

RESEARCH ARTICLE

Efficient customer relationship management systems for online retailing: The investigation of the influential factors

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Abstract

In business processes, gaining customer satisfaction is vital for online retailing. In this way, it is necessary to identify the important factors for attracting and retaining customers in online retailing. Many factors are involved in efficient customer relationship management (CRM) systems. Their efficient implementation needs a deep focus on key customers, proper organization, knowledge management, technology, market, sales, ordering, support, and many other factors. Therefore, this paper examines the effective factors (including innovation management, market knowledge, competitive intelligence, entrepreneurship management, stakeholder management, project management, and business project management) on the efficiency of the CRM systems for online retailing. The data were collected from Digikala employees in Iran. Based on Morgan's table (Table A2 (Appendix)), 248 samples were randomly selected, and questionnaires were sent to employees, where 234 were fully answered. Research data and assumptions were evaluated using SPSS and PLS software. Research findings showed that innovation management ($\beta = .390, t = 6.426, p < .001$), market knowledge ($\beta = .296, t = 4.864, p < .001$), and competitive intelligence ($\beta = .115, t = 2.190, p < .005$) directly impact the efficient CRM systems for online retailing. Stakeholder management ($\beta = .283, t = 9.713, p < .001$), project management ($\beta = .229, t = 5.458, p < .001$), and business project management ($\beta = .544, t = 11.351, p < .001$) are also effective through the mediator variable of entrepreneurial management ($\beta = .143, t = 2.314, p < .005$) on the efficient CRM systems for online retailing.

Key words: Business project management; competitive intelligence; entrepreneurship management; innovation management; market knowledge; project management; stakeholder management

Introduction

The need for Information Technology (IT) evolution, especially the Internet and e-commerce, has created an opportunity to improve customer relationships over existing opportunities in today's competitive markets (Bratu, 2019; Ipang, Suroso, & Novitasari, 2021; Sanchez, 2018). The ultimate goal of transforming these communications and interactions is to maximize profitability by increasing duplicate purchases and reducing customer acquisition costs (Riquelme, Román, Cuestas, & Iacobucci, 2019; Roggeveen, Sethuraman, Shankar, Dekimpe, Geyskens, & Roggeveen, 2019). In fact, this evolution of customer relationship management (CRM) systems is a new marketing theory (Farmania, Elsyah, & Tuori, 2021; Sota, Chaudhry, Chamaria, & Chauhan, 2018). CRM is used for close and deep contact with customers (Dewnarain,

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Ramkissoon, & Mavondo, 2019; Drugău-Constantin, 2019). It is a tool for collecting information for their targeted exploitation (Zerbino, Aloini, Dulmin, & Mininno, 2018). Using CRM, customers' relationship with retail and information and their needs are analyzed (Das, Mishra, & Mohanty, 2018; Graessley, Horak, Kovacova, Valaskova, & Poliak, 2019).

Understanding the virtual purchasing mechanism and CRM in the online environment is one of the priorities of all retail outlets that intend to expand their activities and presence in virtual markets (Kasemsap, 2019; Zhang, Chen, & Li, 2019). Therefore, online retailers can identify customers' needs and requirements through CRM by checking customer information (Hollowell, Rowland, Kliestik, Kliestikova, & Dengov, 2019; Khan, Salamzadeh, Iqbal, & Yang, 2022; Maggon & Chaudhry, 2018).

On the other hand, customer engagement is significant in online retailing (Harun, Rokonzaman, Prybutok, & Prybutok, 2018; Meilhan, 2019). E-commerce should retain previous customers and attract new customers (Cai, He, Dai, & Zhu, 2018; Nguyen, de Leeuw, Dullaert, & Foubert, 2019). Also, if online retailers can find new customers through their previous customers, they will be the market leader (Mathauer & Hofmann, 2019). Even on the Internet, no business will succeed through advertising, product development, or service provision (Lim, Jin, & Srai, 2018). It requires using a set of management tools such as CRM (Pagoti, Mathew, & Manoharan, 2018). CRM helps the online retailing systems to capture customers (Kasemsap, 2018). Also, customer loyalty is affected as customer relationships become more online, and the importance of efficient CRM systems is enhanced (Li, Ota, Dong, & Guo, 2017; Nure, 2018). It requires identifying the factors influencing efficient CRM systems for online retailing (Wilcox & Gurău, 2003).

Efficient CRM factors allow online retailing to create business models of flexibility that can quickly adapt to swift market developments (Gurău, Ranchhod, & Hackney, 2003; Khan, Rasheed, Alsheshtawi, Ahmed, & Jan, 2020; Mircică, 2020). This flexibility will help retailers collect and analyze service information through market knowledge, recognize new opportunities, and thus maintain customized services and long-term relationships with customers (Li, Dong, Ota, & Guo, 2016; Meyer, Gonzalez Hernandez, & Toldos Romero, 2016; Mirica, 2019; Popescu & Ciurlău, 2019). Innovation management of the critical factors in efficient CRM systems improves customer service, identify new products, and reduces customers' escape (Pour, Mamani, & Rahimzadeh, 2018; Wang, Yang, Wang, Sherratt, & Zhang, 2020). Also, online retailing through CRM identifies competitive information and can turn it into an opportunity for further development (Algharabat, 2014; Budler & Trkman, 2019). On the other hand, entrepreneurship management helps online retailing take more options than they have in the past (Singh & Gaur, 2018) by being risk-taking, creative, and leading; that is why retailers will continue to work with new strategies (Fathi, 2019). Hence, we tried to examine the factors influencing efficient CRM systems for online retailing. In summary, the goals of this research are:

- Investigating the impact of innovation management on efficient CRM Systems for online retailing.
- Investigating the impact of market knowledge on efficient CRM Systems for online retailing.
- Investigating the impact of competitive intelligence on efficient CRM Systems for online retailing.
- Investigating the impact of stakeholder management through the mediator variable of entrepreneurial management on efficient CRM Systems for online retailing.
- Investigating the impact of project management through the mediator variable of entrepreneurial management on efficient CRM Systems for online retailing.
- Investigating the impact of business project management through the mediator variable of entrepreneurial management on efficient CRM Systems for online retailing.

In the continuation of the research, in section 'Theoretical background', we review the literature related to customer relationship management and online retail. In section 'Research model and hypotheses', we present the research model and hypotheses. In section 'Methods and



Figure 1. A general processing architecture of CRM.

measurements’, section ‘Analysis of data and results’, sections ‘Discussion’ and ‘Conclusions, limitations, and future research’, provide future discussions, results, constraints and suggestions, respectively. Also, in [Figure 1](#), we present the overall processing architecture of CRM systems. [Table A1](#) shows the commonly used mathematical symbols in the paper.

Theoretical background

This paper proposes a framework and a new model to examine the effective factors in efficient CRM systems for online retailing. There have been widespread personal, organizational, and national life changes through the Internet (Alhussain, Kurdi, & Altoaimy, 2019; Lei, Xu, & Jin, 2021). Today, purchasing products and services from online retailing is commonplace for customers (Pantano & Gandini, 2018; Wu & Zhu, 2021). Since the required information in relation to products and services is easily accessible to users (Hult, Sharma, Morgeson, & Zhang, 2019), they have the opportunity to compare and make better decisions (Benitez, Ray, & Henseler, 2018; Fazal-e-Hasan, Ahmadi, Mortimer, Grimmer, & Kelly, 2018). In an economy that is not sustainable, businesses need to consolidate their position with the help of innovation and seek new markets (Geissdoerfer, Vladimirova, & Evans, 2018). Innovation management can help speed up control of the challenges of innovation processes (Albors-Garrigos, Igartua, & Peiro, 2018). Meanwhile, should have the right information and knowledge about markets, products, services, processes, customers, and competitors to increase profits and sales retail and establish an online environment (Gao, Shi, & Zhao, 2021; Goel, 2018; Zheng, Han, & Yang, 2021). It has been shown that entrepreneurship is the main driving engine for economic development in countries (Henrekson & Sanandaji, 2020). The entrepreneur finds an idea and turns it into an economic opportunity (Lipset, 2018). In the business environment, the opportunity is a new idea that can be commercialized (Liu, Zhang, Ge, Chen, Wu, & Tian, 2019; Teece, 2018). Awareness of the market environment and customer needs along with entrepreneurial attitudes will help online retailer find opportunities and how to deal with them (Cooper, 2017; Zhang, Zhong, Wang, Chao, & Wang, 2020). Therefore, entrepreneurship management can be effective as a mediator

among project management, business project management and stakeholder management on the efficient CRM systems for online retailing. The rest of this section delivers a summary of the most important studies on online retailing, CRM and related conceptual framework.

