T.C

YEDİTEPE UNIVERSITY

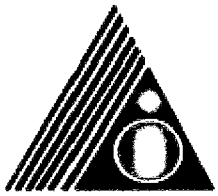
GRADUATE INSTITUTE OF SOCIAL SCIENCES

HUMAN FACTORS AND USABILITY OF KNOWLEDGE MANAGEMENT FOR EFFECTIVE E-GOVERNMENT

By Sevda AKIN

Submitted to the Graduate Institute of Social Sciences
In partial fulfillment of the requirements for the degree of
Master of
Business Administration

ISTANBUL, 2005



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Sevda AKIN

Approved by:

Ass. Prof. Dr. Altan Cöner ..... *(Supervisor)*

Ass. Prof. Dr. Fusun AKDAĞ.....

Dr. Neva Yalman.....

Date of Approval by the Administrative Council of the Institute 23/05./2005

CONTENT

LIST OF SYMBOLS

R Correlation Coefficiant
F Statistic
ß Coefficiant of variables
T Statistics
H_{x0} Null Hypothesis
H_{x1} Presence Hypothesis
Df1 Freedom degreee
Df2 Freedom degree

LIST OF ABBREVIATIONS

ADSL :Asymmetric Digital Subscriber Line

ATM :Automated teller machines

B2B :Business to Business

B2C :Business to Consumer

BAĞKUR :Social Security for Self-Employed Workers

BTYK :Supreme Board of Science and Technology

CeBIT :International Trade Fair for Information Technology, Telecommunication, Software and Services

CIA :Central Intelligence Agency

DIE :State Institute of Statistics (Devlet Istatistik Enstitüsü)

DNA :Deoxyribose Nucleic Acid

DPT :State Planning Organization (Devlet Planlama Teşkilatı)

EU :European Union

E-TR :Electronic Turkey

e-Kadıköy :The web site of Kadikoy Municipal

GIH :Government Information Highway (Kamu Bilgi Otobanı)

GDP :Gross Domestic Product

G2B :Government to Business

G2C :Government to Citizen

G2G :Government to Government

GSM :Global System for Mobile Communications

ICT :Information and Communication Technology

ID :Identification

IMF :International Monetary Fund

IP :Internet Protocol

I/O :Input / Output

KAMU-NET :Public Network of Computers

KOBI :Small and Medium size Enterprises

KOSGEB :Small and Medium Industry Development Organization

LAN :Local Area Network

MEB :Ministry of National Education

MERNİS :Central Census Management System (Merkezi Nüfus İdaresi Sistemi)

METU :Middle East Technical University

MoU :Memorandum of Understanding

NGO :Non- Governmental Organization

OECD :Organisation for Economic Co-operation and Development

OEF :Open Education Faculty

OHS :Open High School

PC :Personal Computer

PKI :Public Key Infrastructure

PSTN :Public Switch Telecommunication Network

PTT :Post Telgraph Telephone

POLNET :Police Network

RTTE :Radio and Telecommunications Terminal Equipment

Say2000i :Automation Project for Accountancies (Saymanlık Otomasyon Projesi)

SPO :State Planning Organization

SOE :State Operated Enterprise

SSK :The institution of Turkish Social Security

STAP :Scientific and Technical Advisors Panel

TESEV :Turkish Foundation of Econic and Social Studies.

TAKBİS :Cadastral Information System (Tapu Kadastro Bilgi Sistemi)

TRT :Turkish Radio Television

TRANSPOL :Police Transmission

TSK KKBS :Turkish Armed Forces Command Control and Information System Project (Türk Silahlı Kuvvetleri Komuta Kontrol Bilgi Sistemi)

TA :Telecommunications Autority

TT :Turkish Telecom

TTNET :Turkish Telecom Internet

TV :Television

TUBITAK :Turkish Scientific and Technical Research Institution

TUENA :Turkish National Information Infrastructure

TURKSAT :Turkish Satelitte

UYAP :National Judicial Network Project (Ulusal Yargı Ağı Projesi)

USA :Unitied State of America

VEDOP :Automation Project for Turkish Tax Offices (Vergi Dairesi Tam Otomasyon Projesi)

VPN :Virtual Private Network

VoIP :Voice over IP

WAN :Wide Area Network

LIST OF FIGURES

LIST OF TABLES

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ABSTRACT

The concept of e-government, broadly defined as the supporting of public services and information by information and communication technologies (ICTs), is a widely researched topic in the field of human factor usage.

This study explains the dynamics behind the effective e-government and the picture of Turkey through digital divide perspective via the sample of the successful e-municipal in Turkey by conducting in-depth interviews with 180 people who lives in Kadıköy.

The thesis consists of four main parts. The first part includes a general assessment of the extent of adoption and institutionalization of e-government in Turkey. It aims to analyze the current situation, make basic suggestions as to the transition of Turkey to a sound system of e-government and determine primary objectives. This section also stresses the position of Turkey in the digitalized world.

Second part of the thesis deals with Human Factors analyzing the influential, cultural and personal approaches, behavioral patterns, possible obstacles that may arise in that regard and the effects of the digital divide.

The third part is on the usability of an effective e-government practice. In this part, the primary users of such an introduced system, namely the institutions applying this system and the users who are benefiting will be discussed.

The fourth part comprises a Case Study where the application of e-Kadıköy, which is a successful example of e-municipal, is examined in detail. In the survey that is carried out as detailed as possible and where views of the individuals were considered, the results of the interviews and the messages contained therein are investigated thoroughly.

ÖZET

Geniş açılımı ile devlet hizmetlerinin ve bilgilendirme müessesesinin Bilgi İşlem ve İletişim Teknolojisiyle desteklenmesi olarak tanımlayabileceğimiz e-devlet kavramı, insan faktörü kullanımı alanında üzerinde çok araştırmalar yapılmış ve yapılmakta olan bir konudur.

Bu çalışma, başarılı bir e-devlet uygulaması olan Kadıköy Belediyesinin sistemi ve çalışmaları ile ilgili olarak Kadıköyde yaşayan 180 kişi ile yapılan çok detaylı bir mülakatın verileri aracılığı ile, başarılı bir e-devlet uygulamasının arkasındaki dinamiklerin incelenmesi ve Kadıköy Belediyesi penceresinden bakarak Türkiye genelinin bilgi toplumu profilinin çıkarılmasına yönelik bir araştırmadır.

Bu tez dört ana bölümden oluşmaktadır. Birinci bölüm, e-devlet kavramının Türkiyede ne ölçüde yerleşmiş ve kurumsallaşmış olduğunun genel bir değerlendirmesini içerir. Bu bölümün amacı, halihazırdaki durumun incelenmesi ve Türkiyenin sorunsuz çalışan bir e-devlet düzenine geçişi için temel öneriler getirmek ve ana hedefleri saptamaktır. Bu bölüm aynı zamanda Türkiyenin dijital dünyadaki konumunu irdelemektedir.

İkinci bölümde İnsan Faktörünü ele alınmakta olup, bu bağlamda etkili olan kültürel ve kişisel yaklaşımları, davranış biçimleri, bunlardan kaynaklanabilecek muhtemel engelleri ve sayısal uçurumun etkileri incelenmektedir.

Üçüncü bölüm, başarılı bir e-devlet uygulamasının Kullanıcıları ve Kullanımı üzerinedir. Bu bölümde, uygulamaya konulmuş olan böyle bir sistemin birincil kullanıcıları, yani bu sistemi uygulayan kurumlar ve bundan yararlanan kullanıcılar ele alınmaktadır.

Dördüncü bölüm ise, bir vaka çalışmasıdır. Burada , detaylı olarak başarılı bir e-belediye örneği olan e-Kadıköy uygulaması incelenmektedir. Olabildiğince derinlemesine yapılan ve hemen her konuda bireylerin görüşlerine başvurulan bu araştırmada, mülakat sonuçları ve bunların içerdiği mesajlar irdelenmektedir.

1. INTRODUCTION

In this paper, we shall discuss knowledge management issues in effective e-government with a particular focus on Human Factors and usability.

Government and societies have traditionally operated on a hierarchical model of information flow and interaction in the last century. The January 24, 2003 issue of the *Economist,* which surveyed a number of developments brought about by the new ICTs, emphasizes the promise and potentiality of these technologies to bring about a shift in power to the ordinary citizen:

"*...Every big change in communication technology, from the printing press to television, has eventually produced big, and often unexpected, changes in politics. As the Internet becomes mobile and ubiquitous, it will bring about changes of its own. Precisely what these will be, is not yet clear, but the earliest claims of cyber-dreamers – that the internet will produce a shift of power away from political elites to ordinary citizens – may well become reality.*"

The technology developed magnificently during the past 50 years. The close relationships between human beings and the results of technological development posed some questions like "Do computers affect people's life and behaviors"? Today, people, organizations and computers are bound together. They mutually affect and are influenced by the technology. Thus, e-government of the future will function differently then the governments in the past, and e-government of the 21st century will replace the classical administrative government of the 20th century. Another question will be how to make the e-government work?

There has to be enough need and justifications for introducing e-government but many people still prefer to use the established system of manual services because they hesitate to use advantageous technologies. Instead of sophisticated computerized environment, which can replace many bureaucrats, governments still prefer to continue working with the old methods of paper pushing and redundant routines.

This problem appears because technology and human development are not proceeding at the same pace. Technology has moved faster than society during the last decades. Creativity and innovative spirit push technology fast ahead in an exponential rate, while social and cultural structures change step-by-step, during one, or even two generations.

However, based on accumulated experience, it can be foreseen that introducing such an advanced system will be faced with many social and ethical problems. One issue that should be treated is the potential social inequality that is accelerated by e-government. Because while knowledgeable and competent citizens will gain from the new system, the poor and less educated ones will be left behind.

The socio-technical approach employed in this study means that technologies shape their environments and their environments place various constraints on the use of technology.

The hypotheses of this study is to reveal the significance of the independent variables of e-government such as computer literacy, awareness of e-government and e-Kadıköy, Internet access and usage. e-Kadıköy was a successful e-municipal application, which had been rewarded in *e-TR* and eLocal Administration Services. Another important position of Kadıköy is that it is a district where people have high living standards and those people represent a considerable segment of the Turkish society in terms of digital divide.

Given these concerns, the profile of the citizens residing in Kadıköy with respect to computer literacy, awareness of e-government and e-Kadıköy, Internet preference and online access has been analyzed. It is wished to examine whether observed differences in e-government usage can be accounted for by differences in income, education, age and gender.

The analysis is based on the survey conducted in May 2004/June 2004. This survey of e-government and Internet use among the citizens residing in Kadıköy was the first to collect data on human factors of e-government usage.

In this study, it has been proved that computer literacy, awareness of e-government services, preferring the Internet for any interaction with the government and preferring to access e-government 24 hours a day are the affected factors of e-government usage.

The computer literacy is very high in well-educated people. It is very well known that it varies depending on the education level. The correlation between awareness and usage has been tested in this study. Awareness is the most significiant variable for e-government usage . The e-goverment users are also users of e-Kadıköy but e-Kadıköy is known better by the responders.

In this research, the significiant key factors which explain the variance in e-Kadıköy usage are computer literacy, awareness of e-Kadıköy, Internet preference, willingness to use online service (7X24 access), meeting expectations, economy and Internet security.

2. BACKGROUND

According to Thomas B. Riley (Aug, 2003), for the last two hundred years, neo-classical economics has recognized only two factors of production: labor and capital. This is now changing. Information and knowledge are replacing capital and energy as the primary wealth-creating assets, just as the latter two replaced land and labor 200 years ago. In addition, technological developments in the 20th century have transformed the majority of wealth-creating work from physically based to "knowledge-based." Technology and knowledge are now the key factors of production. With increased mobility of information and the global work force, knowledge and expertise can be transported instantaneously around the world, and any advantage gained by one company can be eliminated by competitive improvements overnight. The only comparative advantage a company will enjoy will be its process of innovation -combining market and technology know-how with the creative talents of knowledge workers to solve a constant stream of competitive problems- and its ability to derive value from information. We are now an information society in a knowledge economy.

In today's world, we are in a point, where knowledge is everything. Nations, who are able to use knowledge more effectively are being governed better in their own country and have also advantages of winning both military and economic warfare lead abroad. In a world like this, knowledge has become the most important parameter of power.

With the growing importance of the economic and political results the knowledge can yield in a specific field, the attention paid to knowledge has also been increased. Secret information about expected stock exchange movements, inflation rate or a coming devaluation, or information about other nations'.

The most important characteristic of knowledge is, that it is a "public" value. Full public values differ from other values in the sense, that they do not get less when consumed and that they cannot be bend from being used commonly. Examples for full public values are fresh air, public parks, national security, free national television and radio channels. There are also some semi-public values like paid *TV* channels, education, purchased books, patents, usable models, designs, know-how licences, internet, etc. Semi-public values do

not get less when consumed, yet it is possible to restrict their usage through some financial, managerial or legal ways. For example, the access to cable TV is restricted, unless you fulfill the conditions for abonnement. Or the usage of a patent is limited only to its holder for 20 years, unless you have an authorisation from the holder like a contract. At the end of that period, also the subject of the patent will become a full public value.

Knowledge is the most important resource in providing public services. It can be information about foreign trade statistics, weather reports, population statistics, laws, any product stock exchange values, national and international intelligence reports and so on. The absence of such information or any errors in this respect may lead to slow-downs or complete disability in the decision-making mechanism and will cause inefficiency in providing public services.

E-government should facilitate the knowledge sharing among citizens and between citizens and civil servants. Further it should enable citizens to do experiments with the knowledge they have drawn from reading the documents offered by the portal to provisioning any type of transaction (information query, advise, application etc).

E-government is able to change to connection between citizens and government in principal. E-government is able to provide quick response to the citizens' requirements and help the citizens to be active in the democracy process. In this case, the idea will be e-citizens. Improved customer service in the private sector has led citizens to expect better service from the public sector as well. Government agencies must offer more efficient, less expensive service despite decreasing budgets. A citizen-centric organization should give customers better, faster, less costly and more convenient service.

Traditionally, our notion of being connected to the nation's communications networks has meant having a telephone. Today, the computer and Internet usage are increased among Turkish citizens. To be connected today increasingly means to have access to telephones, computers, and the Internet. While these items may not be necessary for survival, controversially in today's emerging digital economy they are necessary for success. The dramatic growth of electronic commerce and the development of information technology

(*IT*) industries are changing the way Turkish people work, communicate, purchase goods, and obtain information. Jobs in the new economy now increasingly require technical skills and familiarity with new technologies. Additionally, obtaining services and information increasingly requires access to the Internet.

