

Interactive Model of Digital Marketing in Online Service Startups based on Mobile Commerce in Modern Sociology

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Abstract

Purpose: The present research was performed to design interactive model of digital marketing in the area of online service startups based on mobile commerce in modern sociology.

Methodology: This study was of fundamental type regarding the objective, and combined type regarding the method of implementation (qualitative and quantitative). The research population consisted of experts familiar with the issue in Hormozgan province in 2020, out of whom 20 were chosen as the sample through purposeful sampling method as the sample. The research instrument of the qualitative part was based on domestic and international research, wide the research instrument for the quantitative section was a 20- item questionnaire based on the qualitative part. In the qualitative section, using fuzzy Delphi method, the factors were identified and confirmed or screened, while they were ranked in the quantitative section using fuzzy DANP method.

Findings: The results indicated that after three rounds of fuzzy Delphi, 15 indices were identified across six elements including technical/technological, personal user, social, customer orientation, perceived value, and reliability. Other results based on the fuzzy DANP method indicated that the user personal elements, plus social elements, reliability, perceived value, technological/technical, and customer orientation had the largest weights respectively. In addition, validity, personal innovation, and online experience claimed the first to third ranks in terms of weight.

Conclusion: The results indicated the effective role of three elements of personal user, social, and reliability in comparison to other elements, which could be exploited by managers and planners to improve digital marketing based on mobile commerce.

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1. Introduction

Today, factors such as globalization, increased competition, and rapid development of the science and technology especially information technology and communication have resulted in transformation of the business environment. In this regard, organizations should adapt themselves to the rapid technological changes if they wish to survive in the instable competitive environment of the market (Zhou, Niu, Wang & Tang, 2021). Upon introduction of information technology into different areas, economy has also been affected and one of the evident manifestations of introduction of information technology is e-commerce, through which both developed and developing countries have been able to acquire notable profit (Popa, Soto-Acosta & Perez-Gonzalez, 2018). Considering the growth of information technology, different organizations have attempted to align themselves to the novel technologies using different tools, and some organizations have also enforced some laws in their organization for this purpose (Wang, Fan & Yin, 2019). Today, one of the options of service business for improving the performance, productivity, and transformation is benefiting from information technology and communication as well as the features offered by e-commerce. In recent decades, with the prevalence of Internet, the rate of electronic businesses has been known as a means for organizing the business model (Rezvani, Seyyedamiri & Mirzaee, 2020). The progressive increase in use of Internet as well as a customer satisfaction with provision of Internet services has resulted in changes in business methods as well as a ever-growing increase in the customers of electronic businesses or e-commerce (Aghajani, Shariati & Hosseini, 2020). The rapid growth and progress of information technology as well as novel mobile technologies have resulted in the formation of a new type of e-commerce known as mobile commerce (Zhao, Wu, Gong, Yang & Ni, 2019).

Today, many e-commerce interactions occur through mobile devices as well as using wireless communication networks for other IT-based wired technologies (Zhu & Xie, 2018). E-commerce or e-business means acquiring customers and traders for commercial exchanges through the automation of transactions, exchanges, communications, and interactions via communication and computer technologies for economic purposes including interorganizational systems such as telephone, Internet, email, or internal computer networks for supporting online commercial trades (Zhu, 2021). Once e-commerce was confirmed as a commercial phenomenon, usage of mobile devices resulted in development and approval of mobile commerce, and the necessity of its application became more evident (Zheng, Men, Yang & Gong, 2019). Mobile commerce emerged in 2001 before which, in the early 1970s, there was the period of personal computers, during which this technology was introduced into people's lives. Then, in 1966, with emergence of Internet, a great transformation occurred for communications, and in the next period which was called the era of information boom, with introduction of the technology of portable communication devices and mobile Internet alongside each other, mobile commerce was founded (Hew, 2017). Mobile commerce is in the front line of the cutting-edge technology of the world and because of its recency, rapid development, and numerous potential applications, it is an important ground for different research. Mobility and public access to it have enabled people to get engaged with their commerce online through mobile devices (Rieger and Kuchen, 2018). Rapid development of mobile phones with accessibility to the Internet as well as performing online transactions by them have resulted in development of markets known as mobile commerce. One of the most important reasons of this transformation has been the increase in the mobile phone users worldwide. Indeed, the progressive development of mobile devices among individuals has caused different organizations and businesses to provide services as mobile commerce on mobile devices (Sarkar, Chauhan & Khare, 2020).