Online retailing

Mogili and Natarajan (2021) have focused on online retailing and customer engagement: The changing CRM paradigm. They examined the pattern of changing CRM. They stated that exchanging and building relationships is a fundamental framework for understanding marketing. Marketing can take place in social or economic relationships, including between retailers or between end consumers. The results of a survey show that most people make their purchases online. Therefore, using CRM, experience, and management should be combined, and a database should be created to achieve the goals. The results of their study showed that in online retail businesses, factors such as personalized services, social monitoring, networking, integration, product information, customer loyalty, community building, management through the sales unit channel should be considered.

Gautam and Sharma (2019) have examined the mediating role of company information in the relationships between perceived risks and purchase intentions in online retailing. This research investigated the direct and indirect effects of perceived risks on consumer purchasing purposes in online shopping. The results showed that performance, financial and physical risks had a negative impact on purchasing purposes. The results will help online retailers understand their customers. Accordingly, online marketers can design contemporary approaches to attract retail customers, leading to greater profitability for the organization.

Also, the development and confirmation of a tool to measure online retailing ethics were investigated by Agag, El-masry, Alharbi, and Ahmed Almamy (2016). Their goal is to identify the dimensions of e-commerce ethics from consumers' points of view and establish a valid measuring instrument. The results have revealed that seller ethics is dependent on privacy, security, reliability, deception, service improvement, and subscription value. These factors will lead to customer satisfaction. The research limitation was to identify just some of the seller's ethics.

Rafiq, Fulford, and Lu (2013) have focused on building customer loyalty in online retailing. Their goal is to examine the effective customer relationship's role in attracting customers on the Internet. The model was tested using structural equations modeling. The results have shown that satisfaction with the relationship, trust, and commitment is also affected, and the proper understanding of customer needs affects emotional loyalty. The limitation of this research was investigating customer relationships in the Internet environment.

Xing, Grant, McKinnon, and Fernie (2010) have examined physical distribution service quality in online retailing. Their goal is to provide a two-stage model for scale development, which is proposed in a framework using order fulfillment. Findings have indicated that the price is the essential criterion for online shopping because consumers buy after the price appraisal. Their research presented the difference between multichannel retailers and broadcast retailers.

Also, Ahn, Ryu, and Han (2007) have studied proposed the impact of Web quality and playfulness on user acceptance of online retailing. Their goal was to assess the impact of playfulness on online retail and the relationship between the quality of the web and the user's acceptable behavior. They have provided a research model, and LISERL software was used to test the model. The results have shown that playfulness has an essential role in increasing the user's attitude and behavioral intention to use a site. Also, Web quality, information, and quality of classified services significantly impact the ease of use, perceived performance, and usefulness. As a result, the use of the web is very Suitable for retail.

Wilcox and Gurău (2003) have examined business modeling and implementing CRM systems for online retailing. CRM technology has received considerable attention from researchers as a facilitator of organizational performance. Although companies have made large investments in

their application technologies, they stated that empirical research suggests that implementing CRM technology alone cannot improve organizational performance. There are several factors to consider when implementing CRM. They stated that Unified Modelling Language (UML) provides a tool for addressing problems, finding solutions, and improving systems. Their findings show that although UML cannot assure success in online retail companies, it creates a consistent, standard, and supportive modeling language that allows you to focus on specific frameworks.

Finally, Holloway and Beatty (2003) have examined service failure in online retailing. This research aimed to study customers' viewpoints of online service failures. The research consists of two studies that were conducted using qualitative and quantitative methods with examples of online buyers to provide initial testing through the management of online retailer services that was carried out over two years. The first period is related to the quality of the services, and the second period is due to the reasons for the failure of retail online. The results have provided a typology of online service failures and confirmed many areas in which online retailers fail to manage the service recoveries.

Customer relationship management

Dewnarain, Ramkissoon, and Mavondo (2019) have examined social CRM and offered a conceptual model for addressing the relationship between CRM, social intervention techniques, customer participation, positive speech, and brand loyalty. The results have shown that in the case of an emotional encounter with a customer, customer loyalty and increases the company's lifespan. Also, creating innovative service experiences can lead to increased communication, reduce marketing costs and increase income. The limitation of this research is ignoring the negative relationship with the client and its consequences.

Also, modeling CRM patterns using the human factors approach in the hospitals has been investigated by Taghavi, Riahi, Nasiripour, and Jahangiri (2017). Their goal is to design a CRM protocol with a human resource approach. Their findings have shown that CRM directly affects company performance, and human resource management plays a vital role in CRM. Also, creating commitment, happiness, empowerment, and building self-confidence in employees will increase the positive relationship with customers.

Azevedo (2013) has focused on CRM adoption in firms. Using factor identification, they have developed a research model. Data is gathered from 209 companies in Portugal, and the PLS is used to evaluate eleven hypotheses. Their research results showed that adaptability and competitive pressure are the most enablers of CRM acceptance. Also, complexity is a powerful inhibitor for approving CRM.

Also, Becker, Greve, and Albers (2009) have studied the influence of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention. They have provided a conceptual model. To test their model, they have used PLS tools. The results of empirical studies have been conducted by various industries and ten European countries and showed that CRM implementation does not affect the quality of performance for different aspects of the CRM process. Implementing CRM only affects performance when supported significantly by the company's shareholders.

Finally, Chalmeta (2006) has examined new ways to explore CRM in the case of failures and described a formal way to guide the CRM process. Samples were collected from 26 companies through interviews and questionnaires, and this information was put together and processed. The research results have shown that the development and implementation of CRM involve various aspects such as human resource management, computer system, management change, continuous improvement, and implementing CRM will be successful only if the organization's aspects and functions are properly implemented.

In this section, by reviewing previous studies and conducting detailed and extensive studies, the factors affecting efficient CRM systems for online retailing were identified and introduced.

The reviewed articles did not fully address these factors, and these studies were conducted in two separate sections, online retailing and CRM systems. In this article, we tried to examine these factors simultaneously. [Table 1](#) summarizes and compares the studied works in the field of online retailing and CRM.

Research model and hypotheses

This paper reviews the factors influencing efficient CRM systems for online retailing. Today, closer communication with the customer is done more through the Internet (Alam, Al Karim, & Habiba, 2021), and contact and presence in stores and retailers have become much less (Chatterjee, Rana, Tamilmanni, & Sharma, 2021; Gautam, 2018). Therefore, how to connect with customers affects income, profitability, and value has become a factor for competition (Pantano, Priporas, & Dennis, 2018a; Szmigin, Canning, & Reppel, 2005; Thomas & Jadeja, 2021). Online retailing aims to achieve a growing relationship that involves more customer satisfaction and a demand for increased service volumes (Aminoff & Hakanen, 2018; Kosiba, Boateng, Okoe Amartey, Boakye, & Hinson, 2018; Richards, Hamilton, & Empen, 2016). On the other hand, innovation is associated with developing new services and products (Edvardsson *et al.*, 2018). Therefore, innovation management is an essential component in determining the competitiveness of businesses for online retailing (Shams, Vrontis, Weber, & Tsoukatos, 2018). Meanwhile, knowledge in any business can improve decision-making, creativity, and alignment with change (De Cock, Bruneel, & Bobelyn, 2018). For this reason, market knowledge plays a significant role in developing marketing strategies and attracting customers (Watson, Weaven, Perkins, Sardana, & Palmatier, 2018). In this regard, gaining awareness of competitive intelligence about competitors in the market will enable online retailers to deliver better services than competitors to customers (Bergeron & Hiller, 2002; Guerola-Navarro, Oltra-Badenes, Gil-Gomez, & Gil-Gomez, 2021b). Also, entrepreneurship management shows the existence of the initiative and offers an idea of change or a new potential concept that can succeed in the complex market (Cheng & Wang, 2022). Entrepreneurship management as a mediator variable in establishing a link between stakeholder management, project management, and business project management for online retailing can help maintain a leadership position. This is an effective factor in efficient CRM systems for success in online retailing. This section plans to present a new model for evaluating the affective factor in efficient CRM systems for online retailing. [Figure 2](#) shows the proposed model with seven variables. It also defines these variables and assumptions. Also, the sources in [Table 2](#) are used to mention the sub-factors in the article.