With the data in this study, we are in a better position to identify human factors and usability for effective e-government. Policymakers should explore ways to continue to boost telephone penetration, particularly among the underserved, and to expand computer and Internet connectivity. For some individuals, it is an economic solution. Lower prices, leasing arrangements, and even free computer deals will bridge the digital gap for them. For high cost communities and low-income individuals, universal service policies will remain of critical importance. For other individuals, there are language and cultural barriers that need to be addressed. Products will need to be adapted to meet special needs, such as those of the disabled community. Finally, we need to redouble our outreach efforts, especially directed at the information disadvantaged.

3. ASSESSMENTS OF E_READINESS

The definition of e-readiness is mostly based on the notions promoted by the Center for International Development at Harvard University. It defines the 'e-ready' society as *one that has the necessary physical infrastructure (high bandwidth, reliability, and affordable prices), has integrated current ICTs throughout businesses (e-commerce, local ICT sector), communities (local content, organizations online, ICTs used in everyday life, ICTs taught in schools), and the government (e-government).*

E-readiness Assessment Model (It has been applied by Bulgarian, 2002) contains a series of indexes that summarize the most important indicators affecting the level of development of ICT (e-readiness) in different sectors of society. The model measures four main categories:

E-access

The goal is to assess the existing ICT and information infrastructure in Turkey, based on such indicators as telephone penetration, size of telecom market, market for personal computers, etc. Important sub-categories include:

- Penetration of Network Access Technologies
- Network Connectivity
- Affordability of Network Access

E-education

The goal is to assess the ICT infrastructure in Turkish schools and universities, the penetration of *PC*s and availability of Internet access, the presence of ICT in the school curricula, different initiatives (private and public) aimed at bringing ICT to schools and universities, and others. The information is structured in the following sub-categories:

- Technical facilities/ ICT infrastructure in schools and universities.
- Distance learning and e-learning
- ICT education

E-society

The goal is to assess the diffusion of ICT and Internet in particular in Turkey society, the quality of Internet services, the number of Internet users and their "habits", the use of Internet by public institutions, etc. The information covers the following sub-categories:

- Users of computers and Internet
- Internet services
- Internet users' habits

E-economy

The goal is to assess the use of Internet and ICTs by Turkish businesses (and government), the existing infrastructure and quality of Internet/IT services, the limitations in using/adopting new technologies, the access to services, various government initiatives encouraging business enterprise in the field of ICT, and others. Sub-categories include:

- Computers and Internet usage in business
- E-commerce
- Legal Issues in e-business
- E-government

3.1 E-Access

Regarding Turkey's telecommunications, the analysts at the *CIA* report that the country is currently undergoing rapid modernization and expansion, especially with cellular telephones. On the domestic front, additional digital exchanges are allowing for a rapid increase in subscribers and the construction of a network of technologically advanced intercity trunk lines. Using both fiber-optic cable and digital microwave radio relay is facilitating communication between urban centers, remote areas are reached by a domestic satellite system and the number of subscribers to mobile cellular telephone service is growing rapidly. From an international perspective, service is provided by three submarine fiber-optic cables in the Mediterranean and Black Seas, linking Turkey with Italy, Greece, Israel, Bulgaria, Romania, and Russia; also by 12 Intelsat earth stations, and by 328 mobile satellite terminals in the Inmarsat and Eutelsat systems (as of 2002). (Turkey, 2004). However, according to an article, "Turkish Telecom accused of hiding Internet capacity" (January 2004), Turkish Telecom, state landline monopoly, has been accused by the Internet Academy Association of concealing its Internet capacity in Turkey for a seven-month period. The company has been accused of using a code to conceal the external Internet connection speed since July 2003 which has enabled the company to prevent Turkish customers from finding out if the system works (Turkish Telecom, 2004). Turkish

Telecom (*TT*) remains the state-owned monopoly carrier in Turkey, but increasing efforts are being made to privatize the network and encourage competitors. TT recently introduced *ADSL* services to residential and business customers for the first time. Initial demand has been strong. The mobile market is also booming, with mergers between the major operators in the past year, decreased prices and greater coverage. (The 2004 e-readiness rankings)

There are no more monopolies in the telecommunications sector in Turkey as of January 1,2004. Turkish Telecom's exclusive rights on voice transmission and infrastructure expired on this date. As stipulated by the law, other operators can operate in every segment of telecom sector by obtaining a license from the Telecommunications Authority (*TA*). The below table has been prepared by *DIE* (April-June 2004) and collected by Digital (2005)

Table 3. 1: Ownership of ICT tools

ICT Tools/equipments	Household ownership (%) by 2004	Household ownership of ICT tools which is connected to Internet
Personal Computers	9,98	5,86
Notebook	0,85	0,55
Handheld/pocket PC	0,13	0,06
Cellular/NMT phone	53,64	2,08
TV	92,19	0,13
Play Station	2,85	0,24

The DIE has for the first time realized a research, in conformity with the *EU* norms, regarding "family members' IT usage". This research gives valuable information about PC-ownership, e-mail usage and many others, containing important messages. According to this report, the number of persons using the Internet in Turkey is 6,2 million, those using a computer are 7,9 million.

These figures show, that Turkey is seriously underdeveloped in this respect, or has a long way to go in this field. If we look at the figures in the *EU*, household Internet connection has been 34 % in 2003, rising to 39% in 2004.

3.1.1 Affordability of network access

This is required in order to develop a basic infrastructure to take advantage of new technologies and communication tools. The current per capita *GDP* is $7,300, a relatively healthy figure for many developing nations around the world but fairly modest in comparison to many of the heavier hitters in the immediate region. This constraint will continue to characterize how and when network access will become affordable across the board for the average Turkish citizen in the future.

3.1.2 Penetration of network access technologies

3.1.2.1 Basic telephone

According to *TUBITAK*'s report 'the wide spreading and usage of Information Technologies' (2000), The penetration of *PSTN* in Turkey is around 86,9 %.

Turkey currently has more than 18 million telephone lines with a density exceeding 25 percent. To meet the growing demand, Turkey planned to install an additional 2 million lines by year-end 2000 and an additional 2-2.5 million lines per year to reach the target of 40 percent density by 2005.

On the domestic front, additional digital exchanges are allowing for a rapid increase in subscribers and the construction of a network of technologically advanced intercity trunk lines. Using both fiber-optic cable and digital microwave radio relay is facilitating communication between urban centers and remote areas are reached by a domestic satellite system.

3.1.2.2 The Internet

According to IT Report of Turkey; as of summer 1995, Turkey's only gateway to the Internet is through a line connecting Middle East Technical University in Ankara to the *USA*. This 64Kbps line is leased by Turkish Telecom for $150,000 / year.

Hosts within Turkey are connected to each other -- and to *METU* -- through X.25 lines, supplied by Turpak, a subsidiary of Turkish Telecom (previously *PTT*). Smaller sites use dial-up for connecting to Internet hosts.

In the research document 'E-commerce: A case for Turkey' it has been explained with respect to the current situation of Internet Connectivity in Turkey that there are two national backbones. One is for the academic and the other one is for the commercial networking. Indeed, Turkish Telecom is the communication carrier in both cases. Furthermore, the government finances the academic backbone, whereas reselling usage to the end users finances the commercial backbone. Each of these backbones has different network topologies and international links.

The commercial backbone, which is called as *TTNET*, is set up on a backbone of 13 nodes. This backbone covers 8 major cities of the country and is a 155Mbps *ATM* backbone. All the other cities are connected to the backbone with either 34Mbps or 2Mbps lines, depending on their size. In total, there are 140 nodes on *TTNET*. In addition, TTNET has three international links. Two of them are fiber optics; one is from Istanbul and the other is from Ankara providing speeds of 45Mbps and 34Mbps respectively. Both of these lines are linked to the USA. As for a backup line, there is a satellite link (*TURKSAT*) from Istanbul to Europe with a speed of also 34Mbps.

3.1.2.3 GSM and mobile Internet users

According to *DPT*'s progress report of 2003, the density of mobile subscribers increased to 34% in 2003. The two *GSM* operators that entered the Market recently, have merged in May 2003.

In the same report, the subscription level in mobile services has reached to a good 34%. The last two of the existing four GSM operators have merged in May. Turkcell, who has 15,7 millions of the total number of 23,4 million users, has kept its leading position of 67%, as in 2002. The PSTN subscription rate is 28%. But the Internet connection and cable TV rates are still at very low levels (6% each). The compatibility of the Telecommunication Regulations with the actual needs of the market is presently very

insufficient. More effort is needed to update it, especially in the field of effective usage, as well as global network services, number allocations, leased lines and protection of data. The regulations, especially those regarding licenses and billing tariffs, should be executed more efficiently. The failure in solving the disputes concerning the national roaming creates some distrust in Turkish Authorities' efficiency. Also, the compatibility with the regulations concerning postal services is at very limited levels. Much effort is needed in liberalization of postal services.

According to the *DIE* research (April-June 2004), residences with a mobile phone in Turkey are 53% in 2003. In 15 EU-member countries, this figure is 77 % in 2003. Nowadays, this figure has reached 81% on the EU-total. So, in mobile-phone ownership, there is not a dramatic difference between Turkey and the EU.

3.2 E-Education

Substantial economic growth during the multiparty period helped to legitimize the current administration and to persuade the Turkish people that "modernizing" activities such as migrating to cities, accepting secular education, and adopting new agricultural techniques were acceptable and productive (Weiker 1981, p. 244). Nevertheless, significant disparities continue to exist between the information "haves" and "have-nots" in Turkey. Ginsberg says, "The children on the other side of this 'digital divide' don't benefit from new educational software, and they don't learn to use tools that will be a central component of our lives for decades to come" (2001, p. 3). These are particularly compelling considerations in a country such as Turkey, where modernization continues to exist side-by-side with traditional and historic values and customs that will inevitably play a critical role in how e-government and its permutations will be viewed by the citizenry. These considerations are discussed in the 'Usability' part.

The statistics broadcasted by *MEB* on the Internet indicate that the rate of School Attendance in the 2000-2001 academic year has reached 10,1% in the pre-school segment, 100,7% in elementary school, 22,2% in occupational training and 41,8% in high school , making a total of 64% for intermediate education and some 28% in higher education, 17,8% of the later coming from home universities.

Efforts to increase computer usage in computer-aided education have continued. In the academic year of 2000-2001, the number of schools with computers has reached 5.536. And in the intermediate education, some 235 classes have been established for information technologies.

In the 2000-2001 academic year, some 3.174 positions have been created in public and private educational institutions for general, cultural, job-oriented education, apprenticeship and on-the-job training. In the same period, 200.000 junior and senior apprentices and assistants have been educated in a total of 109 different branches. Most Turkish universities and colleges are connected to the Internet and have registered Internet sites.

The distance education has been discussed in the research 'Distance Education on the Web', which states that the implementation of distance education in Turkey started in 1982 with Anadolu University. After that, Open Education Faculty (*OEF*) was established and 29,479 students were initially enrolled in Economics and Business Administration programs mostly using the television.

Open High School (*OHS*) is a widespread secondary education program, which has been operating since 1992. Now it accommodates more than 100,000 students. The purpose of the OHS is to give traditional and non-traditional students, who for one reason or another have not completed secondary schools, an opportunity to have a high school diploma. It is stated that only around 2 % of the very large number of high school graduates can be admitted to the Turkish universities.

The web technology, if utilized and developed according to the needs and requirements of the Turkish education system, will provide an additional environment for higher education. Some of the universities in Turkey such as Bilgi University have started to provide e-learning education for graduate programs.

It has been emphasized in the research 'Distance Education on the Web' that if organized, supported and managed properly, universities in Turkey with sufficient technological

resources can offer web-based Distance Learning programs to a large number of students in the majority of undergraduate programs.

Generally speaking, the application of computer-assisted technologies in the Turkish classrooms will mirror the experiences of other countries that have invested in such technology. The proponents of computer-assisted instruction emphasize that, "It is vital for our children to stay current with the latest technology. Children are our future, and that future is irretrievably linked to computers. The Internet is a growing component of computing and schools without access to this valuable teaching resource will place their students in a disadvantaged position. Administrations that resist this change will have cause to regret it" (Stone, 2001, 1).

3.3 E-Society

As explained in the report 'Building the European Information Society for Us All' of April 1997, the information society is the society currently being put into place, where low-cost information and data storage and transmission technologies are in general use. This generalization of information and data use is being accompanied by organizational, commercial, social and legal innovations that will profoundly change life both in the world of work and in society generally.

Society is shaped by technical change, and technical change is shaped by society. Technical innovation - sometimes impelled by scientific discovery, at other times induced by demand - stems from within the economic and social system and is not merely an adjustment to transformations brought about by causes outside that system" (Sundqvist report, OECD, p. 117).

Internet is becoming more commonly used in Turkey, especially in the big cities. This may indicate the onset of a new social culture defined by high degree of interest in, and active involvement with ICT. Yet the number of people who currently have access to PCs and the Internet is relatively small. According to Middle East Internet World Statistics, Internet users as of the latest data (2004) are estimated to include 4,900,000 adult citizens and increased 145% in four years. The share of Internet users amounts to 6.5 percent of the

population. However, if the present tendency is preserved, this figure may grow substantially over the next few years. Computers and Internet are typically used in the workplace and public locations (e.g. cyber cafes, arcades, etc.) Home Internet users and those accessing the Web at educational institutions represent a smaller relative share. In terms of demographic characteristics, Internet access is available mainly to young people. According to Tubitak Bulletin Report, the majority of people are capable of accessing the Internet in larger cities and, above all, in the Marmara Region. The domination of the English language in the World Wide Web poses a serious obstacle to the integration of various user groups. But this situation may also present excellent opportunities to Turkish content providers to develop the local market. Yet the supply of online services in Turkey is still inadequate, as is the general penetration of these technologies in everyday life. There is still much work to be done in the area of generating locally relevant content, presenting it in an appropriate manner, and helping people to comprehend how to use the new technologies available to them. Currently, the Internet is most commonly used for information gathering purposes, entertainment, alternative sources of global news, and personal communication. Cost, perceived low security level, availability and local economic conditions currently limits the use of Internet for electronic banking, electronic commerce, or personal activity planning. According to TUBITAK Bulletin Report, 0.5 percent of Internet users in Turkey shop online, and 1.3 percent plan their vacations or travel using the Internet resources.

According the result of DIE research (April-June 2004, Digital, 2005, p 28) the below tables show the Internet usage per gender and augmentation in three months:

Table 3.2: Computer & Internet usage according to Gender -DIE research (April-June 2004, Digital, 2005, p 28)

(2004)	Female	Male
Computer Usage	5,22	11,58
Internet Usage	3,88	9,38

Table 3.3: Internet usage rates -DIE research (April-June 2004, Digital, 2005, p 28)

Started to use the Internet	Computer	Internet
In the last 3 months	16,8	13,25
Between 3 months –1 year	1,45	1,33
More than a year	5,33	4,26
Never use	76,42	81,15

According to DIE statistics pertaining to the period between April-June 2004, the Internet usage is increasing in the last three months.