The outlook of mobile communication suggests that mobile commerce is probably one of the major underlying factors for exchange of digital data in many developing countries (Shaw & Sergueeva, 2019). Customers have always been interested in using simple, rapid, personalized, safe methods that are practical at any time and place. Mobile devices such as mobile phones have become a good substitute for non-mobile devices such as desktops because of ease of use, easy accessibility, rapidity, and no need to

cash (Eastin, Brinson, Doorey & Wilcox, 2016). Mobile commerce refers to any direct or indirect exchange of commodities or services yielding development of material or spiritual value for the sides of the trade with no temporal or special limitation. In order to undertake mobile commerce, wireless portals as well as digital payment systems are required for better management of payments (Fischbach & Guerrero, 2018). Mobile commerce means the ability of undertaking commerce via mobile or portable devices such as mobile phone, pocket computers, smart phone, or any other invented device (Chhonker, Verma & Kar, 2017). In a more comprehensive definition, mobile commerce means any trade, getting involved in transfer of ownership or rights for usage of goods and services which begin and end through mobile access to computer networks via an electronic device (Piao, Li, Pan, Zhang, 2016). In another definition, mobile commerce means a process through which commercial exchanges occur via mobile telecommunication networks and using payment tools, plus mobile information or communication such as mobile phone or other digital instruments (Verkijika, 2018).

Today, the power of digital media and channels is so large that people follow their daily life and purchase information through them. Individuals can gain rapid access to a large volume of information published on digital media and review them through their mobile devices at any time and space. One of the main objectives of digital media users is finding a source for purchasing or requesting services (Krishen, Dwivedi, Bindu & Kumar, 2021). Among different types of marketing, digital marketing is known as an innovative technology oriented activity, and is considered as one of the major aspects of marketing operation, which is different with other marketing operations. Indeed, digital marketing involves applying Internet as well as other interactive technology to establish communication and intermediation between organizations, companies, and customers (Olson, Olson, Czaplewski & Key, 2021). Digital marketing can be undertaken when technical infrastructures such as information databases, suitable terminals, servers, software, and others are provided, and communication with customers occurs through the mentioned technologies (Spiller & Tuten, 2019). The goal of digital marketing is identifying important elements of digital marketing and employing various strategic, organizational, and operational issues for effectiveness of active businesses in digital commerce market (Langan, Cowley & Nguten, 2019). Digital marketing is a phenomenon that enables commercial trades based on stable relationships in interactive media and digital networks. Effective implementation of digital marketing requires positive attitude to the marketing features (Denic, Petkovic, Siljkovic & Ivkovic, 2020).

Although relatively extensive research has been performed on digital marketing and mobile commerce, no research was found on digital marketing in the area of online services startups based on mobile commerce. For example, Aghajani et al. (2020) researched the elements affecting the model of electronic businesses in Iranian startups including key partners, key activities, key sources, proposed value, communication with customers, communication channels, cost structure, income flow, the culture of electronic business, and supply chain. For example, the results of Asadollah, Sanavifard & Hamidzadeh (2020) on business model of electronic banking based on Fintechs and financial startups indicated that the mentioned model included the elements of structure of financial institutes, developers of financial technologies, business environment and segmentation of bank customers. Its dimensions included elements of the provided proposed services, customer relation, and infrastructure management. Finally, its financial and outcome aspects included improving the business atmosphere, as well as the organizational performance and virtual banking. Rahimi & Rahimi (2020) researched the effect of digital marketing on the performance of chain stores through mediation of marketing potentials. They concluded that digital marketing had a positive and significant effect on the performance and positive features of marketing. They also found that the features of marketing had also positive and significant effect on the performance, with the marketing potentials being a suitable mediator between them. In another research, Babashahi, Arabi & Shafiee (2020) investigated competency modeling of digital marketing managers and reported that the mentioned model had 114 codes and 26 concepts in three areas. The areas included technical-specialized competencies (with 11 concepts of marketing knowledge, knowledge of marketing

strategies, knowing different tools in areas of digital marketing, theoretical dimensions and science of e-commerce, the consumer behavior knowledge, market research knowledge, advertising knowledge, sales knowledge and skills, brand management, supply chain knowledge, and English-language knowledge), human-behavioral competencies (with five concepts of management skills, others' management skills, communication skills, as well as skills of negotiation plus persuasion, and personal characteristics), and analytical competencies (with 10 concepts of systemic thinking, analytical thinking, strategic thinking, creative thinking, logical thinking, business intelligence, interdisciplinary attitude, an inquiring mind, emotional intelligence, as well as problem-solving skills).

