such a technique (Liang et al., 2021). Previous studies have adopted many methods, such as VIKOR, MULTIMOORA, and Fuzzy Decision by Opinion Score Method (FDOSM) to rank the alternatives. Nevertheless, the VIKOR method has been confirmed to outperform existing MCDM ranking techniques (Khaw et al., 2022a, b). The BWM method includes several steps that can be summarized as follows:

Step 1. It determines a set of decision criteria. This step includes defining criteria $C_1, C_2, \dots, C_n$. The current study adopted the conceptual model variables as criteria for the perception of ethics of social commerce platforms.

Step 2. It determines the best and worst criteria. The best criterion represents the most desirable, while the worst criterion is less important for the decision maker. The best and worst criteria are determined depending on the decision-maker's perspective. Three experts from academics and practitioners in the field of social commerce ethics were selected to determine the best and worst criteria.

Step 3. It conducts a pairwise comparison between the best criterion and the other criteria.

Step 4. It carries out a pairwise comparison between the worst criterion and the other criteria.

Steps 3 and 4 include determining the best and worst criteria over all other criteria. The expert should choose a value from 1 to 9 to represent the importance of the worst and best criteria over other criteria.

Step 5. It elicits the optimal weights ($W^*_1, W^*_2, \dots, W^*_n$). The optimal weight for the criteria is the one where, for each pair of W_B/W_j and W_j/W_w , we have $W_B/W_j = a_{Bj}$ and $W_j/W_w = a_{jw}$.

To fulfil these conditions for all j , we should find a solution where the maximum absolute differences

$$\left| \frac{W_B}{W_j} - a_{Bj} \right| \text{ and } \left| \frac{W_j}{W_w} - a_{jw} \right|$$

for all j 's are minimized. Considering the non-negativity and sum condition for the weights, the following problem is created:

$$\min \max_j \left\{ \left| \frac{W_B}{W_j} - a_{Bj} \right|, \left| \frac{W_j}{W_w} - a_{jw} \right| \right\}$$

$$W_j \geq 0, \text{ for all } j$$

$$\sum_j W_j = 1$$

The above problem can be switched to following problem:

$$\min \xi$$

$$\text{s.t.}$$

$$\left| \frac{W_B}{W_j} - a_{Bj} \right| \leq \xi, \text{ for all } j$$

$$\left| \frac{W_j}{W_w} - a_{jw} \right| \leq \xi, \text{ for all } j$$

$$\sum_j W_j = 1$$

$$W_j \geq 0, \text{ for all } j$$

By solving the last problem, the optimal weights (w_1^* ; w_2^* ; ...; w_n^*) and ξ^* are obtained.

The value for ξ^* reflects the outcomes' reliability, depending on the extent of consistency in the comparisons. A value close to zero represents a high consistency and thus a high reliability. The consistency ratio is calculated using ξ^* whereas the corresponding consistency index is as follows:

$$\text{Consistency Ratio} = \frac{\xi^*}{\text{Consistency Index}}$$

For the benchmarking of social commerce customers based on the perception of ethics of social commerce platforms, this study adopted the VIKOR Method. The following steps describe the customer ranking process.

$$\begin{bmatrix} w_1(f^*1 - f_{11})/(f^*1 - f^-1) & w_2(f^*2 - f_{12})/(f^*2 - f^-2) & \dots & w_i(f^*i - f_{ij})/(f^*i - f^-i) \\ w_1(f^*1 - f_{21})/(f^*1 - f^-1) & w_2(f^*2 - f_{22})/(f^*2 - f^-2) & \dots & w_i(f^*i - f_{ij})/(f^*i - f^-i) \\ \vdots & \vdots & \ddots & \vdots \\ w_1(f^*1 - f_{J1})/(f^*1 - f^-1) & w_2(f^*2 - f_{J2})/(f^*2 - f^-2) & \dots & w_i(f^*i - f_{ij})/(f^*i - f^-i) \end{bmatrix}$$

Step 2. Compute the values S_j and R_j , $j = 1, 2, 3, \dots, J$, $i = 1, 2, 3, \dots, n$ by using the following equations:

$$S_j = \sum_{i=1}^n w_i * \frac{f^*i - f_{ij}}{f^*i - f^-i}$$

$$R_j = \max_i w_i * \frac{f^*i - f_{ij}}{f^*i - f^-i}$$

where w_i indicates the criterion weights expressing their relative importance.

Step 3. Compute the values Q_j , $j = (1, 2, \dots, J)$ by the following equations:

$$Q_j = \frac{v(S_j - S^*)}{S^- - S^*} + \frac{(1 - v)(R_j - R^*)}{R^- - R^*}$$

where

$$S^* = \min_j S_j, \quad S^- = \max_j S_j$$

$$R^* = \min_j R_j, \quad R^- = \max_j R_j$$

v is introduced as the weight of the strategy of 'the majority of criteria' (or 'the maximum group utility'); here, $v = 0.5$.

Step 4. The set of alternatives can now be ranked by sorting the values S , R and Q in ascending order. The lowest value indicates the optimal performance.

Step 5. It Proposes a compromise solution, the alternative (a') which is ranked the best by the measure Q (minimum), if the following two conditions are satisfied:

C1. 'Acceptable advantage': where (a'') is the alternative at second position in the ranking list by Q , $DQ = 1/(J - 1)$, J is the number of alternatives.

Step 1. Identify the best f^*i and worst f^-i values of all criterion functions, $i = 1; 2; \dots; n$. If the i th function represents a benefit, then

$$f_i^* = \max_j f_{ij}, \quad f_i^- = \min_j f_{ij}$$

The weights for each criterion are computed based on the BWM method. A set of weights $w = w_1, w_2, w_3, \dots, w_j, \dots, w_n$ from the decision maker is accommodated in the DM; this set is equal to 1. The resulting matrix can also be computed as demonstrated in following equation:

$$WM = w_i * \frac{f^*i - f_{ij}}{f^*i - f^-i}$$

This process will produce a weighted matrix as follows:

Results and benchmarking process

Structural equation modelling

To test the proposed hypotheses, the SmartPLS 3.3.3 method was used for Structural Equation Modelling (SEM). Before starting with the finding of the hypothesis test, the validity of the convergent and discriminant tests was established. For convergent feasibility testing, factor loading (FL), average variance extracted (AVE), composite reliability (CR), and Cronbach's alpha (CA) were utilised. AVE must surpass 0.5, factor loading should be more than 0.7, CR and CA must be larger than 0.7 (Chen et al., 2010). For the Malaysian model, the results in Table 1 indicate that WQ1, WQ2, WQ5, WQ6, WQ8, eWOM 1, eWOM 2, PE4, PE5, PE8, PE10, PE11, PE12, and PE13 were removed due to their values recorded at less than 0.7. However, the rest of the items were more than 0.7, for instance, CR, and CA were above 0.7. Besides, AVE was more than 0.5. In addition, there has been no concern regarding convergent validity values—for the Turkey's model, convergent validity results confirmed that IQ1, IC1, WQ4, WQ6, WQ8, AL4, SE1, eWOM9, PE1, PE2, PE3, PE4, PE5, PE7, PE10, PE11, PE12, PE13 were removed due to their values falling lower than 0.7. However, the remainder items were more than 0.7, such as CR and CA stood above 0.7 and AVE was more than 0.5. In this context, Turkey's model variables have sufficient of convergent validity.