Table 3.4: Locations where Internet is accessed -DIE research (April-June 2004, Digital, 2005, p 28)

Location where Internet is accessed	Computer	Internet
Home	34,7	32,3
Office	43,9	41,1
Internet Cafe	33,0	41,2
Training Center	11,3	8,9
Friends and relatives' home	10,8	11,1
Others (airport, hotel)	0,9	0,7

The DIE research has also positive results. According to those, especially in the last three months, the rate of initial introduction to the Internet or the computer has seriously risen. The rate of computer usage for more than one year is 5,33%, whereas it is 16,8% for those using a computer for the last three months.

As a whole, the e-society index is rather low. This means that, despite some awareness of the Internet phenomenon among the Turkish public, there is still limited understanding of the real benefits associated with ICT, and even less direct experience.

Using Internet services is increasing in the population but the problem here is that there is an access gap. One part of the society can access these new network services but the others cannot. The reasons behind this gap are the social and economical differences between the

Eastern and Western parts of the country. Somehow, the Internet access should become widespread in Turkey at a reasonable cost to reduce the gap.

3.4 E-Economy

According to the *CIA* World Fact book (2004), Turkey's dynamic economy is a complex mix of modern industry and commerce along with a traditional agriculture sector that in 2001 still accounted for 40% of employment. It has a strong and rapidly growing private sector, yet the state still plays a major role in basic industry, banking, transportation, and communication.

The elements, which comprise the "four pillars" of an information economy, are as follows:

- The innovation policies, institutions, and incentives necessary for the development and commercialization of domestic and foreign innovations—that is, for the creation of a national innovation system;
- Human resource development—specifically, the development of a national education system generating a pool of knowledge specialists and a technology-literate work force;
- Information and communication technologies (ICT)
- A conducive business environment for the development of an information economy.

It has been pointed out in the Turkish embassy website (2004) that Turkey ranks among the world's twenty biggest economies. It's GDP increased by 7.9% in 2002 and 5.9% in 2003, which are among the highest records of **OECD** countries' growth rates. The positive expectations strengthened and supplemented by structural reforms and the perspective of EU membership have also contributed to this environment. The trend of decline in interest rates is continuing. This environment of confidence has shown itself in the recorded serious increases of our imports and exports as well. Our foreign trade volume will exceed 150 billion US Dollars by the end of 2004, substantiating the strength of our country's production, consumption and trade capacity. Our exports are expected to exceed 60 billion US dollars this year. This success is a result of the implementation of structural reforms, creation of a favourable environment for exporters, the introduction of reforms enhancing

of stability and strategic planning of recent years. The inflation rate, based on the Consumer Price Index, was recorded as 9% at the end of September 2004, being the first single digit and lowest inflation rate in the last three decades. As a concrete result of our success in fighting against inflation, the Turkish Lira has been re-denominated by dropping of 6 zeros as of January 1, 2005.

3.4.1 Computer and Internet usage in business

An article on the Turk Internet, dated January 2003 reports about a study made by Microsoft, to trace the economic performance and technological roadmap of Turkish small and medium sized enterprises. This shows that in the last three years, especially after the economic crisis, these establishments have substantially increased their rate of using the Internet technologies. Interviews with 728 company managers in Istanbul, Ankara, Izmir, Bursa and Adana, where such small and medium sized enterprises are in majority, show that the average number of employees has decreased from 48 in the year 2000 to 31, and that the internet usage rate has increased from 72% to 80%.

The same study shows that the PC penetration has shown a 3% increase in comparison to the 2000 figures and reached 855.000. The number of employees who are able to use PC has increased from 58% to 66%, the number of companies having a website from 40% to 53% and the number of companies involved in e-commerce from 2% to 7%. Some 88% of managers have answered the question of why a web site has been created as "to increase the public knowledge rate" while 96% of managers have answered the question about the importance of technology for their companies as "to increase the internal productivity".

The assistant general manager of Microsoft Turkey, Mr. Tansu Yeğen said that they strongly believe that the use of technology in enterprises will be reflected to the national economy as an increase in the productivity. Pointing out to the importance of small to medium sized establishments, Mr. Yeğen said that our enterprises using the PC have learned the concept of forced productivity by using technology and are trying to use it even more effectively by integrating it into their work process. To increase the 23% rate of PC penetration in our enterprises to the level of 90% of developed countries should be a major target. By this way, we shall be able to produce more technology, as well as have more

competitive advantages by increasing the process productivity. Through PC usage, our enterprises have been able to decrease the number of employees by 35% and increase their average turnovers by 10% in the last three years. The year 2003 has been the time where we put our utmost efforts for the last 4 years to increase the PC integration in such enterprises in our country.

The study, where the PC usage in small to medium sized enterprises in Turkey is compared with those in Germany and Brazil shows, that the rate is only 23% in Turkey, where it is 90% in Germany, 72% in Brazil, 87% in France, 96% in England and 91% in the USA. Brief results are as follows:

- Face to face interviews were held in 728 small to medium sized enterprises in Istanbul, Ankara, İzmir, Bursa and Adana.
- The PC penetration is around 23% whereas in developed countries it is around 90%. The average age of our small to medium sized enterprises is 14 years and the average age of enterprises with 1 to 4 employees is around 10 years.
- The average turnover per employee is 4.500 USD. Enterprises with 10 – 19 employees have the highest figure of 8.600 USD per employee.
- Some 30% of small to medium sized enterprises are planning to hire 2 more new employees in the coming 12 months. 3 years ago, this figure was 6. Enterprises that hire employees the most are those in Ankara..
- In the following 12 months period, 50% of the small to medium sized enterprises are expecting a 9% increase on the average in their turnover figures. In developed countries, about 80% of such enterprises are expecting a 15% increase on the average.
- The percentage of qualified employees has increased from 63% to 67% in the last three years. This has been realized by decreasing the number of unqualified employees.
- 62% of small to medium sized enterprises have decided to postpone their technology investments until the end of the economic crisis.
- The information-processing budget has decreased by 30% and became 5.162 USD.
- The PC is being used for 7 years and the laptop for 3 years on the average.
- The rate of PC-using employees has risen from 58% to 66% in 3 years.

- 49% of enterprises have purchased at least one PC in the last 12 months, and 33% are planning to buy at least one in the coming 12 months.
- The rate of enterprises using a service provider on the network has risen from 47% to 59%. In developed countries, this rate is around 70%.
- The Internet usage rate has risen from 72% to 80% in the last 3 years, which is also 80% in developed countries. 9% more small to medium sized enterprises are going to be connected to the Internet in the coming 12 months.
- The low-speed dial-up method is the mostly common type of connection to the Internet with 79%. This method is around 40% in developed countries.
- E-commerce investments have risen from 2% to 7% in the last 3 years. 10% of the small to medium sized enterprises are planning to begin with E-trade in the coming 12 months. In developed countries, this rate is about 20 – 30%.
- The rate of having a website has risen from 40% to 53% in the last 3 years. This rate is about 40 – 52% in developed countries.
- The small to medium sized enterprises see the increasing productivity within the company as the most important reason for technological investments.

3.4.2 E-commerce

The e-commerce environment is the unmistakable trend today and extends well into the foreseeable future. According to Cary A. Jardin, "Modern life depends heavily on certain essential networks, like water, electricity, television and telephone. The Internet is well on its way to becoming the next network staple of modern life, and for good reason. "The Internet is the Network for the World" (Jardin, 1999). Philip Kotler tells us that, "Clearly, marketers are adding online channels to find, reach, communicate and sell. On-line marketing has at least five great advantages. First, both small and large firms can afford it. Second, there is no real limit on advertising space, in contract to print and broadcast media. Third, information access and retrieval are fast, compared to overnight mail and even fax. Fourth, the site can be visited by anyone anyplace in the world, at any time. Fifth, shopping can be done privately and swiftly" (Kotler 2000, p. 665).

It has been mentioned in e-society part that the percentage of users shopping on-line is 0,5 among the Internet users (Tubitak Bulletin Report 2000). Because, the security problem and other legal issues in e-business have not been solved yet.

The below table inform us on why Turkish citizens are against shopping from Internet. (DIE April-June 2004). The rate of e-commerce is 3,17 among the Internet users.

Table 3.5: Why do Turkish citizens not want to shop on Internet - DIE research (April-June 2004, Digital, 2005, p 28)

Reasons	Rate (%)
They do not need	63,58
Prefer to see the products while shopping	51,50
The shopping customs (specific shops and places)	24,21
Expensiveness	22,12
It takes time for delivery (not Just in Time)	18,97
Delivery problem of ordered product	13,53
The limited products and services on Internet	40,52
Security problem on Internet (credit card info)	37,71
Security Problem on Internet (personnel Info)	27,16
The concerns about communications and transmitting the complains	20,97

According to the analysis of Murat Ince from DPT (E-government: new opportunities for providing public services), such kind of mutual relationships in governmental offices very much recall e-commerce applications. As a matter of fact, the e-commerce and e-government concepts are quite interrelated. The tools, problems and solutions of the e-government and those of the e-commerce are very similar. Therefore, part of the activities related to the e-government can be named e-commerce activities.

Fairly commented, the point where the e-government is closest to the e-commerce is the public purchases. Any narrow definition in this respect will limit potential opportunities, where too large definitions will be undermining a newly developing movement.

The problems of e-commerce are not totally solved yet. The progress and the applications are being made step by step. So, like with the non-governmental e-commerce, the steps of the public electronic activities should be taken slowly and carefully.

The structuring of the e-government should be extended to a longer time period and first; the activities should be concentrated on sources where the information is being produced and on types of activities, where the citizens are directly served.
Before taking these steps, it should well be remembered that all this work would need certain major technological investment, take a long time and that the new type of service concept must be accepted by all public officials and still might include some risks.

To achieve the next level of e-commerce in Turkey, "The system needs to evolve" (Yarbrough, 2001, p. 188). As electronic transactions in Turkey continue to increase, just as in typical businesses, economies of scale will continue to decrease transaction costs. As more Turkish businesses begin transactions in cyberspace, however, crowding will result unless continued advancements in technology occur (Yarbrough, 2001). Developed countries such as the United States must therefore maintain an e-commerce marketplace in which the private sector has an incentive to continue investment in information technology and infrastructure to improve its customer service and to decrease its costs of distribution. While competitive advantage has been a very important concept in the today's free market, developing nations such as Turkey will increasingly benefit from the advancements in technology through joint initiatives with developed nations.

Nowadays, significant progress has been made in the field of e-commerce in Turkey. *KOSGEB*, which is affiliated to the 'Ministry of Industry and Commerce', has started to encourage *KOBI*s for e-commerce in their constitution under the activity called 'Network and E-business Support'. KOSGEB has defined the fundamentals to accelerate e-commerce in KOBIs. Using the mediation of those fundamentals, KOBI, which initiates e-commerce, would gain almost 100% donation without payback and hardware and software support for e-commerce with around 25% payback of donation. The purpose of this support is to enlarge KOBIs and increase the export. At the same time, it has been aimed to increase the e-commerce usage by 2% percent, which will help to reform the IT infrastructure of KOBIs.

3.4.3 Legal environment in e-business

Under e-transformation Turkey Project, launched as part of Turkey's commitment to join the European Union, the following improvements have been started;

New Telecommunications Law

There are three institutions working on the draft version of the law, and it is going to be completed soon. The objective of the new law is to renovate the structure of previous codes of law, namely Law No: 406, Law No: 2813, and some other amending laws, and to cover all needed areas of regulation for telecommunications market, such as interconnection, licensing, universal services and numbering, in line with the Acquit.

Secondary Telecommunications Legislation

In order to promote competition and regulate the market effectively, there are several important items, such as; licensing regarding *VoIP*, long distance telephone service, cable platform and network provision; rights of way; local loop unbundling; co-location and facilities sharing; numbering; personal data protection in telecom sector; consumer rights and accounting separation needs to be completed as soon as possible.

Tariffs Directive is in force since August 28, 2001. Access and Interconnection Directive and Radio and Telecommunications Terminal Equipment (*RTTE*) Directive have been promulgated on the Official Gazette in May 2003. There are two other Communiqués regarding the identification of and rules and regulation for the operators with dominant position or having significant market power.

Unfortunately, universal service obligations and the ways in which operators are going to be supported in under-served/commercially unviable areas are still missing parts of telecommunications regulation in Turkey. The universal service is defined in current telecommunications law (Law No: 406) as "minimum service"; but the rules, structure, and financial arrangements of this procedure remain to be introduced. Again, as part of *STAP* and government's program, Ministry of Transportation will prepare a Directive for Universal Service. After this Directive is introduced, incentives, financial grants, and other issues will have a legal basis.

Electronic Signature Law

The Electronic Signature Law (law no: 5070) is promulgated on the Official Gazette on January 23, 2004. The law legalized electronic signatures and declared Telecommunications Authority as the certification authority in Turkey. The law has been in force by July 23, 2004.

The e-signature has passed the Grand National Assembly (Turk Internet January, 2004), but still needs the regulations in order to be executed. According to Muammer Büyükbahçeci, the code of law is expected to come into force upon the preparation of related regulations by the Telecommunication Board, that has been appointed as the Supervisory Institution in the draft within six months..

The law in question, has been prepared according to the directives of the European Parliament and Council, and some regulations include:

- Tools for preparing secure electronic signature
- Tools for securely confirming electronic signature
- Service providers for electronic signature
- Liabilities of electronic signature service providers.

With this law, the electronic signature gains legal validity in the areas where conventional wet-signature is applicable.

The Law regarding the Right of Information

The Parliament adopted the law and it has been promulgated on the Official Gazette on October 24, 2003. The Law identifies the principles about the rights of citizens with regards to basis of transparency, openness, and equality of public management.

National Information Security Law

Turkish General Staff and the Ministry of Defense are coordinating a study for the draft law since 2000. Enactment of the law is envisaged in STAP in 2004.

Personal Data Protection Law

There is a commission under the Ministry of Justice working on the draft law since September 2000. It is envisaged to complete in 2004.

Secondary Legislation regarding Consumers Protection Law

A directive regarding the protection of consumers who are trading goods and services over electronic media has been promulgated on the Official Gazette on June 13, 2003.

PKI and a National Certification Authority *BİLTEN* is the only organization providing certification services with its own PKI software in Turkey for the time being.

The most important property of the BİLTEN certification services is its nationality. BİLTEN's PKI software "Kriptemin" was completely developed by national means and interoperable with related international standards.

The PKI framework supports a wide variety of online financial services including:

- Authentication and transaction signing for e-banking and stock trading applications;
- Online government services: citizens' information, vehicle registration, tax returns and healthcare;
- e-commerce *B2B & B2C* services: authentication and transaction signing for e-commerce applications;
- *VPN* solutions: two-factor authentication; generating private keys, storing digital certificates and digital signatures; and
- Providing secured e-mail communications; encryption and signing (eToken pro, 2003, p. 4-5).

