

Analysis of Organizational Factors Effect on Performing Electronic Commerce Strategy: A Case Study of the Namakin Food Industry

Seyed Hamidreza Hejazi Dehghani, Neda Khounsari

Abstract—Quick growth of electronic commerce in developed countries means that developing nations must change in their commerce strategies fundamentally. Most organizations are aware of the impact of the Internet and e-Commerce on the future of their firm, and thus, they have to focus on organizational factors that have an effect on the deployment of an e-Commerce strategy. In this situation, it is essential to identify organizational factors such as the organizational culture, human resources, size, structure and product/service that impact an e-commerce strategy. Accordingly, this research specifies the effects of organizational factors on applying an e-commerce strategy in the Namakin food industry. The statistical population of this research is 95 managers and employees. Cochran's formula is used for determination of the sample size that is 77 of the statistical population. Also, SPSS and Smart PLS software were utilized for analyzing the collected data. The results of hypothesis testing show that organizational factors have positive and significant effects of applying an e-Commerce strategy. On the other hand, sub-hypotheses show that effectiveness of the organizational culture and size criteria were rejected and other sub-hypothesis were accepted.

Keywords—Electronic commerce, organizational factors, attitude of managers, organizational readiness.

I. INTRODUCTION

TODAY, information and communication technology is one of the phenomena affecting most organizations and companies. The rapid growth of e-commerce in developed countries and the resulting competitive advantages means that developing countries must quickly revise their commercial and financial strategies and policies. The traditional methods of strategy development are no longer valid for the ever changing environment of most organizations. Most organizations understand the effect of the Internet, and especially e-commerce on their future and are trying to implement suitable strategies in this area [1]. This strategy means something beyond changes to the products or services demanded in the past, and include new innovative ways of attracting customers. This process requires a dynamic and committed management method in order to involve people in the strategy process [2]. The digital revolution has created comparative advantages for organizations in the long-term, has increased the

implementation speed of e-commerce and has led to increased innovation and creativity in organizations [3]. Before the commencement of any project or strategy, organizations must be sure that the e-commerce program is in line with the overall strategy, and also is not opposed to the current goals, ideals and values of the company [2].

Among the studies about the acceptance of information technology, only a very small number focus on small and medium-sized businesses [4]. The support of the senior management is one of the key factors in the success of any complex process such as the implementation of e-commerce in an organization [5]. On the other hand, one of the major challenges of managers in organizations is the correct development and implementation of strategies. By strengthening organizational factors, organizations can achieve a higher rate of success in the implementation of new strategies, while management ignorance of organizational barriers can intensify these barriers and hinder in the goal of reaching a healthy organization [3]. The implementation of e-commerce is a type of innovation and change, and is therefore, affected by factors that positively and negatively influence its implementation. Various factors affect the implementation of e-commerce strategies; as a result, investigating the factors affecting the use of e-commerce is vital, as it helps managers understand those that have negative effects and hinder the use of e-commerce and those that can act as positive and facilitating. This information can help to create a better and more comprehensive plan in order to overcome the barriers in the implementation of e-commerce and strengthen the facilitating factors [6]. Due to their role as the structure on which the foundation of e-commerce is created, organizational factors play a key role in the success or failure of innovative strategies. Organizational factors investigated for their role in the success of e-commerce strategies include organizational culture, human resources, organizational size and organizational structure. Due to their important role in defining the activities and actions of an organization, the available products or services are also investigated as one of the organizational factors. This study aims to fill the gap in the research investigating the effects of organizational factors on e-commerce strategies. The proposed model in this study will be tested using structural equations. The results of this study can help governments and managers in the implementation of such strategies and also guide future research.

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II. LITERATURE SURVEY

A. E-Commerce

E-commerce is the buy, sell, transfer and trade of products, services and information using computer networks including the Internet. According to the views of the European Union, e-commerce means electronic commercial interactions in which electronic interactions have replaced physical interactions and direct physical contacts. One can also say that e-commerce is a commercial interaction without the use of paper, in which electronic interactions and tools such as emails, electronic bulletin boards, electronic funds transfer, websites and other network-based technologies are used. In other words, the electronic data transfer is the backbone of e-commerce [5]. Other definitions of e-commerce can cover different dimensions including:

- Communication view: E-commerce is the electronic delivery of information, products or services or electronic transfer of funds using phone lines, computer networks or any other electronic tool.
- Commercial view: E-commerce is a tool that enables various businesses and their partners and customers to improve factors such as quality of services, delivery speed and other factors while reducing the costs.
- Business process view: E-commerce is the use of technology for automation of business processes and flows [7].
- Service view: E-commerce is a tool that supports the need of governments, companies, consumers and managers for reduction of service costs, improving the quality of services and improving the delivery speed of services.
- Educational view: E-commerce creates the necessary conditions for electronic education in schools, universities and other organizations including business organizations.
- Cooperative view: E-commerce is the framework that creates the necessary condition for cooperation between people inside and even outside organizations.
- Information technology view: E-commerce is the tools and information technologies specifically created to support and advance workflow and business interactions.
- Social view: E-commerce creates a place of education, cooperation and interaction for members of the society [6].

B. Organizational Factors

Organizational factors play an important role in the success or failure of e-commerce as the foundation on which e-commerce (as a new technology) is created. Leadership and management, financial foundations, organizational culture, human resources, size and structure of the organizations are the major organizational factors. Also, products and services provided by the organization are considered as one of the organizational factors due to their important role in determining an organization's activities. Given the fact that these factors are in the direct control of the organization, investigating their situation and their effective management can create an ideal organizational foundation for the

implementation of e-commerce. This leads to purposeful and congruent design of information systems based on a organizational situation which reduces wasted resources [8]. By strengthening these factors, organizations can achieve better success in the implementation of strategies, while the ignorance of managers about organizational barriers can hinder efforts to achieve a healthy organization [3].

1) Organizational Culture

Organizational culture is developed in the context of larger cultural structures such as national or ethical cultures [9]. In fact, according to experts, organizational culture is the pattern for essential hypothesis discovered, innovated or developed by a specific group of people which teaches others in the organization about adaptation to the internal and external environment of the organization. If this pattern is effective overtime, it will receive credibility and forms a correct method of understanding, thought and feeling thought to new members of the organization in order to help them overcome their problems.

2) Human Resources

Human resources is the combination of employees of the organization, methods for improving these employees, and their characterizations including education, work methods or fields, human resources management, method of creating values for employing new personnel, the criteria for selection and advancement within the organization, career prospects and culture of employees within an organization. As one of the most important resources of an organization, human resources can help organization use information, technology, materials, tools, budget and other resources to create the necessary products and services. It is through the correct performance of human resources that an organization can show acceptable performance. The necessary human resources of an organization include creating the proper environment for research and development using educated and academic employees, and also the proper use of technicians in technical and engineering jobs. Empirical studies show that one of the tools for development of e-commerce within an organization is increasing the investment in research and development areas [10].

3) Organization's Size

The size of an organization is determined based on its number of employees. The size can be determined based on a certain unit, section or even the organization as a whole. An organization is designed in order to achieve certain goal. Along with the growth and development of an organization, the problem of training and a dedicated unit for employee training will also appear. Some experts who have studied the relation between the size and structure of an organization believe that organizations with larger hierarchies and with larger geographical spread are more capable of the transfer of employees within the organization [11].

4) Organizational Structure

Organizational structure is the method used to divide,

organize and coordinate responsibilities within an organization. Organizations create such structures to coordinate important factors in their activities and control their members. Organizational structure is one of the main pillars of an organization along with goals, technology and human resources. There is a strong and positive relation between a flexible and organic organizational structure and technological direction of an organization [12].

5) Products and Services

Product is what an organization delivers to the market and has aspects including product design, properties, brand name and packaging. Services are the type of commercial activity that create value for customers in a certain time and location, and therefore, creates a positive and desirable effect for service recipient [13]. E-commerce can improve the quality and promotion of products and services through distribution of information and direct interactions with customers [14].

6) Attitude of Managers toward E-Commerce

The ability to work with computers and utilize computer networks such as Internet is one of the requirements for managers in the modern era, which means that information technology is an integrated part of any management job. Managers must be able to encourage technical experts to think about new innovations and technologies in order to change the nature of the jobs within the organization and improve productivity and effectiveness of activities. In today's world, the traditional management system has undergone great changes and the massive flow of information means that the decision-making process requires managers to be familiar with information systems and their use. The challenge of information and dealing with information by senior managers of an organization requires fundamental changes in the organization and replacement of traditional management systems with interactive systems. The technological growth on one hand and the changes from static to dynamic organizational processes on the other hand means that organizations need to revise their activities and processes [15].

