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Electronic Government, Its Environmental and Social Effects: Case of Iran

Elektronik Devletin Çevresel ve Sosyal Etkileri: İran Örneği

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ABSTRACT

Information and Communication Technology (ICT) has changed and continues to change the managing systems of societies. In this new Golden Age of technology, cyberspace, especially the Internet, has changed governments' management systems in large scales. E-government has become a path toward a solution for the government to meet people's needs, which are independent of their gender, their living place and social situation. In this article, the aim is to assess electronic government and its effect on management and planning organizations or other institutions to evaluate the range of development and Sociocultural changes in a country with a critical political situation. This article prepares a view over the concepts related to the e-government phenomenon and reviews the e-government being used in Iran.

Key words: Electronic government; Iran; urban management strategies; sociocultural changes.

ÖZET

Bilgi ve İletişim Teknolojileri (BİT), toplumların yönetim sistemlerini değiştirmeye devam etmektedir. Teknolojinin bu yeni altın çağında; siber alem (özellikle internet) hükümetlerin yönetim sistemlerini büyük ölçekte değiştirmiştir. Elektronik devlet (e-develt), insanların yaşam yeri, sosyal durumu ve cinsiyetlerinden bağımsız olarak onların ihtiyacını karşılamak üzere bir çözüm haline gelmiştir. Bu makale, Iran'daki e-devletin kullanım sürecini ele alarak e-devlet kavramı üzerinde bir değerlendirme sunmaktadır. Amaç, siyasi olarak ülkeler arasında kritik pozisiyonu olan ve aynı zamanda gelişmekte olan bir ülkede, Elektronik devletin ve bilgi ve iletişim teknolojileri kavramının kentsel, çevresel ve sosyo-kültürel etkilerini değerlendirmektir.

Anahtar sözcükler: Elektronik devlet; İran; bilgi ve iletişim teknolojileri; kentsel yönetim stratejileri; çevresel değişimler.

INTRODUCTION

As a common technology, ICT has affected almost every aspect of our lives such as education, management, business, transportation, urban planning and so many others. Nowadays, a country's influence can be evaluated with the use of new information technologies. Opposing this power may lead a country to inappropriate positions among others. Lack of new technologies may change the living conditions of people of a country. ICT allows people to be active in a community regardless of to their living place, their social situation or their gender.

In fact, the power of information and communication technologies in promoting economic, social and cultural aspects of people's lives is undeniable.

An electronic city has the potential of increasing the citizens' freedom by means of information, improving communication between organizations, increasing clarity in governmental affairs, reducing government costs, creating a better sense of social participation, also improving the efficiency of economic systems, and most importantly, being considered as a time-saving factor.

Adapting a country to an electronic government system and using the information and communication technology in a long period can lead to economic growth and reduction in social inequalities. Overcoming the problems of societies and providing solutions can become possible through governmental organizations.

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Thus, governments, especially in developing countries, have concluded that there is a critical need for modernization in order to strengthen their position in the global competition.

The development of e-government is technically and politically a complex fact and the quality of an e-government depend on two main factors: politics and government information Policy, and users (Tohidi, 2011).

In Iran, the prevalence of IT use throughout the country has made people use their private computers in almost every aspect of their life. Despite the fact that there are limitations in accessing the Internet and certain websites, this tendency in people towards using technology, especially via mobile phones and the Internet, can be considered as an opportunity for the development and improvement of e-government in this country.

Therefore, by applying new electronic and communication technologies, improving the government's performance and providing a plan to reduce the existing gaps with developed countries may become realistic goals.

It is believed that Information and Communications Technology (ICT) is one of the main factors in the economic, social and cultural improvement that has provided national strategy and has a positive impact on the overall socio-economic development. Then the aim of this paper is to assess e-government and its effect on management and planning organizations or other institutions and to evaluate range of development and social-cultural changes in a country with a critical political situation.

The first part of this paper develops a theoretical approach by reviewing literatures, which help to identify the concept of e-government and to demonstrate the interrelations between the commonly used parameters in e-government.