To assess discriminant validity, there are three main methods for assessing discriminant validity: the Fornell

and Larcker, heterotrait-monotrait ratio of correlations (HTMT), and cross-loadings method. Many academics consider the HTMT method to be more accurate. Furthermore, the official website of the SmartPLS software recommends the adoption of the HTMT method to assess discriminant validity. Table 2 shows discriminant validity results for the Malaysia and Turkey model.

The HTMT ratio of correlations was adopted to assess the discriminant validity. According to Henseler et al. (2015) the HTMT 0.85 is suitable threshold based on the HTMT criterion of discriminant validity. Table 2 shows the HTMT values and all constructs for the Malaysia and Turkey model have HTMT below 0.85. Hence, the constructs for this study passed the minimum requirement of the discriminant validity test through HTMT. According to the assessment of measurement model, the model of this study can proceed the assessment of structural model phase.

The structural model describes the causal relations between various constructs (independent, moderating, control, and dependent variables) in order to test the formulated hypotheses of the study. Hair et al. (2017) indicated that path analysis (analyzed using a one-tail test) including the beta coefficient, standard error, t-value, p-value, f^2 , R^2 , and Q^2 are important criterion for assessing the structural model in PLS-SEM as were used and reported in Figs. 1 and 2.

For Malaysia's model, Table 3 illustrated 19 direct and indirect hypotheses. For the hypotheses testing, parameter estimates for statistical significance together with the coefficient values were examined through a bootstrapping method based on PLS-SEM (Hair et al., 2017). The bootstrapping method with 1000 (one-tailed, 0.05; 469 case data) bootstrap re-sampling and bias-corrected confidence intervals were utilized to examine the significance of the path coefficients. The t-value for the one-tailed test must be equal to or greater than 1.645 at a 5% significance level.

The results for Malaysia's model indicate the relationship between altruism, positive and negative eWOM, self-enhancement, sense of belonging, website quality, and perceived risk of ethical violations as positive and significant ($\beta = 0.456$, $p < 0.05$; $\beta = 0.574$, $p < 0.05$; $\beta = 0.567$, $p < 0.05$; $\beta = 0.128$, $p < 0.05$; $\beta = 0.217$, $p < 0.05$). Thus, hypotheses 3, 5, 6 and 7 are supported. In addition, the relationship between perceived risk of ethical violations and perception of ethics of social commerce platforms is significant and positive ($\beta = 0.683$, $p < 0.05$). However, the relationships between information credibility, information quality, innovativeness, social support, and perceived risk of ethical violations are not statistically significant. Furthermore, hypotheses 1, 2, 4, and 8 are unsupported. The results demonstrate that the perceived risk of ethical violations partially mediates the relationship between the independent variables and the perception of ethics of social commerce platforms. In this context, the perceived risk of ethical violations mediates

the relationship between altruism, positive and negative eWOM, sense of belonging, self-enhancement, website quality, and perception of ethics of social commerce platforms ($\beta = 0.311$, $p < 0.05$; $\beta = 0.392$, $p < 0.05$; $\beta = 0.387$, $p < 0.05$; $\beta = 0.087$, $p < 0.05$; $\beta = 0.148$, $p < 0.05$). Besides, the relationships between information quality, information credibility, innovativeness, social support, and perception of ethics of social commerce platforms through the mediator variable perceived risk of ethical violations are not statistically significant and unsupported in Malaysia's context. To shed light on the similarities and differences between the Turkish and Malaysian context, Fig. 3, exhibited the results of hypothesis testing for the Turkey model.

For Turkey model, Table 4 illustrated 19 direct and indirect hypotheses. The direct path results indicate that the relationships between information quality, positive and negative eWOM, website quality, and perceived risk of ethical violations are significant and positive ($\beta = 0.092$, $p < 0.05$; $\beta = 0.572$, $p < 0.05$; $\beta = 0.121$, $p < 0.05$). However, the relationships between information credibility, innovativeness, altruism, sense of belonging, self-enhancement, social support, and perceived risk of ethical violations are unsupported. Additionally, there is a positive and significant relationship between perceived risk of ethical violations and perception of ethics of social commerce platforms ($\beta = 0.354$, $p < 0.05$).

Regarding the mediating effect of perceived risk of ethical violations, the results demonstrate that perceived risk has a partially mediating role for the relationship between the independent variables and the perception of ethics of social commerce platforms in the Turkish context. Hence, there are positive and significant relationships between information quality, positive and negative eWOM, website quality, and perception of ethics of social commerce platforms through the mediating variable perceived risk of ethical violations ($\beta = 0.033$, $p < 0.05$; $\beta = 0.203$, $p < 0.05$; $\beta = 0.043$, $p < 0.05$). Nevertheless, the relationships between information credibility, innovativeness, altruism, sense of belonging, self-enhancement, social support, and perception of ethics of social commerce platforms through the mediator variable perceived risk of ethical violations are unsupported. The SEM results provided insight into the causal relationships between study variables to provide academics and practitioners an in-depth understanding of the most important determinants of the perception of ethics of social commerce platforms in the Turkish and Malaysian context. However, MCDM methods offer a solution to the benchmarking process to provide insight to practitioners and academics by identifying customers with a high perception of the ethics of social commerce platforms. Furthermore, firms can enhance customers that have high perceptions as opinion leaders of social

Table 1 Convergent validity and model befitting Malaysian and Turkish customers

Malaysia model					Turkey model				
Items	FL	CA	CR	AVE	Items	FL	CA	CR	AVE
IQ1	0.746	0.855	0.892	0.578	IQ1	0.692	0.855	0.892	0.578
IQ2	0.770				IQ2	0.788			
IQ3	0.759				IQ3	0.787			
IQ4	0.735				IQ4	0.740			
IQ5	0.768				IQ5	0.713			
IQ6	0.784				IQ6	0.707			
IC1	0.714	0.745	0.838	0.565	IC1	0.682	0.745	0.838	0.565
IC2	0.761				IC2	0.825			
IC3	0.777				IC3	0.831			
IC4	0.753				IC4	0.788			
WQ1	0.686	0.846	0.882	0.583	WQ1	0.805	0.846	0.882	0.583
WQ2	0.617				WQ2	0.801			
WQ3	0.742				WQ3	0.768			
WQ4	0.775				WQ4	0.673			
WQ5	0.652				WQ5	0.775			
WQ6	0.699				WQ6	0.674			
WQ7	0.739				WQ7	0.732			
WQ8	0.636				WQ8	0.598			
IN1	0.745	0.750	0.842	0.571	IN1	0.846	0.750	0.842	0.571
IN2	0.782				IN2	0.823			
IN3	0.790				IN3	0.729			
IN4	0.704				IN4	0.764			
AL1	0.798	0.840	0.892	0.674	AL1	0.811	0.840	0.892	0.674
AL2	0.806				AL2	0.821			
AL3	0.855				AL3	0.776			
AL4	0.823				AL4	0.686			
SB1	0.781	0.745	0.837	0.634	SB1	0.878	0.745	0.837	0.634
SB2	0.787				SB2	0.857			
SB3	0.905				SB3	0.842			
SE1	0.807	0.842	0.893	0.677	SE1	0.652	0.842	0.893	0.677
SE2	0.890				SE2	0.845			
SE3	0.792				SE3	0.848			
SE4	0.799				SE4	0.784			
SS1	0.796	0.876	0.915	0.729	SS1	0.778	0.876	0.915	0.729
SS2	0.870				SS2	0.850			
SS3	0.879				SS3	0.823			
SS4	0.866				SS4	0.796			
eWOM 1	0.692	0.893	0.914	0.544	eWOM 1	0.701	0.893	0.914	0.544
eWOM 2	0.750				eWOM 2	0.780			
eWOM 3	0.536				eWOM 3	0.754			
eWOM 4	0.785				eWOM 4	0.753			
eWOM 5	0.769				eWOM 5	0.723			
eWOM 6	0.804				eWOM 6	0.718			
eWOM 7	0.779				eWOM 7	0.802			
eWOM 8	0.756				eWOM 8	0.778			
eWOM 9	0.734				eWOM 9	0.680			
PR1	0.838	0.823	0.894	0.739	PR1	0.808	0.823	0.894	0.739
PR2	0.874				PR2	0.853			
PR3	0.865				PR3	0.809			