C. Organizational Readiness

Evaluating the readiness is done by evaluating different dimensions of an organization in order to understand the readiness of each part of an organization for accepting e-commerce efforts. Using e-commerce requires creating the necessary foundations and structures [16]. Some of these changes include acquisition of new computers and creating a local network, financing and other similar factors.

1) Financial Readiness

This readiness investigates the allocation and use of financial resources and different attitudes in this regard [8]. It is impossible to create a successful e-commerce structure without creating the proper financial foundations which is only possible through support of banks or other financial institutes [17]. Commerce using electronic market tools can have a negative effect on an organization's credit; some evidence suggests that financial institutions are still reluctant

to provide financing for Internet-based businesses [18].

2) Technical Readiness

Technical and telecommunication foundations necessary for the spread of e-commerce include improving the penetration rate of fixed, mobile and satellite phones, improving and modernization of postal services, improvement of computer equipment including hardware and software, improving the Internet and its penetration rate through an increased number of ISPs and reducing the cost and artificial limits on Internet connections [19].

D. Implementation of E-Commerce Strategy

An organization's strategy concerns its method for competing with the competition, methods for reaching the organizational goals, as well as the policies and plans created to this end. However, the fact is that strategy is useless without proper implementation [20]. The strategic plan of an organization shows its worth in the implementation phase. It is in this phase that short-term plans agreed upon in the strategy development phase are implemented. One of the first actions that should be carried out in the implementation phase is starting the e-commerce unit [21].

III. STRUCTURE AND HYPOTHESIS

Fig. 1 shows the conceptual structure of this study which depicts the effect of organizational factors on the implementation of an e-commerce strategy.

This study includes the following main and secondary hypotheses:

Main hypothesis:

- Organizational factors affect the implementation of an e-commerce strategy.

Secondary hypotheses:

1. Organizational culture affects the implementation of an e-commerce strategy.
2. Human resources affect the implementation of an e-commerce strategy.
3. Organization's size affects the implementation of an e-commerce strategy
4. Organizational structure affects the implementation of an e-commerce strategy
5. Products or services affect the implementation of an e-commerce strategy

IV. METHODOLOGY

A. Sampling and Scale

The statistical population for this research is 95 managers and employees that 77 persons of them were chosen by Cochran formula, as it is presented in (1).

$$n = \frac{(z^2 pq/d^2)}{(1 + 1/N ((z^2 pq/d^2) - 1))} \quad (1)$$

where: Z= the value for the selected alpha level, P= estimated proportion of an attribute, Q=1-p, N= population size, D= the acceptable margin of error.

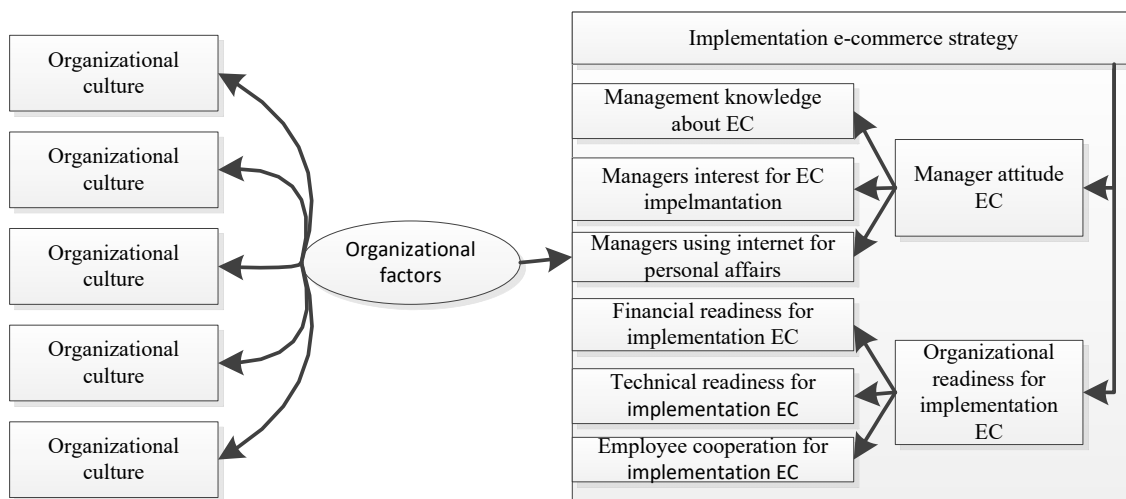


Fig. 1 Study's conceptual framework

TABLE I
 CRONBACH'S ALPHA

Factor	Cronbach's alpha
Organizational culture	0.71
Human resource	0.72
Organization's size	0.71
Organizational structure	0.71
Products and services	0.71
Organizational factors	0.84
Implementation of e-commerce strategy	0.84
Attitude of manger	0.81
Organizational readiness	0.85
Mangers knowledge	0.73
Interested manager	0.77
Personal affairs	0.77
Financial readiness	0.81
Technical readiness	0.83
Employee cooperation	0.7