In the second section, some background information of the progress of e-government in Iran's history, the outlook, and the government's goal in the process will be discussed.

In the third part, in order to clarify some details on the implementation of ICT, the present status of the country and its effect on the management system will be reviewed.

The fourth part focuses on the positive effects of ICT and, as a result, e-government on urban and rural development strategies. In this part, the role of public physical and electronic spaces, and demand-oriented design of ICT interfaces show the necessity of e-government and ICT in the country.

Finally, in the last part this question will be evaluated "How it can be possible to lower limitations while integrating ICT into urban planning practices and strategies?".

E-GOVERNMENT

There are several definitions of e-government, which are summarized below;

"E-Government" is a technology that is used by government agencies to change their connection with citizens, businesses, and other bodies of the government. This system can provide different possibilities: offering government services to citizens fast and easily, improving interactions with business and industry, giving some authority to citizens through access to information. By the use of information and communication technologies, the services would be more accessible for the clients. Such centers may include a "no-employee booth" in a government agency, a service kiosk located close to the client, or the use of a personal computer in his/her home or office (World Bank, http://go.worldbank.org).

E-government is a utility for a government to provide fast access to government information and services for the individual to improve their quality of life. It provides a wide range of opportunities for participation in democratic processes. Governing a society electronically, distributes data and information and services in the easiest, quickest, and most efficient way with minimum cost.

Thus, an electronic government is an interface between the government, companies, electronic communications, and citizens.

Various economic, social, and political limitations and pressures have led most of the countries to begin the implementation of e-government structure in sectors where it seems more necessary, and they try to make investment in these particular fields. That is why various countries get different ranks in the development of e-government. It is obvious that there is a difference between developed countries and developing countries in this regard.

In developed countries, better services are provided by private sectors for the society and flow into governmental areas. As these sectors work under the cluster of their governments and due to the fact that citizens expect their deliveries in the fastest and the most suitable way, private sectors must meet the society's needs; otherwise, they will change soon (Layne, K. and J.W. Lee, 2001).

Some of the commonly used parameters in e-government can be summarized in three parts:

Government to Citizen, or G to C: One of the most common connections, which can be provided as, processes that exchange information and services between users and government. This can be done by gathering information from citizens and their quick access to services. In this context, paying taxes and obtaining data and licenses will form the content of this kind of interaction.

Government to Business, or G to B: In this kind of interaction, organizations can easily access the information that they require so that they can respond to the citizens'' needs quickly.

Government to Employees, or G to E: Gathering government staff's information and the exchange of this data among government agencies and government employees are included in this framework.

These three types of application shape the basis of e-Government.

HISTORY, VISION FOR FUTURE AND GOALS OF E-GOVERNMENT IN IRAN

TAKFA (Iran Development of Information and Communication Technology Plan) is one of the first executive systems, which was established in the year 2000 by the governmental sectors of the country for developing information technology and implementing e-government (Moghaddasi, A. and K. Feyzi, 2005).

This system which was codified with the aim of coordinating executive activities in Iran and belongs to the field of development and use of information and communication technology, was approved by the Council of Ministers on 25 July 2000 and was referred to related organizations including the High Council of Informatics for implementation (Secretary of High Council of Informatics, 2002).

With the suggestion of the Planning and Management Organization, the High Council of Administration confirmed the E-government Establishment Plan in 2 July 2000. The aim was to access information in economic, social, and cultural sectors. The goals pursued by this plan were the automation of activities, increasing jobs opportunities, improving the quality of service delivery to people with maximum offer, increasing decision-making quality in various levels, delivering in-person services, reduction of costs, increasing efficiency and effectiveness in various sectors, rapid and accurate establishment and extension of information among executive organizations, etc (Moghaddasi, A. and K. Feyzi, 2005).

According to this e-government, the establishment plan includes nine fields of activity:

- Virtual Private Network (VPN),
- Automation of planning and budgeting System,
- Automation of income system (treasury),
- Traffic and driving and execution affairs,
- Creating web portals for governmental organizations and delivering databases of government services to people
- Providing draft of laws and plans related to management entities in a digital space at national level
- Creating suitable infrastructures and information highways required for creating national governmental portals of a country
- Master plan of information and communication technology (Moghaddasi, A. and K. Feyzi, 2005).

