

*Review*

## E-government concept and e-government applications in Turkey

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Government and private organizations all around the world and Turkey have attempted to new searches and investments for making their services rapid, independent from space/time, comfortable and contemporary and also increasing their services' quality by employing the opportunities offered by the internet technology. By the electronic government (e-government) concept developed as a result of these efforts, the opportunity that the citizen and the government can execute their mutual duties and obligations via electronic communication and process media has appeared. The main target of e-government is to create a government structure, which its data process capacity is increased and can make decisions and satisfy the requirements immediately. In this study, e-government necessity for Turkey and which factors affect negatively e-government formation were studied and also Turkey's main government organizations' projects and applications on e-government were defined by determining the position occupied by Turkey, which its economy is still developing, on the world.

**Key words:** E-government, internet, e-readiness.

### INTRODUCTION

Change is an inevitable action since the first day on which human being has appeared in the world. Motion of change has increased continuously and its speed has achieved incredible levels in the second half of 20th century. Technology renewing itself in every 100 years in 19th century, in every 20 years during 1960s and in every 10 years in 1970s has become to renew itself in every 2 years, almost every year in 2000s. Human being has not been able to reach such change speed during any historical process. Even the most remarkable expectations fail to determine the size of the change sufficiently to which we will meet. Many sociologists have admitted that they have difficulties to interpret the size of changes of "information age" (Report, 2002).

The internet and the technologies represented by it have started to change all the economy, production, trade, health, publication, tourism and entertainment, all

stages of education, politics and public administration in short every element of life. The effect of time and space differences is removed and business, trade, education and entertainment styles are changed in unpredicted size. New opportunities on contributory administration, making public administration more transparent and serving to people rapidly, efficiently and respectfully have been appearing. Rate and scope of business life is changing and globalizing is affecting all the organizations whether they are small or large. The entire world is becoming a potential market for the factories and also a potential rival (SPO, 2001).

### GOVERNMENT STRUCTURE AND DEVELOPMENT OF INTERNET IN TURKEY

The legal entity, which consists of a nation or a group of nations organized based on territorial integrity, is defined as government (Anonymous, 2008a). Although the government is a structure, which is constructed by the ci-

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tizens, who live within geographic borders of a country, today it has become a structure going beyond the geographic borders and containing the citizens, who live abroad and even citizens of another country (Ince, 2001).

In government governing, national and international organization of the government should be carried out completely, authorities and obligations should be defined properly and also they should be drawn up by certain lines. One of the most important elements experienced in public administration is the authority confusion in Turkey. While authorities of many organizations and institutions are converged, many responsibilities are not held. Whereas, both government-owned and private organizations have to benefit from developing technologic opportunities in maximum level to increase their services' quality and also eliminating authority confusion (Şişman, 2006).

Government and private organizations in Turkey have attempted to new searches and investments for making their services rapid, independent from space/time, comfortable and contemporary and also increasing their services' quality by employing the opportunities offered by the internet technologies (Alkış and Şişman, 2005).

The internet technology was brought to Turkey for the first time in 1987 by Turkey Universities and Research Institutions Network established in leading Ege University. The first internet connection in Turkey was carried out by making a leased line between METU (Middle East Technical University) Ankara and Washington on April 12, 1993. Therefore, April 12 was accepted as the internet's birthday in Turkey. METU and Bilkent University started broadcasting the first Turkish web sites in 1993. These two links, which their speed was 64 kbit/s, remained as the only exit of the country for a long time (Anonymous, 2004).

Public and private organizations and institutions have started to use this technology in their areas as the internet has developed. As the internet world and the information range offered by it have enhanced, main gates were started to be established. The main gates constructed according to the subjects are called as "portal". The most general definition of portal is a web interface to access various applications and information sources without interrupting the connection (Anonymous, 2002).

## **E-government concepts**

The institutions and governments, which adopt rational, efficient, transparent and contributory administration comprehension, have started to increase the quality of their services by e-government construction by using information and communication technologies. From now

on, the governments have determined the following basic targets by using information and communication technologies:

- i. Offering public services more rapidly and transparently.
- ii. Determining economic and social development strategies according to the demands and tendencies of the citizens.
- iii. Operating all the government organizations as cooperated in a more rational and efficient way (United Nations, 2004).