In this research, a Likert scale is used for measuring factors. Also, a questionnaire is used for gathering the information of the Namakin food industry. Based on the conceptual model for this research, five questions for organizational culture, six questions for human resources, four questions for the organization's size, five questions for organizational structure, six questions for products and services, six questions for managers knowledge, six questions for attitude of manager, nine questions for financial readiness, 10 questions for technical readiness and three questions for employee cooperation are used.

B. Validity and Reliability

In the PLS method, two parts are utilized for checking the validity and reliability, measurements model and structural model. For this reason, item reliability, convergent and divergent validity are applied. For item reliability, three criteria are considered including Cronbach's alpha, composite reliability (CR) and factor loading.

1) Cronbach's Alpha

In this study, the amount of Cronbach's alpha is calculated by using SmartPLS software and presented in Table I. It is clear that Cronbach's alpha for all factors are more than 0.7 that show reliability of the questionnaire.

2) Composite Reliability

Other criterion for measuring reliability is CR. The amount of CR should be more than 0.7 to show reliability of the model, as shown in Table II.

TABLE II
 COMPOSITE RELIABILITY

Factor	CV
Organizational culture	0.80
Human resource	0.82
Organization's size	0.82
Organizational structure	0.80
Products and services	0.80
Organizational factors	0.81
Implementation of e-commerce strategy	0.89
Attitude of manger	0.80
Organizational readiness	0.77
Mangers knowledge	0.81
Interested manager	0.84
Personal affairs	0.79
Financial readiness	0.87
Technical readiness	0.87
Employee cooperation	0.83

3) Factors Loading

Factor loading is a statistical method that represents how much a factor explains a variable in factor analysis. The amount of factor loading should be more than 0.4 [22]. Table III shows the factors loading numbers.

4) Convergent Validity

Convergent validity refers to the degree to which a measure is correlated with other measures that it is theoretically predicted to correlate with. Average variance extracted (AVE)

is commonly used to assess convergent validity. The amount of AVE is presented in Table IV.

TABLE III
AMOUNT OF FACTOR LOADING

Structure	Factor	Loading	Structure	Factor	Loading
Organizational culture	F1	0.87	Interested manager	AL1	0.72
	F2	0.64		AL2	0.83
	F3	0.73		AL3	0.75
	F4	0.46		AL4	0.71
	F5	0.7		AL5	0.6
Human resource	HR2	0.81	Personal affairs	AOS1	0.77
	HR3	0.69		AOS2	0.66
	HR4	0.63		AOS3	0.72
	HR5	0.41		AOS4	0.58
	HR6	0.85		AOS5	0.56
	AS1	0.81		AMM1	0.55
Organization's size	AS2	0.56	AMM2	0.73	
	AS3	0.73	AMM3	0.8	
	AS4	0.81	AMM4	0.56	
	SS1	0.75	AMM5	0.76	
Organizational structure	SS2	0.68	AMM7	0.72	
	SS3	0.56	AMM8	0.6	
	SS4	0.75	AMM9	0.75	
	SS5	0.6	AF01	0.59	
	MK1	0.65	AF02	0.64	
Products/ services	MK2	0.7	AF03	0.65	
	MK3	0.58	AF04	0.44	
	MK4	0.59	AF05	0.64	
	MK5	0.6	AF06	0.86	
	MK6	0.68	AF07	0.46	
	AM1	0.62	AF08	0.61	
Mangers knowledge	AM2	0.60	AF09	0.65	
	AM3	0.82	AF10	0.72	
	AM4	0.7	HAM1	0.82	
	AM5	0.55	HAM2	0.83	
	AM6	0.58	HAM3	0.71	