Iran's vision of e-government according to the current administration can be summarized in this sentence: "Becoming the first country in the Middle East to improve information and service delivery to citizens and businesses by applying ICT in government processes".

The government believes that by the implementation of the following, Iran will be a successful country in the field of e-government;

- Providing an Easy and fast Access to Government Information and Services for all Citizens
- Providing Integrated Public Services
- Downsizing the Government and Increasing Its Flexibility
- Promoting Social Welfare, Awareness and Knowledge in the Society
- Declining Bureaucracy throughout Government Processes
- Encouraging People's Participation in Government
- Increasing Government Efficiency and Effectiveness (Sadr, S and Gudarzi Farahani, Y, 2012).

The vision of e-government of Iran for the future can give us a view for a better understanding of the country's administration. Doing a comparison study of the e-government vision of other countries is also important to understand the position of Iran in this index.

IRAN'S STATUS IN TERMS OF ICT, E-GOVERNMENT

In most of the countries, research institutions do the Internet publicity (Boalch Bazaar, 1997). The first steps of the development of the Internet in Iran, was started by the in 1992. At first, it only had academic usage until 1997, when it started to be used in most of the government organizations, industries and the private sectors. Based on the statistics issued by the Statistical Center of Iran, in general, the number of Internet users has risen 3.6%: from 7,955,928 users in 2001 to 11,002,248 in 2010 (10,159,504 urban users and 842,744 rural users). As IranIran's population was 74,837,792 in the year 2010, statistics shows that 11% of the citizens use the Internet). Additionally, based on the statistics of 2010, there were 37,289,600 mobile phone users in Iran (49%, eight of the population had mobile phones) (Statistical Center of Iran, 2010).

TAKFA is a National Information and Communication Technology Agenda and is one of the national programs that the government has implemented in recent years (TAKFA, www.takfa.ir). This agenda and the Iran Civil Society Organizations (CSOs) as e-government initiatives of training and research have been established to develop the infrastructure of the Internet in the country.

Most of the public places, academic organizations, and some companies that work independently from the government provide asymmetric digital subscriber line (ADSL) service for many usages, especially for academic purposes. In urban areas, most of the personal computers are connected to the

Internet via ADSL systems; a limited number of the users connect via dial-up connection systems. Although the ADSL internet speed is much better compared to dial-up connection systems, the speed of the Internet in Iran is generally slower than many other neighboring countries so that you cannot upload or download videos easily at home. There are Internet cafes that provide easier access to the Internet in cities and villages for those who do not have access to this service or for those who want to require faster services.

According to an article published by the Islamic Propagation Organization, now the number of ATMs has reached 22 thousand, which shows 20 percent growth compared to December of the last year, and this represents 2/1 ATM per branch. The Islamic Propagation Organization also believes that this growth demonstrates that people are more willing to use e-banking services as a payment system, and banking sectors have paid the same attention as they attempt to expand their services in this regard.

These statistics are acceptable, and the growth of electronic banking in Iran is inevitable. However, this country has recently confronted so many problems in connecting to the world banking systems due to some political issues. For instance, Iranians cannot use any kind of credit cards for their payments or electronic shopping unless they ask some of their friends or relatives who live abroad.

Coming back to the issue of ICT in Iran, slow or fast, the ICT is developing in Iran and parallel to this development, Iran is experiencing quick growth in every aspect, the government tries to provide facilities for young people to adopt ICTs and include them in their everyday lives (Kousha & Abdoli 2004).

Years ago, citizens had to go to the municipalities or many other organizations in person in order to do their paperwork such as duty payments, getting traffic plan license, etc. Now there are electronic municipal agencies, which are active in different parts of Tehran and many other small and large cities.

The government and municipalities believe that the establishment of these offices as a civil service will solve citizens' problems, and creating websites on the Internet can be a beginning for the creation of an electronic city (Hamshahri online News, 2014, http://hamshahrionline.ir/).