E-government is that, public services are developed by making organizational changes, democratic developments are ensured and public administration uses information and communication technologies for supporting public policies (Jongcheul, 2004).

E-government is that, the public administration makes operational revisions at its all levels, thus, the government and management of the government become more powerful (EIPA, 2005).

E-government is a government model, which aims increasing in performance and efficiency by using information and communication technologies in information, service and good exchange between public organizations, citizens and commercial organizations. E-government's targets are:

- i. Transparency in administration.
- ii. Ensuring democratic developments and contribution of the citizens to administration at all levels.
- iii. Offering public services in a more transparent way and consequently increasing power and credibility of the government.
- iv. Continuous, uninterrupted and high quality services.
- v. Ensuring data exchange between organizations and preventing work and data repeats.
- vi. Making life of the citizens, who take services from the government easier.
- vii. Planning based on true and up to date data and saving money in all expenditures (Alkış et al., 2003).

Additionally, it is aimed to mitigate the responsibilities of the central governments of the countries governing large geographic areas by distributing some of the obligations to regional institutions by increasing control ability of the central governments by e-government applications and also a transparent government at both national and local levels is aimed (Mab et al., 2005).

## **E-government necessity**

Turkey is located where Asia and Europe meet. It is one of the most important countries with its approximately 780

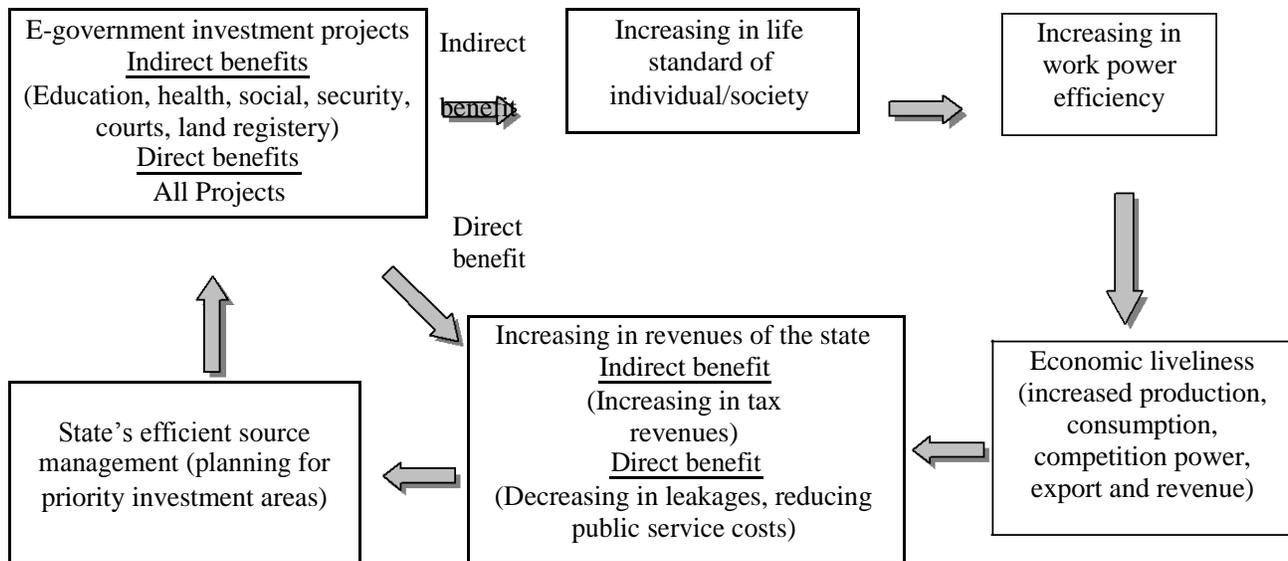


Figure 1. Amortization of e-government investments (Cappgemini and TNO, 2004).

bin km<sup>2</sup> surface area and approximately 75 million of population (Anonymous, 2008b). The cost of making public service is high in Turkey. The reasons are its large surface area, its high population, its public employment policies, low personnel efficiency and its irregular distribution and intensive institutional bureaucracy (Şişman and Alkış, 2006).