The results of Allahdadi, Tajzadeh Namin, Irandoost & Soltananeh (2018) on designing an innovative digital marketing ecosystem indicated that external as well as internal factors plus values and players constitute the main pillars of the model. The final model covered concepts such as product development through interactive investment, integrated channels, use of big data, stable service centers, shared economy, consumer generated production, and existence of different players. Nadafi & Admadvand (2018) researched the drivers of development of startups and reached two models. The first model emphasized speed of action, teamwork, idea and opportunism, while the second model underscored customers, competitors, investor partner, and supports. In the first model, attention is paid to developing the creativity and setting the grounds for incidence of innovation in talented individuals through training and establishing cultural contexts. On the other hand, the second model pays attention to support from potential capacities, providing the investment security, and establishing the culture of teamwork in the business.

Public access to smart phones and ease of use of its diverse facilities has caused communication through mobile phones to create a suitable ground for mobile commerce. Such a trend suggests that mobile commerce has changed into one of the main areas of e-commerce in the country, and e-commerce in Iran has been welcomed by many scientific, industrial, and commercial communities (Kohan Khaki, 2016). Although some research has been performed about digital marketing and mobile commerce in different areas, no research was found about the interaction of digital marketing in the area of online startups based on mobile commerce. Thus, there is a huge gap regarding digital marketing based on mobile commerce, and conducting such research can significantly help the planners and specialists of marketing and commerce. Another notable point is that Covid-19 virus has resulted in increased attention to digital marketing and mobile commerce in today's world. Thus, the present research was performed and to design interactive model of digital marketing in the area of online service startups based on mobile commerce in modern sociology.

2. Methodology

In terms of objective, this research has been fundamental, while regarding the methodology, it has been of combined type (qualitative and quantitative). The research population consisted of experts familiar with the topic in Hormozgan province in 2020, out of which 20 were chosen as the sample through purposeful sampling method. In order to perform the sampling, the researchers chose some experts they knew based on the intended criteria. The criteria included willingness to participate in the research, having PhD degree in fields related to marketing, at least five years of background of lecturing at university, and having a book or paper about the research title. In this method of sampling, the chosen individuals are those who can offer the maximum help to the researcher to achieve desired outcomes.

To conduct the research, first the theoretical basis as well as domestic and international research related to the present research was investigated with the help of the advisor and supervisor professors. Accordingly, the codes, indices, and elements were identified. In the next stage, the sampling was performed and the degrees of significance of the identified codes, indices, and the elements were investigated according to the experts. This process of investigation lasted three rounds. Note that the importance and necessity of the research were explained to the subjects and they were asked to respond to

the questions carefully. After completion of the research, the experts participating in this study were acknowledged, and necessary coordination was made with them about informing them about the results of the research. The research instrument of the qualitative section of study consisted of domestic and international studies, while the instrument for the quantitative section was a 20-index questionnaire based on the qualitative section, whose validity was confirmed using triangulation method, while the reliability was estimated 0.75 based on the contingency coefficient.

3. Findings

The experts participating in the present research were 20 individuals with the mean age of 45.36 years, most of whom were male (n=13, 65%), and had history of lecturing at university for 21-25 years (n=7, 35%) (Table 1).

Table 1. The results of frequency, frequency distribution, and frequency percentage of demographic information of the experts participating in the research

Cumulative frequency percentage	frequency	Frequency percentage	Frequency	Levels	Variable
65%		65%	13	Male	Gender
100%		35%	7	Female	
15%		15%	3	6-10 years	History of lecturing at university
30%		15%	3	11-15 years	
55%		25%	5	16-20 years	
90%		35%	7	21-25 years	
100%		10%	2	Above 25 years	

The results of the fuzzy Delphi after three rounds indicated that 15 Indices were found in six elements including technical/technological, personal user, social, customer orientation, perceived value, and reliability (Table 2).

