Analysis of the major challenges affecting the applicant's lack of online shopping in Iran
(A conceptual model of E-commerce development in Iran)

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Abstract

What is certain is that changes in the interaction between seller and buyer, has not reduced the importance of customer, but in the complex competition between today organizations, customer is of great importance for all producers and service providers. Considering the lack of sufficient development of Internet markets and its low trading volume in Iran, this is a big challenge for Iran's e-commerce companies in order to remove obstacles to attract customers and to increase their sales and profitability. In spite of numerous factors, this study is tried to present and analyze a conceptual model to examine how the lack of required adequacy in terms of legal aspects, security, privacy, system, as well as customer preferences can influence the reduction of online shopping in Iran. This study assesses theses relationships using the obtained data of Iran's Statistical Center from 15 provinces regarding the status of e-commerce in the workshops. The proposed conceptual model was tested through Structural Equation Modeling (SEM) and according to the research hypothesis was used Partial least squares approach to estimate this model. Results show that effective measures to resolve legal uncertainties, is an essential prerequisite to increase the demand for e shopping. Accordingly, the more the policy makers, planners and business owners focus their attention to review, identify, and remove legal uncertainties and make the internet shopping easy and transparent, equally, the security concerns and privacy of buyers will be resolved, their preferences from face to face transactions to Internet purchase will be changed, and their system adaptability with this sort of trading will be increased. As a result, this can lead to increase the demand of online – shopping. Among these concerns, privacy had the greatest direct impact, and security concerns showed the greatest impact indirectly on the reduction of demand for Internet Purchase in Iran. The results of this study can assist policy makers, planners, and business owners to explain, predict, treat and rehabilitate the reality of e – commerce in Iran and help them in the process of its growth and development.

Keywords: Legal uncertainty, Preferences for face-to-face transactions, Security concern, Privacy concerns, system non – adaptability, lack of Internet customers, E – commerce.
1. Introduction
What is certain is that changes in the interaction between seller and buyer, has not reduced the importance of customer, but in the complex competition between today organizations, customer is of great importance for all producers and service providers (Fathian and Aqababaei, 2007). Considering the lack of sufficient development of Internet markets and its low trading volume in Iran, this is a big challenge for Iran's e-commerce companies in order to remove obstacles to attract customers and to increase their sales and profitability.

E – Commerce is one of the real and original features of the modern economy. In general definition, placing of orders for, goods, services and information exchange and sales conducted via computer networks including the Internet is called e – commerce (Iran Statistical Center, 2012). In this business, the most important subject for study is the vital factor, namely customer and the barriers, which hinder them to do Internet shopping. It is assumed that customers before purchasing the product compare the perceived benefits and risks of their shopping (Wang et al., 2003; quoted in Hasangholi Pour et al., 2013) and as long as customers monitor and control how their identity and financial information use by sellers, they may trust online shopping (quoted from Sanayei et al., 2010) and with reduction of face to face transactions to be encouraged system adaptability for this type of transaction. Bai et al., (2008) believe that in the field of e – commerce, intent on purchasing is the primary outcome of satisfactory before purchasing. Therefore, evaluation the process of placing the order and consumer behavior in the Internet is of great importance for e – commerce companies in order to attract customers, increase sales and profitability (Azizi and Negahdari, 2012). According to the findings of Tan & Guo (2005), in view of customers internet is a world of chaos; only when shopping is done that its advantages outweigh the disadvantages. According to Soopramanien & Robertson (2007) web users know the attractive opportunities of placing the order of the web, but barriers make them to prevent online purchasing. Based on the customer – centric view, Zadun (2006) states that the success of electronic stores is dependent on the beliefs and attitudes of the customers. In addition, the customer should have motivation, opportunity and access to the Internet to make a purchase and hence this kind of business will be succeeded.