Table 1 (continued)

Malaysia model					Turkey model				
Items	FL	CA	CR	AVE	Items	FL	CA	CR	AVE
PE1	0.766	0.801	0.835	0.596	PE1	0.657	0.801	0.835	0.596
PE2	0.757				PE2	0.682			
PE3	0.741				PE3	0.488			
PE4	0.265				PE4	0.437			
PE5	0.272				PE5	0.580			
PE6	0.701				PE6	0.783			
PE7	0.749				PE7	0.624			
PE8	0.611				PE8	0.780			
PE9	0.748				PE9	0.740			
PE10	0.536				PE10	0.607			
PE11	0.566				PE11	0.004			
PE12	0.566				PE12	0.081			
PE13	0.522				PE13	0.078			

Table 2 Discriminant validity

Variables	1	2	3	4	5	6	7	8	9	10	11
Malaysia model											
1. Altruism											
2. Information Credibility	0.384										
3. Information Quality	0.378	0.758									
4. Innovativeness	0.752	0.690	0.662								
5. Perceived risk	0.558	0.510	0.508	0.675							
6. Perception of ethics	0.547	0.479	0.495	0.608	0.689						
7. eWOM	0.861	0.450	0.452	0.750	0.718	0.596					
8. Self-enhancement	0.756	0.416	0.441	0.691	0.733	0.551	0.506				
9. Sense of belonging	0.745	0.422	0.451	0.756	0.668	0.578	0.773	0.745			
10. Social Support	0.604	0.410	0.419	0.624	0.565	0.515	0.503	0.768	0.709		
11. Website Quality	0.453	0.802	0.779	0.738	0.651	0.468	0.535	0.468	0.502	0.394	
Turkey model											
1. Altruism											
2. Information Credibility	0.740										
3. Information Quality	0.772	0.759									
4. Innovativeness	0.795	0.731	0.738								
5. Perceived risk	0.751	0.789	0.738	0.786							
6. Perception of ethics	0.707	0.733	0.672	0.729	0.756						
7. eWOM	0.794	0.761	0.706	0.787	0.019	0.724					
8. Self-enhancement	0.750	0.758	0.713	0.709	0.700	0.650	0.732				
9. Sense of belonging	0.756	0.779	0.671	0.733	0.721	0.656	0.732	0.770			
10. Social Support	0.794	0.763	0.730	0.700	0.768	0.687	0.784	0.797	0.719		
11. Website Quality	0.784	0.784	0.718	0.723	0.781	0.679	0.769	0.735	0.797	0.726	

commerce platforms. Yet, social commerce platforms can treat the worst-ranked customers with caution and strive to turn a negative perception into a positive ethics

of such platforms. In this context, the following section describes the benchmarking process for customers in the Turkish and Malaysian context.

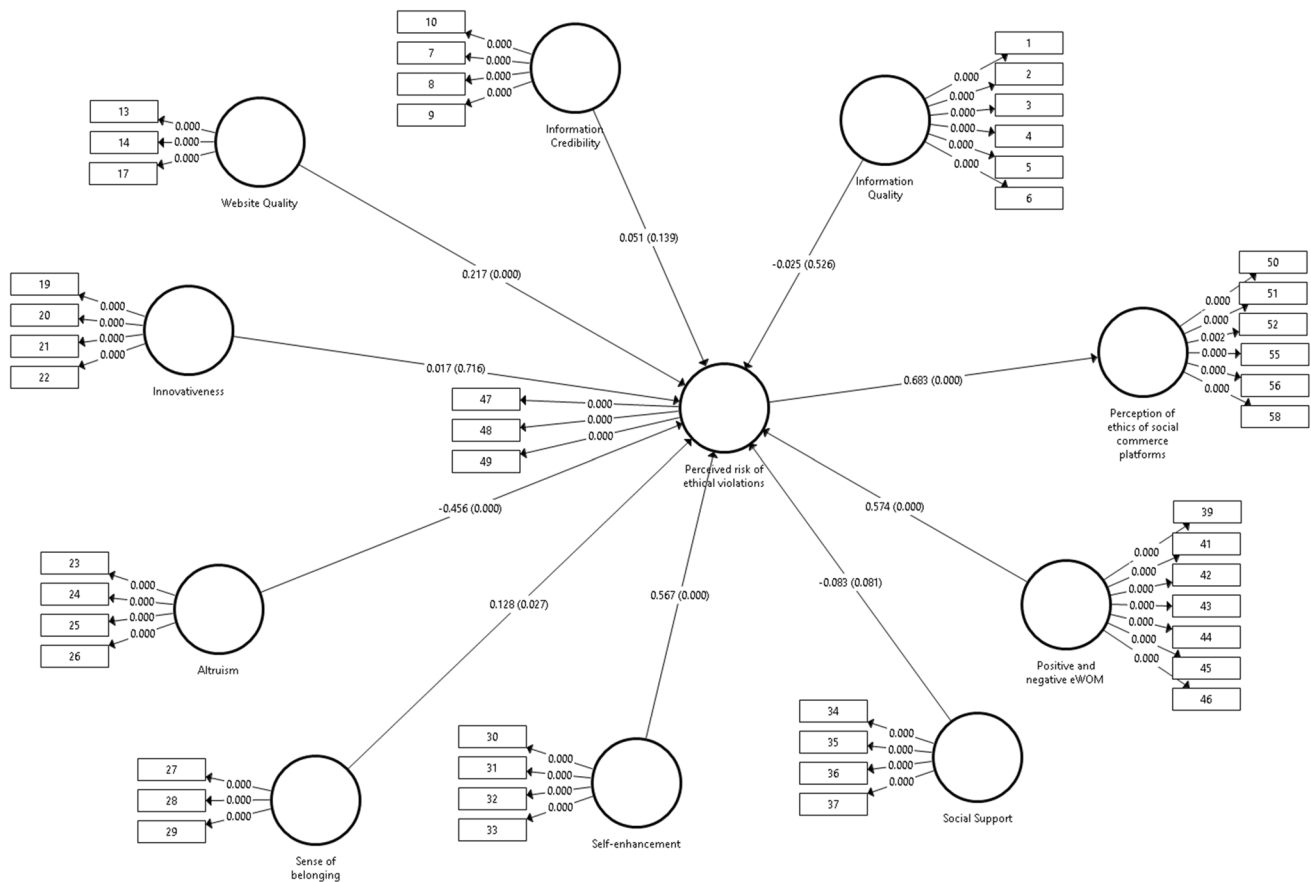
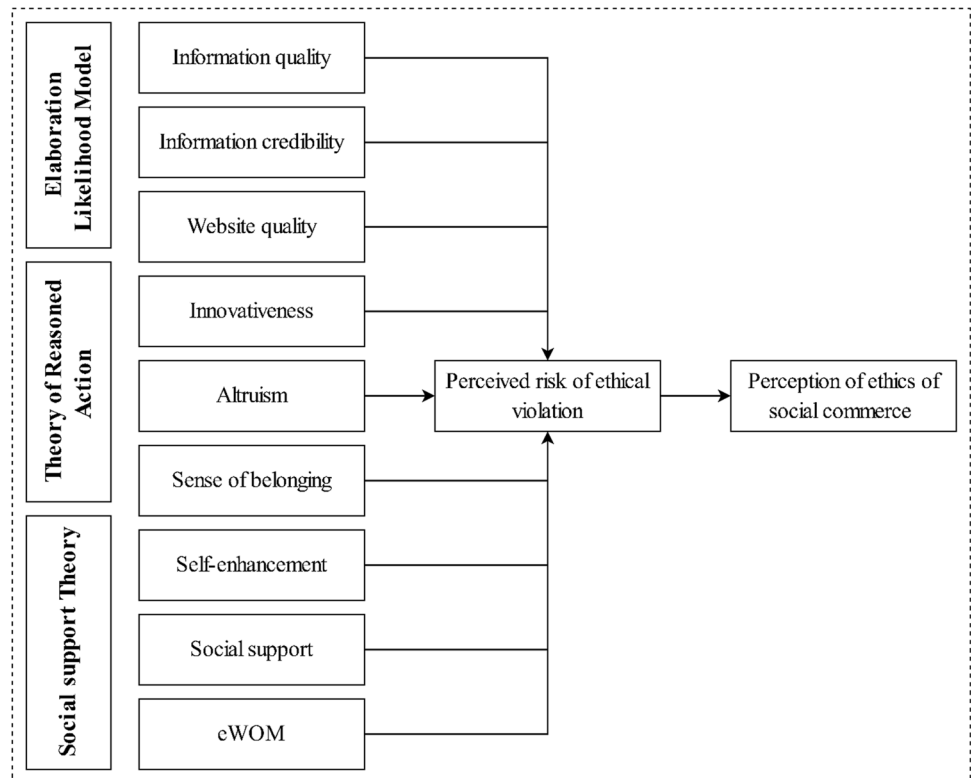
Fig. 1 Conceptual framework**Fig. 2** Structural model for Malaysia model