Because public service costs will decrease through e-government applications, a surplus source will appear. Such surplus source is very important for a developing economy like Turkey's economy. Although the first investment costs of e-government projects are high, amortization time of the investment is short by realizing the project (Figure 1).

EU (European Union) aims to save 300 billion Euros a year through e-government applications from the year of 2010. "2010 Information Age" Action Plan approved by EU Commission expects increasing in efficiency in many areas ranging from public tenders to invoicing. According to the estimations, in EU, total of annual public tenders is reaching to 1.5 trillion Euros. In 2010, it is expected to save 40 billion Euros by ensuring electronic applications to the tenders and that 50% of purchases are done in such way (Anonymous, 2006a).

USA aims the followings by e-government efforts:

- i. Increasing in efficiency of public governing institutions.
- ii. Developing the relations of public and private sectors.
- iii. Improving the services between institutions and also intended for the citizens.

China aims the followings by e-government efforts:

- i. Accelerating administration reform.
- ii. Ensuring economic development.
- iii. Increasing control and managing capacity of the central government (Mab et al. 2005).

### The factors affecting negatively e-government formation in Developing Countries

Many factors affecting negatively on e-government formation and spreading may be listed. However, the most important one of them is that one or more aspects of e-government are weak and the difference called as "digital divide" between these aspects is created. Economic and social differentiation between the communities or nations, which are outside or back of the information age, and those, which benefit from informatics revolution completely and started information economy, is defined as digital divide (Sankur, 2002).

Digital divide may also be defined as the factors preventing people, who cannot use these services found in the media offering electronic services and on-line services via the internet, from accessing to these services (OECD, 2003).

There are regional income differences and irregular revenue distribution in Turkey. While annual average income is under \$1,000 in some cities, it is higher than \$10,000 in other cities (Anonymous, 2005a). As a result, information and communication technologies cannot be distributed equally nationwide. According to the results obtained from researches, the reasons for that PCs are not found at homes (Figure 2) and nationwide usage rate of computer and internet are shown in (Figure 3).

The effects of digital divide have been seen in Turkey clearly. This is the most important barrier preventing e-government applications from realizing. The most important advantageous of Turkey in spreading e-government applications is its high young population rate. It is expected that e-government applications will increase significantly in the next decade because of high young population rate and their tendency in information and communication technologies (Figure 4).

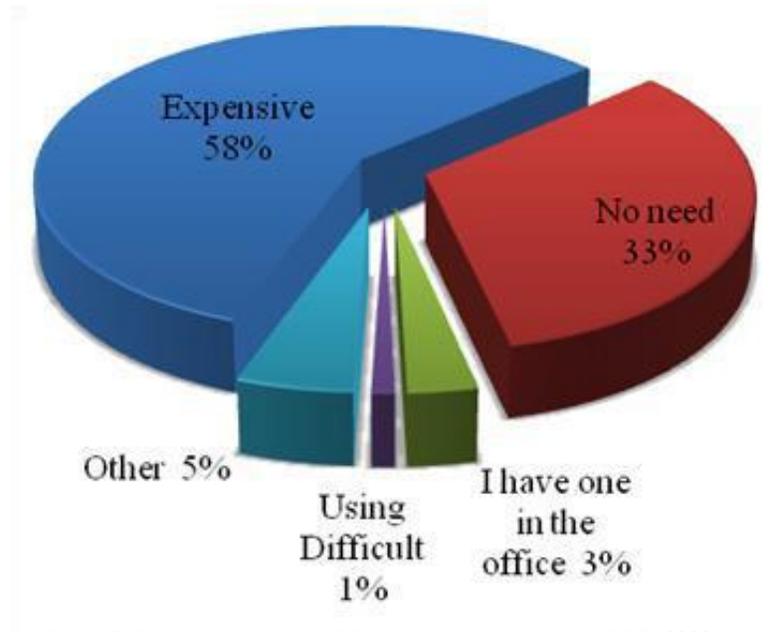


Figure 2. The reasons for that PCs are not found at homes (SPO, 2009).

