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E-Commerce Development in Iran

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Abstract

The main purpose of the paper is to place the Iran information society in a global context. According to studies and surveys conducted world-wide, government incentives and current legal frameworks, technology available at a reasonable price, and public acceptance of the internet as an efficient medium for buying goods and services are driving e-commerce growth. Academics, information technology experts and even politicians are aware of these essential requirements. The paper gives an overview about the recent decisions, plans and project by the Iranian government to facilitate development of e-commerce in Iran. Unlike developed countries, in developing countries like Iran, governments have monopoly on ICT infrastructure and trading procedures. As a result, the main steps toward e-commerce must be taken by the governments. Government of Iran determined to research at formulating policy recommendations on the removal of bottlenecks and problems preventing or slowing down the growth use of new technology in this country. E-commerce has always been an attentive issue to governments and Iran made some policies to develop and enhance it such as training this concept as courses in academic institutes and some seminars for industries, regulating the laws, improvements of ICT infrastructure, developing e-finance and e-government and also stimulating activities.

Keywords

E-Commerce; Iran; E-Government; Information Communication Technology; Developing Countries

Introduction

E-commerce is an outcome of Information and Communications Technology (ICT) revolution in economic fields or the most visible way of contribution of ICT to economic growth. ICT, as a tool of socio-economic development, is a significant issue for developing countries ([Odedra](#), 1996). During the past decade, ICTs have become part of many developing countries' development plan and poverty reduction strategies. Governments have formulated ICT strategies or 'master plan' and set objectives to ensure the effective deployment and use of ICTs in their country, for the benefit of their citizens and enterprises. According to the United Nations Conference on Trade and Development (UNCTAD) Information Economy Report in 2006, as of June 2006 out of 181 countries and territories 44 percent had already adopted a national ICT plan and 20 percent were in the process of preparing one ([UNCTAD](#), 2006). Recent changes in ICT have been

followed by significant economic outcome. The development of the Internet and its commercialization has transformed traditional methods of commerce in recent decades. The rapid growth of Internet since last decade has basically changed the world economy. Business has invested heavily in ICT, Primarily to automated internal process such as payroll, accounting, finance, human resources and manufacturing. Also the 1990s witness the proliferation and hyper growth of Internet and Internet technologies, which together are creating a global and cost-effective platform for business to communicate and conduct commerce ([Rao, Metts & Mong, 2003](#)). E-commerce will leave a direct impact on generating new ideas as well as opening up new market opportunities round the globe.

A common definition of e-commerce is to provide trade processes through data interchange, transaction of goods and services via computer networks such as the Internet ([Tsai, Huang & Lin, 2004](#)). Providing computer systems that integrate businesses with suppliers, distributors, and retailers is the crucial first step toward developing a successful e-commerce business model. E-commerce can develop and tighten supply chain relationships can reduce costs and bring higher quality products to the market. It helps nations improve trade efficiency and facilitates. E-commerce has revolutionized the methods and practices of the past trade and also has achieved speed and economization in the best possible way. In electronic environment there is no geographical distance or time, space limits. Overall, e-commerce is an objective consequence of ICT enjoying such advantages as globalization of commerce, elimination of time and space limits, increase in purchase rate, easy access to information, significant reduction of transaction costs and reduction of duration of transaction. Electronic commerce presents developing countries an opportunity that can potentially enhance economic growth and development. While benefit can benefit from these opportunities, it may dace barriers to trade, limitations on product and service offerings and challenges to adoption of e-commerce models that coping with these challenges requires a concerted effort from government and various institutions ([Molla, Taylor & Licker, 2006](#)).

The aim of this paper is to place the Iran information society in a global context. This paper attempts to show the role of government in e-commerce development in Iran and improving current situation. The surveys show that e-commerce success, in developed and leading developing countries, is the result of appropriate e-readiness in these countries. E-readiness includes the Internet-based opportunities, quality of information technology infrastructure, government activities and level of trade facilitation. Individuals and businesses access to communication tools, high quality and low costs are some of the main e-readiness ([The National Report on E-commerce in Iran, 2004](#)). Popularity of using the ICT tools in economy is appropriate to business environment such as political stability, tax regulations and openness to trade and investment. Another prerequisite for the expansion of e-commerce is traders and consumers' adoption along with social and cultural infrastructure such as high-skilled labor and electronic literacy. Legal and political environment including the Internet regulations, new businesses, facilitating, protecting private and intellectual properties, investment and government support of technology infrastructure are all essential for development and promotion of e-commerce. Measuring the e-commerce progress is very essential to achieve a desirable status and to contribute to the identification of the effective factors of development and also the obstacles to e-commerce, coordination of relevant executive agencies and eventually elimination of current problems. In respect of its responsibility for implementation of e-commerce in the country, the Iran's Ministry of Commerce has endeavored for development and promotion of e-commerce while fully cooperated and worked with executive agencies in legal, education and technical areas.

