

IDENTIFYING AND PRIORITIZING THE FACTORS AFFECTING THE USE OF E-COMMERCE IN SMALL AND MEDIUM-SIZED ENTERPRISES

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ABSTRACT

In today's world, developed and developing countries are all aware of the importance of small and medium-sized businesses for economic growth and development. Such businesses have also attracted the attention of researchers in recent decades due to their large share in GDP, job creation and reduction of economic problems. Given the impact of small and medium-sized enterprises on economic growth and development and revenue growth, the need for growth of such companies is becoming more and more apparent that one of the ways to develop them is to use e-commerce. Therefore, considering the importance of the issue, the present paper has identified and prioritized the factors affecting the use of e-commerce in small and medium-sized enterprises in Iran.

The statistical population of this study consists of senior and middle managers of small and medium-sized enterprises located in Tehran. By using random sampling method, 130 people were selected as a statistical sample. With the help of a researcher-made questionnaire, the necessary information was collected and analyzed by using SPSS software version 24.

The results of the analysis of research hypotheses show that there is a significant positive relationship between technological factors and e-commerce. The correlation between organizational factors and e-commerce is also confirmed. In addition, the relationship between environmental factors and e-commerce is confirmed. Finally, other results show that the use of e-commerce can affect business performance.

Keywords: Competitive advantage, developing economy, perceived benefits, innovation, technology adoption.

1- INTRODUCTION

Changes and developments in recent decades at the global level, the rapid growth of technologies, the need for quick decisions of managers and the role of small and medium-sized enterprises in the economic growth and development of countries, have shown the importance of these enterprises more than ever. Small and medium-sized enterprises (SMEs) are the cornerstone of many economies. Such companies have accounted for a total of 0.095 of the world's companies[1]. In many developed and newly developed countries of the world, the creation and support of small and medium-sized enterprises is one of the main priorities in the economic development program to deal with economic problems, especially unemployment.

In Iran, according to the definition of the Ministry of Industries and Mines and the Ministry of Agriculture Jihad, SMEs are regional economic, service and industrial organizations with less than 50 employees. The Central Bank of Iran defines only institutions with less than 10 employees as SMEs. The Statistical Center of Iran refers only to firms with less than 10 employees as SMEs and recognizes all other types of firms as large manufacturing enterprises. But in another classification, Iranian industrial enterprises are divided into four groups according to the size of the enterprise: 10-49 employees, 50-99 employees, 100-149 employees and more than 150 people, among which the first three groups are considered as small and medium-sized enterprises. Small and medium-sized enterprises are the main driver of entrepreneurship, their employees are highly motivated and the activities and initiatives of individuals in these enterprises are quickly realized. Small and medium-sized enterprises make a significant contribution to transforming the economy into a competitive, dynamic, knowledge-based economy, as well as having the ability to grow steadily, create jobs and strengthen social cohesion.

The experience of many developing and developed countries shows that small and medium-sized enterprises can play a pivotal role in economic and industrial development for various reasons:

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- 1- They support the mobilization of national resources and thus create job opportunities, welfare and poverty alleviation,
- 2- They help vulnerable groups, including youth and women, who have limited capacity to contribute to their country's economic development,
- 3- It can play a pivotal role in realizing the privatization process in the country,
- 4- Development of small and medium-sized enterprises promotes democracy and participation of entrepreneurs in the economic, political and social system of the country, and
- 5- Small and medium-sized enterprises are flexible and innovative, and in many sectors of the industry they have a significant competitive advantage over large industries. This enables them to respond more quickly and efficiently to increasing global developments.

The economic impact of such companies is usually more pronounced and significant in developing economies. In today's fast-paced digital economy, small and medium-sized enterprises are expected to use e-commerce for excelling in a competitive environment [2].

Despite the fact that these researches have a significant contribution in different fields, no research has the ability to answer all the relevant questions in the field of research. Therefore, future research pathways will provide deep and extensive knowledge in the field of e-commerce in small and medium-sized enterprises. Initially, the results of this study indicate that all underlying factors have significant effects on the performance of small and large businesses. Therefore, in other studies, more research is needed to discover the reasons for these important connections. Secondly, these studies include an important subset of underlying factors in order to understand how each of them relates to the performance of these types of enterprises. Thirdly, this study generally examines small and large businesses and will provide a similar research framework in different industries.

Studying the underlying factors of the use of e-commerce by SMEs is very interesting because this topic is not very familiar to such enterprises and is used in a few companies. Therefore, the present study intends to identify and categorize the factors affecting the use of e-commerce in SMEs. However, it should be noted that due to the many differences between small and medium-sized companies, it is not possible to accurately generalize the results of the research to all companies.