However, according to the fact that giving services to all citizens is impossible, some services are given in person and virtually at the same time. Asghar Ghaemi, CEO in the IT Organization of Tehran Municipality has said in an interview by Hamshahri News, "We have to give some part of the services by personal attendance. This has two reasons; first, we have elderly people who are not familiar with the virtual world or do not have some services, which require one-time authentication. For example while selling a house, although we may reach to the point where we sell our property in a virtual space, it is not acceptable to buy or sell your property without seeing each other. Therefore, we delivered most of the services to the offices that we have named "Electronic Spots."

Some parts of the city management have been delivered to the city municipalities and some other parts have been distributed among other organizations. As currently the cities do not have an integrated management system, electronic cities will shape when all of the agencies, including municipalities, transfer their services to the cyberspace. It is worth mentioning that although people can do most of their tasks virtually without referring organizations in person, unfortunately there are still many basic tasks, which the citizens have to do in person such as paying gas, water, or electric bills.

Iran's national fiber optic network has developed recently. The government believes that after 10 years, this technology will have reached its final goal. As all communications systems such as mobile and IT sectors, necessarily pass through this network, any retardation in its development will slow down all of the communication systems of the country. The national fiber optic network (with an intelligent management system and quality control and network traffic system) was only 56 thousand kilometers in 2005; now has reached 120 thousand kilometers (Vista Reference of news headlines, 2014).

The network system covers all the borders of the country, and according to the geographic situation of Iran, has become the centerpiece of regional communication and could easily get connected to the network system of the neighboring countries.

Now Iran's networking system is connected to the networks of Azerbaijan, Armenia, United Arab Emirates, Turkmenistan, and Iraq. Additionally, Iran's national optical fiber network has connected all of the Central Asian countries networking systems to the global network by means of TAE lines that pass through the Silk Road. Although there are still some defects, this can be considered as a great step in ICT improvement.

The Research Center of Islamic Council, according to the 2013 World Economic Forum, has announced that Iran ranks 15th among 19 neighboring countries in terms of the network readiness index.

Furthermore, according to some published data by Iran's Information Technology Organization, based on assessments conducted by e-government indicators, by the end of 2012, among 190 United Nations state members, Iran with 4876 basis points, according to EGDI (United Nations e-government development index), was ranked 100th in the world and the 10th in the Middle East. The country of South Korea is ranked first with a score of 9483. Singapore also ranked tenth among Asian countries and this indicates that these countries have accessed a full measure of digitization. Here in Table 1, the level of e-government development among top ranked countries is compared, and in the Table 2, you can find Iran's status among the same ranked countries.

Table 1. E-government development comparison among first-ranking countries

Country	E-government 2012	Rank 2012	Rank 2010	Rank change
Republic of Korea	0.9283	1	1	
Netherlands	0.9125	2	5	+3
United kingdom of great Britain and Northern Ireland	0.8960	3	4	+1
Denmark	0.8889	4	7	+3
United State of America	0.8687	5	2	-3
France	0.8635	6	10	+4
Sweden	0.8593	7	12	+5
Norway	0.8593	8	6	-2
Finland	0.8505	9	19	+10
Singapore	0.8474	10	11	+1

Source: UN Department of Economic and Social Affairs (UNDESA. www.un.org/desa/).

Table 2. Comparison of e-government development in Iran and some neighboring countries

Country	E-government 2012	Rank 2012	Rank 2010	Rank change
Turkey	0.5281	80	69	-11
Thailand	0.5093	92	76	-16
Mauritius	0.5066	93	77	-16
Armenia	0.4997	94	110	+16
Maldives	0.4994	95	92	-3
Azerbaijan	0.4984	96	83	-13
Indonesia	0.4949	97	109	+12
Jordan	0.4884	98	51	-47
Kyrgyzstan	0.4879	99	91	-8
Iran	0.4876	100	102	+2

Source: UN Department of Economic and Social Affairs (UNDESA. www.un.org/desa/).

The United Nations Department of Economic and Social Affairs mainly focuses on services related to the environment for ranking the countries based on their e-government development rate. This organization has prepared a questionnaire with the information related to the environment along with the quality and quantity of the services provided for the citizen.