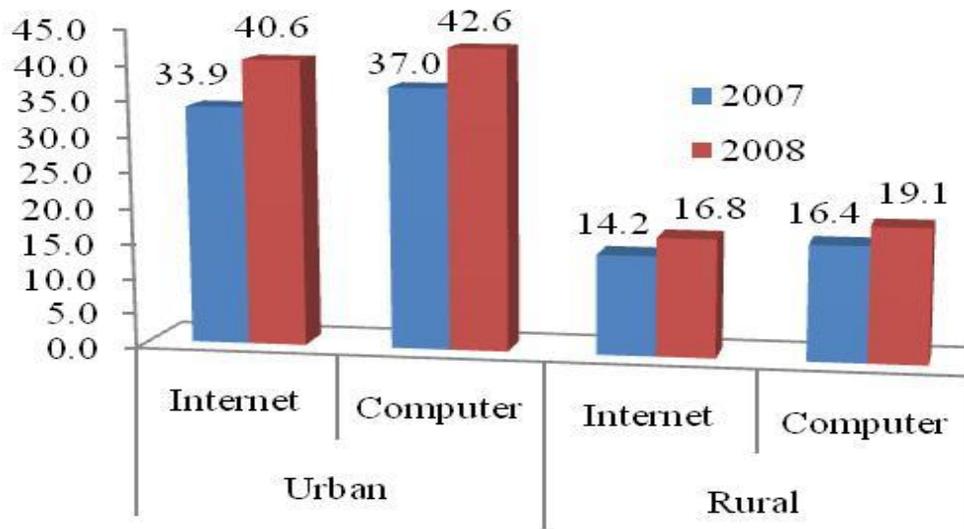


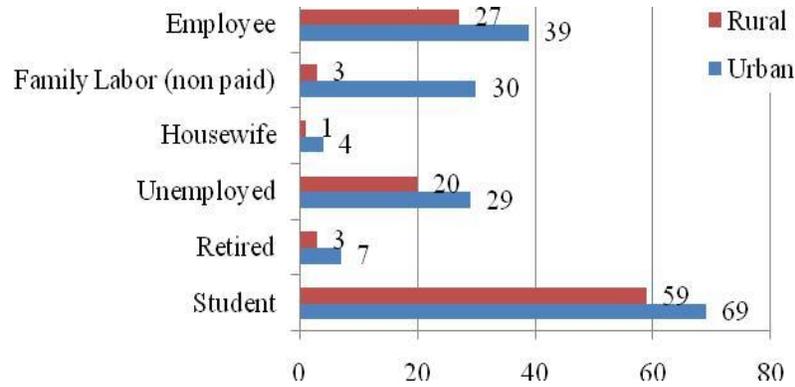
Figure 3. Nationwide usage rate of computer and internet (SPO, 2009).

### The position occupied by Turkey in worldwide e-government applications

World Economic Forum (WEF, 2005-2009) organization, a sub-organization of World Bank, makes researches regularly to determine the nations or communities' readiness situation indices for information and communication technologies. Because this research is continuous, it allows making various analyses and assessments. Also, it supports the nations' decisions to be made in making plans about information and communication technologies for the next periods. Table 1 shows the first ten nations and Turkey's position in readiness situation indices done

in subsequent years for information and communication technologies.