3.4.4 E-government

According to Margetts and Dunleavy (2002), "E-government is about making the full range of government activities – internal processes, the development of policy and services to citizens – available electronically. Despite the bursting of the over-inflated dot com bubble, electronic interactions have rapidly shown astonishing potential for transforming the internal activities of all kinds of organizations and dramatically altering the

relationships between organizations and those who use them – in particular, firms and their customers" (2002, p. 1).

Supreme Board of Science and Technology (*BTYK*) is the body, which makes decisions and constructs policies in the area. One of the most important decisions of the board, made in August 1997 was to watch, support and orient the master plan development studies for Turkish National Information Infrastructure (*TUENA*), which is expected to take the country and the people to the future world's information society. Ministry of Transportation was delegated the coordination duty to prepare the master plan and Turkish Scientific and Technical Research Institution (*TÜBİTAK*) acted as the secretariat unit and an office was set up to prepare the master plan. The initiative was ended with a final approval of the Transportation Ministry in June 1999. The plan made clear the size of the National Information Infrastructure, available information technologies and the probable cost of the infrastructure. Moreover, suggestions for regulations in state structure and industry tools in order to establish this infrastructure have been revealed.

According to Giorgia Casnedi (2003), Turkey's General Directorate of Security currently handles applications and related transactions for passports, visas, driver's licenses and other important documents electronically using advanced local (*LAN*) and wide area *(WAN*) data network solutions from Nortel Networks. In addition, the Directorate uses these Nortel Networks' solutions to help police and other law enforcement agencies combat crime more effectively by providing electronic access to Turkey's largest database of warrants, fingerprints, ballistics, *DNA*, blood and tissue analysis, and other critical information. "These and other new e-government services are available nationwide over a multi-million dollar network connecting 10 regional government centers. This network, recently recognized with the Turkish Interpro Communications Project Award, was deployed across the country by Meteksan, a local Nortel Networks 'channel partner" (Casnedi 2003, p. 2). Further, e-government services in Turkey have now been positioned so that the General Directorate of Security can respond quickly to the needs of Turkish citizens by reducing bureaucracy and driving greater employee efficiency and productivity. Casnedi reports that the current deployment represents the first phase of the Directorate's *POLNET* (Police Network) and *TRANSPOL* (Police Transmission) network projects. Plans involve a second

phase that will ultimately connect police stations and other security offices in smaller cities across Turkey by 2005, according to Ahmet Kocabal, head of Information Technology for the General Directorate of Security. "Our personnel are on the way to becoming the police force of the 'modern ages' with these projects," Kocabal said. "If we can issue a passport in one day and if we can find out whether or not there is a search warrant for someone in 30 seconds, we are improving services to our citizens as well as respecting human rights. Thus, we are avoiding any inconvenience to innocent people by pinpointing the criminals directly" (Casnedi 2003, p. 4). Sinan Dumlu, Director in Enterprise Solutions of Nortel Networks, said of the Turkish project, "In an e-government application, the government must be modernized, and the communications and coordination between government units must be increased" Casnedi 2003, p. 4).

Applications for "internal constitutions" have already been developed by most of the government organizations or they are in their development phases. Examples to these projects can be listed as; *MERNİS* (Merkezi Nüfus İdaresi Sistemi- Central Census Management System), *TAKBİS* (Tapu Kadastro Bilgi Sistemi, Cadastral Information System), *VEDOP* (Vergi Dairesi Tam Otomasyon Projesi- Automation Project for Turkish Tax Offices), Say2000i (Saymanlık Otomasyon Projesi-Automation Project for Accountancies), *UYAP* (Ulusal Yargı Ağı Projesi-National Judicial Network Project), *TSK KKBS* (Türk Silahlı Kuvvetleri Komuta Kontrol Bilgi Sistemi-TAF Command Control and Information System Project), different Information System Projects of Ministry of Labor (*BAĞKUR* Project, *SSK* Project). [Ince, 2001, p. 76, 77] lists a total of 61 different Government IS projects, which are collected from TUENA and *KAMU-NET* reports. The KAMU-NET project, which has been supported by BTYK, was to connect the networks of different government organizations and plan them to be centralized in order to be cost effective. Upon completion of the government projects above, it can be assumed that e-government for internal constitution will be realized and the efficiency of internal works of government will be increased. Some of the above projects such as VEDOP (Citizen centric interface of the VEDOP project is "Internet Tax Office of the General Directorate of Public Accounts) will support the interaction with the citizens. This progress will be a pioneer for citizen-centric e-government.

4. HUMAN FACTORS

In general, the e-government is realizing contemporary structural changes in the country's government and in particular it is placing government on a basis of information management and communication. It is not simply a physical computerization office, but the construction of a government style based on state-of-the-art technology and implementation of a radical change in the bureaucratic contempt.

The basic elements of e-government are;

- Citizens
- Company
- Government Institutions

In this case, whenever 'human' is mentioned, it will refer to the citizens, employees and government officials.

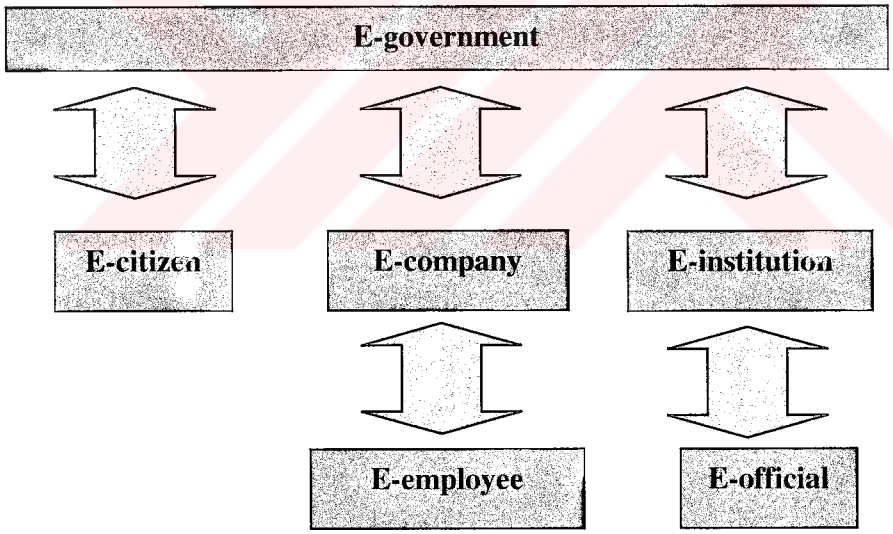

Figure 4.1: The basic elements of e-government

Regardless of the future direction of the political events of the country the need to administer existing services and programs better, and to make such programs and services more accessible by the average Turkish citizen should be a primary goal for the international marketplaces. Turkish leaders must invest in the resources and demonstrate the will necessary to render the country's telecommunications infrastructure have modern

standards. While much has been done to accomplish this goal, much still remains to be done for the citizens of Turkey today and in the future.

Black's Law Dictionary (1990, p. 244) advises that "citizens" are "members of a political community who, in their associated capacity, have established or submitted themselves to the domination of a government for the promotion of their general welfare and the protection of their individual as well as collective rights". In this regard, there are also a number of perspectives to consider in the e-initiatives for Turkey, since the stakeholders include three types of "citizens": the private citizen, the business citizen and the governmental citizen, which are discussed further in this paper.

E-government Creates a Differentiated Society, which comprises at least three categories:

1. Those who fully use the new technology - mostly comprises of younger people and businessmen/woman.
2. Those who use it partially - mostly comprises of middle-aged people
3. Those who do not use it (are afraid of it) - mostly comprises of older people

Such a divided society encourages those who are young and able to proceed fast while its other parts, the older and the less competent will stay behind. Fortunate people will gain while the poor and the ignorant ones will lose. This is a very bad prospect for a technological advancement.

4.1 Is Computer Literacy Enough for Effective e-government?

The overall aim of e-government is to make services and information more accessible, responsive and convenient to citizens and businesses by providing joined-up electronic services amongst government departments and agencies. 'Electronically' can mean via the Internet, over the phone to a contact center, even face-to-face as a mediated service etc., as long as the transaction is automated and completed at the time the citizen makes it.

It is clear that not everyone is experiencing the benefits of computing. For successful transition into e-government, the PC-usability and technology-usability of largest

population segments should be increased. It is essential that all the society is able to use a computer with the same confidence as the telephone.

To increase the computer literacy of citizens is a long process as the educated population segment is heterogeneous from the adaptation point of view.

The computer literacy is not only for increasing e-government usage, but also is needed for knowledge economy and age.

The education, which needs to result in increased computer literacy, varies according to the age and education level of citizens. The education system, duration for using computer and understanding e-government operation will be different in those segments. In this case, the education experts should do the programming of education processes. When the easiness of e-government is perceived and realized, the demand for training will increase and the training period of the users will be getting shorter.

The government should focus on the following items;

- The educational programs should be re-arranged according to the needs of the digital world.
- The information technology infrastructure of educational institutes should be improved.
- For the population segments not attending any educational institutes, courses and home-education systems should be provided for getting acknowledged with the digital world.

A critical problem that we may have to be faced with in a short time is information overload. The documents on the web are increasing anomalously. In this case, it will be not enough to read and write a document on the Internet. 'Information Literacy' will be needed for:

- Finding content efficiently and effectively,
- Evaluating content competently,
- Using content accurately,

- Creating quality content and collaborate with others in the creation of content.

In parallel to those requirements, government should focus on the questions such as 'who is the right reader' and 'what is the right content' for effective e-government;

A key challenge government faces is how to improve the information literacy skills of its employees and all its citizens.

4.2 Cultural Affects

According to Margetts and Dunleavy, cultural barriers to effective e-government are profound in some instances because of the manner in which information technology has evolved within the public and private spheres. "The tools of e-government - particularly web-based technologies - have created a new technological environment for both citizens and governments. Different institutions and societal groups - with different organizational cultures - will have different cultural responses to the possibilities that these new technologies provide" (Margetts & Dunleavy 2002, p. 3). Citing Hood (1998), these authors suggests that a cultural theory analysis would indicate that any given technological change can lend itself to very divergent visions of social modernization. Mary Douglas has offered four cultural "myths" that serve to underpin institutional or group responses to certain environments. "These myths 'provide the foundation for the essential "unity in diversity" of human experience" (Thompson et al, 1990, p. 25). Margetts and Dunleavy adapt these four myths (originally applied to eco-systems) to summarize different cultural attitudes to the new technological environment that are facilitated by web-based technologies. They are illustrated graphically as below;

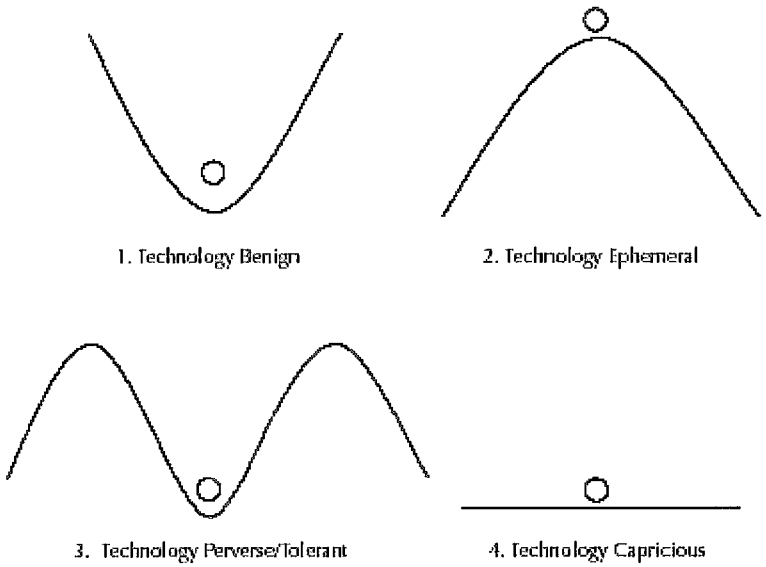

Figure 4.2: Cultural attitudes to the technology (Margetts & Dunleavy, 2002, p. 6).

According to Margetts and Dunleavy, government organizations are different from other types of organizations in varying degrees. While the precise nature of such differences - and the extent to which they have changed with public management reforms of the last twenty years might be debated - most commentators would concur upon a general list which would include size; the lack of a 'bottom line' in terms of threat of bankruptcy; accountability; separation of policy and administration; public visibility; and the monopoly of some functions. We might expect that these characteristics could lead to distinctive barriers to the 'supply' of e-government - in the same way that they have led to distinct problems for government organizations in developing earlier information technologies.

4.2.1 Citizens considerations

In the 1950s and 1960s, government organizations led the field in information technology (IT) provision – but progressively slipped from that role and have - in general - experienced more problems with large-scale IT systems than other types of organization. This troubled history has shaped their approach to technology in general and to the development of web-based technologies in particular.

The Internet has received a warm welcome from Turkish citizens since its introduction in the mid-1990s. The concept has been embraced as "a window unto the world," or "the means to catch up with the information age," particularly by young Turks who are quick to adopt new technologies. The Internet has also offered a new business avenue for entrepreneurs. As a result of the low levels of PC ownership and online access from Turkish homes, Internet cafes sprung up all over Turkey. Consequently, today, it is believed that there are approximately 10,000 Internet cafes in Turkey (Yesil, 2003).

Similar to its private citizens, when the Internet cafe was first introduced in 1997, it was embraced by the Turkish authorities within the rhetoric of the information age. Further, it was considered a safe place for young Turks to congregate because it was different from the coffeehouse or the "beerhouse," where patrons allegedly spent the time by playing cards, gambling, or drinking; however, in recent months there have been so-called complaints about Internet cafes that maintain Turks are using these systems to play pornographic movies to kids or make available terrorist websites. In fact, a rightwing member of the Turkish parliament argued that people at Internet cafes "meet others in online chat rooms and engage in obscene conversations"; he added that "such immoral acts defame the moral fabric of our society" (Yesil, 2003).

Yesil also interviewed ten users of Internet cafes in a middle-class neighborhood in Istanbul to find out what they thought about the state control. Those users were all male students between the ages of 18 and 22 (Yesil notes that almost all cafe patrons are). "They usually spent an average twenty to thirty percent of their online time chatting, sixty to seventy percent surfing, and twenty to thirty percent playing games. Those who owned PCs at home also went to Internet cafes two to three times a month to check their e-mail when they are outside or when their computers were down, or to play multi-player computer games" (Yesil 2003, p. 120). When asked what they thought about the authorities' arguments about Internet cafes, restrictions, and police inspection, the Turkish Internet users usually justified the state control. One respondent reported that the restrictions and inspections were necessary because "Internet cafes turned ultimately into game centers." Another respondent found the authorities' concerns reasonable due to the fact that Internet cafes were merely used for playing games, particularly violent ones. One

respondent pointed out how "extensive use of the Internet results in severing of social ties. Those who frequent the cafes lose contact with their families. Internet cafes are mostly used for time-killing activities such as games and online chat."