Data sets of a survey conducted in 2012 are firmly built upon the pervious data from the United Nations surveys related to the importance of e-government.

Some critical factors that affect the ranking states:

- Importance of technological advancements and the role of the government and sustainable development, which highlights the importance of e-government and ICT as integral to sustainable development.

- The level of conceptual expansion of e-governance which points to the need to place it at the center of development thinking for a coherent, coordinated, and synergistic approach to public sector solutions.

- The level of attention drawn towards cutting-edge e-government approaches that are being deployed in vanguard countries as case studies for a whole-of-government framework and inclusion of the disadvantaged in the circle of development. (UNDESA, 2012, www.un.org/desa/).

These surveys, which are updated every year, present the progress made in e-government development around the world while cautioning against the digital division stems from the current worldwide.

It is better to add that although the government of Iran is aware of the technological benefits of ICT, despite some small policy wavers, there has always been an agreement among the political leaders to block obscene websites. The

Supreme Council of the Cultural Revolution, which has been the highest responsible organization for social and cultural affairs since the 1979 Revolution, issued a network accessing legislation and announced all services that provide access to computer-based information (ASP) must be equipped with blocking systems to cut users' access to such websites (Secretariat of Supreme Council of Cultural Revolution 2001).

This fact has affected the speed of internet also for those who want to use technology in a way forward and has meanwhile slowed down the development speed of ICT for sure.

ICT AND SOME SAMPLES OF URBAN DEVELOPMENT STRATEGIES IN IRAN

ICT not only supports and accelerates the process of globalization, making cities major players in the global economy, but also redefines "the way we conceive, use, plan, and control physical space in cities" (Firmino et al., 2008: 77).

The rapid evolution of information and communication technologies (ICT) in Iran has allowed the dispersal and specialization of production and bolstered the hyper-mobility of capital. Now in İran, urban planners can analyze traffic issues within the cities based on detailed studies and with access to updated information banks. Therefore, they can make organizations in order to decrease the traffic density of urban areas. Solving negative effects of traffic congestion, which has recently been the cause of many problems in most of the metropolitan areas, especially in city centers—problems such as Neurological disorders, dawdling, air pollution—needs specific planning strategies.

Based on studies done on traffic problems of big cities in Iran by the Environmental Protection Agency, almost 20% of trips within the cities are dispensable (Mogaddam, 2005).

However, this organization, based on the comprehensive planning studies in decreasing air pollution, has declared that these unnecessary trips can easily be eliminated by banking and e-commerce development. According to these studies, out of every 100 trips in Tehran, 32 of them are done with private cars, 25 trips by taxis, and 20 by buses. Currently, 10%of trips within the cities, almost 14 million trips are done for banking services.

In this regard, providing opportunities for the development of electronic banking systems and reducing banking applications done in person can decrease traffic density and unnecessary trips to the city center (Mogaddam, 2009, p: 180-185).

Generally, in the field of traffic and transportations within the cities, decreasing unnecessary trips to the city center and within the city, reducing air pollution, sustainable development and reliance on natural resources and human, all are short and long-term outcomes of e-banking in Iran.

In addition to the wide effects of ICT in urban areas in recent years, its positive impact on rural areas was also extensive.

Iran's rural ICT network began its development in 2000, when the remote northern village of Shahkooh opened the country's first multi-media center. In 2004, two well-equipped tele centers opened in the nearby villages of Gharnabad and East Livan, and Iran developed its National Rural ICT strategic plan.

Limited access to Information and Communication Technology, ICT, means that rural communities lack basic information that could assist them to improve their livelihoods. ICT services can support development in rural areas. A third of all Iranians (33.65 percent) live in 68,000 villages across the country. Most of these villages have yet to use ICTs as a development tool.

With the cooperation of local communities and the government, two Iranian Rural Tele centers were built in June 2004 to provide communities with access to the Internet and applications such as e-government, e-commerce, e learning, e banking, and other e-services. Another goal in establishing the tele centers was to create an enabling environment for research and teleworking to increase employment opportunities. The tele centers are public places where people can use computers, the Internet, and other media, get training, and obtain a variety of other communication-related services.