Table 3 Structural model assessment for the Malaysia model

Malaysia model						
Direct path	(O)	(M)	(STDEV)	T Statistics	P Values	Result
AL→PR	0.456	0.453	0.062	7.324	0.000	Supported
IC→PR	0.051	0.057	0.035	1.483	0.139	Unsupported
IQ→PR	-0.025	-0.026	0.040	0.635	0.526	Unsupported
IN→PR	0.017	0.014	0.047	0.363	0.716	Unsupported
PR→PE	0.683	0.686	0.022	30.73	0.000	Supported
eWOM→PR	0.574	0.574	0.054	10.73	0.000	Supported
SE→PR	0.567	0.565	0.064	8.837	0.000	Supported
SB→PR	0.128	0.128	0.058	2.222	0.027	Supported
SS→PR	-0.083	-0.083	0.048	1.751	0.081	Unsupported
WQ→PR	0.217	0.215	0.034	6.345	0.000	Supported
Indirect path	(O)	(M)	(STDEV)	T Statistics	P Values	Result
AL→PR→PE	0.311	0.311	0.042	7.503	0.000	Supported
IC→PR→PE	0.035	0.039	0.024	1.473	0.141	Unsupported
IQ→PR→PE	-0.017	-0.018	0.027	0.631	0.528	Unsupported
IN→PR→PE	0.012	0.010	0.032	0.361	0.719	Unsupported
eWOM→PR→PE	0.392	0.394	0.040	9.887	0.000	Supported
SE→PR→PE	0.387	0.388	0.043	8.976	0.000	Supported
SB→PR→PE	0.087	0.088	0.039	2.230	0.026	Supported
SS→PR→PE	-0.057	-0.057	0.033	1.747	0.081	Unsupported
WQ→PR→PE	0.148	0.148	0.024	6.113	0.000	Supported

AL Altruism, IC Information credibility, IQ Information quality, IN Innovativeness, eWOM Electronic word of mouth, SE Self-enhancement, SB Sense of belonging, SS Social support, WQ Website quality, PR Perceived risk of ethical violations, PE Perception of ethics of social commerce platforms, O Original sample, M Sample mean, STDEV Standard deviation

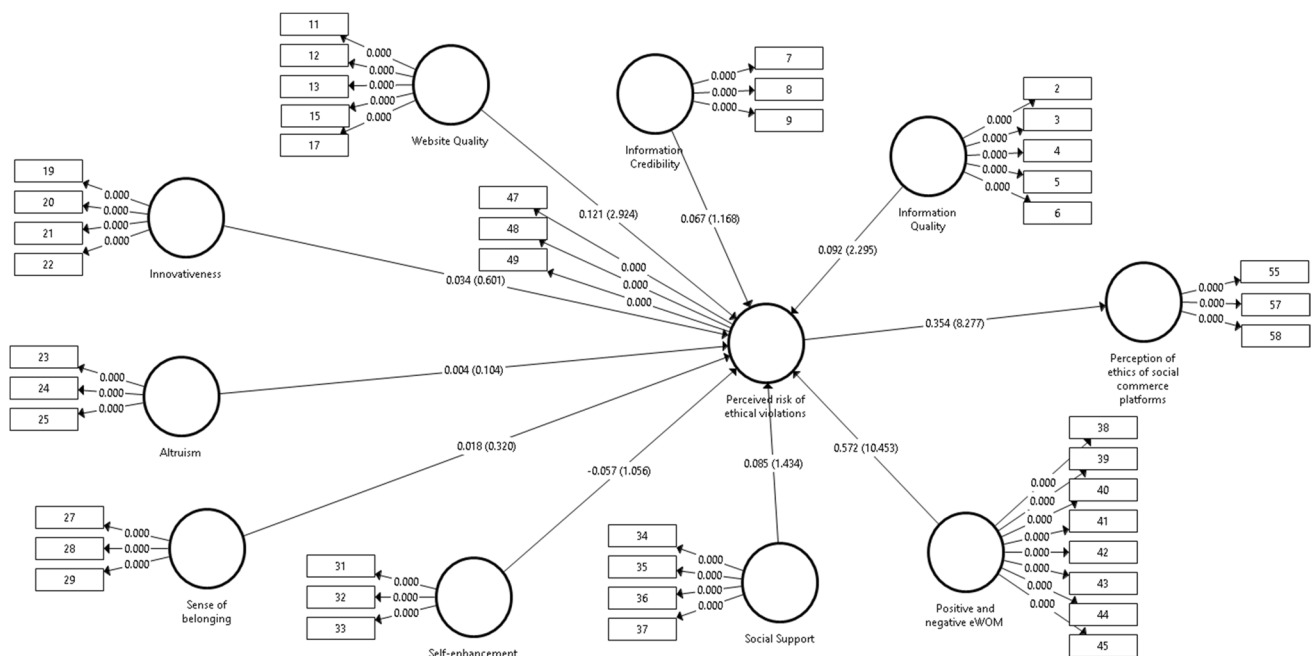
**Fig. 3** Structural model for Turkey model