Apart from games and porn sites, another concern on the part of the state and the ruling elite is the separatist content on the Web. One respondent said he "loves the Internet because it is boundless; it is the symbol of freedom." Although he was against the notion of restricting access, he nevertheless justified some sort of control: "If (the state) can restrict access to websites with separatist or terrorist content without touching the others (websites or content), then, yes, it should do so." Another said the restrictions were justifiable: "It's like prohibiting the sale of tobacco to minors."

In Turkey, the mass media, and more recently, the Internet, present interesting examples. Throughout the late 1980s and 1990s, Turkey experienced a hasty transformation into the information age. With political liberalism that promised the Turkish people "a big leap so as to skip a generation in the race to catch up with the developed economies of the world," television and radio broadcasting--formerly dominated by *TRT*, the public broadcasting service--were privatized (Catalbas 127). The proliferation of commercial broadcasting services opened new vistas for Turks; however, they too, particularly the TV, became subject to state control. The Radio-Television High Commission regulates broadcast content and has the right to shut down a TV station for a number of days, if, for example, they broadcast obscene, violent, or separatist material.

For generations, Turkish people have, according to Kinzer, clung to "a childlike belief that however confusing things seem, the state probably knows best" (2001, p. 166). The state believes that big decisions are too important to be left to the people or to the politicians, and enjoys an inherent right to watch over its citizens. As in other areas of social life, the state watches over individuals in their encounters with mass media, be they commercial television broadcasts or the Internet.

Arguing that this approach preserves secular and democratic ideals as well as the social and moral fabric of the society, the ideology of the elite is communicated into the

commonsense of the subordinates. The acts of inspecting Internet cafes and closing down the ones that make available pornographic content are presented as efforts designed to save the Turkish family from these sorts of evils. Similarly, banning the so-called separatist Web sites is presented as maintaining the national unity. In the name of moral ideals, safety, and security of the country and national unity, ruling elites have been able to infuse every cell of people's thinking processes with their own points of view. The young Turkish individuals' defense of state control over Internet cafes demonstrates how they have adopted the position of the state in their understanding of social issues (Yesil, 2003).

Turkish citizens are getting increasingly used to Internet. The usage of e-government will be increasingly parallel to Internet in the next few years. Used to global information, e-commerce and quick responses from the Internet, e-citizens are also demanding from public administration higher efficiency, more transparency and better services. Comfort, availability and homogeneous look and feel of application will determine the acceptance of e-government.

Since the Internet was introduced to Turkey in 1993, the experiences of public organizations with regards to Internet use have accumulated enough to create a productive base for research. For example, Murat Ince (2001) lists more than 60 e-government projects being planned, ready to be implemented or already in use by Turkish government organizations at the ministerial (national) level as of late 2001 in areas as varied as law enforcement, foreign affairs, census processing and local government information integration. Not only the supply of e-government information and services are on the rise; so is the demand for them. According to recent surveys by Taylor Nelson Sofres Consulting Firm (TNS, 2001; 2002), while only 3% of people living in Turkey (about two million) used the Internet for accessing government information and/or services during the year 2001; this number has risen to 12% (eight million) in 2002. All indicators point to this percentage rising sharply over the next few years.

The population of Internet users in Turkey is still limited to upper-middle and upper classes of the society. Even if the computer prices are falling down and the cost of Internet access is getting more affordable, the Internet connection is not a priority for millions of

Turkish families with economical problems. In other words, the Internet access has not become a social necessity and a consumer norm like the telephone connection. Furthermore, even if wide segments of the society do have internet access, the effect of internet technology would be still of little effect, as long as it is not creating any democratic movement similar to *NGO* actions. That means, if the Internet technology is not effectively used to regulate and improve the individual's relations with the government (e-government) and other individuals (NGO formations), it will be limited to the fields of economic relations (e-commerce) and digital games.

For the Internet café's to be of serious help to the Turkish population to improve themselves, there must be some measures taken. First of all, the life-improving facilities of the Internet should be clearly told to the people and its usage should be seriously encouraged. The state should make plans on the Internet and his Internet policies in detail and share it with the society. It should provide the necessary support to include the Internet café's and other new channels for e-government access.

4.2.2 Government considerations

4.2.2.1 Decision making process

Decision-making processes are developing in the information society to reflect the need for accountability and transparency in government and corporate governance. Through online communication, governments, businesses and citizens are allowed a forum to discuss legal and commercial issues, which is necessary for economic and social strength.

Administrative decision making in the Turkish public sector generally involves two issues. One issue deals with the information the decision makers can use in reaching the decision. The other issue deals with how political values affect decisions. Information is the basic raw material of decisions, and decision makers should acquire, weigh and act on the data collected. The complexity of public problems and the overwhelming volume of information oftentimes force decision makers to simplify the context shaping the decision making process. Both information and values intermingle as public administrators seek to make decisions.

Depending on the legal right of public information access, the information systems may be inaccessible outside observers and citizens. However, the more top-level decision-making processes rely on the online environment, the easier it will be to plug public input and external information sources into that structure. Relevant information can be placed only a click away from top decision-makers and their staff. Another opportunity would be quickly commissioning an online survey or consultation from the government's main portal based on an input need for the top-level decision-making process.

Some of the objectives of "e-Transformation Turkey Project" which aims to carry Turkey into information society are to facilitate participation of citizens to decision-making process; to enhance transparency and accountability for the public management; to promote ICT diffusion; and to co-ordinate e-government investments by means of Information and communication technologies.

4.2.2.2 The changing leadership requirements

In an ideal system, the leadership is the primary requirement for any improvement to be realized. In order to free the public administration from outdated traditional methods and to implement a system to meet the contemporary needs, as well as to meet the voters' requirements for a better government, it is a must that first of all the leaders should accept the idea of e-government. In many countries, which are well improved in that sense, the transition into the e-government has been initiated and continued with the leaders' initiative. The decisions taken by the Supreme Committee of Science and Technology in 1997 and 1998 have opened up the doors leading to the e-government. Hence, all relative and responsible institutions and their managers could have an idea of how to use the facilities of technology within the frame of a defined public management task (such as education, health etc.), and also how to use it in improving the e-commerce; so they have started several activities and have been able to adopt some improvements since then.

It has been explained at E-government Handbook, Leadership Section that Leadership can also articulate a unifying theme that can propel the e-government initiative through all the steps that will be necessary. For example, by declaring Internet access a "human right," the Estonian leadership created strong national support for the implementation of the Tiger

Leap Forward Initiative, a multi-sector program having the eventual goal of creating a completely e-literate society. While it is not essential that governments declare Internet access a human right, leaders do need to understand that results will be most likely if they elevate the public profile of their vision and press for its implementation by tying it to broader human development and democratization goals.

Here, the leaders should not be comprehended as the highest- ranking public leaders only. In addition to such, the mid-level and low-level managers and leaders of several sub-groups are also of equal importance. In deciding for the policies and strategies to be implemented, in the choice of the plans and programs and in their implementation, all levels will have their important contribution.

The leadership problem emerges to be a general problem in the improvement of the e-government, in the sense that those in the leading positions are tending to be reluctant to change the traditional methods. Especially if the present system, which the e-government wants to change, has so far been quite successful, then it is particularly difficult to come over this reluctance.

New ventures require the leader to have some dynamism and ability to take some risks. In addition to that, it is also necessary that the leader have an adequate level of general leadership characteristics like planning, organization, and coordination. The leader initiative should start from the top and should be extended to the lower management levels, where those in leading positions should first be convinced, and then they should convince and encourage the others.

4.2.2.3 Reform of the existing processes

Instead of a leader in social and technological area, the public organization in Turkey became a barrier because of its awkward structure, excessive employment and obstructive bureaucracy. The existing centralized and cumbersome structure of public services should be transformed to powerful local public management.

The series of study have been performed to pass over these problems in Turkey for many years. However, because of having weak technological infrastructure and politics, the public management could not provide contemporary public services and even these studies could not have been realized.

Due to wrong economic policy and management of the public services, the result was;

- Excessive employment
- Political staff
- Excessive extended hierarchy in the government

As a result of this, the understanding of expecting everything from the government has become established. But the role of government should involve inspecting and organizing.

It has been observed that the capacity of public services has been expanded. However, if they are not controlled very well, instead of serving to public, they could be serving themselves.

The purpose of re-structuring public services is to provide a balance between the capacity and its role to be loaded using information and communication technology.

The Turkish Republic is divided into 81 provinces, which are administered by governors, appointed by the Council of Ministers, subject to the approval of the president. Turkish provinces are further divided into districts and sub districts; Turkish villages governed by a headman and a council of elders (both elected by the village residents). Within this network, the Turkish government has made some significant strides in making services and information more readily available to the Turkish citizen – at least those with computer access. Murat Ince (2001) has pointed out that Knowledge is required for the interpretation of different documents in e-government in all those cases with no standard procedures. Usually, the understanding of how to proceed in such exceptional cases is not documented anywhere. It exists only in the minds of the officers or clerks. Effective knowledge management requires extensive information sharing and collaboration. But

government agencies and their employees are better known for guarding their knowledge and defending their turf than for sharing and cooperating.

The below e-government project has been examined by Mete Yıldiz (2003);

Table 4.1: e-government Projects in Turkey

e-Government Projects			
Level of Government	G2C	G2G	G2B
Central Level	MERNIS, VEDOP, UYAP, Foreign Affairs	Foreign Affairs, VEDOP, UYAP, Say2000i	UYAP, VEDOP, Say2000i
Local Level	MERNIS, YerelNet, UYAP	YerelNet, UYAP, VEDOP, Say2000i	YerelNet, UYAP, VEDOP, Say2000i

By the results of MeteYıldız's research (2003), it can be observed that the existing projects change the procedures of the process for making business.

YerelNet (meaning Local Net), which is a Web portal and Web-enabled communication platform for local governments in Turkey, was set up for online forum through which data about Turkish local government could be shared. The site holds data from 3,216 municipalities, nearly 35,000 villages and more than 1,000 local government associations. The Web should reduce the costs of coordination and collective action and also the cost of information dissemination. However, there are no figures available thereon. There are a number of other intended benefits – spreading best practice and standardization through Turkish local government; encouraging greater transparency and accountability; encouraging citizen involvement in local government; supporting collective action by local government. However, it is too early to provide objective evidence on whether or not these have been achieved.

The objective of *VEDOP* was to increase the speed and efficiency of tax collection by automating all the tax collection offices throughout the country. One other benefit of the project is the creation of a unique tax ID number for everyone (Turkish nationals and

foreign people making business in Turkey) to be able to better control the payment of taxes. Unfortunately, MERNIS's citizenship *ID* number and VEDOP's tax ID number are not interchangeable. However, VEDOP's tax ID number is more comprehensive in its scope. It applies to real persons, statutory persons such as firms and other organizations, and foreign nationals who conduct business in Turkey. Therefore, citizen ID number can substitute for tax ID number for real persons in the future. However, substitution is not possible for the other two categories. This situation might cause confusion and inefficiency in operations in the future.

UYAP, the National Judicial Network Project, is created as a web-based sectoral system project that integrates all the institutions in the judicial system such as the numerous departments of the Ministry of Justice, prosecutor offices, all levels and types of courts, jails, law offices ... and allow them to share and exchange information both within this system and outside the system with other government agencies by the use of e-document and e-data flow. It also includes an intranet system for the employees of the Ministry of Justice.

The objective of **Foreign Affairs Ministry Project** is to create an integrated system that connects the domestic offices of the Turkish Ministry of Foreign Affairs and its field offices in other countries such as embassies. This system substantially decreased the cost of communication and coordination, and resulted in easier, faster and more systematic sharing of information throughout the Ministry.

Say2000i is the biggest web-based e-government project in Turkey. It connects all 1500 public accounting offices in Turkey to one another and to the central administrative offices in, Ankara, and the capital. (Dener, 2001:1). It enables the government to keep track of its revenues and expenditures virtually at any minute of the day. Therefore, Say2000i provides better central control of government expenditures while increasing its transparency.

The objectives of MERNIS are to provide census data electronically in central and local units, to create a central database, to provide a unique Turkish Republic identification number (similar to the social security number in the U.S.), to provide information to

government agencies and citizens in electronic format, to organize and provide census information more rapidly, and to issue new national identification cards that are easier to carry (the current ID card is nearly as big as a wallet), and harder to forge (MERNIS, 2003: 19).

The main objective of *TUENA* (Turkish National Information Infrastructure Master Plan) was to assess how to approach the issues of public security, public interest, social and economic aspects, legal and institutional aspects of ICTs with the ultimate objective of using ICTs for Turkey's transition to an information society.

TUENA report was prepared as a long-term strategic plan that includes:

- Monitoring the environment (Turkey and the world).
- Infrastructure Planning
- National Value-added Instruments
- Institutional Restructuring

The report was finalized at the end of 1998 and an update was done in 1999-2000. More than 200 institutions views were taken for the report that produced 52 documents and 3400 pages.

As of the year 2003, TUENA report's findings are not actively used to determine public information technology policy.

KamuNet (Public Net in Turkish) which KamuNet project was renamed as 'E-Turkey', and 13 working groups were created, was designed as a communications network among government agencies by sharing standardized data in 1997.

According to the findings of the study by MeteYıldız (2003:22), these two mechanisms which are 'making governments work better' and 'keeping up with other government agencies, conforming to European Union standards', work simultaneously. If the former mechanism (using e-government as a part of administrative reform) was more dominant, then a study like this one informs us about how e-government efforts relate to government

reform. If the latter factor (symbolic actions as a reaction to isomorphic pressures) was more dominant, then a study like this one provides empirical data regarding the processes of isomorphic pressures/ changes, which are mostly taken for granted, but rarely found empirical evidence on. The study 'policy-network' found out that the push for administrative reform via e-government comes from the need for administrative control. 'The need for control' comes from the need for improving the processes and increasing the overall efficiency in the public sector. Another driver of e-government projects is the desire to improve the outcomes such as cost-efficiency and transparency.

According to the study 'policy network', the major actors are the Informatics Association of Turkey and Turkish Informatics Foundation. Private ICT firms are also pretty influential on policy-making since they are able to create/ fabricate demand for their products at a certain extent.

It has been mentioned in the document 'Country Paper Turkey' that the State Planning Organization (*SPO*) and The Minister of State have coordinated e-transformation project and Deputy Prime Minister has the high level responsibility of the Project. However, there is an increasing need for coordination of implementation in basic elements of an integrated Information system such as interoperability, metadata, one-stop shop etc.