Innovation management

The innovation process involves evaluating potential ideas to reach the product and delivering to the market (Hermens, 2018; Salerno, de Vasconcelos Gomes, da Silva, Bagno, & Freitas, 2015). Once the innovation strategy is set up correctly with the business's goals, it is the next step in managing it (Amling & Daugherty, 2018; Guo, Zhou, Zhang, Hu, & Song, 2020; Nambisan, Lyytinen, Majchrzak, & Song, 2017). Businesses usually seek to use innovation to improve current products and reach attractive offers for their customers (Caputo & Ayoko, 2021; Hausman, 2005). In an economy in which conditions are changing, businesses need to consolidate their position with the help of innovation and always seek new markets (Bocken, de Pauw, Bakker, & van der Grinten, 2016). In general, some of the benefits of innovation management include improving productivity, guaranteeing long-term success, increasing market success, and reducing costs (Kahn, 2018; Kiron, Kruschwitz, Reeves, & Goh, 2013; Kumar, Mokha, & Pattnaik, 2021). For this reason, innovation management will positively impact the efficient CRM systems for online retailing. Innovation management involves productivity, long-term operations, market sharing,

Table 1. Summarization and comparison of the mentioned related works in the field of online retailing and CRM.

Article	Main features	Considered parameters	Limitations/drawbacks
Mogili and Natarajan (2021)	<ul style="list-style-type: none"> Examining online retailing and customer engagement: The changing paradigm of CRM. Create a framework for understanding marketing. Provide factors for success in online retail. 	<ul style="list-style-type: none"> The importance of customer engagement by online retailers. Factors affecting customer interaction. How marketers need to optimize customer engagement. 	<ul style="list-style-type: none"> In this approach, cause and effect are measured at a given time and therefore definitive causal conclusions are limited.
Gautam and Sharma (2019)	<ul style="list-style-type: none"> Presenting the conceptual model. Providing customer attraction strategy. Using smart PLS 	<ul style="list-style-type: none"> Investigate the direct and indirect effects of perceived risks on consumers' purchasing intent in online shopping. 	<ul style="list-style-type: none"> Failure to investigate the mediating effect of time risk on purchase intention. Based on customers' qualitative insights Small geographical area in India (National Capital Region)
Agag et al. (2016)	<ul style="list-style-type: none"> Presenting the conceptual model. Using smart PLS Investigating customer satisfaction 	<ul style="list-style-type: none"> Check privacy, security, reliability, nonfraud, service recovery and shared value 	<ul style="list-style-type: none"> Limited to Egypt Lack of focus on offline buyers
Rafiq, Fulford, and Lu (2013)	<ul style="list-style-type: none"> Using smart PLS Creating customer loyalty. 	<ul style="list-style-type: none"> relationship satisfaction survey, perceived relationship Investment, emotional commitment, electronic Loyalty 	<ul style="list-style-type: none"> Limited to food retail.
Xing et al. (2010)	<ul style="list-style-type: none"> Increasing the quality of distributed services. 	<ul style="list-style-type: none"> Survey the electronic physical distribution service quality Survey the impact of price on online purchasing 	<ul style="list-style-type: none"> Limited to pure player retailers in online retail
Ahn, Ryu, and Han (2007)	<ul style="list-style-type: none"> Using the LISERL software Increasing the relationship between web quality and user acceptance behavior 	<ul style="list-style-type: none"> Survey the web quality, categorized into system, information, and service quality. 	<ul style="list-style-type: none"> Generalize results with online retail in Korea. Lack of review loyalty incentives, perceived control, technology experience and trust.
Holloway and Beatty (2003)	<ul style="list-style-type: none"> Improving service. Service failure classification. 	<ul style="list-style-type: none"> Research study on failure and recovery of online services in both qualitative and quantitative approaches. 	<ul style="list-style-type: none"> The need to collect more information.
Wilcox and Gurău (2003)	<ul style="list-style-type: none"> Review the implementation of CRM systems for online retail. Use UML to handle problems. 	<ul style="list-style-type: none"> Achieve competitive advantage, customer loyalty, address problems, find solutions and improve systems through UML. 	<ul style="list-style-type: none"> Limited to the UML.
Dewnarain, Ramkissoon, and Mavondo (2019)	<ul style="list-style-type: none"> Presenting the conceptual model. Increasing income. 	<ul style="list-style-type: none"> Investigate the relationships between customer relationship management, social media technologies, customer engagement, positive word of mouth, and brand loyalty. 	<ul style="list-style-type: none"> Ignoring negative customer relationship Limited to check in the range of hotels

(Continued)

Table 1. (Continued.)

Article	Main features	Considered parameters	Limitations/drawbacks
Taghavi et al. (2017)	<ul style="list-style-type: none"> • Smart PLS • Investigation of customer • Satisfaction • Increasing positive association 	<ul style="list-style-type: none"> • Investigation of management, organizational commitment, empowerment, teamwork, organizational structure, change of management and organizational mission on the implementation of customer relationship management. 	<ul style="list-style-type: none"> • Small sample • Limited to review the hospital area
Azevedo (2013)	<ul style="list-style-type: none"> • Developing a research model. • CRM acceptance 	<ul style="list-style-type: none"> • Provide a research model on technological, organizational and environmental areas to accept CRM 	<ul style="list-style-type: none"> • Limited to companies in Portugal
Becker, Greve, and Albers (2009)	<ul style="list-style-type: none"> • Smart PLS • Presenting the conceptual model. • Focusing on specific industries • Increasing interactions 	<ul style="list-style-type: none"> • Investigate the relationship between technology and organizational implementations, as well as implementation interactions with management and employee support and CRM process-related performance. 	<ul style="list-style-type: none"> • Small sample • Focus on specific industries (financial services industry)
Chalmeta (2006)	<ul style="list-style-type: none"> • Presenting the conceptual model. • Improving CRM implementation 	<ul style="list-style-type: none"> • Investigate the definition of customer strategy, re-engineering of customer-oriented business processes, human resource management, computer system, management of change and continuous improvement to guide the process of development and implementation of a CRM system. 	<ul style="list-style-type: none"> • Limitations on the implementation and development of CRM by companies.

and cost-benefit in this paper. Therefore, innovation management in the present research model can assess the effectiveness of efficient CRM systems for online retailing. Therefore, the innovation management-related hypothesis is:

H1. The effectiveness of efficient CRM systems for online retailing is influenced by innovation management.

Market knowledge

Knowledge is applied and organized to solve problems (Charband & Jafari Navimipour, 2018). Knowledge is a perception and understanding that is achieved through experience, reasoning, direct understanding, and learning (Zagzebski, 2017; Zareie & Navimipour, 2016). Market knowledge is a process that helps retailers find, select, organize, and publish important information (Pantano, Priporas, & Stylos, 2018b). The primary purpose of using market knowledge for online retailing is to adapt quickly to changes in the environment in order to enhance its efficiency and profitability (Jin, Shu, & Zhou, 2019). For online retailing success, market information should

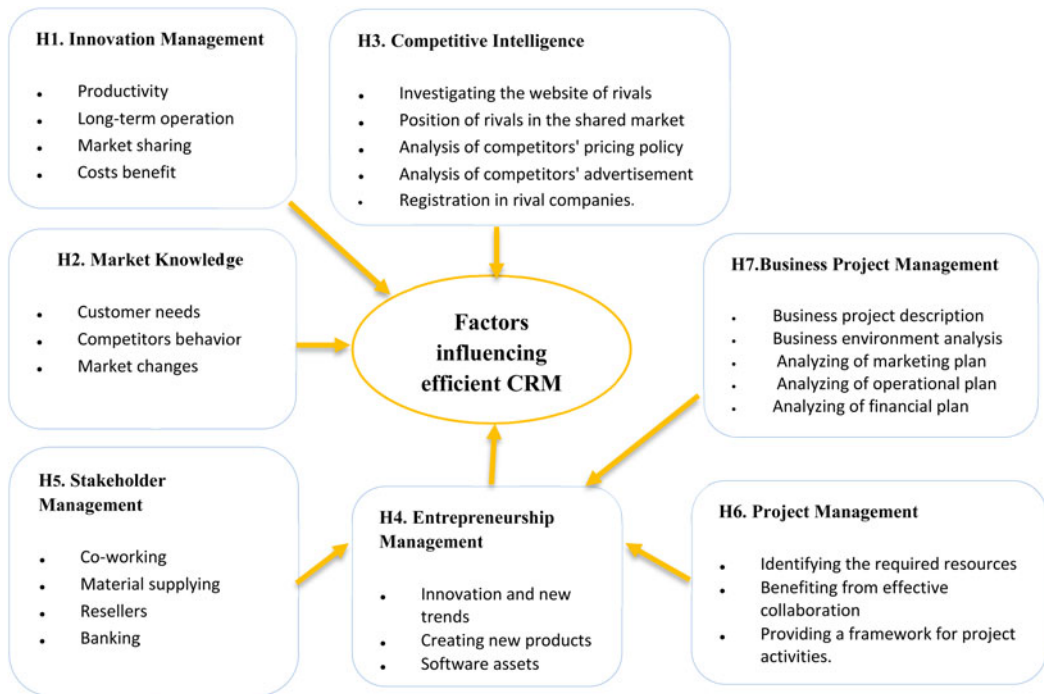


Figure 2. The effective factors on efficient CRM systems for online retailing.