Table 4 Structural model assessment for the Turkey model

Turkey model							
Direct path	(O)	(M)	(STDEV)	T Statistics	P Values	Result	
AL—> PR	0.004	0.006	0.042	0.104	0.917	Unsupported	
IC—> PR	0.067	0.064	0.057	1.168	0.244	Unsupported	
IQ—> PR	0.092	0.096	0.040	2.295	0.022	Supported	
IN—> PR	0.034	0.030	0.056	0.601	0.548	Unsupported	
PR—> PE	0.354	0.357	0.043	8.277	0.000	Supported	
eWOM—> PR	0.572	0.571	0.055	10.453	0.000	Supported	
SE—> PR	-0.057	-0.059	0.054	1.056	0.292	Unsupported	
SB—> PR	0.018	0.022	0.057	0.320	0.749	Unsupported	
SS—> PR	0.085	0.087	0.059	1.434	0.152	Unsupported	
WQ—> PR	0.121	0.120	0.041	2.924	0.004	Supported	
Indirect path	(O)	(M)	(STDEV)	T Statistics	P Values		
AL—> PR—> PE	0.002	0.002	0.015	0.102	0.918	Unsupported	
IC—> PR—> PE	0.024	0.023	0.021	1.136	0.256	Unsupported	
IQ—> PR—> PE	0.033	0.034	0.016	2.095	0.037	Supported	
IN—> PR—> PE	0.012	0.011	0.020	0.592	0.554	Unsupported	
eWOM—> PR—> PE	0.203	0.204	0.031	6.555	0.000	Supported	
SE—> PR—> PE	-0.020	-0.022	0.020	1.012	0.312	Unsupported	
SB—> PR—> PE	0.006	0.008	0.021	0.311	0.756	Unsupported	
SS—> PR—> PE	0.030	0.031	0.022	1.389	0.165	Unsupported	
WQ—> PR—> PE	0.043	0.043	0.016	2.661	0.008	Supported	

AL Altruism, IC Information credibility, IQ Information quality, IN Innovativeness, eWOM Electronic word of mouth, SE Self-enhancement, SB Sense of belonging, SS Social support, WQ Website quality, PR Perceived risk of ethical violations, PE Perception of ethics of social commerce platforms, O Original sample, M Sample mean, STDEV Standard deviation

Benchmarking process

As previously mentioned, the BWM method adopted for assigning weight criteria and the method was integrated with VIKOR method for ranking customers based on the perception of ethics of social commerce platforms. Therefore, the BWM method was used by targeting three experts in the field of information technology and business ethics. A questionnaire was provided to them to determine the best and worst criteria. In addition, the opinions of experts were obtained and applied. Figures 4 and 5 provides weight criteria obtained from experts.

The results of Fig. 4 for the first expert confirm that the best criterion was social support, and the worst criterion was perceived risk of ethical violations. The second expert identified altruism as the best criterion and information credibility as the worst criterion. The third expert confirmed sense of belonging as the best criterion and positive and negative eWOM as the worst criterion. Overall, the results showed that altruism is considered the best criterion and perceived risk of ethical violations is judged as the worst criterion.

This part summarizes the results of the benchmarking of social commerce platform customers for the Turkish and Malaysian context by adopting the VIKOR method.

The order of customers in the Turkish context is based on the weight of criteria given by three experts. Additionally, benchmarking was used based on the group, as there is a difference between the benchmarking of customers based on experts. The same was used in the Malaysian context by benchmarking the customers of social commerce companies consisting of three experts and a group for the reason mentioned in the Turkish context. The results are given in the Figs. 5 and 6 which summarize the benchmarking of customers in the Turkish and Malaysian context.

For the Turkish context, the results showed that Cu6, Cu263, and Cu218 got the best rank, while Cu134, Cu272, and Cu87 got the worst rank for the first expert. Likewise, Cu6, Cu263, and Cu218 got the best rank, and Cu321, Cu433, and Cu26 got the worst rank for the second expert. However, the results of the third expert indicate Cu6, Cu263, and Cu218 got the best rank, and Cu433, Cu105, and Cu88 got the worst rank. For the group rank, the results showed Cu6, Cu263, and Cu218 got the best rank while Cu439, Cu46, and Cu86 got the worst rank, as illustrated in Fig. 7.

For the Malaysian context, according to each expert's Q and Order, Cu6, Cu263, and Cu205 got the highest rank. Cu45, Cu255, and Cu346 got the worst rank, respectively, for the first

Fig. 4 Weights determination utilizing BWM

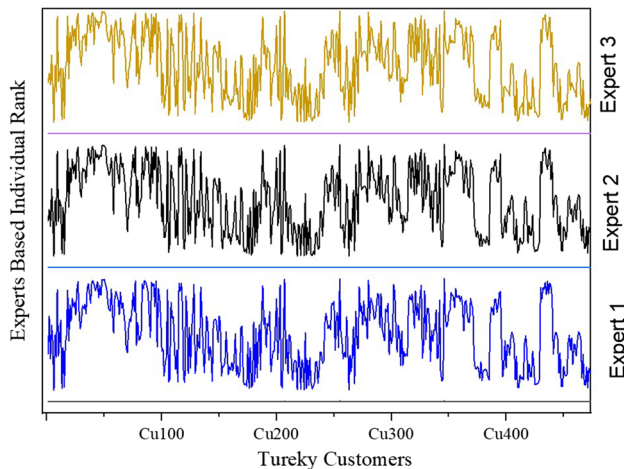
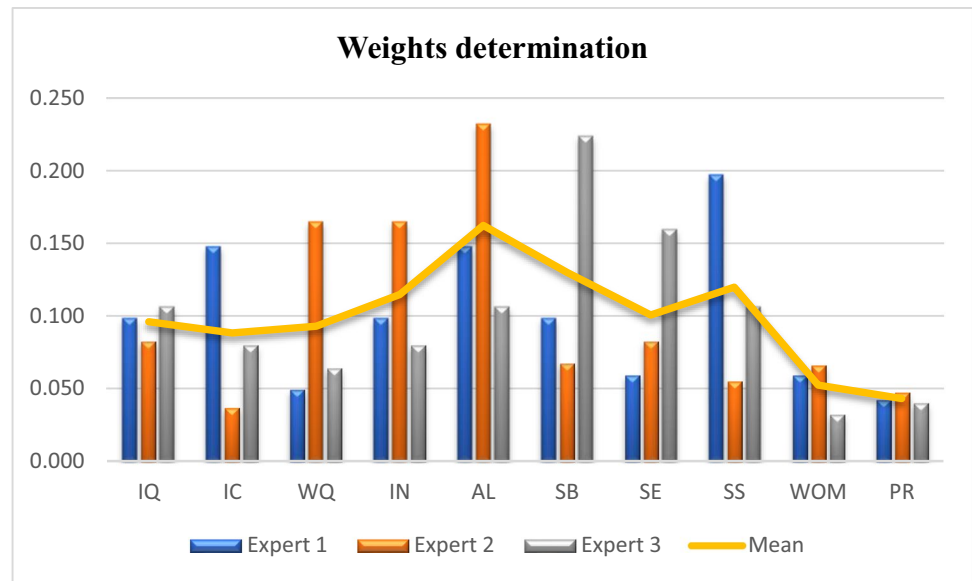