TABLE IV
AMOUNT OF AVE

Factor	AVE
Organizational culture	0.45
Human resource	0.49
Organization's size	0.55
Organizational structure	0.46
Products and services	0.41
Organizational factors	0.47
Implementation of e-commerce strategy	0.81
Attitude of manger	0.59
Organizational readiness	0.53
Mangers knowledge	0.43
Interested manager	0.53
Personal affairs	0.45
Financial readiness	0.48
Technical readiness	0.41
Employee cooperation	0.63

5) Divergent Validity, Fornell and Larcker Method

If the numbers of the Diagonal matrix are higher than the lower numbers in the columns that means the model has suitable validity. Table V show the divergent validity is acceptable for the model. The numbers 1 to 10 are the factors as with other tables, respectively.

V.RESULTS AND HYPOTHESIS TEST

In this study, SmartPLS software is used to test hypothesis of research. Significant factor and standard coefficient of loading factor are calculated for the hypothesis tests. Significant coefficient by t-test and loading factor coefficient for each path can be seen in Figs. 2 and 3, respectively.

As can be seen in Fig. 2, the t-significant coefficient from organizational factors to the implementation of e-commerce is equal 13.3, which is more than 1.96. Thus, it shows the basic hypothesis of the research is correct. Furthermore, the standard loading factor coefficient is equal to 0.749 as can be seen in Fig. 3. It means the organizational factors determine 74.9% of variables in implementation of e-commerce strategy. Secondary hypothesis are presented in Table VI.

TABLE V
DIVERGENT VALIDITY, FORNELL AND LARCKER METHOD

	1	2	3	4	5	6	7	8	9	10	11
1	0.66										
2	0.56	0.73									
3	0.59	0.66	0.64								
4	0.13	0.33	0.36	0.69							
5	0.30	0.42	0.35	0.22	0.74						
6	0.18	0.39	0.30	0.17	0.25	0.67					
7	0.21	0.21	0.30	0.16	0.33	0.18	0.68				
8	0.32	0.32	0.30	0.32	0.14	0.10	0.06	0.79			
9	0.28	0.28	0.47	0.14	0.48	0.49	0.48	0.18	0.64		
10	0.35	0.35	0.35	0.35	0.44	0.04	0.06	0.35	0.28	0.70	
11	0.36	0.36	0.33	0.31	0.61	0.05	0.26	0.08	0.15	0.28	0.68