always be up-to-date (Bos, Breza, & Liberman, 2018). Accordingly, retailers will use market knowledge in relation to customer needs, competitors' behavior, market changes, and whole knowledge to gain more profit (Panda, 2013). For this reason, market knowledge will positively impact H1. The effectiveness of efficient CRM systems for online retailing is influenced by innovation management. This paper's market knowledge includes customer needs, competitors' behavior, and market changes. Therefore, market knowledge in the present model is used to evaluate the effectiveness of H1. The effectiveness of efficient CRM systems for online retailing is influenced by innovation management. So, the related hypothesis is:

H2. The effectiveness of efficient CRM systems for online retailing is influenced by market knowledge.

Competitive intelligence

Competitive intelligence is the information that can provide a competitive advantage to online retailers (Popescu, 2015). Typically, by assessing the strengths and weaknesses of competitors and exploring ways to fill existing gaps, solutions can be created to create a competitive advantage (Namada, 2018). If online retailing can have better features than competitors, it creates a competition boundary (Nandamuri, Rao, & Mishra, 2020). Ignoring rivals can increase the share of competitors (Tallman, Luo, & Buckley, 2018). Identifying the factors related to competitor information will increase the online retailing performance for greater profits and portion (Lederman, Olivares, & Van Ryzin, 2014; Zins, 2014). For this reason, competitive intelligence will have a positive impact on efficient CRM systems for online retailing. In this paper, competitive intelligence includes investigating the website of rivals, the position of rivals in the shared market, analysis of competitors' pricing policy, analysis of competitors'

Table 2. Sources of sub-factors

Factor	Sub-factor	References
Innovation management	Productivity	Adams, Bessant, & Phelps (2006), Mohnen and Hall (2013), Woltjer, van Galen, and Logatcheva (2021), Wannakrairoj and Velu (2021), Gogokhia and Berulava (2021), Bolton, Goosen, and Kritzinger (2022), Lee and Xuan (2019), Guerola-Navarro, Oltra-Badenes, Gil-Gomez, and Fernández (2021a)
	Long-term operation	Lee (2021), Lowson (2001), Tomlin and Wang (2011), Frishammar, Richtné, Brattström, Magnusson, and Björk (2019), Tidd (2001), Nambisan et al., (2017)
	Market sharing	Gallini (1984), Yan (2007), Izogo and Jayawardhena (2018), Kavurmacioglu, Alanyali, and Starobinski (2012), Leonidou, Christofi, Vrontis, and Thrassou (2020), Haefner, Wincent, Parida, and Gassmann (2021)
	Costs benefit	Cuijpers, Guenter, and Hussinger (2011), Greco, Grimaldi, and Cricelli (2019), DiMasi, Hansen, and Grabowski (2003), Cuijpers, Guenter, and Hussinger (2011), Stead (1976), Laursen (2011), Ivanova and Selentyeva (2019), Lobo and Samaranyake (2020), Pedron, Picoto, Colaco, and Araújo (2018)
Market knowledge	Customer needs	Abrar, Biag, Shabbir, and Hussain (2019), Majava, Nuottila, Haapasalo, and Law (2014), Hou and Chien (2010), Li and Calantone (1998), De Luca and Atuahene-Gima (2007), Buchbinder and Newson (2021)
	Competitors behavior	Yeniyurt, Cavusgil, and Hult (2005), Erramilli and Rao (1990), Zahoor and Al-Tabbaa (2021), Yeniyurt, Cavusgil, and Hult (2005), Dabrowski (2019), de Guimarães, Severo, and de Vasconcelos (2018)
	Market changes	Mitra and Golder (2002), Eriksson and Chetty (2003), Lord and Ranft (2000), Qin, van der Rhee, Venkataraman, and Ahmadi (2021), De Luca and Atuahene-Gima (2007), Li and Calantone (1998), Tien, Diem, Vu, Nhan, Bien, and Hung (2021)
Competitive intelligence	Investigating the website of rivals	Adidam, Gajre, and Kejriwal (2009), Rapp, Agnihotri, and Baker (2011), Stuenkel (2021), Prantl and Prantl (2018), Shi, Mou, and Wan (2009), Chen, Chau, and Zeng (2002), Boncella (2003)
	Position of rivals in the shared market	Du Toit (2015), Walle (1999), Weiss (2002), Groom and David (2001), Ezenwa, Stella, and Agu (2018)
	Analysis of competitors' pricing policy	Bergeron and Hiller (2002), Mochtar and Arditi (2001), Rong, Qin, and An (2018), Rong, Qin, and An (2019), López-Robles, Otegi-Olaso, Porto-Gómez, Gamboa-Rosales, and Gamboa-Rosales (2020)
	Analysis of competitors' advertisement	Teo and Choo (2001), Junming (2010), Davison (2001), Mockler (1992), Bose (2008), Sun, Nan, Yang, Hu, and Jiang (2021)
	Registration in rival companies.	Nelson, Walsh, and Cui (2020), Rouach and Santi (2001), Štefániková and Masárová (2014), Dewi and Darma (2019), Madureira, Popović, and Castelli (2021), Calof, Arcos, and Sewdass (2018)
Entrepreneurship management	Innovation and new trends	Ab Rahman and Ramli (2014), Ahmed and McQuaid (2005), Kerrin, Mamabolo, and Kele (2017), Leonidou et al., (2020), Mehta (2011)

(Continued)

Table 2. (Continued.)

Factor	Sub-factor	References
	Creating new products	Yuldashevich (2022), Micu, Bouzaabia, Bouzaabia, Micu, and Capatina (2019), Ratten and Jones (2021), Baumol and Strom (2007), Bendickson (2021)
	Software assets	Lambert and Davidson (2010), Ang and Buttle (2006)
Stakeholder management	Co-working	de Oliveira and Rabechini (2019), Ilinova, Cherepovitsyn, and Evseeva (2018), Johnson-Cramer, Berman, and Post (2017), Preble (2005)
	Material supplying	Ranängen (2015), Karlsen (2002), Pedrini and Ferri (2018), Mehmood, Rasheed, and Jaan (2020), Neville and Menguc (2006), Derakhshan, Turner, and Mancini (2019)
	Resellers	Madsen and Ulhøi (2001), Ramakrishnan (2009), Sheehan and Ritchie (2005)
	Banking	Dusuki (2008), Ifeanyi, Oge, and Gozie (2016), Perez and del Bosque (2016), Voinov and Bousquet (2010), Ortiz-de-Urbina-Criado, Mora-Valentín, and Nájera-Sánchez (2022)
Project management	Identifying the required resources	White and Fortune (2002), Henrie and Sousa-Poza (2005), Lenfle (2008), Sharma, Stone, and Ekinci (2009)
	Benefiting from effective collaboration	Levitt (2011), Pollack (2007), Rudolph, Wagner, and Fawcett (2008), Hayes, Rahman, and Islam (2020), Guo and Zhang (2022)
	Providing a framework for project activities	Aiyer, Panigrahi, and Das (2018), Picciotto (2020), Müller, Drouin, and Sankaran (2019), Tereso, Ribeiro, Fernandes, Loureiro, and Ferreira (2019), Ika, Söderlund, Munro, and Landoni (2020), Komarova, Nekrasova, Zlobina, and Milaia (2020)
Business project management	Business project description	Van Der Merwe (2002), Nusraningrum, Jaswati, and Thamrin (2020), Artto and Kujala (2008), Del Giudice, Soto-Acosta, Carayannis, and Scuotto (2018)
	Business environment analysis	Isik, Arditi, Dikmen, and Birgonul (2009), Morris (2010), Binci, Belisari, and Appolloni (2019), Pereira, Maximiano, and de Souza Bido (2019), Ko, Lee, and Lee (2009)
	Analyzing of marketing plan	Ershadi, Jefferies, Davis, and Mojtahedi (2020), Abyad (2018), Ravesteyn and Batenburg (2010), Uribe, Ortiz-Marcos, and Uruburu (2018)
	Analyzing of operational plan	Hyväri (2006), Gasemagha and Kowang (2021), Rosemann, de Bruin, and Power (2007), Reijers (2006), Chawla, Chanda, Angra, and Chawla (2018)
	Analyzing of financial plan	Milosevic and Srivannaboon (2006), Turner and Ledwith (2018), Hammer (2015), Silvius and Schipper (2014)

advertisements, and registration in rival companies. Therefore, competitive intelligence in the present model is used to evaluate the effectiveness of implementing CRM systems for online retailing. So, the related hypothesis is:

H3. The effectiveness of efficient CRM systems for online retailing is affected by competitive intelligence.