Literature Review

E-commerce accelerates global commercial trend by removing the boundaries facing international trade ([Molla, Taylor & Licker, 2006](#)). It benefits from economic advantages such as market expansion, reduction of product source prices, promotion of productivity, reduction of transaction costs and inflation, lowering uncertainty, sharing market information, and aiding in distribution channel efficiency and plays a vital role in an endogenous economic growth. Numerous advantages of e-commerce have led not only to develop but also developing countries as a means towards competition in internal and international areas. At the early stage of e-commerce diffusion both public and private companies play key roles in creating conducive conditions and encouraging and making the spread of e-commerce more energetic and effective ([Molla, Taylor & Licker, 2006](#)). Therefore, the development of e-commerce requires a series of essential activities in technical infrastructure, legal and regulatory issues, awareness, training and education, private sector protection, and government supports to provide conditions for economic players such as consumers and businesses to play a key role in the application of e-commerce. Cost savings and increased business process efficiencies are other considerable potential impacts of e-commerce which have been recognized by main industry players. The distribution processes of regulated products are notoriously complex when dependent upon a predominantly paper based system ([Littler & Hudson, 2004](#)).

While there is no academic work or publication about Iran's e-commerce development or current situation, There has been significant research on e-commerce, but majority of them have focused on developed countries such as the United States, Canada and Western Europe ([Garcia-Murillo, 2004](#)), while according to predictions a significant growth will happen in developing countries in the first decade of the twenty first century ([McConnel, 2004](#)). Developing countries face the lack of infrastructure, economic and social-political framework for the development of e-commerce. However, some developing countries have initiated strategies to achieve an appropriate level of e-commerce development ([Uzoka, Shemi & Seleka, 2007](#)). According to the UNCTAD e-commerce and development reports, estimated total value of world e-commerce in 2002 is at about \$2.3 trillion and the value of global e-commerce transactions is close to \$6.7 trillion at the end of 2004. It is estimated that, in the most optimistic state, it will shoot upward to \$12.8 trillion by 2006. E-commerce growth rate is not the same in different countries. North America is the leader in e-commerce. According to the Forrester report in 2005, the value of North America's (number one in the regions) transactions amounted to \$3.5 trillion in 2004. Asia-Pacific, with \$1.6 trillion and Western Europe, with \$1.5 trillion are respectively second and third in the region. Latin America with \$81.8 billion and other regions with \$65.6 billion stand at fourth and fifth in the region. The volume of the e-commerce transactions by regions in 2004 is summarized in Table 1 ([Forrester, 2005](#)).

Table1. The volume of e-commerce Transactions in World Regions (billions of dollars)

Region	Region
North America	3500
Asia-Pacific	1600
Western Europe	1500
Latin America	81.8
Other regions	68.8
Total	6750.4

A number of developing countries have started e-commerce to boost their economies and competitiveness to a new level. It was mentioned in the [UNCTAD report \(2005\)](#) the annual growth rate of e-commerce value for developing countries was estimated 69 percent for the 5 years following 2002. Despite this high potential growth most of e-commerce venture in

developing countries failed because of lack of viable business model for their region, they simply copied e-commerce business models from developed countries regardless of difference in business environments, information technology infrastructure and cultural factors ([Laosethakul & Boulton](#), 2007). The strategies of e-commerce in the leading countries are based on support for private sector, expansion of the Internet, supporting SMEs (small and medium enterprises) and limitation of government's role. By competition in environment and in all areas such as ICT, these countries have contributed to the quality enhancement of technology and reduction of prices. In such countries a certain Ministry, for instance, the Ministry of Commerce, the Ministry of Trade and Industries or E-commerce Organization is responsible for the expansion of e-commerce and supervises the plans and activities of other government agencies of e-commerce. Large investments in awareness, technical and legal infrastructure and human resources with special attention to research and development for the promotion of e-commerce have played a key role in these countries. Currently businesses are embracing e-commerce more than the households. For this reason, more than 95 percent of e-commerce transactions are related to business to business (B2B) transactions. In order to earn trust and confidence of their consumers, these countries have enacted appropriate useful laws. In spite of all the attempts, e-commerce is still popular internally and its expansion at international level requires a reliable e-finance. However, countries have embarked much effort to cooperate in compilation of laws and regulations as the result it is expected that e-commerce gradually have a profound effect on foreign trade.