Therefore, Information Society Department of SPO ought to be a vital player not in implementation itself but in coordination of implementation, as well as in policy-making.

4.2.2.4 Citizen centric e-government

As described in "The President's Management Agenda through Citizen-Centric E-government" by IBM, citizen-centric means that an agency makes business decisions with the customer in mind. Customers — citizens, beneficiaries, businesses, and other agencies or governments that have a relationship with a particular agency — become a factor in all decision-making processes. In both the private and public sectors, a citizen-centric organization strives to give customers better, faster, less costly, and more convenient service. Today that means offering high quality, customized, hassle-free public service through several channels: personal contact, telephone, fax, mail, and net-centric technology

(Internet, extranet, intranet). Customers are demanding access to services whenever, wherever and however they want (i.e. push button telephone, Internet, or other means).

In the re-structuring of public management, it should be accepted that citizens are customers, demanding public services. Therefore, the services to be provided should be shaped according to the citizens' requests and the public projects should be able to meet these demands. To be ignorant to the citizens' demands is neither a target for any government, nor something desirable.

It has only been possible to realize the always existing, but so far mostly ignored "customer" identity of the individuals, among the other identities of "citizen" and "taxpayer" more through the developments in the information and communication technologies.

The 5-year evaluation report of the US federal government's national Performance Tracing program says that the customer identity of the citizens has four different aspects, as explained below (Murat Ince, 2001):

i. The identity of service-taker: this is the most fitting aspect to the type of citizen, who passively expects some services to be provided to him. Every citizen would demand the services of both local and central government to be mostly meeting his qualitative and quantitative expectations. This and the fourth identity definition should be actually considered together.

ii. The citizen, as the individual who is actively taking part in the rendering of the service: This is the identity of the citizen, who is involved in the service providing as a part of the system. For example, a physician is both a taker of the public services, as well as a part of the public health system, if we consider his profession.

iii. Citizen controlling the management's performance: this sort of identity is mostly seen during the elections. However, especially in developed societies, efforts are being made to

improve the type of citizens who actively take part in the management's decision-making and also evaluate them at every step.

iv. The citizen as taxpayer: The citizens make a continuous choice between paying high public expenditure bills and making endless demands. Not only the individual choices are never in perfect harmony with each other, but the public expenditures are controlled by politic motivations, as well. The taxpaying citizen expects the most work from the government, with highest efficiency for the least payment.

'Citizen-customer' in each identity explained above has some expectations from the government and these expectations are increasing. But it should not be dreamed to cover all these expectations under this e-government structure. E-government should be ready to get these requests, understand them and immediately answer the demands and questions coming from citizens-customers.

Citizens must see themselves as the owners of their government. E- government can be used to convey that ownership to the people. Ownership of on-line resources will require citizen-centric design elements, personalization options, visibility through marketing, and access for all. Every e-government should be founded upon principles of Convenience and Accessibility; Trust; efficiency and accountability, which are important factors for e-government to be disseminated among the citizens. More important than the technology are the social implications of electronic governance. In coming years, most of the citizens will use the Internet to build a relationship with government that is personal, custom-built for each user and with features that are accessible. Electronic government will be easy to use and consistent in its appearance and functionality.

4.2.2.5 Employment

Government institutions should focus on three issues regarding employment for effective e-government:

1. To change our economy from a production/consumption economy into an information economy

Most of our country's industrial facilities are producing products, with the majority of their value added coming from labor. The level of life standards our society has already reached, is excluding any competitive advantages against cheap labor from Far East. In this case, in order to be able to continue our industry's global competitiveness, we have to change the nature of the value added we are putting in and to increase the share of patents and similar loyalties within the total range of value added. Furthermore, we have anyway decided as a national target not to stay ignorant to the information age, to use and to generate information economy and to join the European Union with the same targets.

Therefore, we need to create opportunities to change our industry's value added from a labor-intensive one into a loyalty-intensive one, to change our economy from a production/consumption economy into an information economy and our society from a workers' society into an information society. If these opportunities cannot be provided, or accepted by the public sufficiently, or not used enough to start a change, our country will be delayed to live the information revolution together with Europe, just like we were delayed to do the same during the industrial revolution. Plus, if the delay will grow so much that the gap cannot be closed any more, and then we will be inevitably part of the third world.

2. Qualified Labor for the Information Economy. (New Economy)

The employment from the e-government point of view should be deal with training process. In other words, the individuals who are able to improve their capabilities in information technologies can easily find jobs. In the New Economy, new working areas and job functions will come out.

According to the report 'Turkish Information Economy Assessment Study' (2004, p 39), the changes in the economy directly affect the overall demand for labor, and affect also the demand for specific occupational skills. The trends in employment by sector, including for example the inevitable increase in employment in sectors that are information-intensive and that use large amounts of information

communication technology; will accelerate as the information economy develops. These trends already are emerging in Turkey, causing structural changes in the labor force and introducing ramifications for education and training systems.

3. Qualified employees in the Government Institutions

In the same report 'Turkish Information Economy Assessment Study' (2004, p.71) Public sector management in Turkey scores poorly for efficiency in comparison to the OECD average and to many emerging market economies. The distinctions between administration, budgetary units, and state-operated enterprises (*SOEs*) are blurred. Employees in SOEs enjoy the status of public servants, with all related protections and rigidities. Public sector over-employment is endemic and often is politically motivated, rather than decided on merit. Public employee is seen as superior to the risk-taking private entrepreneur and risk is perceived as particularly harmful for the young generation of professionals, who after receiving what may be a first-rate education at a Turkish university are neither willing nor able to risk.

In the information economy, the skills of government employees should be considered. The necessary training and education should be provided. The way of hiring new employees in the Government Institution should be changed from political pressure to contemporary hiring methods similar to the private sector. Human Resource planning should be performed to prevent over-employment.

4.2.3 Cultural Resistance

It has been explained in 'Cultural Dimension of E-Governence' by N.Vittal (India 2001) that there are at least four sources which give rise to cultural resistance to e-government.

The first source is the government culture of secrecy. Therefore, there is a need for bringing greater transparency in government functioning and also empowering the citizen by way of enacting the Freedom of Information Act. Transparency protects against government error, misallocation of resources and corruption. Environmental protection

and all forms of procurement are areas where transparency is critical to effectiveness and containment of corruption.

The second source of cultural resistance is corruption. One the dangerous cultural aspects of our country today is corruption. Corruption is everywhere from small municipalities to the Government Institutions especially showing itself in the issue of taxing. E-government tries to remove these basic factors that promote corruption in the governmental system. But the government employees who are deriving benefits under the present system may resist to the extensive application of e-government because of this factor. If the government was to announce that one of the objectives of e-government is a more transparent and to that extent a faster moving and less corrupt government, there will be widespread public acceptance and welcome to this measure. Public opinion can thus be generated to overcome this aspect of resistance to e-governance.

The third source of resistance is the culture of seniority, which is very strongly observed in government. When digital Government dominates the government, it may be the junior officers and staff who are more familiar and comfortable with computers and IT systems but it is the seniors who take all policy decisions.

The fourth source of cultural resistance for e-governance would be sheer lack of imagination. The emphasis in government is on procedures and systems most of the time.
In the same source (India, 2001), these are the suggestions to overcome the four resistances;

To overcome the problem of secrecy, either a more liberal freedom of information act or a simple device could be employed. By those, a small negative list of items could be kept secret and the rest could be accessible to the public. This could be done by a regular administrative order.

Mobilizing committed public servants within the system and also cultivating public opinion can overcome the issue of corruption. The issue of seniority can be overcome by adopting models for which an organization on a mission mode can be created. However,

the problem in e-government would be that while introduction of the systems can be done through a mission mode organization, the operations have to be also seamlessly integrated with the general routine of the government system. In this context, encouraging knowledgeable youngsters and identifying champions for IT in governance at fairly senior levels in government may be the way out. As regards innovation, the change made for overcoming the problem of seniority itself would have created the requisite environment.

Besides those four cultural resistance sources, there is another main problem. Digital implementation of e-government processes tends to kill flexibility and thus they do not fit the way civil servants work. If all particular actions applied are supported, this creates a complexity that renders implementation a very hard task. If only the main actions are supported, civil servants can no longer handle exceptional cases appropriately. In this case, the citizens may not be happy about the result and it may cause a refusal to use e-government portals.

5. USER GROUPS and USABILITY OF E-GOVERNMENT

5.1 The Primary Users of e-Government

A TNS Interactive Survey ("Global eCommerce Report - June 2002") reported that in Turkey's urban areas only, the percentage of total population who are Internet users was as follows:

Year 2000 = 18%

Year 2001 = 16%

Year 2002 = 20%

Male = 18%

Female = 23%

Online Shoppers

3% of Internet Users*

According the report prepared by TNS Consultant Government Online (2002)-A National Perspective of Turkey, the following findings have been highlighted:

What is the level of Government Online adoption?

- According to DIE report (April-June 2004), the number of persons using the Internet in Turkey is 6,2 millions, those using a computer are 7,9 millions. The rate of computer users for more than one year is 5,33%, whereas the rate of those using a computer for the last three months is 16,8%.
- The main purpose for using Government Online continues to be Information Seeking (12%), which increased from 2% in 2001. 1% of Turkish Population have provided personal Information to Government Online, and 1% have transacted with Government on the Internet.

Who is using Government Online?

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* Main reason for not buying online: "It's too difficult / lack of knowledge."

[Source: TNS Interactive - Global eCommerce Report - June 2002].

Incidence of using Government Online is strongest among those aged under 25 (17%) but remains comparably high with respect to those aged between 24-34 (14%) and those aged between 35-44 (15%). Incidence among those aged between 45-54, 55-64 and 65+ is evenly spread (4-5%). Usage continues to be relatively similar between males (14%) and females (13%), and it is highest among those with high household incomes and with tertiary education.

Is security a barrier to using Government Online?

- 20 % of people living in Turkey consider it safe to use the Internet to provide the Government with Personal Information (21% in 2001). 58% consider it unsafe which represents a significant increase in comparison to the 49% in 2001. There were less unsure in 2002.
- The perception as 'safe' was highest among those aged between 45-54 (27%). Safety perceptions were lowest among those aged between 35-44 (16%) household with medium incomes (15%) and those educated to the secondary level (17%)
- 27% of Information Seekers believe it is safe to provide personal Information to Government online. Comparatively the perception of 'safe' was 19% among non-government online users. Although the perception of 'unsafe ' was less among non-users (56%) than users (69% of Information Seekers), a large number of non-users continue to be unsure (25% in 2002, 30% in 2001).

How is Turkey placed internationally?

Turkey has low penetration of Government Online (13%) and ranked 23 out of 31 countries surveyed. The country average of Government Online use in 2002 is 30%. The perception of safety in providing information to Government over the Internet is just below average in Turkey (20% compared to 23% average).

Internet & E-government Usage;

- 18% of people living in Turkey used the Internet in 2000. The perception of Internet Users decreased to 16% in 2001.

- The perception of e-government users is 3% in Turkey for the last 12 months. (2002). 1% of e-government users were loaders and the other 2% Information Seekers.
- 59% of e-government users are under the age of 25, 20% of e-government users are aged between 25-34 and 12% are aged between 35-44.
- The below findings originating from the METU MSc 's thesis of E.Yildiz, shows the general situation of the websites of the government organizations according to the evaluation criteria above.
- There is an increase in the amount of government organizations having a website (from 68.5 % to 85 %). This shows us the government organizations' inclination to have a website and share some information with citizens.
- There is also an increase in the amount of applications offering on-line transaction facility to citizens (from 1.9 % to 19 %).
- Amount of online services offered to citizens via Internet is still very insufficient when compared with the objectives of "eEurope Initiative".
- The designs and contents of websites still differ from organization to organization. Because, there is no central planning about the content of the website and applications presented on it. Most of them are not designed with a professional approach. Organizations do not have budgets to carry out this work.
- There is still no single point to access government services offered via Internet. There is an effort to make them available to public via the website of the Prime Ministry Management Information System (Başbakanlık Yönetim Bilişim Sistemi) but it seems like a partially-finished or abandoned effort because this *URL* has not been working properly within the last few months.

5.2 Usability

Usability First (2001) says that usability "addresses the relationship between tools and their users". The technology will not suffice to meet the growing user expectations yet. It will require the knowledge and the intellectual "capital" that rests within the e-government institutions themselves to create these kinds of new and highly desired content that increase the usage of e-government.

It has been explained in the article broadcasted at Ifg.CC website, the official Bağkur pension fund asked people who have fulfilled retirement conditions to bring along their "detailed proof of existence" from the Census Bureau in order for them to process the applications. In this case, the old and ailing people had to go to their "Muhtar" (district headman) first, then visit the local Census Bureau, wait for hours, have faxes sent to their ancestral regional census offices and then wait a few more days for the regional census office to reply -- by surface mail. Those steps above had been performed to prove that the applicants were not deceased and hence were entitled to a pension.

In Turkey, it takes a long time to get or renew identity cards, driving licenses, official documents documenting your domicile and criminal reports yet during the past ten years, many structural changes were introduced. For example, all the local police headquarters are now authorized to issue passports. Still, these passports, in many cases, have to be taken to the office of the local district governor, the Kaymakam in person for inspection, signature and government approval.

The experts, officials and even many citizens would agree that the main problem is about standard data keeping and communication. There is an e-government project in the development stage in almost every government department. Those projects vary from computerized tracking of citizens to e-education. The missing issue of those projects so far has been how all this is supposed to make the life of the average Turkish citizen any easier. MERNIS has been launched to provide a unique record for every Turkish Citizen. It promised to expedite all processes where a citizen had to use his or her identification details everywhere from banks to military services.

It has been pointed out in the article broadcasted at Ifg.CC, that coming in the aftermath of a severe economic downturn, MERNIS is also good news for the Turkish technology sector, where the government remains the biggest buyer of services and equipment in many categories.

It has been investigated in the E-government 2003 report that presents the third annual update on global e-government, i.e., the delivery of public sector information and online

services through the Internet. In their analysis of websites, they investigated material that would help an average citizen logging onto a governmental site. This includes material enabling a citizen to find information, services, and databases, features that would facilitate e-government access by special populations such as the disabled and non-native language speakers, interactive features that would facilitate outreach to the public, and visible statements that would reassure citizens worried about privacy and security over the Internet. During the course of this study, also, a wide variety of political and economic systems, from monarchies, federated systems, and presidential democracies to parliamentary systems, dictatorships, and communist countries have been analyzed. In each system analyzed, they employed the same type of criteria in order to be able to compare the results across countries.

The data for the analysis consists of an assessment of 2,166 national government websites for 198 nations around the world.

The findings of the research are:

1) 16 percent of government websites offer services that are fully executable online, up from 12 percent in 2002.