Entrepreneurship management

Entrepreneurship refers to the characteristics and actions of individuals that include the risks of joint ventures in new and unknown areas of work (Venkataraman, 2019). Generally, it involves creating or imposing new specializations related to a type of activity that is different from other activities around it (Kuratko & Morris, 2018). In the case of correct investment, timely decision making, and the development of new strategies, entrepreneurship management will lead to the success of online retailing (Djafri, 2018). They are also pursuing opportunities and turning them into social and economic values and the ability to deal with problems, limitations, and failures (Chowdhury, Audretsch, & Belitski, 2019). For this reason, entrepreneurship management will have a positive impact on efficient CRM systems for online retailing. In this article, entrepreneurship management involves innovation, new trends, and new products and software assets. Therefore, entrepreneurship management in the present model is used as a mediator variable for assessing the effective factor in efficient CRM systems for online retailing. So, the related hypothesis is:

H4. The effectiveness of efficient CRM systems for online retailing is influenced by entrepreneurship management.

Stakeholder management

The stakeholder is individuals and groups that somehow contribute to the success or failure (Jones, Harrison, & Felps, 2018). Identification and stakeholder participation can be a big part of guaranteeing the success of an activity (Pan, Tan, & Lim, 2006). Stakeholder management means keeping, co-operating, and supporting on their behalf (Nguyen, Mohamed, & Panuwatwanich, 2018). Stakeholder management through entrepreneurship management can create new opportunities for online retailing activities (Arnold & Narang Luthra, 2000). For this reason, stakeholder management through the mediator variable of entrepreneurship management will positively influence the efficient CRM systems for online retailing. This paper's stakeholder management involves co-working, material supplying, resellers, and banking. Therefore, stakeholder management is used in the present model using the entrepreneurship management mediator variable to evaluate the effectiveness of the efficient CRM systems for online retailing. Therefore, the stakeholder management's hypothesis is:

H5. The effectiveness of efficient CRM systems for online retailing is influenced by stakeholder management through the mediator variable of entrepreneurship management.

Project management

Project management is a set of activities that involve starting, planning, implementing, controlling, and finishing projects (Garwood & Poole, 2018). Each entrepreneur has a strategy and plans to start a project (Mansoori, Karlsson, & Lundqvist, 2019). Starting a new project means accepting big risks (Lee, 2019). Through leadership and the creation of new projects, entrepreneurship will advance the goals and benefits of retailing (Muhammad, 2018). For this reason, project management through the entrepreneurship management mediator variable will positively influence the efficient CRM systems for online retailing. In this paper, project management involves identifying needed resources, benefiting from effective collaboration, and providing a framework for project activities. Therefore, project management is used in the present model using the entrepreneurship management mediator variable to evaluate the effectiveness of efficient CRM systems for online retailing. So, the project management's related hypothesis is:

H6. The effectiveness of efficient CRM systems for online retailing is influenced by project management through the mediator variable of entrepreneurship management.

Business project management

A business project is a project that provides business goals, the reasons for realizing the goals, and programs that are used to pursue to achieve the goals (Artto & Wikström, 2005). The business project contains detailed reviews of the products or services of a company, market and customers, competitors, human resources, funding, technology, and technical dimensions of the product or service (Wikström, Artto, Kujala, & Söderlund, 2010). One of the most important functions of a business project is that by compiling it, the entrepreneur can identify the internal and external factors involved in a business and examine its effect on the project activity (Görög, 2016). Also, facilitate judgment about investing or not investing in a plan for investors or project lenders (Smyth, Gustafsson, & Ganskau, 2010). For this reason, business project management through the mediator variable of entrepreneurship management will positively impact the efficient CRM systems for online retailing. In this paper, business project management includes business project description, business environment analysis, analyzing a marketing plan, analyzing the operational plan, and analyzing a financial plan. Therefore, project business management in the present model is used through the mediator variable of entrepreneurship management to evaluate the effectiveness of efficient CRM systems for online retailing. Therefore, the hypothesis related to the business project management is:

H7. The effectiveness of efficient CRM systems for online retailing is influenced by business project management through the mediator variable of entrepreneurship management.

Methods and measurements

In order to ensure that the questionnaire questions have content validity, the designed questionnaire was approved by several experienced experts in online retail. After preparing the questionnaire, in order to ensure the correct design of the questionnaire and increase the degree of validity and reliability, after the approval of experienced experts, the questionnaires were piloted and tested among 30 employees of Digi Kala; If there is a defect, it should be corrected. Also, to further ensure the degree of validity and reliability, Cronbach's alpha coefficient and Average Variance Extracted (AVE) and the combined reliability of the questionnaire were determined using two SPSS 22¹ and SMART-PLS². Questionnaires were sent to employees via email. Standard and authoritative references have been used to evaluate the questionnaire. The distributed questionnaires used a five-point Likert scale (Mohd Thas Thaker, Allah Pitchay, Mohd Thas Thaker, & Amin, 2019). In this questionnaire, sample employees of Digikala (the biggest online market in Iran) were selected for review. The purpose of the questionnaire was to evaluate the research hypotheses. The collected assumptions in this article are based on research, literature review, and data collection. The data were collected from Digikala employees in Iran. Since the advancement of information and communications technologies has become more important to customer orientation, we must identify the factors that affect the efficient CRM systems for online retailing. Based on Morgan's table (Table A2 (Appendix)), 248 samples were randomly selected, and questionnaires were sent to employees, where 234 of them were fully answered. The questions raised were related to the factors on implementing CRM systems for online retailing. Research hypotheses are evaluated using data collection through questionnaires. Table A3 (Appendix) is a questionnaire related to efficient CRM systems for online retailing.

Descriptive statistics regarding age, gender, and work experience in the Digikala were analyzed by SPSS software. The analysis results showed that 52.8% of the respondents were female 25.6% of the respondents, according to the evaluation of the questionnaire, have worked in Digikala for 11 to 13 years. Cronbach's alpha value is more than .7. Therefore, this questionnaire has acceptable reliability. Tables 3 and 4 show analytical measurements, including age frequency and work experience frequency, in the Digikala.

¹<http://www-01.ibm.com/software/analytics/spss/>.

²<http://www.smartpls.com/>.

Table 3. The frequency of age

Age	Abundance	Percentage	Acceptable percentage	The cumulative percentage
20–27	33	14.1%	14.1%	14.1
36–43	56	23.9%	23.9%	56.0
44–51	78	33.3%	33.3%	89.3
52–59	25	10.7%	10.7%	100.0
total	234	100.0	100.0	

Table 4. The frequency of work experience in Digikala

Year	Abundance	Percentage	Acceptable percentage	The cumulative percentage
28–35	42	17.9%	17.9%	32.1
7–10	62	26.5%	26.5%	69.2
11–13	72	30.8%	30.8%	100.0
total	234	100%	100%	
1–3	41	17.5%	17.5%	17.5
4–6	59	25.5%	25.2%	42.7