Fig. 5 Benchmarking results for Turkish context

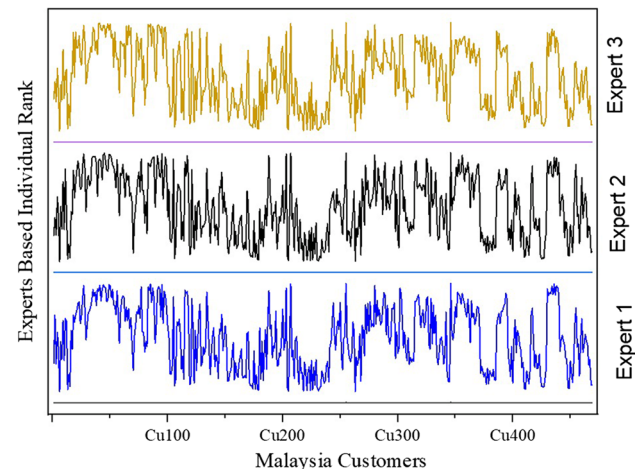


Fig. 6 Benchmarking results for Malaysian context

expert. For the second expert, Cu6, Cu263, and Cu218 got the best rank. While Cu87, Cu438, and Cu436 got the worst rank. For the third expert, Cu6, Cu263, and Cu218 got the best rank. Cu47, Cu35, and Cu98 got the worst rank. For the group rank, Cu6, Cu263, and Cu218 got the best rank. Cu66, Cu203, and Cu87 got the worst rank, as showed in Fig. 7.

To deal with issues of generalization of results, validation is urgently needed. The validation process consists of objective validation, subject validation, sensitivity analysis, spearman's rank correlation, and comparative analysis. This study adopted the objective validation method to guarantee the order of customers for the Turkish and Malaysian context and is subjected to a systematic classification (Albahri et al., 2021a, b). Objective validation method has been widely used in the context of MCDM (Krishnan et al., 2021). The objective validation method involves compiling opinion matrices to produce

a unified opinion matrix and ranking customers for the Turkish and Malaysian context within the unified opinion matrix. After sorting, customers are separated for the two contexts into three equal groups. Resultantly, the average of each group is obtained. Based on the comparison in the results, the sum of the arithmetic mean of the first group must be less than or equal to the mean of the second group. Likewise, the results of the second group must be less than or equal to the results of the arithmetic mean of the third group. As shown in Table 5, in this approach, the results of ranking customers are divided into three groups. Each group consists of several customers. The mean for each group is calculated using the following equation.

$$\text{mean} = \frac{1}{n} \sum_{i=1}^n x_i,$$

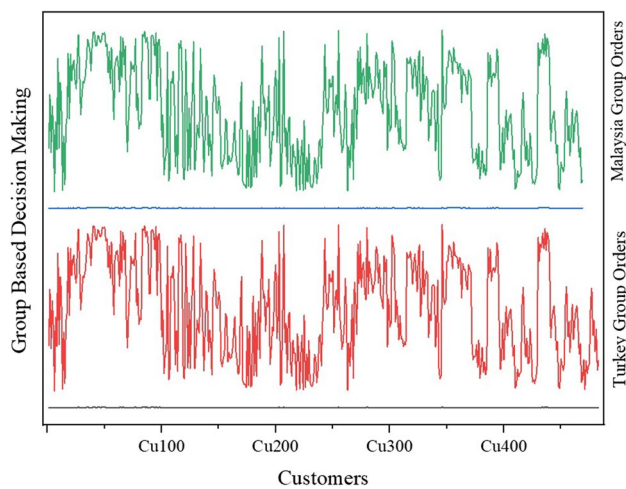


Fig. 7 Benchmarking results for decision making country based

Table 5 Validation results of group decision making rank

Groups	Group 1	Group 2	Group 3
Malaysian context	0.022	0.062	0.106
Turkish context	0.022	0.059	0.104

Regarding the results of validation of group decision-making for the Malaysian context, the mean in the first group is lower than the mean in the second. The mean in the second group was less than the mean in the third group. The same is true for the Turkish context. The mean in the first group was less than the mean in the second group. The mean in the second group was less than the mean in the third group. Accordingly, the first group has a lower value compared to the second group; the second group has a lower value compared to the third group for the Malaysian and Turkish context. Furthermore, ranks are valid and undergoing systematic ranking for Malaysian and Turkish customers.

Discussion

This study has been conducted to determine the major factors of perceived risk of ethical violation and perception of ethics of social commerce platforms in two countries including Malaysia and Turkey. In this regard a number of hypotheses were proposed based on the available literature and relevant findings were presented. We found that the quality of information is not relevant to the risk perception of ethical violation on social commerce platforms in Malaysia but were found to be more relevant in the context of Turkey. Our findings are partially in line with the earlier studies that consumers analyze the available online information to evaluate the level of perceived risk and to

avoid the risk of paying higher prices in online buying (Gu et al., 2007; Wang & Chang, 2013). Quality information helps consumers to analyze different aspects of products and services and make informed decisions. This benefits consumers to lessen the risk and uncertainty associated with online buying. Our findings to this end support earlier study that high quality information help customers to make better judgement quickly and thus avoid the risk of privacy issues and illegal online access (Kim et al., 2017). For Malaysian customers the quality of online information is not much of interest because they are more concerned with the quality of website contents to make purchase decision. Relevant to quality of information is the concept of information credibility. Information credibility is largely associated with the source of information and customers judge the information credibility through other customers' opinion on products and services. Online social commerce platforms provide customers with any opportunity to share their experiences with the product. A large number of customers' reviews make the information less reliable because majority of such reviews are from anonymous customers (Reichelt et al., 2014; Sen, 2007). Consequently, potential customers rely less on the credibility of information in an online environment. In this regard our study argues that credibility of information is not considered as relevant risk factor by the customers in both countries because of the above stated reasons. Hence, our findings to this end align with earlier studies (e.g., Jun Liu et al., 2020; Sen, 2007; Xu et al., 2020 etc.). These earlier studies agree that credibility of customers' review is always doubtful because of customers' hazards and confusion to use online platforms caused by lack of suitable and credible information over there. Relevant to the earlier stated two factors i.e., quality and credibility of information is the quality of website contents. This was found to be equally significant in both contexts of Malaysia and Turkey. Companies need to present themselves on social commerce platforms in a more appropriate way to attract customers. Website of companies must be easy to access and easy to use. Our findings suggest that quality of website contents is an important determinant of perceived risk of ethical violation on social commerce platforms. Businesses can always improve the quality of website contents to reduce the risk perception. Our findings support the previous studies that websites are much critical for business success in the era of digital age as they serve an important tool of communication between customers and companies (Chen et al., 2017; Kleinlercher et al., 2018). Based on our findings, this study argues that an improved quality of website invites customers' trust and confidence in online buying and mitigates the perceived risk in using social commerce platforms (Caruana, 2004). In addition, we affirm that website quality significantly influences customers' decision to use social commerce platforms due to lower level of perceived risk of ethical violation. In this regard this

study compensates the earlier studies that, with the growing concerns about online services and products quality, the website is important way of presenting and reducing the perceived risk (Cenfetelli et al., 2008).