Table 2. The results of fuzzy Delphi for identifying the elements and indices

Code of indices	Indices	Code of elements	Elements
C11	App compatibility	C1	Technical / Technological
C12	Ease of use		
C21	Online experience	C2	Personal user
C22	Habit		
C23	Awareness		
C24	Personal innovation	C3	Social
C31	Social media		
C32	Mouth-to-mouth advertisement		
C33	Authority figures	C4	Customer orientation
C41	Customization		
C42	User friendliness	C5	Perceived value
C51	Saving time		
C52	Saving costs	C6	Reliability
C61	Security		
C62	Credibility		

The causal diagram of the identified elements for the interactive model of digital marketing in the area of online service startups based on mobile commerce can be observed; the technical/technological stood in the first, while the element of reliability claimed the last level (Diagram 1).

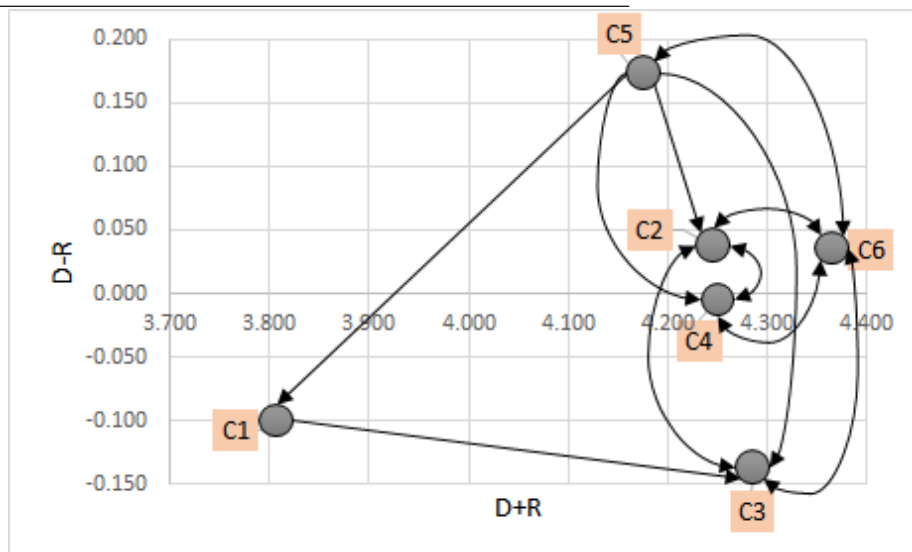


Diagram1. The causal diagram of the identified elements for the interactive model of digital marketing in the area of online service startups based on mobile commerce

The results of the fuzzy DANP method indicated that the elements of user personal, social, reliability, perceived value, technical/ technological, and customer orientation had higher weights respectively. In addition, the Indexes of validity, personal innovation, and online experience claimed the first two thirds ranks in terms of weight (Table 3).

Table3. The results of Delphi DANP to determine the weight of the elements and indices

Weight of indices	Code of indices	Indices	Weight of elements	Code of elements	Elements
0 / 075	C11	App compatibility	0 / 149	C1	Technical / Technological
0 / 074	C12	Ease of use			
0 / 083	C21	Online experience	0 / 244	C2	Personal user
0 / 039	C22	Habit			
0 / 037	C23	Awareness			
0 / 084	C24	Personal innovation			
0 / 059	C31	Social media	0 / 181	C3	Social
0 / 066	C32	Mouth-to-mouth advertisement			
0 / 055	C33	Authority figures			
0 / 048	C41	Customization	0 / 092	C4	Customer orientation
0 / 044	C42	User friendliness			
0 / 081	C51	Saving time	0 / 156	C5	Perceived value
0 / 074	C52	Saving costs			
0 / 082	C61	Security	0 / 176	C6	Reliability
0 / 093	C62	Credibility			

Based on the results of the present research, the general diagram of the elements and indices identified for the interactive model of digital marketing in the area of online service startups based on mobile commerce can be observed (Diagram 2).