1. E-Commerce in Iran

Iran is located in the Middle-East in the north of Persian Gulf and the south of Caspian Sea. Area of Iran is 1,648,043 (sq km) and its population is about 70 million. Iran is the second most populous country with the second-largest economy in the Middle-East ([Asemi](#), 2006). Up to the late 1970s, Iran was a key hub of ICT in the Middle-East and many foreign suppliers had their own branches in Iran. The Iranian industry was very well developed in the '60s and '70s; early software systems supporting the Persian (Farsi) language were developed in Iran. After the 1979 revolution, the situation changed significantly ([Nicholuson & Sahay](#), 2003). It had been a sharp growth of Internet users from 250,000 in 2000 to near 7.6 million in 2007 according to [Internet World Stats](#) (2007) that has the largest amount of Internet users (38.9 percent) in the Middle-East but this numbers seems smaller than the reality due to some news and government related websites statistics. The expansion of e-commerce business in Iran could be moving at a much faster pace. The value of electronic commerce in Iran is supposed to reach \$12.8 billion in 2006 registering an average growth of 48.6 percent ([The National Report on E-commerce in Iran](#), 2004). The IT infrastructure is controlled by the Ministry of Communications and Information Technology. A monopoly results in limited choices, high fees and historically poor services. High Internet cost means not many small and medium-sized enterprises (SMEs), which constitute a large percent of Iran's Industrial capacity, do their business online Internet ([Laosethakul & Boulton](#), 2007). Hopefully the Internet price would be adjusted in near future.

But nowadays, there is a big number of new Internet Service Providers (ISPs) and small Internet cafes and their number is increasing fast every day. ADSL connections at 2 Mbps and for people out of ADSL catchments area, there are wireless links available, running at 5Mbps. Full Internet service is available in all major cities and it is very rapidly increasing. Many small towns and even some villages now have full Internet access. National Internet Network became operational from September 2006 and domestic users will be able to receive web services at far lower costs. Iran is also the world's fourth largest country of bloggers. More than 94% of government and industrial entities set up networks with outside access to various databanks. Also Sinah-1 is the first Iranian artificial satellite,

launched at 2005 on board and three Intelsat Satellite Earth Stations, one Inmarsat-A land earth station (Indian Ocean Region) and mobile Satellite stations exist. Alcatel Espace of France has been named as the prime for Iran's Zohreh ([Ministry of Communications and Information Technology](#), 2006). Also, Iran Interbank Information Transfer Network, *Shetab*, was introduced in 2002, with the intention of creating a uniform backbone for the Iranian banking system to handle ATM, POS and other card-based transactions. Iran linked their banking systems with China, Bahrain, United Arab Emirates and Qatar ([Khazai](#), 1997).

2. Government Role

A Number of failed e-commerce ventures in developing countries found themselves without viable business models for their region. [Martinson](#) (2002) found that the Chinese managers who adopted e-commerce business models from developed countries ended up being disappointed because they did not work well in China. One important thing that should be considered is that as [Laosethakul & Boulton](#) (2007) mentioned successful e-commerce models from developed countries might not work well in developing countries because of the differences in business environments, information technology infrastructure and cultural factors. According to Elliot Yuen Asian companies must develop e-commerce business models that are more suited to region's disparate culture ([Manecksha](#), 2001).

Government plays the main role in Iran for e-commerce development due to the amount of assets and resources. The e-commerce principles of Iran in the e-commerce Memorandum of Policy ratified by council of ministers in 2002 are as follow:

- To provide the main infrastructure and legal and executive fields required for using e-commerce;
- To develop training and e-commerce application penetration;
- To support development of non-public sectors and preventing monopoly and creating competition;
- To remove any discrimination boundaries in e-commerce; and
- To expand the use of the Internet for e-commerce purposes in the country and to make essential decisions in relation to the health of its content.

According to this ratified law, the Ministry of Commerce and other Ministries such as Economic Affairs and Finance, Science and Research and Technology, Foreign Affairs, Industries and Mines, Communications and Information Technology, Management and Planning Organization, Central Bank, High Council of Informatics, High Council of Free Zones Secretariat, and Radio and Television Organization are all subject to specific task and responsibilities. Theoretical and experimental studies at international level which are based on experiences of leading countries in e-commerce show that providing infrastructure is a key issue to e-commerce development. The expansion of infrastructure is in a way that to provide and establish them are not within the responsibility of a Ministry or agency and it requires the harmonized act of all associated government agencies, as well as private sector. The responsibilities of executive agencies in the framework of e-commerce Memorandum of Policy are shown in Table 2 ([The National Report on E-commerce in Iran](#), 2004).

