Journal of Applied Science and Agriculture, 9(2) February 2014, Pages: 464-470

AENSI Journals

Journal of Applied Science and Agriculture

ISSN 1816-9112

Journal home page: www.aensiweb.com/jasa/index.html

Identifying and Prioritization of Barriers to E-Commerce from Consumer Business Perspective

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ARTICLE INFO

Article history:
Received 17 November 2013
Received in revised form 19 February 2014
Accepted 26 February 2014
Available online 20 March 2014

Keywords:
E-commerce, Prioritization, barriers to e-commerce, ICT, electronic communication

ABSTRACT

The present study examines the most important barriers to electronic commerce from the perspective of consumers and businesses, and then rated each of these factors. Today, e-commerce is one of business issues. E-commerce is transactions, ranging from individuals and organizations that are based on information technology. For success in the electronic world, the first and most important step is planning to identify barriers to adoption of e-commerce. Information needed for this study was collected through a questionnaire distributed among 130 managers of companies in different parts of Tehran and 130 M.S. students of Tehran University and then using SPSS software, data were analyzed. We concluded that the main barriers from the perspective of consumers include: "Distrust in Internet service providers", "insufficient supporting rules", "lack of access to authoritative sites in the national language", "Lack of purchasing power" ,"low information about the benefits of e-commerce", "electronic supply of services", "low information about computer and Language" and "lack of credit card". From the perspective of business, main barriers are: "Unavailability of supportive structure", " Preference of face to face communication over electronic communication", "lack of laws related to electronic signatures", "two-sided market weakness"," Underdeveloped economic and financial systems ", "lack of skilled labour in the e- commerce "," lack of knowledge about the benefits of ICT (Information and Communication Technology)" , and " low Internet attractiveness for traditional jobs".

To Cite This Article: Mohamad Amin Karimi., Identifying and Prioritization of Barriers to E-Commerce from Consumer Business Perspective. ***J. Appl. Sci. & Agric.,*** *9(2): 464-470, 2014*

INTRODUCTION

With the rapid development of information technology and entry to the world of everyday life, new issues and requirements have come to being and e-business has replaced with traditional methods. Many studies show that in the present competitive world, the success of companies is related to preservation, maintenance, and customer relationship (Hsiao Ming, 2009). E-commerce can be useful for various reasons. For example, it provides easy access to the products which access to term is not possible without Internet. In addition, electronic commerce is a simple way to perform transactions; although traditionally it is sometimes vulnerable, but can largely meet the needs and requirements of consumers (Jiang, and Benbasat, 2004).

Many economists and experts are of the opinion that entering of ICT in economic and trade sphere has led to the formation of a revolution called "Electronic Commerce" and lagging far behind this evolution, will result in the isolation of the world economy, because e-commerce by providing benefits such as Improving productivity, reducing prices, saving costs and changing the size and structure of the market (Salmani, 2005) as well as eliminating middlemen and producers access to final consumers (Behkamal, 2005) has changed competitive business environment fundamentally. For success in the electronic world, the first and most important step is planning to identify barriers to adoption of e-commerce. There are several barriers to adoption of e-commerce. Institutional barriers are considered as the most important ones. Importance of e-commerce is no secret. In our dear country, Iran it has been also emphasized a lot but in taking benefit from this type of business in the global arena, Iran is not in a very satisfying place. E-commerce development in Iran faces many challenges and obstacles; therefore should try to go forward as the rest of developed countries.

Research literature:

There is no single definition of electronic commerce yet and perhaps according to the number of authors of the articles on this subject, there is a definition of e-commerce. Chaffey (Chaffey, 2002) defines it as "shopping on the web". Electronic commerce includes a variety of activities such as Electronic exchange of goods and

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services, electronic funds transfer, electronic exchange of shares, electronic bill of lading of Business plans, direct marketing and after-sale services (Standing, 2009). In the field of e-commerce in and out of the country, many researches have been conducted. Sabbaghi (2003) in a study entitled "Factors affecting e-commerce in Iran," concluded that Legislation and regulations governing strict implementation of e-commerce, conducting public education and enhancing users' knowledge is effective in its implementation. Also Hamdan (2004) in a research entitled "Effect of e-commerce in consumer behavior", suggest that the main barrier to adoption of electronic commerce is information security and Privacy Policy of people. Sarmadi (2003) in his PhD thesis, entitled "Evaluation of environmental barriers and providing a suitable model for e-commerce", has examined Direct and indirect environmental factors.