In order to improve customers' online experience, companies always prefer to bring innovation not only into their products and services but also in their policies and procedures. We constantly witness innovation in online platforms where companies try to access the distant customers. This is done to attract and retain online customers. We found two different results in the two dissimilar contexts. For Malaysian customers, the innovativeness in social commerce platform sufficiently and significantly reduces the perceived risk of ethical violations on social commerce platforms and the opposite is true for Turkish customers. Consequently, our findings support the earlier studies that innovative attributes in terms of technological sophistication, security, service quality can boost customers confidence in online buying and thus decrease associated perceived risk (Li et al., 2021; Singh et al., 2020; Zhang & Hou, 2017). Similarly, we also argue that innovation in social commerce platforms creates a positive impression which ultimately enhances customers' trust, facilitates technology adoption, and reduces potential risk perception in using online social commerce platforms. For Turkish customers we did not find evidence that innovativeness in social commerce platforms reduces the perceived risk of ethical violation. This may be due to the reason that they do not consider innovativeness an important factor in their online buying decision. This finding also compensates our earlier finding that Turkish customers give less consideration to online information credibility as an important factor to mitigate the perceived risk.

Altruism is an important concept in online buying decisions. Altruistic individuals voluntarily offer their opinion to facilitate online purchase by the other customers. We posit that presence of altruistic individuals and altruism on social commerce platforms enrich the other customers online buying experiences, and hence add them in making online purchase decision. We found partial agreement to our argument as customers in Malaysia agreed that altruism significantly reduces their perceived risk of ethical violation on social commerce platforms, whereas no such evidence was found in case of Turkish customers. Our finding in the context of Malaysia support earlier studies that altruistic opinions increase integrity of social commerce platforms and reduces ambiguity by lowering the risk of adoption to social commerce platforms (Liu et al., 2021; Shiau & Chau, 2015). As far as our findings in the Turkish context is concerned, we can argue that there may be absence or less presence of altruistic individuals over social commerce platform due to which Turkish customers did not consider it as an important determinant of perceived risk of ethical violation on social commerce platforms.

Sense of belongingness is considered as an important driver to attract and retain customers in online buying. Customers develop a sense of belongingness when they seek a company that fulfills their needs in customized way and offers affordable quality products and services. Customers develop a sense of belongingness over a period of time through their long-term standing online experience. Our findings support the hypothesis that a greater sense of belongingness helps to reduce the perceived risk of ethical violation on social commerce platforms. We found that Malaysian customers consider sense of belongingness an important determinant to reduce the perceived risk, while no such finding surfaced in case of Turkish customers. This may be due to the reason that Turkish customers may not be present on social commerce platforms for the longer period of time to sufficiently develop their sense of belongingness. Our finding in Turkish context supports the earlier argument that sense of belongingness motivates customers and significantly impact online interaction among them which consequently effects improved online buying experience. Thus, customers are more inclined to engage in online buying. This is attributed to the fact that when customers see more people in their circle to be present on social commerce platforms, then it necessarily reduces the perceived risk of ethical violation on social commerce platforms (Liu et al., 2018).

Self-enhancement is another important dimension of perceived risk in online social commerce platform usage. Earlier studies argue that individuals with positive and increased levels of self-enhancement are happy to share their online experiences and thus help potential customers to develop positive attitude towards online products and services. Our findings suggest that Malaysian customers attach more importance to self-enhancement and consider it critical to reduce perceived risk of ethical violation on social commerce, while in case of Turkish customers, we did not get support for our hypothesis. This is in line with our earlier finding in regard to sense of belongingness. It is argued that sense of belongingness and self-enhancement are essentially similar concepts, and we put forward the same argument in support of our findings to this end. We further argue that customers with higher levels of self-enhancement and self-esteem are more likely to share their positive social commerce platform experiences which helps to reduce the perceived risk of ethical violation in social commerce platforms. This is aligned with earlier studies that customers are willing to sensationalize their thoughts and online experiences to create favorable perceptions and attain higher social status (Chung & Darke, 2006; Grange et al., 2020; Vargo et al., 2019).

Social support in terms of ratings, reviews, suggestions, and information to make informed purchased decision on social commerce platforms is considered as an important

predictor of perceived risk in using online platforms. Online social support influence customers to engage in online social commerce platforms and assist in making efficient and cost-effective online purchase decisions (Huang et al., 2020; Liang et al., 2011; Yahia et al., 2018). However, we did not find any evidence both in Malaysian and Turkish context to support our hypothesis in this regard. Though our findings to this end are contrary to earlier studies, they are still considered important and ask for an in-depth investigation. One plausible explanation may be that customers did not find appropriate level of social support to mitigate the perceived risk of ethical violation on social commerce platforms.

A positive attitude to and participation in electronic word-of-mouth (eWOM) has always been considered as an important and significant aspect of online buying decisions. Customers essentially react in accordance with what they encounter, and they are more expected to develop positive attitude and engage readily in eWOM. Our findings in both contexts support our argument that positive attitude to and participation in eWOM helps to lessen the perceived risk of ethical violation on social commerce platform and, thus compensate earlier studies that eWOM is considered significant to impact the customers' online buying decision (Ismagilova et al., 2021; Wu & Wang, 2011). We also favor the argument that customers who are more engaged in eWOM are more likely to make well-informed online buying decisions (Ali et al., 2020; Fu et al., 2015).

We also evaluated the impact of perceived risk of ethical violation on perception of ethics on social commerce platforms among the customers in both countries. Our findings in both contexts supported our hypothesis that perceived risk of ethical violation on social commerce platforms significantly influences customers' perceptions of ethics on these platforms. Our findings support our assumptions and are in line with previous studies which argue that despite added benefits of online purchase, still many customers fear online purchase due to perceived danger of financial loss, online frauds, scams etc. (Chen et al., 2018; Cho et al., 2014). Customers perceive a variety of risk e.g., product risk, delivery risk, price risk, social risk etc. while deciding to make online purchase. Hence, we argue that perceived risk of ethical violation can be considered as a major hurdle to customers' online purchase decision. We also support the argument that the more risk is perceived there is less likelihood to complete online transaction (Chen et al., 2018; Zhang et al., 2012). The same is true in the case of our study, where customers have stronger perception that the perceived risk of ethical violation sufficiently influences their perception of ethics on social commerce platforms.

Finally, we determined the mediating role of the perceived risk of ethical violation in relationship between the already discussed determinants (predictors) and customers' perception of ethics on social commerce platforms. We

found partial mediating role of the mediator between predictors and outcome variable in both cases. For example, in case of Malaysian customers, we found perceived risk of ethical violation mediates the relationship between eWOM, sense of belongingness, self-enhancement, website quality and perception of ethics. Whereas we did not find any significant statistical evidence to support the mediating role of perceived risk of ethics violation in relationship between other predictors (information quality, information credibility, innovativeness, social support) and perception of social ethics on social commerce platforms. Similarly, in case of Turkish customers, we found significant mediating role of perceived risk perception of ethics violation in relationship between predictors (information quality, positive and negative eWOM, web site quality) and perception of ethics on social commerce platforms, while no significant and conclusive evidence of mediating role of perceived risk of ethical violation was found in relationship between other predictors (information credibility, innovativeness, altruism, sense of belonging, self-enhancement, social support) and perception of ethics on social commerce platforms. On the basis of our findings, we argue that customers' risk perception in online buying is a multidimensional construct encompassing product quality, weaker trust, no physical visibility of products, security and privacy issue, and an absence of face-to-face interaction with sellers. All these factors constitute a risk in online buying as proclaimed in earlier studies in this regard (e.g., Bölen, 2020; Merhi et al., 2020). We further argue that perceived risk in online buying is important to understand customers' attitude and behavior towards online shopping. Social commerce platforms facilitate communication between customers and there is a likelihood that they may get influenced from each other experiences. Our findings in regard to mediating role of perceived risk mostly compensate for our other findings in regard to direct relationships.