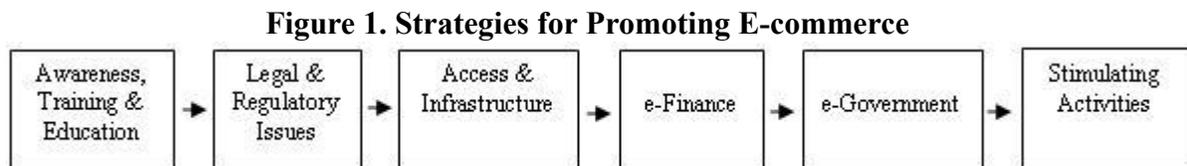
Table 2. Assignment of duties for establishment and development of e-commerce in Iran

Ministry/Organization	Assigned Responsibility	Cooperating Agency
Ministry of Communications and	To provide and implement the required hardware and software and set up confidential, secure and high speed	

Information Technology (MCIT)	connectivity to internet, and reduction of usage costs of these lines.	
Ministry of Economic Affairs and Finance	To provide and implement the comprehensive project of e-transfer of money as well as use of credit card services.	Central Bank and other banks
Ministry of Commerce (MC)	Feasibility study of Iran comprehensive e-commerce project and long run e-commerce national development program within the Third Program.	
	To Implement the e-commerce Pilot project as a typical e-commerce marketplace to provide secure basis for internal and foreign e-transactions and providing required utilities and to support the implementation of similar project by private sector.	
	To establish a typical Certification Authority, an application to e-commerce as observing an executive agency, required hardware and software by a world-class services and technology.	
	To conduct short term, expertise and general training programs and holding internal and international seminars on e-commerce.	
High Council of Informatics Secretariat (HCIS)	1. To compile the National System of Certification Authority and ratify by the council of Ministers.	MC / MCIT/ Industries and Mines/ MSRT / MPO
	2. Preparation of providing secure e-transactions comprehensive project of, confidentiality of statistics and information and observe the health of users content in public network in the country.	
Ministry of Science, Research and Technology (MSRT)	To establish e-commerce in Iranian universities, presenting courses on technical and economic aspects of e-commerce.	MC / MCIT / HCIS
Radio and Television Organization	To provide and broadcast training programs on e-commerce.	MC/ HCIS
Ministry of Commerce (MC)	To cooperate in promotion and strengthen the activities related to e-commerce between Iran and other countries including: Islamic Conference Organization, 77 Group, ECO, Colombo plan, and international agencies affiliated with the United Nations	
High Council of Free Zones Secretariat	To establish e-commerce in free zones	Executive Agencies active in free zones
Management and Planning Organization (MPO)	To allocate funds for implementation of e-commerce and Dissemination of Information Comprehensive Network projects through country budget bill.	Related Executive Agencies

Research Framework

The role of government for e-commerce development and improving current situation is assessed by offering an introduction to the current situation and programs of the Iranian government for establishing and popularizing e-commerce in Iran. In this research the main strategies for e-commerce promotion in Iran explain by evaluation of Iran's e-commerce performance. This has been discussed in the areas of awareness, legal and regulatory issues, infrastructure, e-finance, e-government, and stimulating activities as shown in Figure 1 as a suggested framework for promoting e-commerce in Iran. With these strategies, stimulating policies for e-business, e-government, trade facilitation, and cooperation with the international organizations for e-commerce penetration and development, have been employed.



1. Awareness, Training and Education

Absence of technical knowledge among traders and businessmen is one of the main reasons behind the underdevelopment of e-commerce in Iran ([The National Report on E-commerce in Iran](#), 2004). For the same reason, it is vital to teach them the advantages of electronic trading by setting up different workshops and seminars. According to the [UNCTAD report](#) in 2002 and 2005, most of policy makers believe that e-commerce will not have an increasing growth unless the businesses and consumers are trained in the areas of e-commerce opportunities and advantages or know how to use the Internet. Though, it is not sufficient to get access to the Internet and computer a prerequisite for generating demand for new technologies and e-commerce. Training is one of the main challenges of the developing countries in digital economy. Since high-skilled ICT labor is needed for e-commerce and countries having high-skilled labor enjoy benefits and potential for the expansion of e-commerce therefore, in this section trainer has been surveyed. According to the [Ministry of commerce's development report](#) in 2004, following the activities in awareness, training and education have been classified into following categories: Associate and Bachelor and Master Degree Courses (MBA); Short Term Courses; Scientific Meetings and Seminars; Scientific Journals and Magazines; Dissemination of Information; E-Learning; and Training packages to manage resources, awareness and training programs for developing e-commerce into small and medium enterprises. The Iranian government should provide efficient man-power and stimulate demand for application of e-commerce by businesses.