Darch and luckas (2002) in their article "Training as an E-Commerce enabler," classified barriers to implementing e-commerce in the following five categories: Costs, lack of awareness of the nature of e-commerce, Lack the necessary skills for electronic commerce, lack of awareness of how provide services, and lack of time. Kuzik *et al* (2005) in their article examine the barriers, challenges and critical success factors in the implementation of electronic commerce. kaynak *et al* (2002) in an article entitled "Critical design factors for successful E-Commerce system" mention two important factors of increasing globalization and advances in information and communication technology. The two-sided market literature studies markets in which a platform provider needs to attract two types of participants, and the presence of more of one type makes the platform more valuable to the other type. The benefit one type of participant derives from the presence of more of the other type of participant is usually referred to as an "indirect network externality," although others use slightly different terminology. For instance Rochet and Tirole (2003) referred to the classical network externality and the indirect externality as the membership externality and usage externality, respectively. The model we study is driven by the indirect (usage) externality between CPs and end users, with ISPs serving as a platform. Other examples of work examining effects driven by indirect (usage) externalities include Caillaud and Jullien (2003), Chakravorti and Roson (2004) and Eisenmann *et al* (2006). Pricing structure on both sides of two-sided market can be important; for instance it might be necessary to lower the price for one type of participant to attract more of the other.

Other past work has also used the two-sided market and indirect network externality ideas to study questions of network neutrality in particular. For instance Economides and Tag (2007) discuss the benefits of net-neutrality regulation in the context of a two-sided market model. They suppose that net-neutrality regulation is equivalent to an imposition of a zero-fee in their model. When the access market is monopolized, they find that generally net neutrality. Regulation increases total industry surplus compared to the fully private optimum at which the monopoly platform imposes positive fees on CPs. They also model a platform competition in a platform duopoly situation. Similarly, imposing net neutrality in a duopoly increases total surplus compared to duopoly competition between platforms that charge positive fees on CPs. They also discuss the incentives of duopolists to collude in setting the fees on the other side of the Internet while competing for Internet access customers since under net neutrality conditions, the regulator will choose a negative fee to CPs (while a monopolist or duopolists choose positive fees). Other researchers have used the ideas of two-sided markets to study network neutrality.

According to Hagiu (2006), the effectiveness of net neutrality policy is controversial. He also uses a two-sided market model to study the Internet services market. His model shows a possibility that the profit maximization behavior of monopolistic platform provider fully internalizes the indirect network externality, thereby increasing the overall social welfare by reducing transaction costs and expanding both markets. Hermalin and Katz (2007) model network neutrality as a restriction on the product space, and consider whether ISPs should be allowed to offer more than one grade of service. Hogendorn (2007) studies two-sided markets where intermediaries sit between "conduits" and content providers. In his context, net-neutrality means content has open access to conduits where an "open access" regime affords open access to the intermediaries. Weiser (2007) discusses policy issues related to two-sided markets. Musacchio *et al* (2009) use a two-sided market model to study the investment decisions of content providers and ISPs, and then use this model to study the welfare effects from either allowing or not allowing ISPs to charge content providers for the right to deliver content to end-users. Njoroge *et al* (2009) study competition between independently owned platforms that select prices and quality levels to offer a user and content provider market.

Platforms are two-sided when they serve two distinct and mutually attracting groups of users, as with video game players and developers (Rochet and Tirole, 2003; Eisenmann, Parker and Van Alstyne, 2006). Two-sided networks often have a supply side that encompasses vendors who offer complements to demand-side users. Users on one side of the market typically fill the same roles in transactions rather than switch roles. By contrast, in one-sided networks all users are similar-as with telephone networks, where all users fill both call originator and recipient roles. Every platform-mediated network has a focal platform at its core, although other platforms can play subordinate roles in the network as supply-side users or component suppliers. The network might be served by a proprietary platform, that is, it might have one firm as its sole provider. Alternatively, multiple providers might offer competing but compatible versions of a shared platform (e.g. Ubuntu Linux vs. Red Hat

Linux). If users switch between rival providers of a shared platform, they do not forfeit platform-specific investments in complements or in learning the platform's rules (Eisenmann, 2008).