In case that nationwide information and communication substructure is weak, home and office connection amount is less and cost is high, these services cannot be popular around the country no matter how the mobile services have developed. E-government usage ratio of active users depends on directly general structure of web sites, their designs, their connections, availability and their information content (Bertot et al., 2006). According to a study including Central European countries, a result and list were established according to e-government application status. According to the results of the study shown on



**Figure 4.** Computer usage rates according to work force situation in Turkey (Anonymous, 2006b).

**Table 1.** Index list based on years for readiness situation for e-government (World Economic Forum, 2005-2009).

Country	2008 - 2009	2007 - 2008	2006 - 2007	2005 - 2006	2004 - 2005
Denmark	1	1	1	3	4
Sweden	2	2	2	8	6
USA	3	4	7	1	5
Singapore	4	5	3	2	1
Switzerland	5	3	5	9	9
Finland	6	6	4	5	3
Iceland	7	8	8	4	2
Norway	8	10	10	13	13
Holland	9	7	6		
Canada	10	13	11	6	10
...					
Turkey	61	55	52	48	52

shown on Figure 5, Turkey's position seems better than that of some EU member nations

## THE CURRENT E-GOVERNMENT ATTEMPTS OF PUBLIC ORGANIZATIONS IN TURKEY

### The public administration's e-government approach

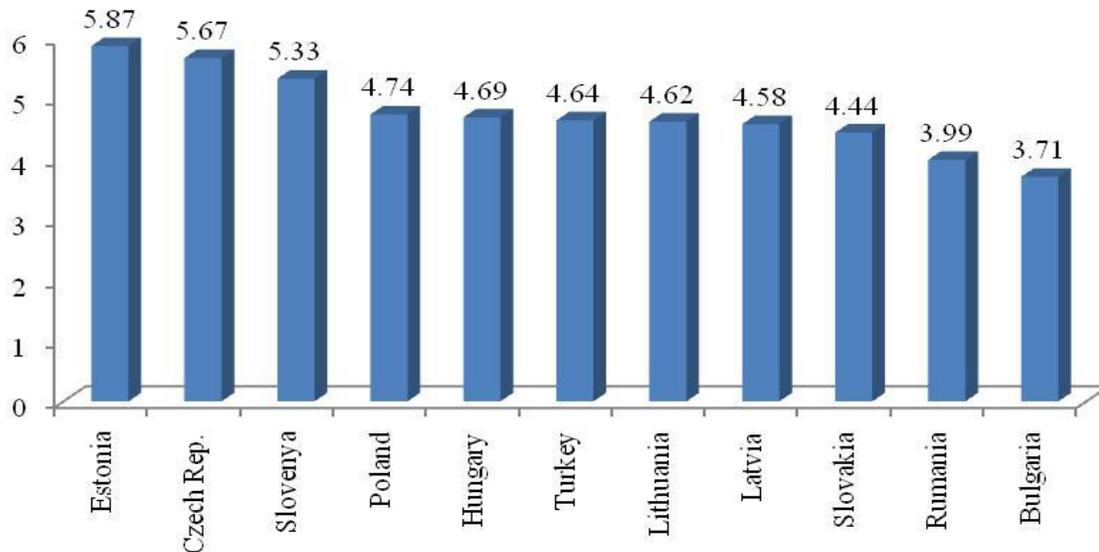
The government has a significant share on economic area in Turkey. In 2005, the share of public expenditures in Gross Domestic Product (GDP) is 44.7% and the share of public revenues is 43.3%. The efficiency of the government, which is the most important actor in economy and additional value demonstrated by it play an important role in competition power of the economy also (SPO, 2006).

The first steps towards e-government operation and application in Turkey were taken in 1998 with Turkish National Information Substructure Project (Tuena). After the Tuena Project, National Government Computer Net-

work (Kamunet) was established according to the resolution made by Higher Committee for Science and Technology. After Tuena and Kamunet projects, E-conversion Project of Turkey, which includes all projects to access to e-government, was started by a circular published by Prime Ministry on 27 February, 2003.

E-conversion Project of Turkey aims the followings:

- i. First, revision and rearrange of information and communication technologies policies and legislations under the framework of European Union Acquirements and adaptation of action plan foreseen for candidate nations to Turkey under the scope of e-Europe.
- ii. Developing the mechanisms, which ensure that the citizens join to decisive processes in the administrative activities by the help of information and communication technologies.
- iii. Contributing to making public administration more transparent and answerable.