2- Thematic literature

E-commerce in its modern form was formed in the 1930s based on the electronic exchange of data, i.e. the electronic exchange of standardized documents from one computer to another. The electronic exchange of information provided the ground for the electronic transfer of commercial documents to companies, so that the need for human intervention in this process was minimized. Like most business concepts and terms, the word e-commerce has many definitions and no single definition. Divergence in the definitions of e-commerce reminds one important point: if e-commerce is just a technology, it must have a unity of definition. Since this does not exist, we can say that e-commerce is more than just a technology. In short, all definitions of e-commerce imply that this phenomenon is not limited to the buying and selling of goods, but also includes pre- and post-sales activities throughout the supply chain. According to Porter, the use of e-commerce is no longer an option but a form of coercion, and companies are forced to use it.

E-commerce can also be defined as: buying and selling information, products and services through computer networks. We extend this definition to include the following: Supporting all forms of business transactions through digital structures and their elements which include: digital market, electronic data interchange and e-commerce. From Clark's point of view, e-commerce is any kind of exchange of information related to business through electronic tools. Honari and Mahboob state that e-commerce is the process of buying, selling, transferring or exchanging products, services or information through computer networks connected to the Internet. As a result, it seems that companies and suppliers will get a lot of benefits if they have the necessary conditions to take advantage of e-commerce achievements. E-commerce has created important opportunities for companies through which companies can expand their market share and enter the international market. This can be done with the least cost and minimum investment. In the world of e-commerce, companies have the opportunity to connect more with both suppliers and customers, which in turn leads to increased sales and on the other hand, leads to access to more resources at reasonable and low prices. In general, rapidly increasing the speed of computing and processing information and transferring technology in e-commerce reduces downtime and thus increases productivity. Market development, cost reduction, supply chain improvement, market access speed, reduction of communication costs,

improving customer relationship are some of the benefits that e-commerce has provided for organizations and businesses [3].

On the other hand, it should be noted that among the IT adoption studies, only a small percentage is allocated to the topic of e-commerce and adoption in small and medium-sized enterprises. Therefore, solving this challenge can be a big step for SMEs to move towards taking advantage of high-profit and low-cost e-commerce (compared to traditional commerce) and create more sensible decisions by the managers of these companies. This is because e-commerce is not only a valuable opportunity for companies but also a serious challenge for them and requires extensive changes in infrastructure, strategic planning and organizational structure. In this regard, many small and medium-sized enterprises are trying to adopt new technologies that support their business activities[4]. In this regard, a wrong decision can have a very devastating effect on SMEs. In general, many small and medium-sized enterprises are trying to adopt new technologies that support their business activities [4]. On the other hand, in developing countries, the identification, adoption and implementation of new technologies is associated with many problems [5].

Among the studies on technology adoption, only a small percentage are devoted to the adoption of e-commerce in SMEs [3]. Nelso et al. argue that identifying aspects of e-business that may lead to greater success and trying to direct the funds allocated to expand infrastructure in this area is one of the most important issues to be addressed [3]. On the other hand, the adoption of e-commerce may put small and medium-sized enterprises in a better position to compete in the global markets that they face today. In general, developing countries (such as Iran) face more problems in adopting and implementing e-commerce than developed countries. Some of these problems are lack of communication infrastructure, lack of specialized and qualified personnel, lack of proper information and awareness for adoption of such business by customers, lack of reliable distribution systems for physical delivery of goods to customers, relatively low Internet penetration rate and lack of suppliers of the Internet at the level of such countries [6]

3- Development of hypotheses and research model

Some studies show that small and medium-sized enterprises (SMEs) use e-commerce more slowly than their larger counterparts, which is at odds with the potential benefits of using e-commerce for such companies [8][7]. Such a contradiction raises the question of why SMEs behave in this way. A number of previous studies have focused on barriers to the use of e-commerce in SMEs and have not addressed this issue much [11][10][9]. For example, Ling states that in general, two categories of internal and external environmental factors should be considered as influential factors in the decision to use e-commerce in SMEs. Rashid and Karim divide the factors of using e-commerce into organizational, technological, individual and environmental factors [12].

According to the study of Seido et al. (2019) the underlying factors of using e-commerce in SMEs are: perceived benefits, adaptability, perceived costs, perceived risk, perceived security, complexity, testability and observability. These factors can be classified into technological factors [13]. Also, some items such as financial resources, staff expertise, senior management support and innovation can be considered as organizational factors underlying the use of e-commerce[13]. Ling et al. believe that the three factors of perception of e-commerce benefits in the organization, organizational readiness and external pressures on the organization to use technology, are effective in using e-commerce in small businesses. Some researchers have identified the factors influencing the use of e-commerce in small businesses by using the framework of technology, organization and environment. The technology factor includes the perceived direct and indirect benefits of e-commerce. The organizational factor includes the expected financial cost and technical capability, and the environmental factor is similar to the external pressure factor in the study of Yakovu et al., but has a new variable: the perception of government pressure. In this model, the notion of indirect benefits is not recognized as an important factor.