According to the investigated theoretical grounds, results of the collected data from Statistical Center of Iran (2012), and by presenting and analyzing a conceptual model, the present study indicates that how the lack of required adequacy in terms of legal aspects, security, privacy, and system, as well as customer preferences can influence the reduction of online shopping in Iran. According to the Iran's Statistical Center, one of the main challenges of e – commerce in Iran is the lack of demand for placing the order via Internet. The results of this study can assist policy makers, planners, and business owners to explain, predict, treat and rehabilitate the reality of e – commerce in Iran and help them in the process of its growth and development. The paper is organized as follow that after Introduction, the second section presents the theoretical framework and hypothesis, in the third, fourth and fifth sections is introduced the model, research method and findings, respectively. In the section 6, 7, 8 is represented conclusions, management application of the model, limitations and recommendations, respectively.

2. Theoretical Framework and Hypothesis
2.1 - Law and Security
In the traditional world, consumer confidence can be achieved by a combination of experiences from the social, commercial and legal interaction and doing business over the time. However, these factors are not obtainable in e – commerce completely and customers do not have any physical
interaction with the seller. In this high – risk situation for the customer, vendors must develop strategies in order to prove the reliability of their company and to assist customers in making appropriate decisions (Xueming, 2002). Customer trust in technical and legal protections, such as electronic trust symbols in organizations is known (Pennanen, 2009). In the boundless world of e – commerce, the applicable law is a widespread issue faced by all online merchants (Chissick & Kelman, 2002). Selection the governing law of the contract allows the parties to predict the contract consequences safer and more reliable and avoid adverse and unexpected results (Shirvi, 2010). Researches show that the main concerns of the customers is non – compliance with the transaction obligations of the sellers (Grabner & Kaluscha, 2003). Conducting a transaction with a seller who has a good history of compliance with his/her obligations is relatively safe (Kim et al., 2008). According to McKnight et al., (2002), providing a detailed contract of transaction, in which is determined the rights and responsibilities of the parties to the transaction, is influential in the development of customers' trust. Experiences of other countries show that if the e – commerce happens, on the one hand, establishment and guarantee of security in the virtual world, on the other hand, solve the legal problems are the most important topics, so that it must be employed all legal possibilities along with technical facilities to be prevented cybercrimes (Abruei, F., & Akhavan Fard M., 2008). The absence of appropriate and legislations and lack of legal coverage are among important obstacles hindering e-commerce growth (Khamushi, 2014). Therefore:

Hypothesis 1 - During on – line shopping, legal uncertainties of customer affects on his/her security concerns.

2.2 - Security and Privacy
During the process of e – commerce, companies have many opportunities to collect and apply the personal information of individuals, who will be differentiated using personal relationships, personal services, and improving the customer relationships with customer (Cagaoan et al., 2014). The use of e – commerce and satisfactory could be influenced by security and privacy. Real or perceived concerns about the disclosure of personal information and feeling of customers’ insecurity provide challenges for good performance of e – commerce. The lack of security and its related concerns is one of the factors, which in the most studies is introduced as a factor affecting the growth and development of e – commerce (Molla, 2001). Customers are worries about disclosure of their private and financial information. Although most of the on – line sales sites guarantee their personal and private protection policies and safety of transactions, they don’t provide detailed information about how transactions and personal information are protected (quoted by Saeed Nia, Hamid Reza Bani Asadi, 2007). Considering the experts point of view, security is obtained by maintaining four principles, and privacy is one of them. This refers to the important subject that information should only be accessible by authorized persons (Stewart et al, 2004). According to Peterson et al., (1997), perceptions of web security demonstrate individual understanding of web security during procurement or sending personal or financial information. Hypothesis 2 – During on – line shopping, Customer security concerns affect his/her privacy concerns.

2.3 - Security and Customer Preferences
On-line shopping applicant (customer) is the main factor in the development of Internet business. Consumers trust websites that they feel that they established a good relationship with the customers, such as providing security policies, expression of these policies explicitly, and distribution of products and services clearly (Yang et al., 2009). This is generally believed that security improves
confidence and perception of security and high confidence increase certainly the use of e-commerce (Changsu et. al., 2010 quoted by Sheikhi et al., 2013). Customers' perception of security lead to expand and improve their confidence in the process on online purchasing and will encourage them to do this kind of purchasing (Hemphill, 2002). According to Miyazaki, A.D. Fernandez (2001), two risk factors of privacy and security are the main factors affecting non-acceptance of online shopping. O’cass and Fenech (2003) and Hsu & Chiu (2004) found that Internet self-efficacy is effective in shaping the individual behavior, and perception of web security impacts on attitudes regarding on-line shopping. In one study, 88.9% of people believed that if users trust the sites, they tend to do online transactions via that web site (Dwairi, 2013). So, increasing the security in the virtual world and electronic settings such as banking, trade, … can attract people well and the development will continue at the community level (Khamushi, 2014). Therefore:

Hypothesis 3 – During online shopping, customer’s security concerns affect his/her preferences to maintain face-to-face transaction.

2.4 - Customer Preferences and System Adaptability

Based on the customer-centric view, the success of electronic stores is dependent on the beliefs and attitudes of the customers. In addition, the customer should have motivation, opportunity and access to the Internet to make a purchase and hence this kind of business will be succeeded (Zadun, 2006). The process of the users' acceptance of the technology includes awareness, interest, evaluation, testing and acceptance. At the beginning, Internet acceptance for online shopping is influenced by general attitudes of the Internet as a new medium of communication and interaction by the users. Furthermore, attitudes to online shopping environment depend on the consumer perceptions of online shopping activity compared to buying in the store (Wang et al., 2003). Intention on online purchasing as an important variable that determines the behavior of final purchase, is the outcome of the evaluation the criteria such as Website quality, search for information and product evaluation by customers (Poddar et al. 2009). Internet shopping is desired and satisfying when sale sites have high speed, and simple access and not busy. Sites with simple access and low density shorten the time of sales and make the effort to perception the quality of online sales economical and optimal. Batengar and others found that the perceived convenience by customers on the internet has a positive effect on online shopping behavior. The success of online shopping is associated with the system adaptability to meet the needs of its customers (quoted Saeedi Nia, Hamid Reza, Bani Assad, 2007). In fact, intent on online shopping reflects the willingness of customers to purchase through website. The prerequisite for the use of a system is its efficiency and usefulness for citizens. The perceived usefulness of a system will lead to increase the use of that system and hence increasing the use and user's satisfaction are considered as criteria to measure the success of a system (Wang et al., 2007). Therefore:

Hypothesis 4 – Customer preferences to maintain the face-to-face transactions affect his/her system non-adaptability for online shopping.

2.5 - Privacy and Online Shopping

The major problems that affect people's behaviors for online shopping include privacy and security (Sajjad Nazir et al, 2012). The primary factor to be involved in trust on a company is that how much customers trust and believe their personal information protection. It is also very important that how company's website is reliable and easy to access (Marios Koufaris William, Hampton-Sosa, 2002 quoted from Sheikhi et. al. 2013). The studies of Gefen et al., (2003) and Pavlou & Gefen (2003) have shown that privacy and trust concerns are still two main factors for decision to disclose personal information on the Internet (Liao et al., 2011). Liu et al., (2004) and Belanger et al (2002)
believed that protection of privacy is a reason to show the accuracy and integrity of the transactions. As a result, it affects the decisions on transactions. Therefore: Hypothesis 5 – privacy concern is effective in reducing customers' online shopping.

2.6 - System Adaptability and Internet Shopping

Sellers should provide comfortable and appropriate shopping environment and required support for buyers to contribute to the process of buying by customers (Li Guo, 2011). Cheong et al believe that acceptance of a technology by users will lead to overall success, and electronic companies that have been successful in their acceptance by users, can establish long – term relationships with their customers and maintain this relationship (Yoon, 2007). The customer should have motivation, opportunity and access to the Internet to make a purchase and hence this kind of business will be succeeded (Zadun (2006). System quality refers to the quality of system components in order to achieve its transcendental goals and it could be evaluated by factors such as interaction, quality of web site and finally, factors affecting the quality of services includes variables such as choice, customization, community, and 24 - hours website accessibility (Rodger et al,2005). Citrin et al (2000) and Crespo & Del Bosque (2008) showed that acceptance of innovation in a particular field, such as information technology and not in all areas, has direct effect on the acceptance of online shopping by customers. Chang et al (2005) introduced in their study customer characteristics, product features, website and web properties related to the sales channel, as factors influencing the willingness and the use of online shopping. Hypothesis 6 – system non – adaptability is effective in reducing on line shopping demand.