INTERNET AS AN ORGANIZATIONAL RESOURCE OF THE GREEN MOVEMENT IN IRAN

In 2009, a political movement which was then named "Green Movement" happened in Iran after the presidential elections, in which protesters demanded the elimination of Ahmadinejad from presidential position. Mousavi and Karroubi were recognized as the leaders of the movement and the green color, which was at first used as the symbol of Mir Hossein Mousavi's campaign, became the symbol of unity for those asking for honesty and clarity in the election. The protests were one of the most critical events in Iran's modern political history and observers believe that protests were the largest since the Iranian Revolution of 1978-1979.

The ICT has played a large role in this movement changing the number and level of coordination and contentious actions leading to broader discussions involving a wider range of actors and bridging their claim (McAdam et al. 2001, 331- 333). In Iran Internet, bandwidth has always been limited to the extent that watching videos on YouTube and Facebook and many other websites is usually too slow. This has led people to use the mobile Bluetooth system more for sharing videos easily and free of charge.

The users of mobile phones in Iran are more than Internet users. So, sending out videos to those who did not have ac-

cess to the Internet on those days or for those who were not able to use mobile phones it became critical. The protesters found its way to speed up incredibly by means of the Internet and the social media. All the events and news would spread all over the world within seconds. Unexpectedly, the protest movement started to grow by the Iranians living abroad. Iranians abroad were asking their host government not to accept Ahmadinejad as Iran's president.

Enrolment appeared to be effective with the acts of protest and other devices creating a social movement actor-network. Reformist leaders risked exclusion to the political wilderness if they failed this test, and most chose to become part of the actor-network; declaring their support although calling for non-violence (BBC News, 2009).

Members readily adopted the assigned role of international mouthpiece and supporter, with many staging protests of their own. ICT's assigned role was as channel for organization, recording, and dissemination of the social movement's actions.

EVALUATION

There is a real need for information as the pace of change is so fast and the challenges are getting more and more novel. There is intense interest in the nature of learning and creating the environment for it. Now in this technological world, which is improving second by second, citizens need to do their tasks as fast as possible and to get to where they want in the quickest way. In this regard, the roll of governments gets bolder in managing various programs, which requires different ministerial technologies and partnerships among numerous organizations, at all, levels of government.

To meet future needs, improvement and development of the use of IT is a critical issue. One of the most basic one is cultural and social education.

There are many issues to be considered. The government should invest in the infrastructure development by providing the population with the necessary resources and training. Despite the obstacles, the Internet is expanding in Iran. The government in its Fourth Five-year Development Plan should show its support by allocating resources to this growing sector.

In Iran, establishment of e-government is a promise that related organizations are now trying to fulfill as fast as possible. But according to the collected information, the e-government system in this country is in initial phases, although so much time and effort has been consumed by the responsible organizations and mainly by the government; some aspects of the process still is not accomplished properly. Citizens still have so many problems with the speed of the Internet access and struggle to access the facilities fast and properly. As mentioned earlier, establishing and advancing an e-government system needs a fundamental basis, which means Iranian authorities should think of empowering their electronic infrastructures. An overview of what has been done shows the process of establishing the EG in Iran which has had some obstacles that prolong and slow down the attempts of reaching the final goal (becoming the first country in the Middle East by applying ICT in government processes to improve information and service delivery to citizens and businesses).

As a summary, all the mentioned issues help to identify the key factors and their interrelations in the process of implementing ICT-oriented urban planning strategies.

To promote public awareness, greater ease in life, upgrading city planning and urban management system, for increasing development of the country and to solve urban and rural problems the government should eliminate some limitations. There is an inevitable need for a complete and extensive e-development strategy and there is a necessity for an integrated management system.

The government has to form the basis of this system, and for proper implementation, relevant legislation should be enacted. Although e-government and ICT's effects in many aspects of urban and rural life of the country is inevitable, for sure some interventions must be done for getting better results.

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