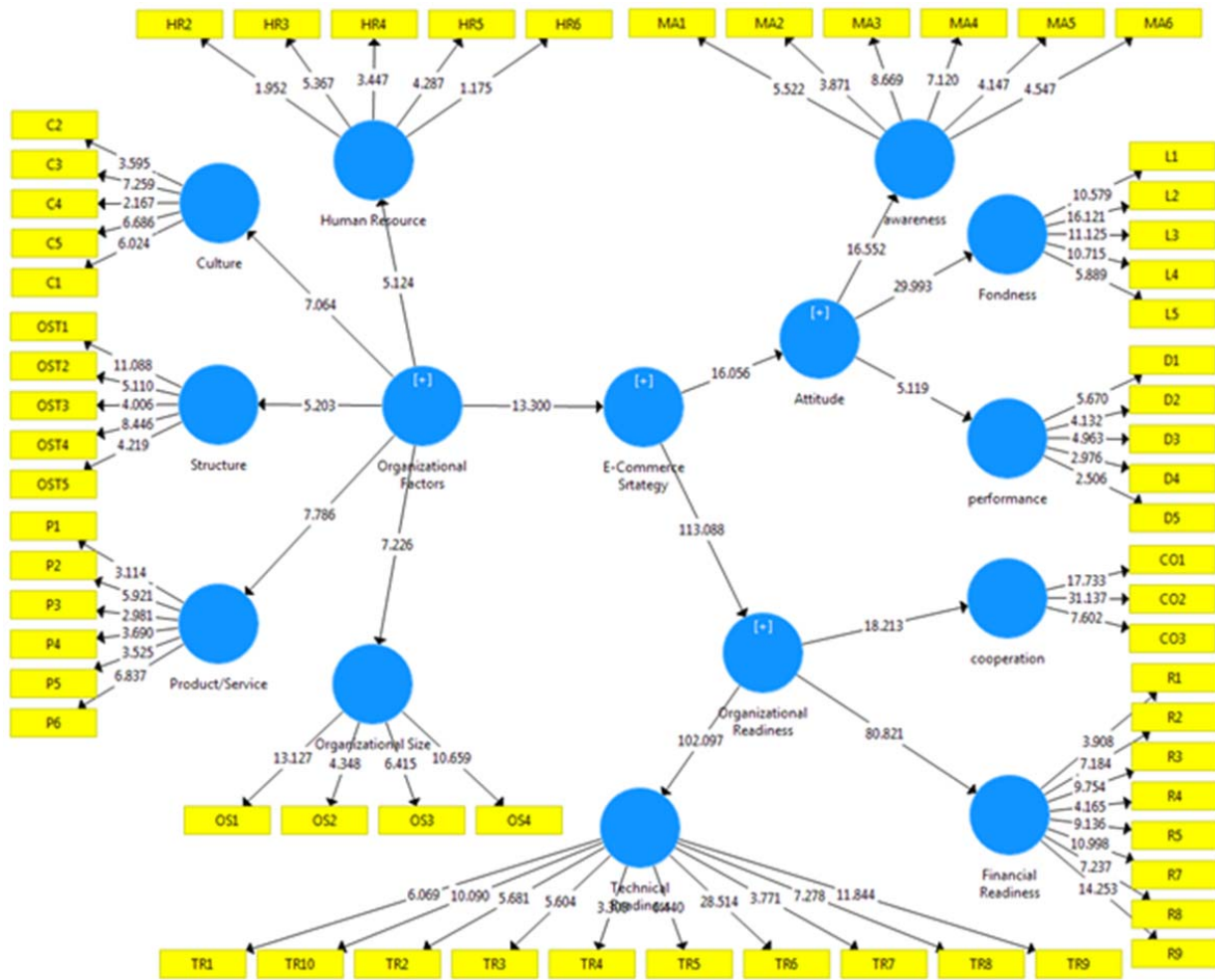


Fig. 2 T-value significant coefficient

TABLE VI
SECONDARY HYPOTHESIS

Hypothesis	Loading factor	t-value	Result
1	0.06	0.7	Hypothesis unaccepted
2	0.35	3.79	Hypothesis accepted
3	-0.08	0.8	Hypothesis unaccepted
4	0.31	2.67	Hypothesis accepted
5	0.37	3.62	Hypothesis accepted

VI. DISCUSSION AND CONCLUSION

Based on the results, the t-value for the relation between organization factors and the implementation of an e-commerce strategy was equal to 13.3. This value is higher than the critical t-value of 1.96, and thus, the hypothesis of organizational factors affecting the implementation of an e-commerce strategy is confirmed with a confidence of 95%. Also, the quantity of organizational factors' effect on the implementation of an e-commerce strategy was calculated to be 74.9%. Therefore, based on these results, organizational factors have a significant and positive effect on the implementation of e-commerce strategies.

First secondary hypothesis: Organizational culture affects the implementation of e-commerce strategy. Based on the

results, the significance coefficient was equal to 0.7, which is lower than the critical value of 1.96. Therefore, we can say with confidence of 95% that the effect of organizational culture on the implementation of e-commerce strategies was not significant and the first secondary hypothesis is rejected.

Second secondary hypothesis: Human resources affect the implementation of an e-commerce strategy. With a confidence of 95%, and given the fact that the t-value for this hypothesis (3.79) is larger than the critical value of 1.96, we can say there is a significant and positive relation which is calculated to be 0.35. Therefore, we can say with a confidence of 95% that the factor of human resources has a significant and positive effect on the implementation of e-commerce strategies. This also means that by improving the human resource factor by 1 unit, it is possible to improve the implementation of e-commerce strategies by 0.493 units.

Third secondary hypothesis: Organization's size affects the implementation of an e-commerce strategy. Based on the results, the significance coefficient was equal to 0.8, which is lower than the critical value of 1.96. Therefore, we can say that with a confidence of 95%, the effect of organization's size on implementation of e-commerce strategies was not significant and the third secondary hypothesis is rejected.