3. Conceptual Model

Figure 1 shows the proposed conceptual model in this study. In this model, the lack of Internet customers as the dependent variable, legal uncertainty, as the independent variable and other variables (Preferences for face-to-face transactions, Security concern, Privacy concerns, system non – adaptability) play a mediating role.
4. Method
4.1. Sample and method
This is a quantitative, exploratory and applied research. This study focused on 15 provinces in Iran (Which complete data were: Bushehr, Tehran, Chaharmahal and Bakhtiari, Khorasan, South Khorasan, Khuzestan, Zanjan, Semnan, Sistan and Baluchestan, Fars, Kurdistan, Golestan, Mazandaran, Hormozgan, Hamedan and Yazd). To collect the data, data from the report of Iran Statistical Centre entitled “barriers to Internet business in the selected workshops with online buying and selling in Iran by province (2012)” was used which is the most reliable report. Some of the barriers identified in the report are used as variables in this study which are as follows: 1 - Legal uncertainty (uncertainty in the framework of law and regulations on internet sales. Based on the Article 1 of chapter 1 of the E-Commerce Act (2003), this law is a set of principles and rules that are applied for easy and secure exchange of information in electronic interfaces and using new communication systems) 2 - Customer preference (preference to maintain the current activity such as face to face exchange) 3 - Security concern (i.e. concern for the protection of data or system from dysfunction) 4 - Privacy concern (e.g. concern about the safe preservation of the identity during interaction with e-commerce system and protecting different types of collected data) 5 - System incompatibility (incompatibility of computer systems of customers or suppliers with workshop computer system. According to Article 2 of the Electronic Commerce Act (2003) any device or a set of devices connected to hardware - software that act by the implementation of automatic processing programs "data message") 6 - Lack of Internet customer (i.e. customers
applying shopping through the Internet. In fact, customer is an organization or individual who receives a product).
To predict the causes of inadequacy of shopping demand on the Internet, the proposed conceptual model is studied through structural equation modeling and the partial least squares method is used to estimate the pattern according to the research hypotheses.

4.2. Criteria

4-2-1- Coefficient of determination \( (R^2) \): Basic criteria to evaluate endogenous latent variables of the path model is the coefficient of determination. This index shows what percentage of changes of endogenous variable is done by exogenous variable. Values 0.67, 0.33 and 0.19 for the dependent variables in the structural path (internal) model are described substantial, moderate and weak, respectively; however, if endogenous latent variable is affected by a few (one or two) exogenous variables, average values of the coefficient of determination are also acceptable (Henseler et al., 2009; Chin,1998). Hair et al., (2011) described the values 0.25, 0.5 and 0.75 for the endogenous variables in the structural path model as weak, moderate and substantial, respectively.

4.2.2 Path coefficients (\( \beta \eta \)) and its significance: the bootstrap method (sample) was used to calculate the values of T-statistics to determine the significance of path coefficients. Path coefficients are used to assess the contribution of each predictor variables in explaining the variance of criterion variable. Path coefficient significance is a significant supplement and for beta coefficient (\( \beta \)) of the model. If the resulting value is considered above the least statistics at confidence level, the relationship or hypothesis is confirmed. At significance levels 90 percent, 95 percent and 99 percent, these values are compared with the least t-statistics 1.64, 1.98 and 2.58, respectively (Hair et al., 2011; Henseler et al., 2009).

4-2-3- Predictive relationship (Stone - Gieseler \( Q^2 \)): The predictive relationship is another indicator in evaluating the structural model and its quality, which aims to evaluate the ability of the structural model in prediction through blindfolding method. The most famous and best known criteria for measuring this ability is \( Q^2 \) Stone - Gieseler Index. Values above zero indicate that the observed values have been restored and the model has a predictive ability and it can be said that the structural model has an appropriate quality. About the predictive power of the model for endogenous latent variables, Henseler et al., (2009) introduced three values 0.02, 0.15 and 0.35 as weak, medium and strong values for this indicator, respectively.