**Figure 5.** E-government evaluation of Central European Countries (The Economist Intelligence Unit, 2004).

- iv. Contributing to realizing good administration principles by benefiting from information and communication technologies at maximum level in offering public services.
- v. Spreading usage of information and communication technologies.
- vi. Integrating, executing and evaluating the repeated or similar investment projects and coordinating the investor government owned organizations to save sources on the area of information and communication technologies,
- vii. Guiding for private sector activities according to the principles above (Anonymous, 2005b).

After E-conversion Project of Turkey was started, Information Society Office was established under the structure of Government Planning Organization in March 2003 and this body was held responsible for coordination of e-government affairs.

### Organizational efforts

It has been seen that public organizations and institutions' tendency for investments on information and communication technologies is increasing in Turkey (Alkış and Şişman, 2005). The reason of this tendency is generally that public organizations and institutions have to make their work processes automated, to meet demands of the citizens and business life more rapidly and efficiently and to increase their service quality.

Realizing the projects of information technologies requires both a comprehensive planning process and high expenditures. Therefore, the benefits to be obtained by realizing these projects should be evaluated not only from the point of institutional but also the whole of the government. Also, the projects of information technologies are the projects, which have the highest failing risk.

To reduce these risks, ultimate attention should be paid on analyses and designs of these projects, target mass should be defined properly, pilot applications to be met the requirements and demands of the users should be done at first and pilot applications should be evaluated and then it should be spread over the nation (Şişman, 2006).

The investment proposals on information and communication technologies have evaluated by Information Society Office established under the structure of Government Planning Organization from the year of 2004 investment program period for coordinating e-conversion project of Turkey and views and recommendations have been made. Thus, that government informatics investments may be executed with a healthy observation and evaluation processes by an integrated approach, which its principle is information share, avoids from repeating and protects national priorities.

The sources allocated for government information and communication projects demonstrate a real increase compared with the previous years in Turkey (Figure 6). Many public organizations are developing hardware and software substructures in Turkey and service-focused projects intended for automation public services, eliminating errors caused by human being, rapid and easy access to information are being executed. The majors of them are the projects of Central Civil Registration System (MERNIS), Health Ministry Basic Health Statistics Information System, Custom Under secretariat, Custom Systems Modernization Project (GIMOP), Financial Affairs Ministry Revenues General Directorate Computer Automation Project (VEDOP), Justice Ministry National Judgment Network Project (UYAP), Internal Affairs Ministry Province Inventory Modernization (ILEMOD), Police Network establishment (Pol-Net), Land Registry and

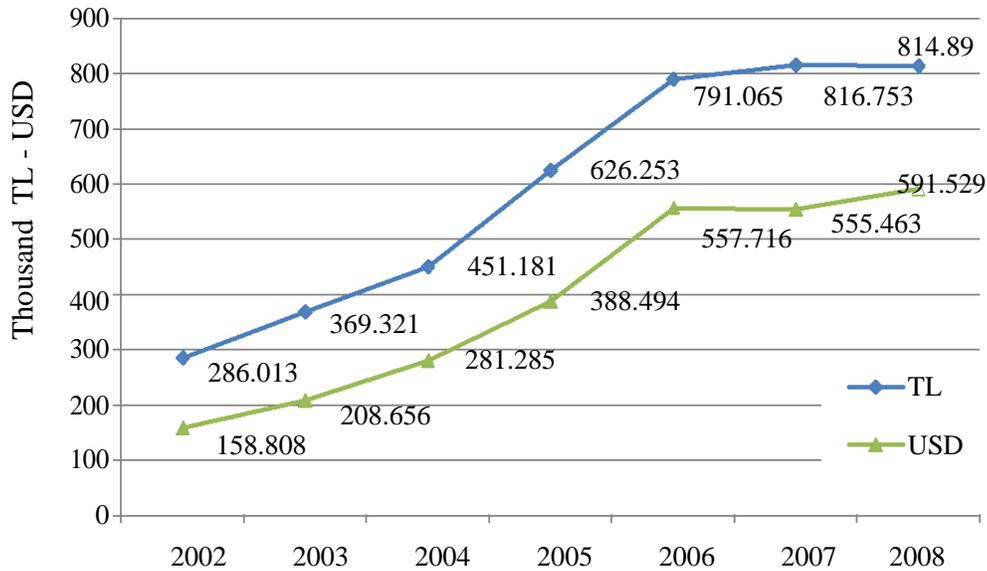


Figure 6. Current allowances for government information and communication projects (SPO, 2007).