Analysis of data and results

In humanities and social sciences, research data analysis is carried out according to a process with a specific and identical format related to that method of different statistical analysis (Rouf & Akhtaruddin, 2018; Wang, Ramamoorthy, Xi, Rajagopal, Zhang, & Jafari, 2022b). In the meantime, we are modeling the structural equations of PLS-SEM, a tool to examine the relationship between several variables in a model (Munir, 2018). PLS is used in many limited assumptions based on SEM-based modeling techniques (Tajuddin, Abdullah, Jabar, Jusoh, & Arbaiy, 2017). Therefore, this study, which includes constructive constructs, uses PLS as the basis for statistical analysis in data analysis. The most important reasons for the high use of PLS-SEM by researchers is the ability to test theories in the form of equations between variables and appropriate predictive power, the complexity of the model, exploratory research, use of classified variables, divergence, convergence, and assumptions testing including moderator variables (Avkiran, 2018; Wang, Ramamoorthy, Xi, & Namazi, 2022a). Like the Cronbach's Alpha, internal consistency is .7 or greater than this amount (Bujang, Omar, & Baharum, 2018). The convergence validity in the model was evaluated using AVE (Choi, Wang, Zhu, & Lai, 2021). This size should be at least .5 (Ismail, Idris, Ramli, Rooshdi, & Sahamir, 2018). Reliability was assessed using composite reliability and Cronbach's alpha. Composite reliability and Cronbach's alpha should be .7 (Cronbach, 1951) to be accepted. As shown in Table 5, the amounts of AVE for all variables are acceptable in this study. The Cronbach's Alpha and the composite reliability are also at an adequate level. As a result, these three conditions are consistent with good convergence. This work is calculated by comparing the root AVE of each construct with the values of the coefficients of correlation between the constructs (Cable & DeRue, 2002). As shown in Table 6, the root AVE in any construct and the correlation of the construct with other constructs have been increased (Hofenk, van Birgelen, Bloemer, & Semeijn, 2019). It suggests the acceptability of the discriminant validity of constructs. PLS is a component-based approach that evaluates the validity of the structures and estimates the relationships between them (He et al., 2022; Khan, Sarstedt, Shiau, Hair, Ringle, &

Table 5. The convergent validity and reliability of measurement for the measurement model

Indicators	AVE	Composite reliability	Cronbach's alpha
Innovation management	.702	.904	.858
Stakeholder management	.736	.917	.880
Project management	.744	.897	.830
Market knowledge	.747	.899	.831
Entrepreneurship management	.700	.874	.780
Competitive intelligence	.801	.953	.937
Business project management	.711	.925	.898
Online retailing	.801	.886	.808

Fritze, 2019). Table 7 provides the estimation of parameters and T-values for the hypothesized relationships. As it is clear, innovation management, market knowledge, and competitive intelligence positively impact the efficient CRM systems for online retailing. Stakeholder management, project management, and business project management through the mediator variable entrepreneurship management affects efficient CRM systems for online retailing.

In PLS, R^2 is a statistical measure that can be interpreted as 'the relative amount of variance of the dependent variable explained or accounted for by the explanatory variables jointly (Zareie & Navimipour, 2016)'. The range of R^2 is from 0 to 1³ where the higher the R^2 , the higher the variance that can be explained. Also, GOF⁴ ($0 < \text{GOF} < 1$) is defined as the geometric mean of the average commonality and average R^2 value. GOF small = .1, GOF medium = .25, and GOF large = .36; these may serve as baseline values for confirming the PLS model globally (Reghenzani, Massari, Santinelli, & Fornaciari, 2019). The GOF index was calculated by (1) (Museli & Jafari Navimipour, 2018):

$$R^2(\text{Entrepreneurship Management}) = .896, R^2 = \text{Higher.}$$

$$R^2(\text{online retailing}) = .653, R^2 = \text{medium.}$$

$$\text{GOF} = \sqrt{\text{AVE} \times R^2} \quad (1)$$

$$\text{GOF} = \sqrt{.742 \times .774} = .667$$

We obtained a GOF value of about .667, which exceeds the cut-off value of .36 for large effect sizes of R^2 that concludes that the model performs well compared to the baseline values defined above. Also, in this paper, the path models related to the path coefficients (β) and R^2 are shown in Figure 3 and T- Value in Figure 4.

Discussion

Nowadays, with the increase of e-commerce, new changes in people's lives and their needs have been created. It is quite evident that during the last century, the models of marketing and sales of products from the production phase to the customer-oriented phase have evolved, and retailers of goods and services cannot meet the needs of their customers by using traditional models. The retailers who have embraced the digital revolution are the main winners of the competition.

³www.forum.smartpls.com.

⁴www.forum.smartpls.com.

Table 6. The discriminant validity of the measurement model

Structures	Business project management	Competitive intelligence	Online retailing	Entrepreneurship management	Innovation management	Market knowledge	Project management	Project management
Business project management	.843							
Competitive intelligence	.535	.895						
Online retailing	.576	.585	.850					
Entrepreneurship management	.908	.547	.602	.837				
Innovation management	.575	.570	.740	.570	.838			
Market knowledge	.556	.573	.713	.586	.684	.864		
Project management	.872	.498	.558	.860	.535	.527	.862	
Stakeholder management	.580	.549	.499	.725	.488	.532	.553	.858

Table 7. T-value and path analysis of the structural model

Path		β	T-value	Contrast
Innovation management →	Effectiveness of online retailing	.390	6.426*	Accepted
Competitive intelligence →	Effectiveness of online retailing	.115	2.190**	Accepted
Market knowledge →	Effectiveness of online retailing	.296	4.864*	Accepted
Entrepreneurship management →	Effectiveness of online retailing	.143	2.314**	Accepted
Business project management →	Effectiveness of entrepreneurship management	.544	11.351*	Accepted
Project management →	Effectiveness of entrepreneurship management	.229	5.458*	Accepted
Stakeholder management →	Effectiveness of entrepreneurship management	.283	9.713*	Accepted

$p < .001^{**}$, $p^* < .005^{**}$.

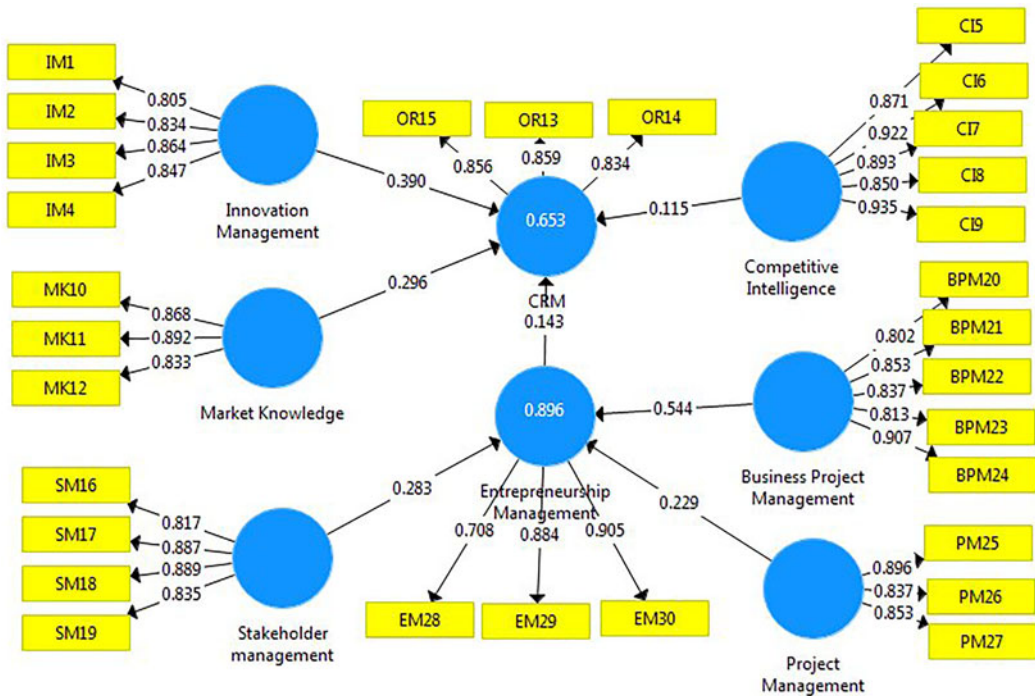


Figure 3. Path model of β and r^2 .