Different executive agencies have performed different training programs to develop and penetrate e-commerce; nevertheless, much more time is needed for training high-skilled and efficient experts. Training of specialists should be conducted by the Ministry of Science, Research and Technology, but at the same time, public training and awareness should be done in cooperation with all agencies responsible for e-commerce. According to the [UNCTAD report](#) in 2002, the review of 37 developing countries shows that, 70% have observed awareness as the top priority for development of e-commerce strategies. Iran has also emphasized on this issue and has attempted to achieve a desirable state. Also it is so crucial that the Ministry of Education as well as its affiliated organizations to disseminate the culture of e-commerce at schools and universities to prepare the young generations for widespread electronic trading.

2. Legal and Regulatory Issues

According to the [UNCTAD report](#) (2002, 2005) legal and regulatory issues are highly considered by the 37 countries of 51 reviewed countries. Lack of an appropriate legal framework in the area of information and infrastructure security and cyber-crime, has faced developing countries, with a serious challenges to enjoy the opportunities of e-commerce. Most of the industrial countries have passed appropriate laws of ICT and cyber-crime. Adoption of global laws and regulations can serve as a proper way for developing countries. The global nature of the Internet provides new serious problems for the region and country-wide laws. Furthermore, if there is not an appropriate legal support for consumers and producers, they will not adopt the risk of e-commerce environment. Ratifying e-commerce law and executive by-law, providing e-commerce development center constitution and by-law of certification authority offices are considered by government to develop e-commerce in Iran ([The National Report on E-commerce in Iran, 2004](#)).

The following major efforts have made in order to provide the related laws of e-commerce to ratify e-commerce law. The draft of e-commerce law provided by Iran Electronic Data Interchange For Administration, Commerce, and Transport (EDIFACT) committee and in order to accelerate the enactment of the draft, it was debated in the Parliament in 2001. The main issues of the first draft that was a Model Law on the United Nation Commission on International Trade Law which was ratified in 1996, and was debated in Economic, Legal and Industrial and Mines Commissions. The draft was enacted in the first consultation in 2001. The draft had 17 sections. In the second consultation, the sections were increased from 17 to 27. The draft ratified by parliament in May, 2001. The draft was debated in Guardian Council and was rejected by the Council. The e-commerce law with the framework that forecasted in the second consultation was ratified by Parliament in January 2004, and at the same time the Guardian Council ratified the law ([The National Report on E-commerce in Iran, 2004](#)).

According to the articles of e-commerce law, the Ministry of Commerce along with other agencies is responsible for codification of by-laws of this law to provide the draft of the by-law of the Certification Authority; Amendment of trade law; by-law of the virtual shops (e-shops); e-commerce development Center; and leading committee of ICT and e-government and professional committees of ICT and e-government of affiliated organizations. Regarding electronic trade documents, Ministry of Commerce has initiated to prepare the draft of electronic trade documents, forming working groups, and conducting meetings with the aim of explanation and ratification of this law. Also in the case of Amendment of trade law, since electronic trade documents do not have an independent nature from other common trade documents and they are only the means of electronic registration, processing, and storage of data, they mainly replace the paper documents for use in secure electronic environment under Public key infrastructure and there is no need to create a new means; thus, electronic trade documents law will be stated in the new trade law and will be applied as one of its chapters.

Ratification of e-commerce law is one of the key activities that provide the field for businesses activities in e-commerce environment. It seems that ratification of the aforementioned by-laws along with development of e-commerce legal infrastructure, have played important roles in confidence building and security for application of e-commerce by consumers and producers. According to the [UNCTAD report](#), legal and regulatory issues are one of the key strategies in 85 percent of developed countries and 41 percent of developing countries. In Iran also, it is highly regarded in both strategies of e-commerce policies and compilation of regulations and rules. Corresponding to the performance of the paragraph 3 of article 69 in the Fourth Development Program, the bill intended to establish

e-commerce specific courts and assign a branch or some branches of the courts to deal with cyber-crimes and legal and technical education of juridical personnel. This has had a good perspective for Iran electronic payment with regard to legal and regulatory issues.

3. Access and Infrastructure

An important hurdle is the low speed and high cost of getting connected to the Internet in Iran. Technical infrastructure and getting access to information are the strategies of developed countries have been highly regarded it, and they have acted as e-commerce second key strategy in these countries. For the developing countries, the main concern is to provide the way for easy access to a cheap, confident and high speed Internet. Internet access enables companies to obtain information on the price of the goods and services and generates new opportunities; moreover, it facilitates the access to education, knowledge and health for the public. To know about the results and methodology of implementation of e-commerce, Ministry of Commerce has done e-commerce feasibility study. This project aims to specify the current and desirable status, analyze the divide and determine the road map to achieve the desirable status in Iran's e-commerce; this project was achieved in 2005. One of the main results of e-commerce feasibility study was comprehensive e-commerce development plan that ratified by boards of ministries. E-commerce infrastructure is discussed in following sections.