Cadastre Information System (TAKBİS) (Anonymous, 2007).

#### Population and citizenship affairs general directorate central civil registration system project (MERNİS)

Mernis Project is a project, which transfers identification data of real persons to electronic medium and updates any amendment in these data from 923 centers spreading over nationwide instantly as well as ensures sharing these data securely on a network. The project aims secure information share, instant updating demographic data and increasing speed and efficiency of public services. Under the scope of the project, the different numbers of citizens used by different offices were made a single number. This project has also produced the basic data, "individual data" for other e-government projects, which is being applied. Identity Share System project as an extent of this project ensures secure, rapid and efficient services and also prevents excess bureaucracy by allowing other public institutions access to demographic data.

With the help of Mernis Project:

- i. County population data base were established and services were modernized by transferring population registrations to computer medium. It was realized that population services are given in counties by informatics technologies, data bases for county population were integrated in the center and thus Central Population Data Base was established.
- ii. An identity number has been given to each citizen of Republic of Turkey.
- iii. It was ensured that individual data exchange between

government and private informatics projects is executed online via a substructure in which individuals are defined as singular.

- iv. Healthier population statistics have been obtained by informatics technologies.
- v. It was ensured that the citizens benefit from services more rapidly, easier and more securely by making identity data share by public organizations.
- vi. A service security, which reduces bureaucracy and gets closer the citizen and the government, was ensured (Anonymous, 2008c).

#### Custom under-secretariat custom systems modernization (GIMOP) Project

56 custom administrations and 18 custom directorates found on 48 points were connected with the help of GIMOP projects. It is the first data storage application in Turkish government sector. By this project, it is aimed to develop and apply a computer system for more selective and more efficient custom control by developing custom legislations and regimes, rearranging custom organization, coordinated application in custom legislation, using human resources more efficiently, producing foreign trade statistics more rapidly and more efficiently and more efficient tax collection. 83% of custom procedures are executed on electronic media since April, 2001 (Anonymous, 2008c).

#### Financial affairs ministry tax offices automation (VEDOP) project

By VEDOP Project, it is aimed to reduce work load of tax

offices, to increase efficiency in services and to establish an information system for healthier decision, support and administration from the data collected on computer media. It was spread over 22 province center and 153 tax offices. Complete automation project will be spread nationwide by a project, called VEDOP-2. By this project, Financial Affairs Ministry aims to consider taxpayers as a customer and satisfy him. When the project was started to apply, proceedings have accelerated and reporting and interrogation procedures have become easier. Electronic Bank Collections' Process Project (EBTIS) was developed and it was ensured that taxes paid to banks are sent to Revenues General Directorate Information Process Center from banks via magnetic medium and they are entered into the taxpayers' accounts (Anonymous, 2007).

#### **Justice ministry national judgment network (UYAP) project**

By Justice Ministry National Judgment Network (UYAP) project, it was ensured that "e-judgment" system being a part of e-government was established. By UYAP Project, it is aimed that judgment is carried out without wasting time and it is also aimed to prevent the citizen from injured and to accelerate the system while protecting security and trueness of Turkish Republic Juridical System process. In the scope of UYAP project, a computer network was established covering Judgment Ministry Central Organization, all courts, attorney generalships, forensic medicine and all execution offices. Thus, it was ensured that data exchange between the ministry and provincial bodies are transferred to electronic medium, the citizens are served via the internet and the data demanded by other institutions are prepared on time by the system (Anonymous, 2008d).

#### **Land registry and cadastre information system (TAKBİS) project**

TAKBİS aims planning, applying and managing the procedures relevant lands rapidly, properly and securely by using information and communication technologies. It also aims to ensure other institutions share graphical and non-graphical ownership data, which land registry and cadastre organization has to offer, more efficiently. Therefore, TAKBİS is a strategic and very important e-government project for Turkey.