2) 89 percent of websites provide access to publications and 73 percent have links to databases.

3) 12 percent (down from 14 percent in 2002) show privacy policies, while 6 percent (down from 9 percent in 2002) have security policies.

4) 14 percent of government websites have some form of disability access, meaning access for persons with disabilities.

5) English has become the most commonly used language of e-government. Seventy-four percent of national government websites have an English version.

6) 51 percent of sites are multilingual, meaning that they provide information in two or more languages.

7) Countries vary enormously in their overall e-government performance based on our analysis. The most highly ranked nations include Singapore, United States, Canada, Australia, Taiwan, Turkey, Great Britain, Malaysia, the Vatican, and Austria.

8) There are major differences in e-government performance based on regions of the world. In general, countries in North America score the highest, followed by Asia, Western Europe, Pacific Ocean Islands, Middle East, Eastern Europe, Russia and Central Asia, South America, Central America, and Africa.

The picture of Turkey is as follows;

- Online services =10%.
- Publication = 0%
- Databases = 0%
- Privacy Policy = 13%
- Security Policy = 0%
- Disability Access = 27%
- Foreign language Access = 10%
- Ads = 0% (free download of Adobe Acrobat Reader, Netscape Navigator, and Microsoft Internet Explorer and links to commercial products or services available for a fee were included as advertisements in the form of banner, pop-up, and fly-by advertisements).
- Premium Fee = 0%
- Restrict Area = 13% (required username / password)
- User Fee = 0%
- Comments = 27% (contact with e-government)

Global E-government Report 2003 pointed out that Turkey is one of the top nations, which provide online services. The number of services is 3.2. According to the analysis of Murat Ince (2001) from DPT (e-devlet: Kamu Hizmetlerinin sunulmasında yeni imkanlar, 2001) the information Exchange of the Public is called the Government Information Highway (*GIH/KBO*: Kamu Otobanı). Actually, the GIH is part of the national highway, on which information related to governmental organisations, individuals and private sector is constantly flowing.

The Government Information Highway provides three main sorts of services;

- Information Services (one-way) such as education, cultural matters, info about environment, transport, political programs etc.
- Communication Services (two – way) such as e-mail communications, electronic form filling etc.
- On-line Processing services (one or two way) such as ticket reservation, elections, opinion polls.

Some of the above-mentioned services are also available in our country. However, the on-line political attendance, which is the zenith of the electronic democracy (leading elections, referandums and opinion polls on electronic media) is still under discussion even in more developed countries. Such on-line services that are much more complex procedures, can be seen as future projects.

With all these aspects, the public information sharing should not be regarded as a directly applicable system. The information can only be shared if some preconditions are met. First of all, since a "sharing" is involved, both parties should be ready, and also technically and mentally fit for the sharing. The parties can be public organizations, individuals, private companies or a mixture of those. In any case, the joint existence of the above-mentioned conditions is important. Only then, such an information sharing can be effective and useful. The most important aspect from the viewpoint of the users is that citizens should be educated in this sense and that their conscience and capabilities should be improved. It is obvious that such an effort will need time and money.

5.3 Digital Divide

5.3.1 What is known about digital divide

The "digital divide" is the wide division between those who have access to Information and Communication Technologies and are using it effectively, and those who do not. The digital divide means that the information "have-nots" are denied the option to participate in new ICT jobs, in e-government, in ICT-improved healthcare, and in ICT-enhanced education.

More often than not, the information "have-nots" are in developing countries, and in disadvantaged groups within countries.

All countries, even the poorest, are increasing their access to and use of ICT. But the "information have" countries are increasing their access and use at such an exponential rate that, *in effect;* the divide between countries is actually growing.

Each country and group has a unique profile for how technology is used or not. There are many different perspectives on the digital divide, some defining it as lack of Internet use between countries, and some focusing on gaps in access between socio-economic groups within countries. According to Turkish Information Economy Assessment Study (2004, p.43), secondary school enrollment in Turkey is lower than the OECD average and compulsory basic education has recently been increased to eight years, however, and there are plans to further increase compulsory education to 12 years. The proportion of professional and technical workers in the labor force is only one-quarter of that of Western Europe, and enterprise staff training is low. Public expenditure on education again is lower than the *OECD* average, but should rise if the level of compulsory education is increased as planned. Information and communications technology (ICT) expenditure is low, as is the access of students to the Internet, but the Ministry of Education is investing in ICT for basic education and plans similar investments in secondary education.

The human capital indicators are shown in the below tables;

Table 5.1: The human capital indicators for digital divide*

Indicator	Turkey	Europe and Central Asia	Western Europe	United States
Unemployment rate (2002; %)	8,50	9,80	5,50	7,75
Human Development Index	0,73	0,79	0,93	0,93
Public spending on education (1999; % GDP) *	3,20	4,86	6,08	4,70
Primary school student–teacher ratio*	24,00	17,23	16,00	14,00
Secondary school enrollment (%)*	60,00	83,33	97,00	116,00
Adult literacy (%)	84,60	97,56	99,00	98,83
Professionals/technology workers as percentage of work force	6,11	20,86	28,50	27,34
Extent of staff training (%)	3,00	3,65	5,90	5,65
Computers per 1,000 people	34,00	60,00	513,00	354,00
Telephones per 1,000 people	279,00	250,00	699,00	596,00

In international terms, the very basic and important measure to evaluate the digital divide and global services is the number of connection lines per 100 persons.

The figure among lowest worldwide - *GPA* countries was 1,6 such lines in 1998. The digital divide appears to be more striking in terms of Internet access. In October 2000, the number of Internet service servers per 1000 people was 2,15 in Turkey, 82 in OECD countries, 0,85 in lowest-GPA countries. (Source OECD).

Another important and effective system to measure the digital divide in residences and commercial places is to look at the access to computers and Internet. In OECD countries, the access rate to computer varies between 65% and 21% and the access rate to Internet varies between 50% and 8%. In Turkey, the access rate to computers is 18,6% and the

* Presented data is comparable with the data for other regions in the table for 2001. The most recent data for Turkey shows some regress on public spending on education in 2004 budget at 3.06%, and a number of students per teacher in 2003-2004 of 26; Enrolment in the secondary schools has improved to 72.3% (MONE) Source: World Bank Institute

access rate to Internet 15,2%. (OECD, 2000). Turkey's place in the digital world is inspected in detail under e-readiness chapter. (2.1)

It is difficult to measure the distribution of ICT and segments of the data by socio-cultural divisions (race, income, religion etc) around the world. Apart from physical access to technology, it is hard to define effective use. Finally, there are many technological 'divides' that could impact on the equation, such as number of computers, Internet access speed, pricing, radios, televisions.

Within countries, there are significant divisions in the use of ICT along the lines of education, income, gender, age, language, and disability. Overall, these divisions mirror existing inequalities in the society, but there is disturbing evidence that ICT is distributed more unevenly than other technologies and further exacerbate inequality.

5.3.2 What role does government policy play in digital divide

Access to online technologies is a necessary requirement for ensuring equity in access to the information economy, to enable governments to achieve electronic service delivery objectives and allow people to capitalize on the opportunities for economic growth offered by the information society. Accordingly, policy approaches to deal with this problem call for technology-based solutions such as pricing of equipment and access costs, which are in turn dependent on the level of competition in the telecommunications sector. They also call for multifaceted social policy approaches involving improving access conditions, education, skill development and training, and selected business policies.

It has been pointed out by Prof. Haluk Geray, METU (2000) in the WPIE/TISP WORKSHOP that Ownership of ICTs has been increasing from 1997 to 2000, with the fastest increase being in Cellular/GSM -- 10.1% in 1997 to 50.2% penetration in 2000. Personal computer ownership has increased from 6.5% to 12.3% and Internet from 1.2% to 6.9%. Many regions have seen improved access to both computers and the Internet. However, the largest fraction of Turkey's population lies in low-income groups when compared with other countries and there is a skewed income distribution pattern within

Turkey. The low-income group has little access to either computers or the Internet. Advanced services such as automatic wake-up, call forwarding, banking services and audio text services are used mostly by upper income groups, and men are aware of these services more than women. Telecommunication/communication policies cannot by themselves solve the problem of the digital divide, and social policies to raise income levels should be developed. The motives behind change would provide an interesting academic research issue, and this should be encouraged. The IMF and the World Bank have the power to influence decisions taken in many developing countries. Existing global ICT regimes should be reconsidered specifically for developing countries, and pilot projects should be designed with developing country input.

As seen in the below table which was developed from Haluk Geray (2000) 'Digital Divide: Enhancing Access to ICTs: Turkey Perspective', Marmara and Central Anatolia have the highest degree within total. The poorest regions are Eastern Anatolia and Southeast.

Table 5.2: The ownerships of underground telephone line, computers and Internet according to the Regions in Turkey

Geographical Regions (Household %) by 2000								
	Mediterranean	Eastern Anatolia	Aegean	Southeast	Black Sea	Marmara	Central Anatolia	Total
Ownership of Underground Telephone Line	9,9	4,4	13,7	6	7,8	28,6	16,6	86,9
Ownership of Computers	0,9	0,5	1,7	0,1	1,2	5,4	2,5	12,3
Internet at Home	0,4	0,2	0,9	0	0,6	3,5	1,3	6,9

In the same research paper by Haluk Geray (2000,p.11), it has been pointed out that another aspect of digital divide emerges when usage capabilities are analyzed according to income groups. Nearly 60 percent of audio text and banking services were used by higher and the highest status groups. Gender difference was one of the main variables determining capability to use new ICT's in the survey. In sum, more then 61 percent of those who were unaware of advanced services were women.

A National Information Infrastructure Master Plan (TUENA) was completed in January 2000. Basic principles developed were (Summarized from TUENA 2000):

- The infrastructure should maximize general socio-economic benefits for sustainable human development.
- The national/local value added of the Turkey's ICT industries should make a leapfrog jump.
- Turkey should assume the leadership in her close region in order to get a share from global ICT market.
- Turkey should be able to develop policies and organizational structures to reach above-mentioned vision.

In the conclusion section of the Digital Divide Report by Haluk Geray (2000, p.19), he stated that although several proposals of the master plan had been adopted into the new bill on telecommunications and several state bodies used it in their decision-making process, it was difficult to say that it was implemented as a whole especially regarding new institutional framework. For example, the new telecommunications draft bill had an article for the creation of a universal service fund. That article did not pass the parliament on grounds that the *MoU* between the *IMF* and the Turkish government had an item against the setting up of new funds. Several draft bills were initiated regarding the establishment of an Information Society Ministry.

5.3.3 Why does the digital divide matter especially for effective e-government

Sarah Cleeland Knight and Catherine L. Mann of Georgetown University have informed that despite the enormous benefits offered by ICTs, developing countries face significant obstacles for their effective use. For example, the telecommunications infrastructure in most developing countries is insufficient. Poor computer and general literacy, lack of awareness and regulatory inadequacy present further problems.

In the DOT Force Report, it has been pointed out that because the digital revolution has the power to transform production processes, commerce, government, education, citizen participation, and all other aspects of our individual and collective lives, it can create

substantial new forms of economic growth and social development. Therefore, *access* to, and *effective use,* of the tools and networks of the new global economy and the innovations they make possible, is critical to poverty reduction, increased social inclusion and the creation of a better life for all.

To have effective e-government requires a social and technological and financial structure, a supportive (or at least not inhibiting) legal or regulatory system and political support infrastructure. Thus for example, effective use of e-health services in remote areas will require not just the technical access to the physical infrastructure, the information, the *I/O* devices and the service design but it will also require health application infrastructures including health care providers, professionals, community support systems i.e. a social organizational structure of the service to link the information or service being provided into local organizational structures and related delivery and support systems. A major restriction on the effective use of e–health services has been the failure of many pre–paid health systems, both private and governmental, to develop financing systems which allow for reimbursement of the cost of electronic health support services provided locally to support local (or non–local) users.

The people who cannot access, or at least conveniently access such information should be considered for effective e-government. Urban areas, lower-income families, and certain ethnic groups appear to have less access to the Internet, either because connectivity is not available in their areas, because they cannot afford it, or because it is not an important part of their community's culture.

Thomas Riley (2004, p.33) mentioned that just as important as access, is the assurance that the information is accurate, relevant to citizen needs, and available in an understandable format. The question would always be the same, namely: Who needs what information, Where, When, and Why? The answers would most likely continue to change, presumably with a periodicity typical for each type of topic or issue. The job of information product designers would be to show they had heard the public and were responding accordingly.

5.3.4 Access to information is a key

According to Robert Martin and Estelle Feldman, Access to information is a short way of stating the totality of seeking and receiving information -- the right of individuals to be informed about the activities of their state, past, present, and future.

Many people believe that access to information is a fundamental human right. This belief is reflected in international human rights' instruments, the most significant being the *Universal Declaration of Human Rights*, proclaimed in December 1948. Article 19 reads: "Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive, and impart information and ideas through any media regardless of frontiers".

While re-structuring public services, the mission of e-government is to provide openness and transparency in government to reach democracy. But, to increase the participations and the users of e-government should be the pre-requisites of e-democracy.

In Turkey, there is a new approach to openness where the website of *TBMM* broadcasts the minutes of meeting and decisions held on Turkish National Assembly on daily base. It is not enough, but it is a step to reach transparency.

According to Steven Clift, Democracy Online consultant in Minnesota, the Internet is a medium that could result in hundreds of thousands of people around the world participating in the political process as citizen politicians. However, the reality and the promise of what could occur are far apart.

As the first activity related to the project of effective usage of information access in Turkey, an international conference with the name "The Right of Access to Information in Turkey" has been organized on 26 February 2004. In the conference organized by Istanbul Bilgi University Faculty of Law and Human Rights Application and Research Center, Turkish Foundation of Economic and Social Studies (*TESEV*), and Cyber Rights and Freedoms, the implementation of the transparency of government actions, as well as the

most important part of this principal, namely the right of access to information have been studied in detail.

6. CASE STUDY: e-Kadıköy

6.1 Executive Summary

The aim of this study is to examine human approaches to e-government channels for knowledge management. The study explores not just how governments combine their people, technology and business strategy to serve citizens, but also usefulness for citizens and factors to increase the usability.

The rapid developments in the IT-sector make it necessary for countries to keep step with these developments, but at the same time they make it possible for central and local authorities to benefit from them, too. Serving the city and the citizen means improving the habitat, life standards and the life quality. For the establishment of the so-called intelligent cities, the attitude of the local authorities is very important in our country and also worldwide.

The Kadıköy e-municipality has been chosen as a case for the research because it is part of the Global Transformation Project initiated by the Kadıköy Municipality. It presents an important development in increasing the transparency and involvement for the improvement of city life. It is also important with respect to the fact that it is a successful and workable example for local authorities.