Theoretical contributions

The study offers some useful insights into customers' risk perceptions about ethical violations on social commerce platforms. Theoretically, it is important to understand that customers residing in different countries may not have similar risk perceptions factors but may vary with respect to different factors. For example, the credibility of information is important a factor for Turkish customers, but it is not relevant to the Malaysian context. The study highlights the mediating role of risk perception and found that it may not mediate the stated relationship between some of the risk perception factors and ethics perceptions on social commerce platforms. Though there are earlier studies and many of them focus on the linear relationship between risk factors and risk perception, they do not evaluate the mediating role of risk perception. Similarly, earlier studies have focused on the

risk in terms of cost and resources. Our study has tried to fill the gap and extended the risk to an important issue of ethics and ethical violation on social commerce platforms. Also, this study has made a comparison between two different aspects along the same risk factors, which was ignored in earlier studies where single country context had been considered. This helps us to be more careful while generalizing the results into other contexts being necessarily different from each other on similar criterion. Methodologically, we have combined SEM with MCDM method to generate more rigorous and more reliable results, whereas many of the previous studies have used single method of SEM, VKOR, MULTIMORA and FDOSM. Eventually, the use of benchmarking process and obtaining expert opinion to rank customers' perception also distinguish our study from the earlier ones.

Practical implications

This study has got some important practical implications for the companies which heavily rely on social commerce platforms/websites to promote and sell their products and services. It is evident that information technology has influenced every aspect of human life. Additionally, the recent pandemic has forced people around the globe to shift their business and economic activities from physical mode to online mode. Customers have started preferring online buying to avoid the risk of pandemic contraction. This also saves time and cost of customers. Due to the added benefits of online buying, the companies have also shifted their business to online platforms. This is equally worth for social commerce platforms. Our study makes some important practical contributions which may help both companies and customers to benefit from their online experience. Though online social platforms facilitate the online buying but at the same time customers have risk perceptions about using social commerce platforms, especially the perceived risk of ethical violation. This study has designated some important indicators with perceived risk. Our findings provide companies an opportunity to address these indicators to mitigate the perceived risk of ethical violation on social commerce platforms. For example, companies can improve the contents of their website and availability of quality information to make it more attractive and user friendly. This helps to lower the risk perception of customers about ethical violation on social commerce platforms. Similarly, the innovativeness of social commerce platforms attracts more customers as it also reduces the risk of ethical violation on such platforms. Companies need to present themselves on social commerce platforms in a way that should give customers a sense of belongingness and an opportunity to higher levels of self-enhancement and self-esteem. Also, the presence of individuals with positive feedback can lessen the perceived risk of ethical violation on social commerce platforms. Our

findings suggest that businesses must pay close attention to these important determinants of perceived risk of ethical violations on social commerce platforms so as to attract more customers and hence offer greater online buying. Additionally, we have ranked customers' perception from worst to best in both countries using benchmarking process and expert opinions. This is done to help businesses to change negative perceptions into positive ones by focusing on the critical risk perception factors.

The study is limited to two different contexts with the purpose to make comparison as to which factors are important regarding perceived risk of ethical violation and perception of ethics on social commerce platforms. The study highlights that consumers in different contexts perceive risk of ethical violation differently and similarly, their perception of ethics is different. We admit that due to certain financial and personal limitations, the study could not be extended to other contexts and hence, the findings are applicable to the contexts under study. We recommend that care should be taken to generalize the findings of this study. Secondly, an intermediary mechanism of perception of ethics on social commerce platforms was studied and future studies will enrich the proposed theoretical model to further explore how perceived risk is different among different consumers and how consumers are different with respect to the perception of ethics on social commerce platforms. We recommend further extending the applications of ELM to sufficiently explain the contextual difference which causes different perception of ethics among the consumers.

Conclusion

The study has been taken to investigate the two important but overlooked aspects i.e., perceived risk of ethical violation and perception of ethics on social commerce platforms in social commerce—a relatively new research area in the field of business studies. The research sites include customers from two countries, namely Malaysia and Turkey. The chosen cities in these two countries comprise two of the largest users of social commerce among rural communities.

From our findings we conclude that for Malaysian consumers, quality of website contents, presence of altruistic individuals and sense of belonging on social commerce platforms, self-enhancement, and eWoM are more important to reduce their perceived risk of ethical violation on social media platforms used for social commerce activities. We also conclude that reduction in perceived risk of ethical violation also reduces the perception of ethics of social commerce platforms. For Malaysian consumers, information quality and credibility, social support on social media platforms, innovativeness in social commerce platforms are not important to reduce the level of perceived risk of

ethical violation of social commerce platforms. In the context of Malaysia, it is also concluded that perceived risk of ethical violation partially mediated the relationship between the nine independent variables and perception of ethics on social commerce platforms. In case of consumers from Turkey, information quality, positive and negative eWOM, and website quality is more important to indicate the level of perceived risk of ethical violations on social commerce platforms. Whereas the relationships between information credibility, innovativeness, altruism, sense of belonging, self-enhancement, and social support are not important to their perceived risk of ethical violations. Similarly, as is the case of consumers in Malaysia, it is concluded that higher the level of perceived risk of ethical violation, the more is the perception of ethics of social commerce platforms. In case of Turkish consumers perceived risk partially mediates the proposed relationships.

We adopted a relatively new methodology by combining the SEM and MCDM methods to evaluate the crucial factors that customers rank to identify their perceived risk of ethical violation and perception of ethics on social commerce platforms. Through our findings, we concluded that customers situated in different localities may not rank the factors equally which influence their perceived risk of ethical violation and perception of ethics on social commerce platforms. In this regard, we identified nine important factors/determinants of perceived risk of ethical violation and perception of ethics on social commerce platforms from previous literature. Though customers were in agreement with respect to majority of these factors to significantly influence their perceived risk, but in case of some factors, the customers in both countries rank these factors differently as significant vs insignificant. From this, we infer that the disagreement between the customers may arise owing to cultural differences or some other contextual factors which need further investigation. From methodological aspect, we also conclude that care must be taken while generalizing the result to the customers in other localities because they may not be equally applicable, especially when there are cultural difference and different level of technological adoption among customers. We conclude that our study is expected to make some useful inference both for the companies and customers to enrich their respective experiences with social commerce platforms.

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Data availability The data of the paper, which supports the analysis and results of this paper, are available with the corresponding author and the data can be obtained from the authors upon request.

Declarations

Conflict of interest All the authors of this paper declare the existence of no mutual conflict of interests.

Ethical approval All the procedures adopted by the study, involving human participants, were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its latter amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants of the study.

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