Platform markets are comprised of sets of competing platforms that each serves distinct networks. For example, the video game market includes the Xbox, Playstation, and Wii platforms. Platform markets are typically served by only a few competing platforms; in many cases, almost all users rely on a single platform (e.g., Microsoft's Windows, Adobe's PDF, eBay's online auctions). The number of platforms serving a market tends to be small when network effects are strong, individual users face high costs when multi-homing (i.e., affiliating with multiple platforms), and user demand for differentiated platform functionality is limited.

Advantages of E-commerce:

Compared with traditional business which is based on paper documents, Electronic commerce has certain advantages over traditional trading. Below some of the major advantages are listed:

- Elimination of delays in preparing and sending documents
- No need to re-enter data into a computer system therefore its costs are reduced.
- Accelerating the flow of information in the transactions
- Sending delivery report of electronic messages to transmitter in short time
- Elimination of spatial and temporal constraints
- Reducing the cost of goods and services
- Increasing competition
- Participation of SMEs in international level
- increasing sales of companies and government organizations due to presence in new global markets
- Reducing the social costs of transport, reducing traffic and crowded streets, reducing air pollution (Goyabadi, 2005).

Disadvantages of E-commerce:

In electronic commerce, buyer does not see the seller or the bought goods and purchase product only according to available specifications and pictures. Another important issue is security. As the system increases the accuracy and speed must be held accountable for security problems including:

- Accessibility: to provide access and ability to receive information at the right time and place as well as unauthorized access to information.
- Confidentiality: to protect messages (documents) against abuse and Eavesdropping
- Message Integrity**:** to prevent from the manipulation or deletion of unwanted messages, compliance and avoiding duplication and loss
- Authentication and undeniableness**:** to ensure accurate identification of the sender and receiver as well as possibility to prove transmitting and receiving messages.
- Inspection and handling**:** Inspected data recording based on predetermined conditions, confidentiality and integrity (Goyabadi, 2005).

Lack of proper infrastructures:

Business value of electronic commerce is to provide opportunities to reduce costs. Using an appropriate and national infrastructure such as high speed internet, E-commerce is less expensive compared with the costs of physical equipment, marketing, distribution and customer service. For example, the large enterprises in global markets by using the Internet have reduced their costs several million dollars. Also by automated systems and appropriate design of transfer electronic data, Companies can reduce their costs associated with personnel, phone, and mail, where the cost of providing services to customers has gone far beyond of the cost of production. For example in the banking industry, credit cards are of great importance, as in the global level it had been predicted that by 2005 there would be two billion bank cards which needs that Banking industry take advantage of e-commerce systems (Goyabadi, 2005).

Economic problems:

Economic factors were/will be one of the major axis for any progress in developing countries. Information and communications technologies in Electronic banking industry also are one of the economic factors. Economic factors are: multiple exchange rates, per capita income, economic growth, monetary and exchange, costs of telephone lines, internet usage fees, and etc (Goyabadi, 2005).

Social and cultural problems:

In the most deprived areas of the country there are some banks that have their own Customers and do not need internet or superior technology or credit card for banking. Obtained reports show that the residents of these areas prefer traditional trade and cash (Khosrowpour, 2006). Secrecy and non-transparency activities, is another

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factor for non- acceptance of e-commerce in Iran. It shows that companies or entities use e-commerce to evade taxes or reduce the amount. Since e-commerce record their all transactions and economic activities, expansion of electronic commerce and transportation/transferring of electronic fund in Iran Have encountered problem. Another reason is uncertainty which play the biggest role in acceptance of e-commerce. When there is no trust, no work in development of electronic commerce will be done (Goyabadi, 2005).

Lack of rules and regulations:

The lack of banking rules and regulations is one of the biggest common problems of in developing countries. In fact, e-business would stop many of abuses among the bank customers. Marketing managers by analyzing consumer behavior will gain information that will lead to success in the market. Therefore, the study of consumer behavior is important for companies to achieve their goals. Companies in order to survive, have to understand changes in consumer behavior to adapt themselves with environmental conditions and to ensure their success. With the increasing number of Internet users, the usage of interactive tools as part of purchasing decisions and actions has attracted the attention of researchers and experts (Yazdanparast, 2007). On the other hand, internal factors such as attitudes, habits and perceptions, affect the willingness of online shopping; hence positive attitude of consumers in online shopping, online retailers can survive and profit in a competitive market (Soopramanien and Robertson, 2007).