4-2-4- Accuracy of validity and reliability: Given that each of the model variables is made up of an observable variable, so its indicators and criteria could not be calculated, that is, in fact, it shows number one. The main objective of this paper is to examine and test the structural quality of the proposed model. While all the indicators and data are approved and published based on the results of research projects of the Statistical Center of Iran as the most prestigious statistical institute.

4-2-5- validity or quality of structural model: In addition to the above indicators, overall fit index of the model in PLS is goodness of fit (GOF) index and is generally used in addition to verifying the authenticity or quality of the PLS. The index is between zero and one, and values close to one show the good quality of the model. The index examines the predictive ability of the model and that if the tested model was successful in predicting the endogenous latent variables or not. The index is multiplied square of the average communality and R Square Average.
4.2.6. Model and analysis: to analyze the data and examine the model hypotheses, the structural equation modeling with partial least squares approach (single item) was used. The reasons for using this approach are its high ability to predict the model, development of new models, supporting the combined and reflected measurement models, lack of sensitivity to the normality of data, sample size and especially that the model is single item. In this approach, the most widely used software (Smart-PLS) is used.

(Quoted from Asfidani and Mohsenin, 2014)

5. Findings
This section presents the main result of the study. Figure 2 shows the tested model of the relationship between the variables. The numbers in the circle are the explained variance of the variables and numbers on lines are the path coefficients between them and shows that 51.5 percent of the changes in dependent variable is done by the independent variables.

![Figure 2. The tested model in the relationship between the variables (source: findings)](image)

As can be seen in Figure 3, t-coefficients of all paths (number on lines) are positive and significant.
Also, direct and indirect coefficients and all the variables are reported in Table 1. According to the table, the legal uncertainty has a significant positive impact on customer security concerns in online shopping. Security concern and preference to maintain the current customer activity has a significant positive effect on online shopping. Security concern has a significant and positive impact on the privacy concerns of customer in online shopping. Preference to retain the current customer activity has a significant positive effect on incompatibility of customers and suppliers’ computer systems. Privacy concern has a positive significant impact on lack of customers for online shopping. Therefore, all hypotheses of this study are confirmed. On the other hand, indirect effect of variables of preference to maintain face to face exchange, legal uncertainty as well as security concern has a significant positive impact on the dependent variable. In the meantime, the most direct effect on the dependent variable is related to privacy concerns and the most indirect effect is related to security concern.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Direct effects</th>
<th>Indirect effects</th>
<th>Total effect</th>
<th>Variance explained</th>
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<tbody>
<tr>
<td><strong>On Lack of customer for Internet:</strong></td>
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<tr>
<td>Legal uncertainty</td>
<td>-</td>
<td>0.38</td>
<td>0.38</td>
<td>0.52</td>
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<tr>
<td>Security concern</td>
<td>-</td>
<td>0.57</td>
<td>0.57</td>
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<tr>
<td>Privacy concerns</td>
<td>0.52</td>
<td>-</td>
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<td>Preferences for face-to-face transactions</td>
<td>-</td>
<td>0.20</td>
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<td>system non – adaptability</td>
<td>0.34</td>
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<td><strong>On system non – adaptability:</strong></td>
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<td>Legal uncertainty</td>
<td>-</td>
<td>0.18</td>
<td>0.18</td>
<td>0.35</td>
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<tr>
<td>Security concern</td>
<td>-</td>
<td>0.28</td>
<td>0.28</td>
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<tr>
<td>Preferences for face-to-face transactions</td>
<td>0.59</td>
<td>-</td>
<td>0.59</td>
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<td><strong>On Preferences for face-to-face transactions:</strong></td>
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<tr>
<td>Legal uncertainty</td>
<td>-</td>
<td>0.32</td>
<td>0.32</td>
<td>0.22</td>
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<tr>
<td>Security concern</td>
<td>0.47</td>
<td>-</td>
<td>0.47</td>
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<td><strong>On Privacy concerns:</strong></td>
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<tr>
<td>Legal uncertainty</td>
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<td>0.60</td>
<td>0.60</td>
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<tr>
<td>Security concern</td>
<td>0.91</td>
<td>-</td>
<td>0.91</td>
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<td><strong>On Security concern:</strong></td>
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<tr>
<td>Legal uncertainty</td>
<td>0.66</td>
<td>-</td>
<td>0.66</td>
<td>0.43</td>
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</table>