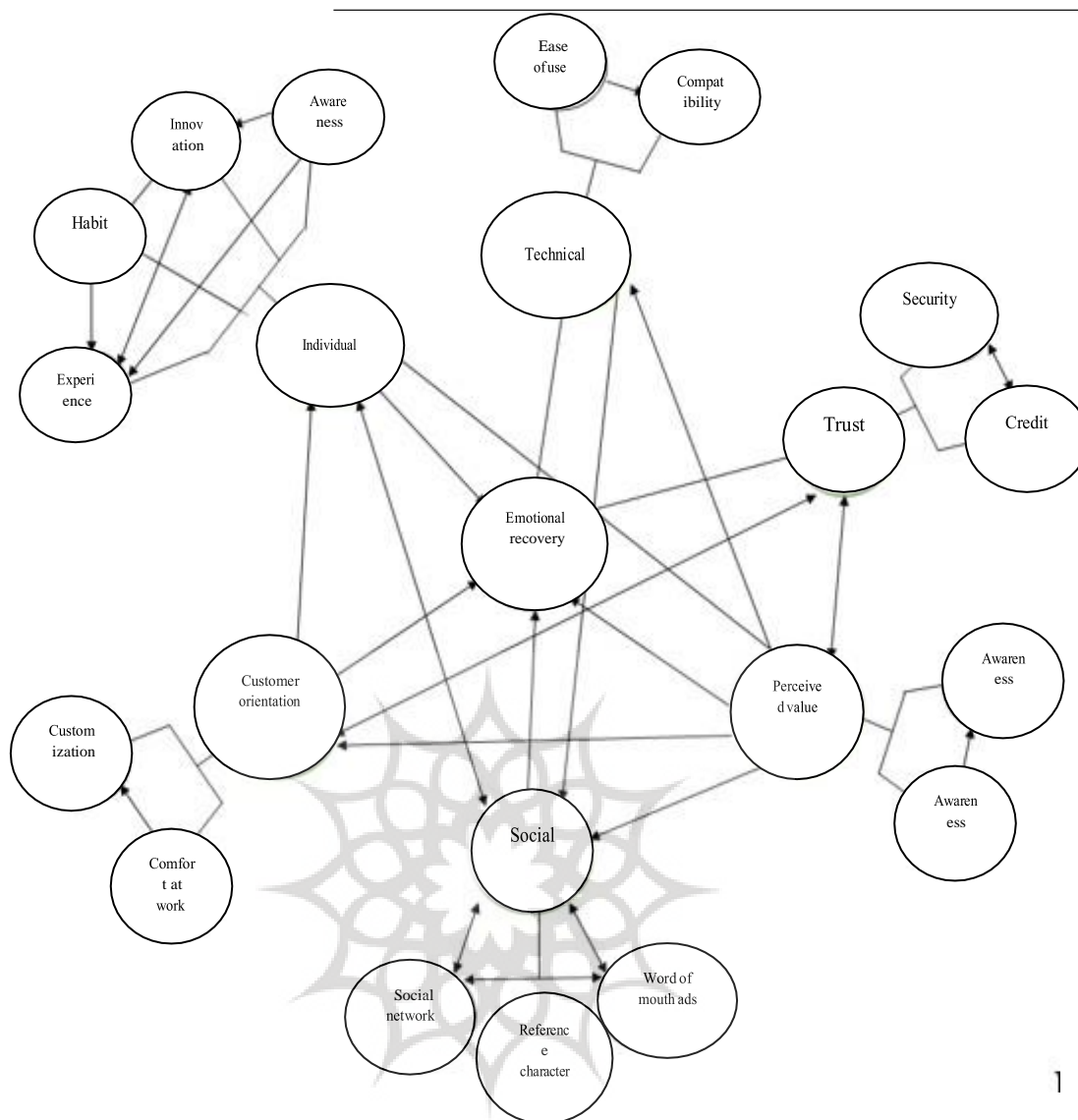


Diagram2. The general diagram of the elements and indices identified for interactive model of digital marketing in the area of online service startups based on mobile commerce

4. Discussion

Considering the role of digital marketing and mobile commerce in today's world especially with the Covid-19 pandemic, the present research was performed to design an interactive model for digital marketing in the area of online service startups based on mobile commerce in modern sociology. The results showed that the interactive model of digital marketing in the area of online service startups based on mobile commerce had 15 indices in six elements including technical/technological, personal user, social, customer orientation, perceived value, and reliability. The elements of personal user, social, reliability, perceived value, technical/technological, and customer orientation alongside credibility, personal innovation, and online experience had the largest weights respectively. These results have been in some aspects in line with the findings of Aghajani et al. (2020), Asadollah et al. (2020), Rahimi & Rahimi (2020), Babashahi et al. (2020), Allahdadi et al. (2018), Naddafi & Ahmadvand (2018).