Innovation management in the technological space is imperative for business. With the help of innovation management, online retailing can respond more quickly and better to environmental challenges and adapt to them. The continuous introduction of new products creates a sustainable competitive edge for online retailing. Acquiring information and knowledge is useful for business survival and efficiency, and effectiveness. Understanding the market and consumers, laws, regulations, and restrictions is essential for retailers who intend to market. Online retailers have developed flexible business models using market knowledge that can quickly adapt to

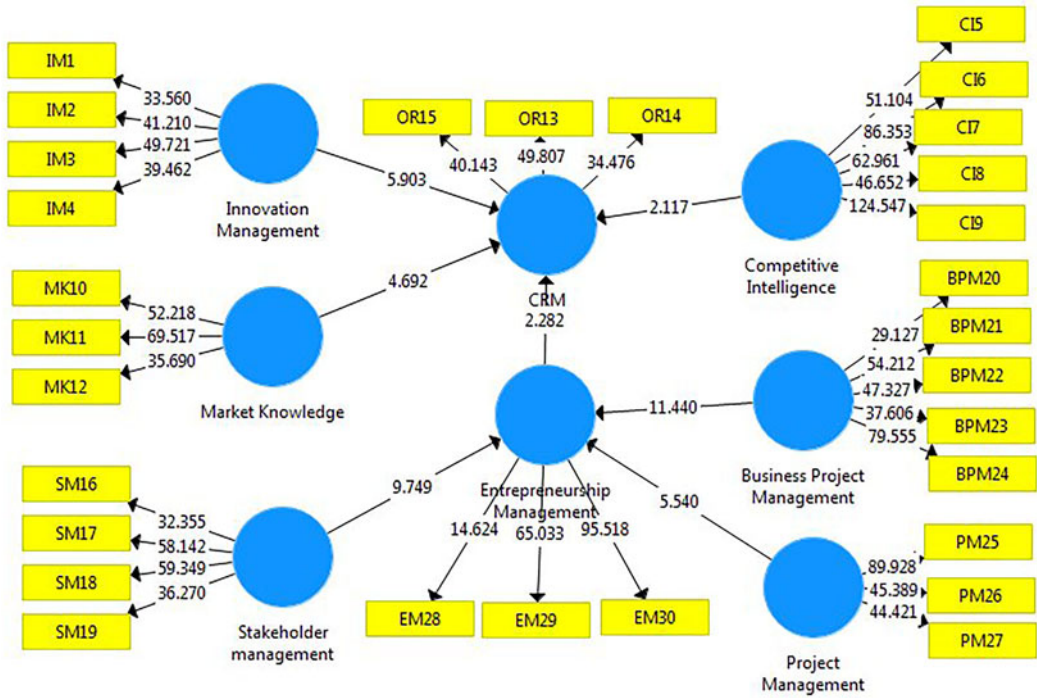


Figure 4. Path model of T-Value.

swift market changes. Competitive intelligence is the recognition of the strengths and weaknesses of competitors to further market penetration. Identifying, collecting, and analyzing information about products, competitors, and other environmental aspects help online retailers make strategic decisions. Entrepreneurship management organizes the risks of economic activity. In fact, the market opportunities are turning into wealth and, in this regard, creating sustainable value for ecommerce. Managing stakeholders through the intermediation of entrepreneurship management for online retailing with the management of individuals and groups will affect the outlook and mission of a business. It also affects the strategic achievements and outcomes of the business. Also, through the mediator variable of entrepreneurial management for online retailing, the project is checked to ensure it runs properly within the existing timeframe and financial range. Meanwhile, management business projects are a tool to better predict and manage existing or new businesses through prioritization, monitoring, and evaluation of work progress and helping achieve predetermined goals of entrepreneurship management. Such a plan enables business management to prepare in the various stages of the business to promote the programs. Therefore, project management, stakeholder management, and business project management affect the efficient CRM systems for online retailing through the mediator of business management. This paper provides a framework for examining the effective factors in efficient CRM systems for online retailing. The sample was randomly selected from the employees Digikala.

- The identified factors affect CRM systems in online retailing based on the research results. These results are consistent with some previous research. Mogili and Natarajan (2021) showed that trust and service are essential in online retailing. The common denominator of this research with the present research was innovation management and market knowledge. The study of Gautam and Sharma (2019) was conducted to examine market risks and financial risks to try to help retailers for better marketing, which has nothing in common

with our research. Findings by Agag et al., (2016), Rafiq, Fulford, and Lu (2013), Xing et al., (2010), and Ahn, Ryu, and Han (2007) showed that customer-related factors affect the online retailing experience. Also, service improvement, customer loyalty, trust, and reasonable price affect online retail; however, these factors are not consistent with the factors examined in our research. Wilcox and Gurău (2003) examined business modeling and efficient CRM systems for online retailing. Customer relationship management technology has been introduced as a facilitator in implementation. Some of the factors considered are consistent with the present study. Finally, Holloway and Beatty (2003) examined service failure in online retailing. The results of their findings effectively determined the factors of this research.

- Dewnarain, Ramkissoon, and Mavondo (2019) examined social CRM. Factors such as social intervention techniques, customer engagement, positive speech, brand loyalty, knowledge, and innovation provided better customer relationships. Studies show that some of these factors have common factors with the present study. Also, modeling CRM patterns using the human factors approach in the hospitals was investigated by Taghavi et al., (2017). Their research was descriptive using PLS software and presented a conceptual model. Azevedo (2013) focused on CRM adoption in firms. There are common factors in our research in the factors studied by them; in their research, the research hypotheses were tested using PLS. The results were also obtained through a questionnaire consisting of 37 questions to evaluate the company's performance and CRM.

Also, Becker, Greve, and Albers (2009) studied the influence of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention. They presented a conceptual model for implementing customer relationship management. They also helped the PLS software present the results, but the sub-factors presented had nothing in common with the present study. Finally, Chalmers (2006) examined new ways to explore CRM in the case of failures and described a formal way to guide the CRM process. There is something in common with some of the factors presented by our research. These factors include project management, entrepreneurship management, and competitive intelligence.

Considering the stated factors, the present study also deals with the issue that in examining the effective factors in efficient CRM systems for online retailing in a particular company, what factors and indicators should be important for future success, and what factors should be taken to strengthen it. Our research findings showed that innovation management, market knowledge, and competitive intelligence have a positive and direct relationship with efficient CRM systems for online retailing. Stakeholder management, project management, and business project management also positively impact the mediator variable of entrepreneurial management on efficient CRM systems for online retailing.

Hypothesis' results

As shown in Table 7, using PLS regression, the sample and path test coefficient results showed that innovation management has a meaningful relationship with efficient CRM systems for online retailing. These results are based on *t*-test and path coefficient ($\beta = .390$, $t = 6.426$, $p < .001$), which supports hypothesis 1. In hypothesis 2, market knowledge has an effective relationship with implementing CRM systems for online retailing; this relationship is supported ($\beta = .296$, $t = 4.864$, $p < .001$). As suggested in Hypothesis 3, competitive intelligence affects CRM systems for online retailing ($\beta = .115$, $t = 2.190$, $p < .005$). The findings show that there is a positive relationship between these two. Hypothesis 4 ($\beta = .143$, $t = 2.314$, $p < .005$) as a mediating variable positively affects CRM systems for online retailing. Hypothesis 5 ($\beta = .283$, $t = 9.713$, $p < .001$) shows that stakeholder management through the mediator variable of entrepreneurship management has a significant relationship with efficient CRM systems for online retailing. Also, in

hypothesis 6 and 7, project management and business project management have a positive and significant relationship with the efficient CRM systems for online retailing ($\beta = .229$, $t = 5.458$, $p < .001$), ($\beta = .544$, $t = 11.351$, $p < .001$) through the intermediary variable of entrepreneurial management. In summary, our research findings showed that innovation management, market knowledge, and competitive intelligence have a positive and direct relationship with efficient CRM systems for online retailing. Stakeholder management, project management, and business project management also positively impact the mediator variable of entrepreneurial management on efficient CRM systems for online retailing.

Conclusions, limitations, and future research

The world is confronted with changes in technology, information, people's demands, and global markets. Serious attention to customers to continue activity in competitive markets and gain customer satisfaction is critical. With the help of market knowledge, online retailers identify and monitor customer behaviors and priorities daily and, based on customer preferences, offer their services. Through innovation management, they provide new services in line with customers' needs through the Internet. Competitive intelligence provides solutions for determining the top goals. Entrepreneurship management will increase profits, reduce costs, and increase customer relationships for online retailing as a mediator variable for stakeholder management, project management, and business project management. Therefore, considering the factors affecting the efficient CRM systems for online retailing is affected by several factors. This paper aims to assess innovation management, market knowledge, competitive intelligence, and entrepreneurial management as the mediator variable between project management, stakeholder management, and business project management on efficient CRM systems for online retailing. This research has shown that these factors positively affect the efficient CRM systems for online retailing.

The deep analysis showed that innovation management positively and significantly impacts efficient CRM systems for online retailing. Innovation management can guarantee that online retailing will stay stable in an environment where markets change rapidly by identifying new markets and introducing new products, features, and ways to organize and trade online retailing. Correct relationships with a customer without market knowledge cannot be formed. Market knowledge provides knowledge of business matching with the new market conditions and requirements, leading to the success of efficient CRM systems for online retailing. Employees can increase competitive intelligence in online retail by asking business partners (acting in the role of the customer).