Given the many advantages of e-commerce, advertising for its use and consideration of specific cultural, social and infrastructural characteristics of the country, must see whether or not moving toward the use of it, can lead to consumer behavior change, customer satisfaction and profit creation for the firm. Thus, many of the benefits of ICT, the threat of falling behind other countries in the electronic world and removing barriers to development in case of appropriate use of information technology, are primary reasons for the importance of Electronic readiness in various areas of country (Kshetri, 2007). Since the online shopping is a new subject in Iran and a large amount of selling and buying throughout the world is done electronically, our country in the near future will be forced to accept and apply it. Identifying factors influencing this phenomenon can help in greater acceptance by customers and provide fertile ground for moving toward it. Hence, presentation of a model that may represent barriers to e-commerce is necessary.

MATERIALS AND METHODS

Research model:

In this study, according to previous studies and existing models, a model is proposed to describe the barriers affecting e-commerce. Barriers in the presented model are given in the form of two variables: a) Barriers to e-commerce from Consumer perspective, b) Barriers to e-commerce from business perspective. Figure 1 shows conceptual model of the research model.

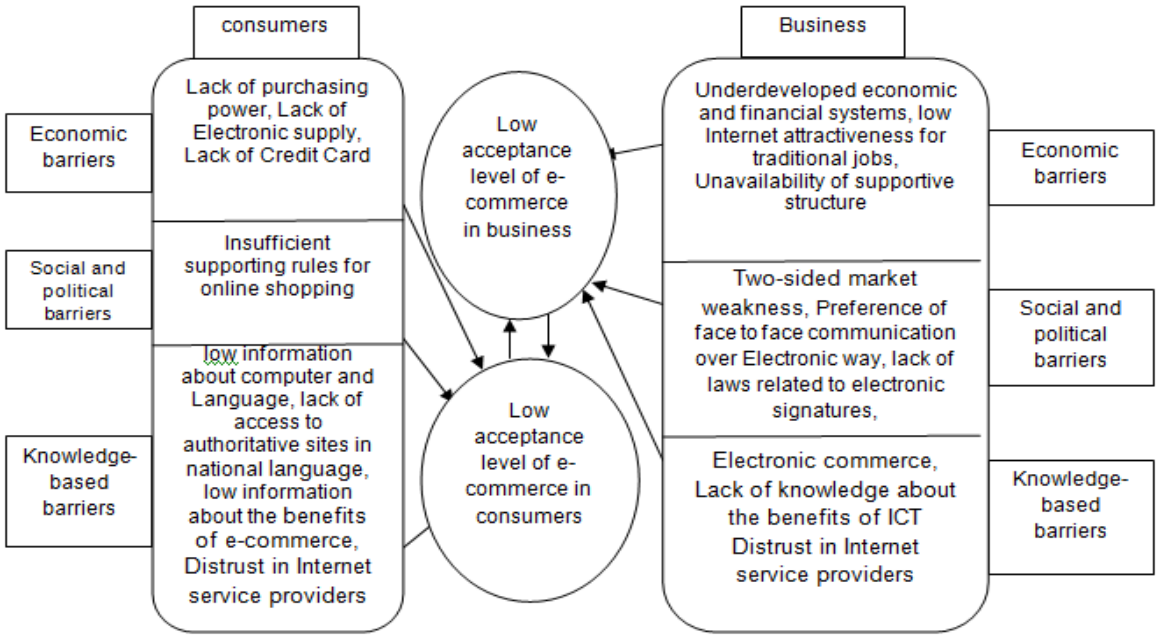

Fig. 1: Research conceptual model

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Results:

Population and sample:

Since the 5-choice likret-type questionnaire was used, largest value and the smallest value will be 1 and its standard deviation is equal to σ = 0.66. According to equation $\delta = \frac{Mazxi-Min\ xi}{\delta}$ as well as the confidence level of 95 percent and accuracy of 10 percent, sample size was 117.158 people. 130 questionnaires among university students (graduate students) and 130 ones among were randomly distributed among companies in different areas of Tehran. Finally, we analysed it with SPSS software, using the returned questionnaires. To determine the sample size in this study, since the variance of the information is not available, the following formula is used:

$$\delta = \frac{Mazxi - Min\ xi}{\delta}$$

$$\mathbf{N} = \left(\frac{Z\frac{\alpha}{2}\delta}{\epsilon} \right)^2$$

Validity and reliability:

Preliminary data collection in this study was done by Field sampling method and through questionnaire; and sending and collecting the questionnaires also have been done through visiting which would increase its validity. In this regard, for assurance, the validity and reliability tests have been performed. Dozens of professors and experts were consulted in validity of each of questions. Finally, questions were presented in two sections: General, and barriers to e-commerce. To determine the reliability of the questions, after distribution of 20 questionnaires among respondents and collecting them, the Cronbach's alpha was used. Reliability of barriers to e-commerce section in questionnaires was 0.9051 which is indicative of its high reliability.

Discussions:

For data analysis, SPSS software and to prioritize variables, Friedman test were used. Criteria for acceptance or rejection of the hypothesis are based on the average; Likert type was considered in five choice and average was assumed μ=3. The Friedman test are made for ranking variables in each of the barriers to determine which one are being considered as the main barriers to adoption of e-commerce. For this purpose, first the data collected from the questionnaires completed by 130 participants and 130 students, were entered in SPSS software, Then the following assumptions were examined:

H0: There is NO difference between variables in the sample if sig> 0.05

H1: There is difference between variables in the sample if sig< 0.05

The results of analysis have been shown in tables 1 to 6.

Table 1: Friedman Test from consumers perspective

	Mean Rank
M1	3.69
M2	3.20
M3	3.08
M4	4.26
M5	3.13
M6	3.87
M7	3.28
M8	4.35

Table 2: Test results of table 1

N	130
Chi-Square	24.120
df	7
Asymp. Sig.	0.001

Table 3: Friedman Test from business perspective

	Mean Rank
M1	3.49
M2	3.06
M3	4.38
M4	4.30
M5	3.86
M6	3.17
M7	3.27
M8	3.62

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Table 4: Test results of table 3

N	130
Chi-Square	23.150
Df	6
Asymp. Sig.	0.002

Table 5: Prioritization of Variables from consumer perspective

Rank	Variable
1	Distrust in Internet service providers
2	Insufficient supporting rules for online shopping
3	lack of access to authoritative sites in national language
4	Lack of purchasing power
5	low information about the benefits of e-commerce,
6	Lack of Electronic supply,
7	low information about computer and Language,
8	Lack of Credit Card

Table 6: Prioritization of Variables from business perspective

Rank	Variable
1	Unavailability of supportive structure
2	Preference of face to face communication over Electronic way
3	lack of laws related to electronic signatures
4	Two-sided market weakness
5	Underdeveloped economic and financial systems
6	lack of skilled labour in the electronic commerce,
7	lack of knowledge about the benefits of ICT
8	low Internet attractiveness for traditional jobs

Conclusion:

As can be seen from the results of the Friedman test between variables, "Distrust in Internet service providers", "Insufficient supporting rules for online shopping", and "lack of access to authoritative sites in national language" are the most important barriers to electronic commerce from consumers' perspective and "Unavailability of supportive structure", "Preference of face to face communication over electronic communication", and "lack of laws related to electronic signatures" are the most important barriers to electronic commerce from the perspective of business. In other words the main barrier towards adoption of electronic commerce, is *distrustfulness* that causes Doubts in both parties (consumers and business) engaged in e-commerce; Therefore, the government should provide context for both groups to assure them during financial receipts and payments they will not encounter problems or to have confidence about identity or qualifications of the party they trade with and do not feel threatened by the disclosure of their personal information in the virtual world of the Internet. Not being common in the country and unfamiliarity with the computer as a tool through which business can be done from remote locations is another barrier for consumers. The role of education in society is very weak in terms of e-commerce as well as the lack of secure telecommunications networks, which plays major role in providing e-commerce platform. Lack of security in electronic commerce systems, Lack of trust in the National banking system for handling e-commerce operations and the unavailability of credit card for general public of Iran through nationwide banks, all are one of the biggest barriers to the creation and operation of e-commerce network in Iran. Socio-cultural, economic, political and other problems also in turn prevent the development of e-commerce development in Iran.

Suggestions:

- Considering bilateral supportive rules for e-services providers and consumers
- Performing e-commerce public education courses
- Arranging seminars and workshops to enhance the skills of electronic commerce:
- Upgrading distribution network based e-commerce

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