3.1. Telecommunication

Though personal computer cost has tremendously slipped in recent decade, it is still not accessible to many people and small and medium-sized enterprises (SMEs). Establishment of Telecenters is one of the common approaches to the enhancement of access to technology. These centers can be supported by government, national sponsors, and non-government organizations (NGOs). Note that expansion of the Internet and telecommunication infrastructure is one of the five principals of e-commerce policy in Iran. Outline of the *Iran Telecommunication* infrastructure is to sign a contract with third operator for mobile phone; to provide 25000 high-speed ports to connect all country wide banks and e-turnover; to define "*Electronic Banking*" project in the Post Bank Company affiliated to the ministry of ICT, to provide Core Banking and e-money turnover; and to provide smart telephone network (IN) in large provinces of the country and pay telephone statement service through the network as an example in application of e-commerce. There is a wide digital divide between global averages, developed, leading developing countries and Iran, while recent advances in technical infrastructure and access to technology. To achieve a desirable state, serious attention to fixed line, mobile phone, PC penetration and number of Internet hosts is required, while it is improving.

3.2. Standardization

Along with the operation of standardization, businesses will be able to do e-transaction. To reach standardization some projects has been done such as Coding and Standardization of Goods and Services Project in which the main goal is facilitating data interchange, goods and services (storing and recycling) by use of standard and similar codes. Regulation of coding method for different goods and services in Iran are carried out in accordance with international goods and services coding standards. Also in Localization of e-commerce standards and its methodology Project, the aim is to enhance e-commerce transactions and application of e-commerce standards in businesses. It is concerning United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) recommendations and technical standards to support and facilitation e-trade and e-business transactions. By this effort all economy agencies in Iran can deploy necessary standards for Internal and international B2B exchanges. Holding coordination meetings by ministry of commerce (EDIFACT Committee), between government and NGO agencies related to UN/CEFACT recommendations effects, is a continues activity in Iran.

3.3. Security

Security is one of the prerequisites for e-commerce. Another barrier in the way of developing e-commerce is the speed and security of computer and communication networks. The lack of protected networks will undermine the effectiveness and advantages of electronic trading. E-Security at high level is required for earning economic businesses, trust and confidence for working in electronic environment. E-security is one of the main challenges of developed and developing countries, so by more cooperation and coordination, they strive to contribute to e-commerce application at international level. Certification Authority Project intends to produce, distribute and manage certification authority in accordance with valid international standards in order to provide security in e-transactions.

4. E-Finance

E-finance is defined as "The provision of financial services and markets using electronic communication and computation". Consumer trust in the internet and the security provided by online financial services is low. Companies that do not provide strong authentication are increasingly vulnerable to attack. Developed industrial countries have invested heavily on e-payment e-banking, e-insurance and e-stock exchange. Nevertheless, without paying attention to e-finance, development of commerce could not be achieved. Iran's commercial banks undertakings have relied on the field of e-banking, based on three different categories:

E-Banking, Iran's commercial banks undertaking has relied on the field of e-banking. Operation of government owned commercial and specialized banks is presented by Dissemination of Information and providing services such as bank's website, credit cards, Automated teller machines (ATMs), Point of Sell (POS) machines in department stores, Short Message Sending (SMS) services, a network based on Online-Real Time to be connected to branches, Bulletin Board System (BBS) in order to provide banking information, automated telephone banking, receiving bills via telephone banking, "*Shetab*" project, services to use other bank magnetic cards and vice-versa, Security Stock Layer (SSL) standards in e-banking activities, e-purse service, online and off-line, etc.

E-Insurance, this plan intends to organize the present systems, design new software, establish infrastructure, and upgrade Iran insurance information systems. Following further steps have been taken with respect to e-insurance.

E-Stock Exchange, the aim is to provide necessary resources to get access to capital markets by application of ICT in Iran and in the international level.

As it was noted, Iranian banks are members of *Shetab* network. They offer such services as SMS, e-mail to customers the bank statements and telephone banking. Iranian banks provide ATMs and POS machines at their branches. They have initiated to automate most of their daily activities. Nevertheless, services offered by the banks are still far away from desirable e-banking. As yet, payment gateways have not been used at Iranian banks, no international credit cards are offered by these banks. In order to strengthen banking network with the system of transactions of inter-banking accounts, there is an urgent need for foreign exchange automated system and connection to Society for Worldwide Interbank Financial Telecommunication (SWIFT) network. Therefore, one of the requirements to develop e-commerce is to strengthen e-banking, which needs taking fundamental steps and making important decisions in this regard. Even though activities in e-insurance and e-stock exchange transactions have been started, still they require taking more serious measures. Operation of government owned and non government owned banks are presented in Table 3 ([Ministry of commerce-Country Progress Report](#), 2006).