The obtained results showed that entrepreneurial management has a positive effect as a mediator variable on efficient CRM systems for online retailing. Entrepreneurship management creates innovative and appropriate ideas for exploiting existing opportunities and resources, identifying and implementing them, and selecting products and services. With the help of human resources, hardware, and software, it provides a good platform for efficient CRM systems for online retailing. Any entrepreneurial management is a relationship with various stakeholders during its life cycle; it benefits some stakeholders in the form of a financial or business relationship. Some others receive services or benefits. Therefore, stakeholder management in online retailing can have many benefits. By designing new projects and business plans for customer satisfaction, entrepreneurship management can help succeed in online retailing. So, project management, business project management, and stakeholder management through the mediator variable of entrepreneurial management positively affect the efficient CRM systems for online retailing. The results showed that innovation management, market knowledge, and competitive intelligence positively impact the efficient CRM systems for online retailing. Also, project management, business project management, and stakeholder management through the mediator variable of entrepreneurship management have a positive relationship with efficient CRM systems for online retailing.

The main limitation of this study is a limited sample of research for customers in online retailing. The sample size is small and may not reflect negative or general results. Second: the study is limited to one region. It cannot be guaranteed that the factors under investigation are effective in other areas. The research design for this study is cross-sectional. It represents the static relationship between the variables. Because cross-sectional data from the relationship of variables are taken at a single point, they are collected in other periods. Third: in this study, because of lack of time and money, research data is collected using a sample in one place; Fourth: used variables to illustrate the factors affecting the efficient CRM systems for online retailing may not be comprehensive. These variables can be exploratory. Moreover, other factors must be considered for model review. Therefore, considering different dimensions to examine the efficient CRM systems for online retailing is very interesting for future research. In addition, a complete sample for gathering data can be used to determine other factors affecting the efficient CRM systems for online retailing. We also encourage larger instances to do cross-validation of the model. In a nutshell, the following points should be considered in future studies:

- Innovation management: In designing and producing a new product or service, there is a need for marketing. It means that it is necessary to survey customers about this product and make sure that the audience in the market welcomes this product. CRM system will help in this regard in two ways. First, customer information has already been collected and can now be used to evaluate survey results better. Second, by using the features of the CRM system, this survey can be done quickly and easily and at the lowest cost.
- Market knowledge: Efficient CRM systems for online retailing require market knowledge. Choosing the most effective sales strategies requires market knowledge. To know which strategy is best for which product, which range of customers, and which market segment, we need appropriately collected, categorized, and reportable information.
- Competitive intelligence: Efficient CRM systems for online retailing require competitive intelligence. Communicating with customers and being regularly informed of comments, suggestions, and criticisms will help gain strengths and weaknesses in online retail and become aware of the new opportunities offered in these interactions faster. The ability to be a leader among will have their competitors.
- Entrepreneurship management: The main focus of many online retailers and businesses is on pursuing opportunities. It is a significant factor in profitability. Efficient CRM systems and dealing with limitations and failures will be possible to calculate profits and costs. Through this, the most profitable customers can be identified along with the most profitable products and services and by providing better services multiplied their profits.
- Stakeholder management (mediator variable of entrepreneurship management): Stakeholder management is an essential factor for managing entrepreneurship and, therefore, online retailing. For today's customers, quality alone is not enough. Instead, they expect the seller to create a pleasant shopping experience for them. To make this experience, it is necessary to establish strong relationships with the customer and get to know him better. These factors effectively efficient CRM systems for online retailing and provide the facilities needed to build customer relationships and identify online retailing.
- Project management (entrepreneurship management mediator): Project management is important for entrepreneurship management and online retailing. Project management effectively uses marketing, sales, and after-sales service, reducing human error and increasing work speed. On the other hand, planning based on previous information reduces trial and error, thus reducing the cost of workforce, advertising, etc., in many parts of the organization. This factor is also influential in efficient CRM systems for online retailing through the variable of entrepreneurship management.
- Business project management (mediating variable of entrepreneurship management): Usually, business project management for entrepreneurship management is a specific

goal. Business project management makes it possible to measure marketing results; we can identify the current situation, needs, expectations, and predicted results and repeat them by analyzing the results. Also, by recording and counting the complaints and protests of customers and surveying them, different performances can be evaluated, and corrective measures can be taken to improve their performance. Thus, this factor is influential in efficient CRM systems for online retailing through the variable of entrepreneurship management.

Also, investigating the organizational culture, knowledge management, innovation management on effective, efficient CRM systems for online retailing, examining the role of suppliers, government, and the media in online retailing, and developing a customer knowledge management process model using CRM systems can be studied in the future research.

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Appendix

Table A1. Table of mathematical symbols used

path coefficients	β
Cronbach's alpha	α
T-value	t
p-value	P
Goodness Of Fit	GOF
Average Variance Extracted	AVE
Composite reliability	CR
R^2	Explained variance

Table A2. The Morgan table

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note – *N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970.

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Table A3. Questionnaire related to the efficient CRM systems for online retailing

Row	Dimensions	Responsive comment for each option			
		Completely disagree	Disagree	Neither agree nor disagree	Agree
<i>Innovation management</i>					
1	Productivity	Does productivity affect the success of implementing customer relationship management (CRM) systems in your online retailing?			
2	Long-term operation	Does long-term operation (in innovation management) affect the success of efficient CRM systems in your online retailing?			
3	Market sharing	Does market sharing affect the success of efficient CRM systems in your online retailing?			
4	Costs benefit	Does costs benefit affect the success of efficient CRM systems in your online retailing?			
<i>Competitive intelligence</i>					
5	Investigating the website of rivals	Does investigating the website of rivals affect the success of efficient CRM systems in your online retailing?			
6	Position of rivals in the shared market	Does the position of rivals in the shared market affect the success of efficient CRM systems in your online retailing?			
7	Analysis of competitors' pricing policy	Does analysis of competitors' pricing policy affect the success of efficient CRM systems in your online retailing?			
8	Analysis of competitors' advertisement	Does analysis of competitors' advertisements affect the success of efficient CRM systems in your online retailing?			
9	Registration in rival companies.	Does registration in rival companies affect the success of efficient CRM systems in your online retailing?			

(Continued)

Table A3. (Continued.)

Row	Dimensions	Responsive comment for each option			
		Completely disagree	Disagree	Neither agree nor disagree	Completely agree
<i>Market knowledge</i>					
10	Customer needs	Does customer needs affect the success of efficient CRM systems in your online retailing?			
11	Competitors behavior	Does competitors' behavior affect the success of efficient CRM systems in your online retailing?			
12	Market changes	Do market changes affect the success of efficient CRM systems in your online retailing?			
<i>Online retailing</i>					
13	Innovation management	Does innovation management affect the success of efficient CRM systems in your online retailing?			
14	Competitive intelligence affect	Does competitive intelligence affect the success of efficient CRM systems in your online retailing?			
15	Market knowledge	Does market knowledge affect the success of efficient CRM systems in your online retailing?			
<i>Stakeholder management</i>					
16	Co-working	Does co-working affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?			
17	Material supplying	Does material supplying affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?			

18	Resellers	Do resellers affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?
19	Banking	Does banking affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?
<i>Business project management</i>		
20	Business project description	Does business project description affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?
21	Business environment analysis	Does business environment analysis affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?
22	Analyzing of marketing plan	Does analyzing a marketing plan affect implementing CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retail?
23	Analyzing of operational plan	Does analyzing an operational plan affect efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?
24	Analyzing of financial plan	Does analyzing a financial plan affect efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?

(Continued)

Table A3. (Continued.)

Row	Dimensions	Responsive comment for each option				
		Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
<i>Project management</i>						
25	Identifying the required resources	Does identifying the required resources affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?				
26	Benefiting from effective collaboration	Does benefiting from effective collaboration affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?				
27	Providing a framework for project activities	Does providing a framework for project activities affect the success of efficient CRM systems through the mediation variable of entrepreneurship management (innovation and new trends, creating new products, software assets) in your online retailing?				
<i>Entrepreneurship management</i>						
	Stakeholder management	Does stakeholder management affect efficient CRM systems through the mediation variable of entrepreneurship management in your online retailing?				
	Business project management	Does business project management affect efficient CRM systems through the mediation variable of entrepreneurship management in your online retailing?				
	Project management	Does project management affect efficient CRM systems through the mediation variable of entrepreneurship management in your online retailing?				