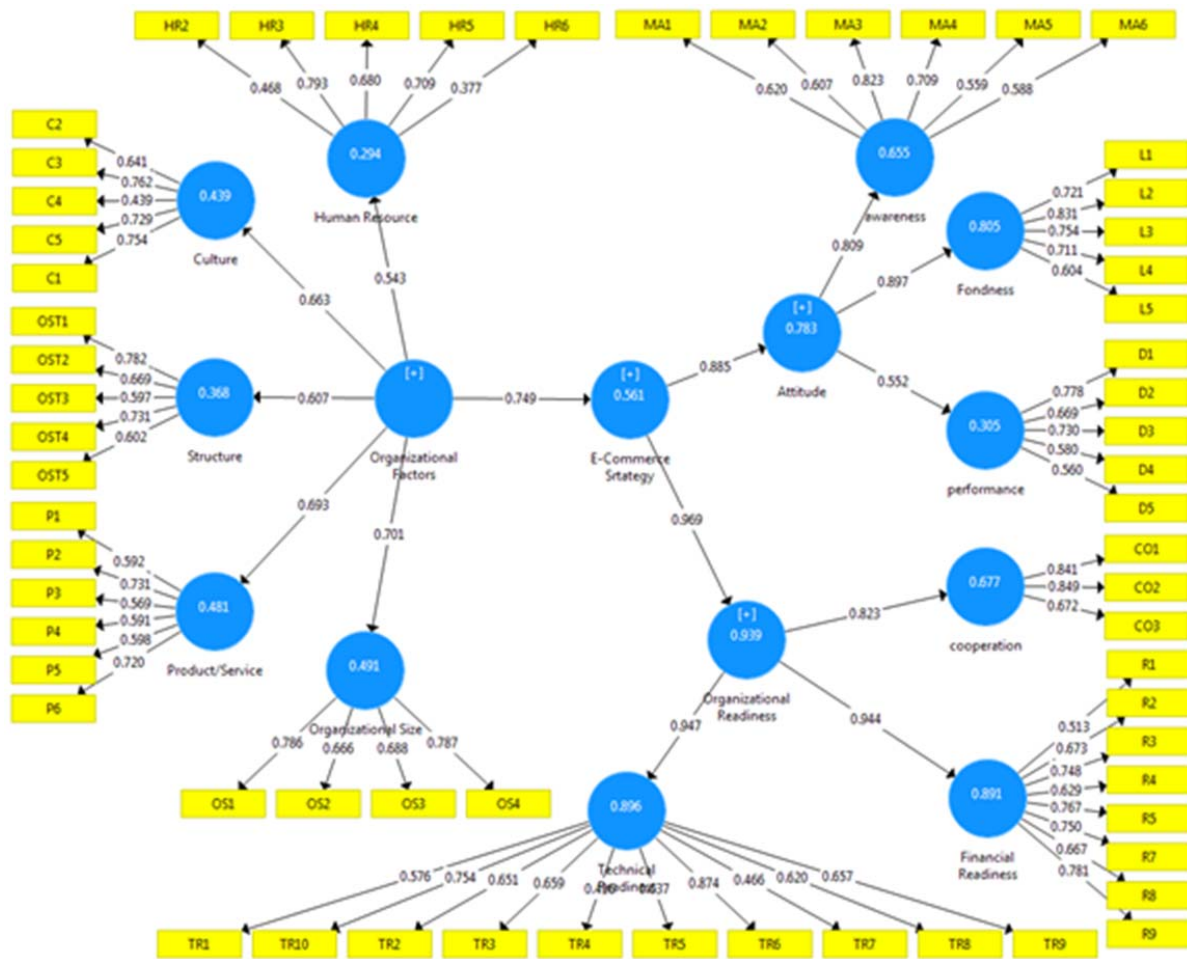


Fig. 3 Loading factor coefficient

Fourth secondary hypothesis: Organizational structure affects the implementation of an e-commerce strategy. With a confidence of 95% and according to the results, since t-value for this hypothesis (2.67) is larger than the critical value of 1.96, we can say that a significant relation exists which is positive and calculated to be 0.31. Therefore, we can say with a confidence of 95% that organizational structure has a significant and positive effect on implementation of e-commerce strategies. This also means that by improving organizational structure by 1 unit, it is possible to improve the implementation of e-commerce strategies by 0.31 units.

Fifth secondary hypothesis: Products or services affect the implementation of an e-commerce strategy. With confidence of 95% and according to the results, since t-value for this hypothesis (3.62) is larger than the critical value of 1.96, we can say that a significant relation exists which is positive and calculated to be 0.37. Therefore, we can say with a confidence of 95% that products or services have a significant and positive effect on the implementation of e-commerce strategies. This also means that by improving products/services by 1 unit, it is possible to improve the implementation of e-commerce strategies by 0.37 units.

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