Legal and updated information requirements of all organizations and institutions relevant to real e-government are provided by one center, Land Registry and Cadastre General Directorate and provincial bodies in Turkey, which

has a large geographic area. The requirements of the institutions, which need instant ownership data, such as banks, courts and municipalities, will be satisfied uninterrupted by TAKBİS project. Therefore, TAKBİS project took place among "medium-term projects" in national program of Turkey, which is in EU joining process. The pilot project, which is the first stage of Takbis Project and covers Ankara and its counties, was completed and efforts for spreading nationwide, the second stage, was started. By Takbis Project:

- a. The procedures relevant to deed and registration of Land Registry and Cadastre General Directorate will be standardized and it will be ensured that the procedures executed in Land Registry and Cadastre Directorates will be done according to the legislations and on computer medium.
- b. The officers will be supported by the most recent legislations relating to the procedure, which they are executing, on the screen.
- c. An integrated structure will be established by transferring the data obtained to the system to be established in the General Directorate. It will be ensured that the citizens will be able to make sale and similar procedures anywhere in Turkey if the relevant amendment is done in legislations.
- d. Chief Officers will be allowed monitoring officers' performance.
- e. The initiative of the officers will be eliminated and thus, it will be ensured that the procedures will be carried out according to the legislations and in a short time.
- f. It will be possible that reports and decisive support functions will be created by using the data collected in the center.
- g. It will be possible that instant statistical results relating to real e-government will be produced for any public organization in strategic subjects.
- h. It will be possible to monitor in the center easily that the real e-governments owned by foreigners and in which regions they prefer to buy real e-government.
- i. Correct and updated data base will be established for Farmer Registration System base for Agricultural Data System and Direct Revenue Support, which must be completed in EU adaptation process.
- j. The interrogations relating to financial crimes will be completed in the shortest time by making financial crime interrogations and asset interrogations in one center and thus more efficient government control will be ensured against bribery and irregularity.
- k. It will be ensured that the citizens may see the most recent data relating to their real e-government and obtain information and documents relating to land registry and cadastre procedures before applying via the internet (Anonymous, 2008e).

## RESULTS

In this study, it was examined the opportunities offered by the developments in information and communication technologies for public services and the developments in information and communication technologies Turkey. Because Turkey has a large surface area and also large population, every type of investment, which is done by the government for its citizens, has high cost. Therefore, e-government applications should be offered in all areas whether they are social or commercial for working more efficiently with limited resources.

The most important point is to avoid from repeated works. Therefore, a Higher Committee should be established to organize and manage all attempts executed under the scope of e-government by public and private organizations. This committee should prevent repeating attempts and also ensure that the projects planned or organized by the organizations are executed in a standard way. The systems to be developed should communicate with each other and can produce different data by using data of another.

E-government attempt should not be restricted by technology and it should be made all government positions and then all communities of people know that its administration concept has adopted "chance processes". Fundamental measures should be taken for human resources deficit. Human resources deficit is too large in information technologies sector all over the world and also in Turkey. Human resources should be educated ranging from technician to doctors.

Organizational constructions should be revised. Contributory and transparent organizations having organic bounds between each other should be done in determining national policies and preparing and application of action plans. Legal and financial support required by organizations should be provided. In this construction, private sector, universities, occupational organizations and civil society organizations beside government institutions should take place in this construction.

Equal opportunities and cheap internet access should be provided. It should be aimed that each individual of the society access to internet and be information literate (using computer, finding information by using computer and internet). Arrangements should be done to provide equal opportunities. Home tariffs for Internet connection should be kept at symbolic levels.

Care should be paid on spreading information technology opportunities among people equally as much as possible and "digital divide" should be prevented. Thus, it should be ensured that people having low income access to the internet in schools and libraries and also with cheap connections.

The most important party of e-government attempts is

the citizen. The citizens' education and economic level should be increased for that they can act their roles in e-government attempts. E-government backbone will be weak when citizens can barely cope with daily problems. The solution will be empowering the economy of the nation and increasing education level of the society.

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