Table 3. E-payment Equipments and Tools in Iranian Banks (2005)

Banks	Cards	ATM	POS	POS in branches
Total	13,511,529	4,458	68,532	11,268

Development and Completion of Iran Trade Point is another project which consists of consulting and information services to small and medium enterprises (SMEs) and facilitating paperless trade. Trade points in 21 provinces at Domestic Affairs department of the Ministry of Commerce and Kish free zone have been activated. Also *Iran's Comprehensive Commerce Information Network* project is done which seeks to strengthen the competitiveness of country's exports through providing traders, exporters and importers with the economic information and information about all businesses in Iran and the world. Information plays a key role in trade. With regard to the key role of information in trade, full and comprehensive information can effect on trade, export and also stimulate traders to be active in e-commerce environment. Implementation of Comprehensive Network for Dissemination of Information has provided an appropriate field for traders and businesses in Iran.

5. E-Government

E-government refers to the use of information technology (such as wide area network, the Internet, and mobile computing) by government agencies that have been the ability to transform relations with citizens, businesses and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizenry, improved interaction with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption increase transparency, greater convenience, revenue growth, and/or cost reductions ([World Bank](#)). It offers the opportunity for governments to move beyond this traditional governmental role, because through their e-government activities, governments become active participants in e-commerce. Thus, governments no longer function merely as regulators but as suppliers and consumers of e-commerce and related services. Because of the synergistic relationship between e-government and e-commerce, governmental activities and initiatives in the e-government sector provide an opportunity for governments to drive and influence e-commerce development ([Blakeley & Matsuura, 2004](#)).

To develop e-government, the Ministry of Economic Affair has commenced to implement e-treasury; e-readiness; e-taxation; e-portal and e-customs projects to coordinate e-government performances with e-commerce. Other executive departments of government provided information dissemination and e-services appropriately. Coordinating e-government performances and undertakings are important component in e-commerce strategy. Governments can facilitate to get access to e-commerce strategy and participate in development of following goals:

Efficiency: In information-intensive activities, governments can use the efficiency from the Internet. With respect to the importance of public sector in economy and shortage of resources, government can manage these incomes which are significant in economic efficiency.

Competition: To offer online services in taxation, social welfare; e-Customs, import and export procedures, can reduce the cost to companies dealing with government.

Transparency: Transparency and accountability in public services reduces financial corruption. Transparency in e-government can increase competition in economy and make preparation for foreign investment.

Education and Awareness: with expansion use of the Internet; governments can facilitate required needs of e-commerce, and distribute it among different enterprises of private sector, like SMEs. Wide participation of government (in education and awareness) can bring about coordination between exporters-importers on e-commerce. Governments in offering potential leverages of e-commerce may encourage private sector to adopt e-commerce and cooperate with government owned companies.

In line with the development of e-commerce through enhancement of e-government, the Ministry of Economic Affairs has initiated the implementation of following projects:

E-Services, is a highly general/generic term usually referring to the provision of services via the Internet. To strengthen and enhancement of internal and external communications are main outcome and advantages of e-government; that not only increases the efficiency of government sector but also enhances effectiveness in meeting people's expectations. In e-government, at one hand, the interaction of different government organizations and intra-systems reaches a quality state by using electronic tools and instruments and on the other hand, the idea is that government provides people with acceptable services in the shortest time.

E-Readiness, is a fundamental to the adoption of e-commerce. It represents the capability of nations to create, diffuse, adopt and use various components of the networked economy ([Uzoka, Shemi & Seleka, 2007](#)). Popular e-readiness variables include: connectivity and technology infrastructure, business environment, consumer and business adoption, legal and policy environment, social and cultural infrastructure, and supporting e-services ([Economist Intelligence Unit, 2006](#)). E-Readiness is a commercial tool for government organizations and institutes, that eliminates barriers and creates supply chains, for buyers and sellers in a virtual environment and provide required facilities to sell and buy. The aims of this project are to create safe and purposeful competition; to provide the principles and rights to benefit from opportunities created by government; and to increase productivity and efficiency.

E-Treasury, the aim of this plan is to automate operational processes regarding the costs and treasury department of the Ministry of Economic Affairs. To implement this project it is expected to provide a unified procedure for public finance in Iran; to provide information for strategic financial decision making; to create dissemination of information network; to provide government performance annual sheet; to oversight government properties effectively; to increase productivity of government accountants; to increase government's revenues; to provide supervision, coordinate and unified procedure in government financial affairs; and to create sound and safe communication between different government organizations.