In this regard, Ramdani et al. and Kramer have introduced the factors of industry type, market area and company size as the underlying factors of using e-commerce [2]. In addition, from Putra and Santoso's point of view, factors such as competitive pressures, technology infrastructure, financial support, government support and vendor support are considered as underlying environmental factors. In this regard, Putra and Santoso[2] in their research examined the underlying factors on the performance of e-commerce in the business of small and medium-sized enterprises. They modeled structural equations by using data from 325 small and medium-sized enterprises in Indonesia by the partial least squares method. The result of their research show that organizational contextual factors are considered as the most important predictor of using e-commerce, followed by technological and environmental factors. Other findings show that the underlying factors of using e-commerce have a positive effect on the performance of the companies. Also, the results of Abbas et al.'s research show that technological, organizational and environmental

factors have a direct impact on the intention to adopt e-commerce in small and medium enterprises in Pakistan. Other results also show that there is a trend to imitate the successful approach of Pakistani SMEs that have been able to successfully avoid the risks of e-commerce technologies [14]. In addition, Al-Dhahrani shows in his research that the adoption of e-commerce has an impact on the management strategies of small and medium-sized businesses. Many participants claimed that the entry of e-commerce into the Saudi market has also changed their business plans and strategies [15]. These findings identify the key factors in adjusting and predicting the relationship between e-commerce and business strategy.

Based on this, research hypotheses can be formulated as follows:

Hypothesis 1: Technological factors affect the use of e-commerce in SMEs.

Hypothesis 2: Organizational factors affect the use of e-commerce in SMEs.

Hypothesis 3: Environmental factors affect the use of e-commerce in SMEs.

Hypothesis 4: The use of e-commerce affects the performance of SMEs.

Based on the developed hypotheses and according to the study of Putra and Santoso, the conceptual model of the research is presented as follows:

4- Research methodology

This research is an applied research, since it describes the factors affecting a phenomenon that can be useful for SMEs managers and decision makers in formulating strategies and solutions and adds to e-commerce literature.

4-1. Statistical population, sampling method and sample size

In this study, senior and middle managers of small and medium-sized enterprises located in Tehran were considered as the statistical population; then, due to their high number of quantity, simple random sampling was performed; by using random sampling method, 130 people were selected as a statistical sample. Next, research questionnaires were distributed among them and a total of 100 completed questionnaires were collected.

4-2. Methods and tools of data collection

In this research, to explain the literature and to formulate a theoretical framework, the method of collecting library information, including the study of books, papers, reputable journals, documents and reports of companies, and the like, is used. Then, field method and questionnaire tool are used to find answers to research questions and assess hypotheses.

A researcher-made questionnaire was used to collect data. The basis of the present research questionnaire is the components identified in Putra and Santoso research [2]. In fact, the main structure of the questionnaire is the same components and indicators extracted from this research. The questionnaire of the present study is designed and implemented according to the 5-point Likert scale. In this study, Cronbach's alpha was calculated by using SPSS 24 software. Table 1 shows the output of this process:

Table 1: Cronbach's alpha results

Key variables	Cronbach's alpha	Acceptable alpha	Confirmation / non-confirmation of reliability
Technological factors	0.969	Above 0.7	Confirmation of reliability
Organizational factors	0.981	Above 0.7	Confirmation of reliability
Environmental factors	0.965	Above 0.7	Confirmation of reliability
E-commerce	0.990	Above 0.7	Confirmation of reliability
Business performance	0.989	Above 0.7	Confirmation of reliability

The Cronbach's alpha for all variables as well as the entire questionnaire in the table above shows that the questions are appropriately correlated. It can be thus stated that if you use this questionnaire again and by using the same respondents (generally under similar conditions) to measure the desired trait, no significant difference in the answers would be provided. Therefore, total reliability and reliability of variables have been established in this study.