In Figure 4, numbers in the circles are the indicator for examining the validity of redundancy ($Q^2$ Stone - Gieseler) and positivity of numbers are indicative of good quality of the model, and in other words, the model has the ability to predict.
In the present study, for tested pattern of absolute fit index given that the variables have one item, the average shared value is one and only the average square root of the coefficient of determination is calculated. GOF index for this model was obtained 0.69 which shows the overall utility of the proposed model.

6. Discussion and Conclusion
This study presented and analyzed a conceptual model and used data from census of the Statistical Center of Iran (2012) to examine how lack of qualification in the legal, security, privacy, systematic aspects as well as the type of customer preferences in shopping can affect reducing the applicant of the online shopping in Iran. Findings confirmed the power and overall utility of the model and hypotheses of this study and basically indicated that the necessary reforms to eliminate legal uncertainties for the development of online shopping in Iran is a key issue. Among the factors, privacy concerns showed the most influence directly and security concern the greatest impact indirectly on the lack of applicants for online shopping in Iran. In relation to the amount of variance explained by variables of the study, it was concluded that 51.5 percent of the variance in the dependent variable is explained by the study model.

(2007) and Chang et al (2005). Of course, Hsu (2006) performed a research on rejection of the conventional hypothesis in studies related to privacy concerns. His findings show that this factor in different countries, has a different effect on attitude. In other words, disclosure of information on each level of the website is different in different countries, and this shows the effect of political system, cultural background and economic development. A researcher called Wu (2003) found that demographic characteristics of consumers who were shopping online had a significant relationship with their attitudes to online shopping. Some know the important point in the discussion about e-commerce in Iran, its governmental nature and know the share of private sector very little in the business (Khabar Online quotes from Rezaei, 07.02.2014). On the other hand, most of deprived areas of Iran have their own clients and require no Internet or higher technology or credit card to do banking affairs. Residents of these areas prefer to do business traditionally with cash (Khosrowpour, 2006). Nevertheless, the case study is not specifically observed within the framework of the present research hypotheses (especially in Iran) and thus the results of this study can be a new achievement in this field, and extends our study about the impact of different dimensions of its threats in the community.

7. Managerial Uses of Model
The model emphasizes that based on the priority of the proposed conceptual model, as much as planners and policy makers try to identify, review and remove the barriers and legal uncertainties (with strong regulatory and enacting strong and facilitating laws) for internet shopping, concerns about the security and privacy of consumers will be solved as much and buyers’ preferences to Internet exchange and try for systematic compatibility will be increased and this may lead to growth in applicant for shopping on the Internet. However, their negligence to identify and solve the legal doubts will not draw an appropriate future for this type of business and improving the position of Iran in the world and will bring a widening gap with developed countries and even some developing countries. Considering that every day with the increasing technological progress, population growth and rising public expectations, creating new and multi-purpose organizations for presenting production and service and provision of goods, and given that the dimensions of interaction and influence of these variables becomes more complicated; they should accelerate the growth and development of this important issue with careful and strategic planning, good organization, a comprehensive holistic analysis, optimal use of resources and careful control and supervision by upholding the ruling values, facilitating and appropriate response to expectations. Also suitable environment for investment will provide high quality and unsurpassed speed of Internet and encourages SMEs and the public to use online exchanges and this is a small part of recommendations for extending the e-commerce.

8. Limitations
This study is done based on a period of time based on a report generated in Statistical Center of Iran in 2012, while the e-commerce has a dynamic nature and is gradually developing and improving. So, with the release of newer reports, repeating this study in the same population may offer results different from these results. On the other hand, although there are various threatening factors in the lack of growth of applicants for online shopping in Iran, so in future studies, researchers can add and test other restrictions (including inadequacy of products, high cost of development and maintenance, etc.).
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