E-Taxation, is a fundamental requirement of e-commerce. It has following benefits to facilitate sending and filing tax returns for tax-payers; follow-up of tax files; tax returns between tax-payer and the taxman; tax-payments; and to make prepare for financial resources and tax man management.

E-Customs, the aim is to modernize and simplify the Customs procedures mainly, automate calculation of the Customs dues and taxes. Provide up-to date, and accurate statistics, standardization of procedures and electronic data interchange with other organizations.

E-Logistics, the aims are to implement Automated System for Customs Data (ASYCUDA) system at 41 Customs offices; to design advance information system passenger (APIS) at the Customs offices; to design a system to determine the value of goods accurately and bring up to speed at the Customs offices; to install and design a plan

to determine transit routes and tracking of transit consignments, GPS and putting to use "X-RAY" units for extra control and monitoring of trucks on the roads, and facing-up to and fighting smuggle; to implement e-manifest to facilitate the sending of manifest's information for trucks and bills of lading, on the web in Persian (Farsi) and in English; to automate sending and receiving information at executive Customs "Message Oriented Middleware"; to initiate "port tracker" plan in cooperation with UNCTAD and United Nations Development Program (UNDP) in order to unify chain of events and Collect information; and to operate automatic select system of assessors at the Customs.

E-Transportation, the aims of this project are to sell train tickets over the Internet with cooperation of the banks; Experimental online selling of tickets for air travels and travels by land at traveling agencies; to design and implement e-tender system (ETS); to design dissemination of information system for consultants and contractors (CCS); Experimental implement of issuance of bills of lading on web at Iranian railway network in Tehran and suburbs; to design office automation, in order to automate office processes and implement paperless system; Feasibility study on comprehensive plan for satellite telecommunication, to disseminate information; and to do feasibility study on the project to track railway transport equipment; centralized traffic control (arrivals and departures of the trains) and office automation to automate office procedures; and to design automated system of accident prevention to manage and forecast accidents.

6. Stimulating Activities

The Ministry of Commerce, in order to develop and penetrate e-commerce, has performed some activities to stimulate different government entities, organizations, academic institutes and university researchers and industries and so on. The main activities are: to present awards to successful organizations, top projects on e-commerce and trade facilities, web sites, articles, books, etc; media and support internal and international seminars on e-commerce; support exhibitions related to e-commerce; and tax-exemption. Also the *10th International Conference of Ecommerce & Investment Opportunities in Islamic Countries* held on September 2006 in Tehran with collaboration of Iran Chamber of Commerce, and Ministry of Industries & Mines. More than 1000 Iranian major investors and managers of industries, ministers and more than 12 Islamic and non-Islamic countries ambassadors participated.

Conclusion and Policy Implication

Information Communication Technology (ICT) has led to promotion of e-commerce around the world, so renovation and creativity are considered as the best policies to maintain the current market and find access to new and untapped markets. Since e-commerce is not a time consuming procedure, it helps increase productivity, speed up calculations, exchange of documents and financial statement. E-commerce has an important impact on all economic, social, cultural and political aspects in our daily lives. The countries round the globe should widen their scope of activities from national economy to global economy in order to create more job opportunities beyond geographical borders. E-commerce has changed the global business environment and produced a dramatic impact on the future of the industry. More and more companies have set up their own corporate websites using the Internet to work collaboratively with consumers, related suppliers, and partners. On-line companies that effectively market themselves using e-commerce development have a distinct advantage. This study finds three e-commerce development strategy dimensions for gaining those advantages.

It is highly recommended by author to the government of Iran, through the Ministry of Commerce and Ministry of Communications and Information Technology to spearhead the development of National ICT Policy to propose the creation of electronic trading hubs to

enable rural communities to trade efficiency with larger consumer in the urban areas. Since business to consumer (B2C) seems to be more of a local phenomenon ([Gibb & Clark, 2002](#)) in contrast to business to business (B2B) is globally driven, B2C which is pulled by consumers markets that are mainly local and therefore divergent; it may be possible to drive practical solutions from all stakeholders in the country. Also some other practical aspects need revising such as Measures to protect online consumers from fraud, including e-commerce laws ensuring legality of online contracts and transactions; Changes the banking laws that will be necessary to ensure that credit card transactions and foreign currency transactions are enacted; and the Deregulation of the telecommunications industry. The government of Iran like many developing countries needs to put in place government to business (G2B) initiatives in its policy to maximize and encourage e-commerce activities among the private sector ([Swami & Seleka, 2005](#)). Since the government is an economic driver, its policy and initiatives might significantly impact the diffusion of new technologies in the country.

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