5- Analysis of findings

Correlation analysis is used to ensure a significant correlation between research variables. The following table shows the results of the correlation test between the research variables:

Table 2: Correlation test

Variables	Technological factors	Organizational factors	Environmental factors	E-commerce	Business performance
Technological factors	1	0/980 0/000	0/974 0/000	0/988 0/000	0/990 0/000
Organizational factors	980 0/ 000 0/	1	0/953 0/000	0/983 0/000	0/987 0/000
Environmental factors	974 0/ 000 0/	0/953 0/000	1	0/975 0/000	0/979 0/000
E-commerce	988 0/ 000 0/	0/983 0/000	0/975 0/000	1	0/991 0/000
Business performance	990 0/ 000 0/	0/987 0/000	0/979 0/000	0/991 0/000	1

As shown in the table above, the correlation coefficient between technological factors and e-commerce is equal to 0.988. Since its significance level is less than 5% (0.000), it can be said that there is a significant positive relationship between these variables. So the first hypothesis is confirmed. Also, the correlation coefficient between organizational factors and e-commerce is equal to 0.983 and since its significance level is less than 5% (0.000), it can be said that there is a significant positive relationship between these variables. So the second hypothesis is also confirmed. The correlation coefficient between environmental factors and e-commerce is equal to 0.975 and since its significance level is less than 5% (0.000), it can be said that there is a significant positive relationship between these variables. So the third hypothesis is also confirmed. In addition, the correlation coefficient between e-commerce and business performance is 0.991; since its significance level is less than 5% (0.000), it can be said that there is a significant relationship between these variables. So the fourth hypothesis is also confirmed.

The fourth hypothesis states that the use of e-commerce affects the performance of SMEs. In order to investigate the causal relationship between the variables in the fourth hypothesis of the research, regression method can be used. The results of this analysis can be seen in the following tables:

Table 3: Regression coefficients

Summary of the model				
Model		Adjusted R squared	Standard error of estimation	
	91	82	81	22660

Table 4: Regression analysis

Regression coefficients						
Model		Un-standard coefficients		Standard coefficients		
			Standard error	t		
	Instant	63	69		81	00
	Commerce	18	18	91	209	01

According to the results of the above table, it can be seen that the t-statistic related to e-commerce was equal to 72.209 and its significance level (p-value) is 0.000. Considering that the level of error considered for this study was 0.05, so in the case of the e-commerce variable, it can be concluded that this variable has a significant relationship with the level of error of 5% with the company's business performance because the significance level of this variable is less than 5%. Therefore, the fourth hypothesis is confirmed. The adjusted determination coefficient is equal to 0.981 and this indicates that approximately 98% of the changes of the dependent variable can be explained by the independent variable of the model (e-commerce), which shows the explanatory power of this regression. Finally, the following table shows the results of the Friedman test from the first to third hypotheses:

Table 5: Friedman test

Row	Components	Average	Rank
1	Technological factors	3.00	1
2	Organizational factors	1.92	2
3	Environmental factors	1.09	3

In performing the Friedman test and by referring to the table above, it is determined that from the perspective of the respondents, the components of "technological factors" are in the first places of importance with an average of 3.00. That is, it is more important than other components, while the components of "organizational factors" and "environmental factors" have the second and third places of importance.

6- Conclusion

In developing countries, small and medium-sized enterprise owners also have difficulty identifying and determining the assistance they need and this problem seems to be due to the complexity of the organizational challenges facing them. In addition, weaknesses and inadequacies such as lack of financial resources and problems in obtaining

banking facilities, lack of specialized personnel in industries and insufficient knowledge and skills of existing staff, old machines, high interest rates on facilities, ambiguity of some commercial rules and regulations, increased production intermediaries, widespread smuggling of goods into the country, a large number of current foreign competitors in the market, consumer acceptance of foreign products, traditional activities in the field of industry, and lack of economic, and financial and managerial knowledge especially at the time of establishment, are considered as an obstacle for the optimal operation of small and medium industrial enterprises. Removing these obstacles, which go back to both the companies themselves and the government, can largely provide many entrepreneurial opportunities in small and medium-sized industries and bring about balanced and sustainable development of the country's manufacturing and industry sectors. Therefore, it is suggested to government, legislative institutions and authorities to play an important role in the development of small and medium-sized enterprises by enacting laws or formulating budgets and providing support, facilities and executive strategies.

On the other hand, most of small and medium-sized enterprises lose the quality of products and services due to the high cost of mechanization and lack of familiarity with new technologies over time. And their ability to maintain the regional and global position will be diminished. Therefore, it is recommended that the necessary loans to purchase and install the required hardware and equipment and establishing a communication network between small and medium-sized enterprises with each other and with the organizations supporting them through information technology and computer networks should be considered by the government institutions. In general, by considering the special role of small and medium-sized enterprises in creating employment and economic growth and helping to create and maintain social stability, and by considering their privileged role in increasing exports and creating inventions and other irreplaceable functions of small and medium-sized industries, it seems that one of the best ways to create comprehensive economic and social development of the country is to pay special attention to the importance and role of this group of enterprises by all policy makers, planners, legislative and executive institutions.

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