In interpreting the results of the present research, it can be stated that the personal user element had four indices of online experience, habit, awareness, and personal innovation. The individuals who have the

experience of electronic purchase and are used to it show different behaviors during online shopping in comparison to other individuals who do not have such experience. Possibly, the perception inducing individuals to purchase online for the first time may be different against individuals who show repeated purchase behavior. Innovative individuals because of their first-hand knowledge become less confused with the technological complexities, and have the necessary awareness about the advantages and benefits of use of technology. The individuals with a high level of innovation usually seek to get information about information technology and mobile commerce. This in turn would cause the individuals to attempt for obtaining considerable knowledge about all issues associated with mobile commerce, thereby obtaining the necessary awareness about its benefits and features and develop a positive attitude about it. Furthermore, the social element had three indices of social media, mouth-to-mouth advertisement, and authority figures. Today, social networks play a significant role in mobile commerce, and social networks in case of suitability can set the ground for developing mobile commerce. In this situation, mouth-to-mouth advertisement of networks can lead to progressive profitability for them. Another important point about the social element is authority figures. These individuals play an effective role in establishing trust networks and purchasing from them or receiving services from them. In addition, the element of reliability had two indices of security and credibility. Existence of Internet criminals, mistakes people make during online shopping from insecure websites, and the virality as well as presentation of detailed nonessential information to websites would jeopardize the safety of the process or commerce. Security, maintaining privacy, the design and content of e-commerce websites are among the most important factors in developing trust for approving purchase from applications according to Internet users. Investigation suggests that many buyers of online shops refuse online shopping, while sense of security about online shops would develop based on the credibility of the shop. It is completely normal for users of an online shop to be concerned about their banking information and private information being disclosed. Indeed, shops should keep and guarantee the security of personal and private information of their customers; otherwise they would lose their credibility.

The element of perceived value had two indices of saving time and saving costs. The level of value users perceive about mobile commerce or the amount of time and cost they would gain in using mobile commerce in comparison to traditional commerce can set the ground for increase in the use of mobile commerce. Today, saving time and costs play a significant role in increasing exploitation of mobile commerce or employing online service startups. Furthermore, the technical/technological element had two indices of application compatibility and ease-of-use. When using mobile commerce, having a compatible application as well as its ease of use can significantly encourage users to utilize it. Undoubtedly, an optimal application whose usage is not very difficult can first lead to higher users, and these users would then introduce this application to others. In addition, the element of customer orientation had two indices of customization and user friendliness. One of the factors that has always caused increasing use of special organizational services has been customer orientation, which can play a significant role in mobile commerce through customization and user-friendliness.

During implementation, any research has some limitations and the present one was no exception to this rule. One of the most important limitations of the present research was the small sample size. This research was investigated by 20 experts from Hormozgan province after examining the relevant documents and literature. Possibly, if the experts of other provinces give their opinion about the significance of elements and indices, the results may have varied. Thus, in future research, the researchers should explore the interactive model of digital marketing in the area of online service startups based on mobile commerce according to the experts of other provinces as well. Another limitation of the present research was the outbreak of Covid-19 virus, which complicated implementation of surveying the experts. The last limitation was the sparse research background above digital marketing in the area of online service startups based on mobile commerce. This somehow limited the comparability of the results of the present research against other studies. This, conducting further research about digital marketing in different areas based on mobile commerce and comparing their results with the findings of the present research seems to be

essential. The results suggested the effective role of three elements of personal user, social, and reliability in comparison with other elements, as well as the effective role of three indices of credibility, personal innovation, and online experience in comparison with other indicators. The managers and planners can exploit them for improving e-commerce-based digital marketing. For this purpose, improving the conditions for the mentioned indices and elements can play a key role in promoting the use of digital marketing in online service startups based on mobile commerce.

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