6.2 Framework of The Research

6.2.1 Definition of the target population

The survey, which has been broadcasted in Internet and distributed to the citizens residing in Kadıköy via the autonomous (local headman) of some districts in Kadıköy , was performed in May 2004.

The population for this study was people aged 15 and over living in Kadıköy and 180 interviews were successfully completed.

6.2.2 Core concepts (dependent variables)

The following core concepts have been taken into account to proof the hypothesis:

- Usage of e-Kadıköy : It is the primary interest area that it is directly related with the usage of web site what the research has been done.
- Usage of e-government : It is the secondary interest area that the e-government usage has been examined what influences it.

6.2.3 External variables (independent variables) and demographic variables

The external variables tested in this survey are as follows:

- Awareness of e-government (web sites/portals) (in this study it has been referred to as e-government awareness) : If somebody isn't aware of such sites, he/she cannot use them.
- Computer literacy/skill: It is expected that Computer literacy should influence both core concepts. By computer literacy, it is meant to be aware of and able to use computers.
- Internet preference . Peoples' tendency to use internet as the primary tool of reaching the public sector.
- Willingness to use online services. Peoples' preference, as well as ability to reach public sector 24 hours a day; not only through internet, but also through kiosks and SMS media.
- Face-to-Face Interaction. Peoples' preference to solve and discuss matters, proceed with formalities by personally going to the relevant office. (A reverse question of willingness to use online services).
- Training needs. Individuals' ability to use computers. (A complementary question of computer literacy).
- Awareness of e-Kadıköy (in this study it has been used as e-government). Aiming to find out the number of people being aware of the Kadıköy web-site.
- Content / Meet expectations. Investigating peoples' satisfaction with the content of the Kadıköy web-site.

- Economy for citizens (time & Cost reduction). Aiming to find out, whether people have noticed the difference and advantages of using the e-government approach instead of face-to-face interaction.
- Internet Security (in this study it has been used as Security). Investigating the site's security in terms of monetary transactions and personal information.
- Reduced bureaucracy. Asking individuals, whether internet usage generally reduces bureaucracy. A complementary question to time & cost reduction.
- Belief in digital divide. Whether people are aware of the fact that there are big local and other kinds of differences (age, education...) in access to communication tools.
- Reduced corruption. Whether people believe that internet usage would reduce corruption in public sector.

The demographic variables are ;

- Age
- Gender
- Education
- Income

6.2.4 Initial Research Model

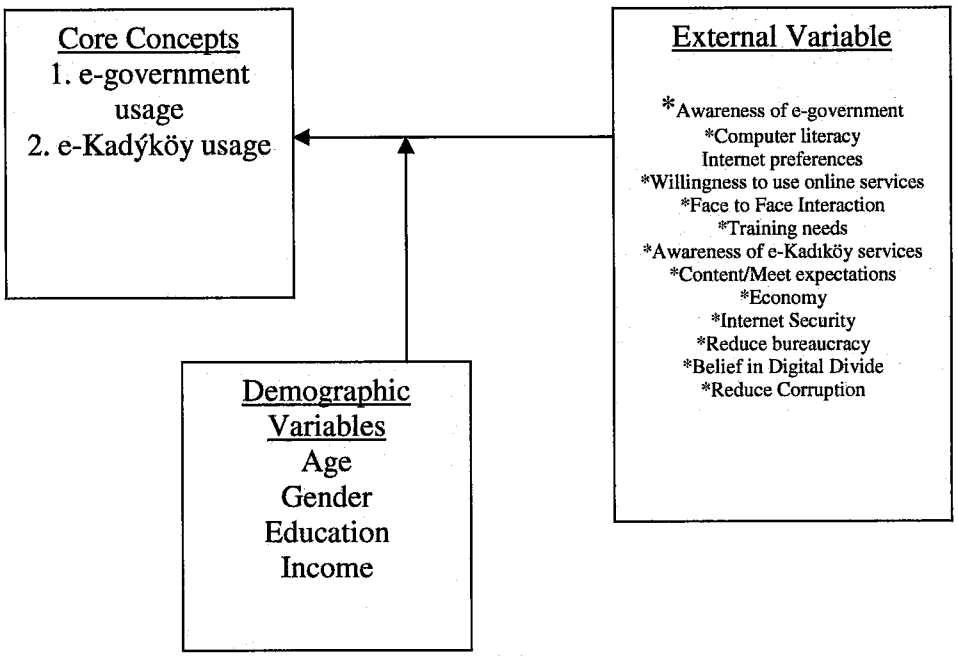

Figure 6.1: Initial Research Model

6.2.5 The hypotheses

The questionnaire was administrated to 180 responders. Though the results shown in this chapter were generated through the SPSS V 11.0 program. Thereafter, the data were submitted for analysis to test the following hypotheses, which were formulated as Figure 6.1:

- H1: The four independent variables of skill, e-government awareness, Internet preference and willingness to use online services will significiantly explain the variance in e-government Usage.

  For hypothesis1 , it is expected that citizens who fully or partially use the new technology, are aware of the online government services and prefer Internet for interaction with e-government and even prefer to access e-government whenever and wherever they need.

- H2A : The awareness of e- Government will be vary depending on education level.
- H2B : The awareness of e-Kadıköy will be vary depending on education level.

  For hypothesis 2A and 2B, it is expected that well-educated citizens are more aware of technological changes or developments such as new online government services, than the others.

- H3 : There will be a relationship between e-government usage and e-Kadıköy usage.

  For hypothesis 3, it is expected that citizens who use e-Kadıköy web site, also use general e-government services or vice versa.

- H4: The seven independent variables of skill, e-Kadıköy awareness, Internet preference, willingness to use online services, meeting expectations, economy, security will significiantly explain the variance in e-Kadıköy Usage.

In this hypothesis the number of independent variables are more than in hypothesis 1 because it is aimed to find out, whether those three additional independent variables –meeting expectation, economy (cost effectiveness) and Security are affecting the usage of e-Kadıköy web site from the users' point of view.

6.3 Methodology

In the data analysis we have three objectives: getting a feel for data, testing the goodness of data, and testing the hypotheses developed for the research. The feel for the data will give the preliminary ideas of how good the scales are, how well the coding and entering of data have been done, and so on.

The second objective- testing the goodness of data- can be accomplished by submitted the data for factor analysis, obtaining Cronbach's alpha.

6.3.1 Feel for the data

The central tendency and disperison can be acquired for a feel for the data. The mean, the range, the standart deviation, and the variance in the data will give a good idea of how respondents reacted to items in the questionnaire and how good the items and measures are.

6.3.1.1 Descriptive Statistics

6.3.1.1.1 Frequecy Distributions for the demographic variables

The frequecies for the number of individuals in the various education level, age, income with tables for this research are shown in APPENDIX C. The results show that 53.3 percent of the responders were men and 45,6 percent were women ; about 42,2 percent graduated from university , 33,3 percent post graduated, 17,2 percent completed high school and 4.4 percentage elementary school and 1.1 percent completed primary school.

According to result of income, the income of great number of responders was between 1.000.000.000 TL and 3.000.000.000 TL (56.1 %); about 19.4 percent their income were

between 500.000.000 TL – 1.000.000.000 TL , 13.4 percent their income were over 3.000.000.000 TL, 5.6 percent their income were below 500.000.000 TL .

6.3.1.1.2 Measures of Central Tendencies and Dispersion

The mean, standard deviation, range, and variance on the other dependent and independent variables have been obtained and shown in the in the APPENDIX C. (Table 20.1/ Table C21)

Mean measures of central tendency. The arithmetic average; the sum divided by the number of cases. All variables have been tapped on a five-point scale. It can be seen that most of the respondents are able to use Computers (4,3) and willing to access e-government whenever they need (4,6) and they believe that e-government will reduce corruption (4,4).

Kurtosis measures of the extent to which observations cluster around a central point. For a normal distribution, the value of the kurtosis statistic is 0. Positive kurtosis indicates that the observations cluster more and have longer tails than those in the normal distribution and negative kurtosis indicates the observations cluster less and have shorter tails. According to the result, face-to-face interaction with government, meet expectation and economy have normal distributions.

The ratio of Standard Error of Kurtosis is to its standard error can be used as a test of normality (that is, you can reject normality if the ratio is less than -2 or greater than +2). The results in the Table C.21 show that the ratio of Standard Error of Kurtosis is almost same as all variables (0.4). It is acceptable.

'Skewness' measures of the asymmetry of a distribution. The normal distribution is symmetric and has a skewness value of zero. A distribution with a significant positive skewness has a long right tail. A distribution with a significant negative skewness has a long left tail. E-government usage (0,1), awareness of e-Kadıköy services (-0,1) , training needs (-0.12), meet expectations of e-Kadıköy web site (-0), economy of using e-Kadıköy web site (-0) have almost normal distribution.

According to minimum and maximum value in Table C.21 (APPENDIX C), The minimum is 2 that means the respondents required to access government whenever they need (7X24).

6.3.1.2 Inferential Statistics

The Pearson correlation matrix has been obtained. According to the result, there are significant and positive correlation between e-government usage and computer literacy/skill, awareness, Internet preferences and even e-Kadıköy usage.

There are significant and positive correlation between e-Kadıköy usage and awareness, Internet preferences and meet expectations, economy, security and e-government usage. The Pearson Correlation Coefficient table is in the APPENDIX C (Table C.22).

6.3.2 Testing goodness of data

6.3.2.1 Validity Analysis

Factoral validity can be established by submitting the data for factor analysis. The result of factor analysis will confirm whether or not the theorized dimensions emerge.

Table 6.1: KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,775
Bartlett's Test of Sphericity	Approx. Chi-Square	740,013
	df	78
	Sig.	,000

i) The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in our variables that might be caused by underlying factors.

High values (close to 1.0) generally indicate that a factor analysis may be useful with our data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful. In our case, the data in Table 6.1 is 0.775 and it shows that a factor analysis is very useful.

ii) Bartlett's test of sphericity tests the hypothesis that your correlation matrix is an identity matrix, which would indicate that your variables are unrelated and therefore unsuitable for structure detection.

Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with your data. The significant value is 0.000 in the Table 6.1 and the factor analysis is useful.

Table 6.2: Extraction Method

Compo nent	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Varianc e	Cumulati ve %
1	4,017	30,901	30,901	4,017	30,901	30,901
2	2,231	17,161	48,061	2,231	17,161	48,061
3	1,253	9,636	57,697	1,253	9,636	57,697
4	,922	7,096	64,793			
5	,823	6,331	71,124			
6	,712	5,480	76,604			
7	,651	5,011	81,615			
8	,586	4,511	86,126			
9	,507	3,899	90,025			
10	,386	2,969	92,994			
11	,333	2,564	95,559			
12	,317	2,439	97,997			
13	,260	2,003	100,000			

Principal Component Analysis has been used as Extraction method. Only three factors in the initial solution have eigenvalues greater than 1. Together, they account for almost 57% of the variability in the original variables.

6.3.2.2 Reliability Analysis

The reliability of a measure is established by testing for both consistency and stability. Consistency indicates hoe the items measuring a concept hang well together as a set. Cronbach's alpha is a reliability coefficient that reflects how well the items in a set are positively correlated to another. Cronbach's alpha is computed in terms of the average inter

correlations among the items measuring the concept. The closer Cronbach's alpha is to 1, the higher the internal consistency reliability.

Table 6.3: Reliability Statistics-1

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,665	,669	19

- The result shows that it is acceptable.

After the reverse question is removed the result is

Table 6.4: Reliability Statistics-2

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,716	,762	15

Since, even when well-validated measures are used, it is always to good idea to check for the interim consistency reliability of the dependent and independent variables, the Cronbach's Alpha reliability coefficient was obtained 20 variables.

The reverse item in the questionnaire has been removed to get the data in the same direction.

According to the Cronbach's alpha value, the result is acceptable. (below 0.6 to be not acceptable, over 0.8 to be good).

6.3.3 Hypothesis testing

Four hypotheses were generated in this research as earlier stated. These call for the use of a multi regression analysis (for hypothesis 1 and 4) and a regression analysis (multiple

correlation coefficient) (for hypothesis 3) and an ANOVA (for hypothesis 2). The result of these tests and their interpretation are discussed below:

6.3.3.1 Hypothesis 1

The Multiple Regression Analysis has been used for this hypothesis;

H_{10} : The four independent variables (skill, e-government awareness, Internet preference, willingness to use online services) will not significiantly explain the variance in e-government Usage.

Table 6.5: The model summary of Hypothesis 1*

Mo del	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	, 449(a)	, 201	, 178	1,197

The **Multiple R** (.449) is the correlation of the four independent variables with the dependent variable after all the inter-correlations among the four independent variables are taken into account. The **R square** (.201) is actually the square of the multiple R (.449). The F statistic produced (F= 9, 893) is significant at the 0.00001 levels.

What this means is that 20 percent of the variance (R square) in use in e-government website has been significantly explained by the four independent variables. Thus, **hypothesis 1 is substantiated.**

If we want to figure out which of the four independent variables is the most important in explaining the variance in e-government usage, we can look at the column ß (Beta) under the variables in the Equation.

* a Predictors: (Constant), e-government _ awareness, Internet_preference, Economy, skill, electronic_interaction
b Dependent Variable: e-government_usage

Table 6.6: Coefficients of variables (a)**

MODEL	Unstandardized Coefficients		Standardized Coefficients		
	ß	Std Error	ß	t	sig T
(Constant)	0,865	0,462		1,871	0,1
Skill	0,298	0,093	0,287	3,21	0
E-government_awareness	0,389	0,102	0,303	3,8	0
Internet preference	0,156	0,076	0,162	2,067	0
Willingness to use online services	-0,014	0,143	-0,009	-0,1	0,9

The highest number in the BETA is 0,303 at the 0.0001 levels (sig t). It can be seen that this variable is the awareness of e-government websites/portal, which is the only independent variable that is significant. The negative beta weight indicates that as the e-government usage increases, the awareness of people thereon will be enhanced.

6.3.3.2 Hypothesis 2

This hypothesis can be tested with two different dependent variables seperately.

$H_{2A\,0}$: The awareness of e-government will be the same irrespective of which education level the citizens have.

$H_{2A\,0}$ = u1=u2=u3=u4=u5 where u_1, u_2 , u_3, u_4, u_5 signify the means on the awareness of e-government.

Since there are more than two groups and awareness is measured on interval scale, ANOVA is appropriate to test this hypothesis.

Table 6.7: Test of homogeneity of Variances
(e-government & awareness)

Levene Statistic	df1	df2	Sig.
16,043	4	172	,000

** (a) Dependent Variable: e-government _usage

Table 6.8: ANOVA of Hypothesis 2 (e-government _awareness)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29,075	4	7,269	7,975	,000
Within Groups	156,767	172	, 911		
Total	185,842	176			

$F_{0,05;4,172}$= 2,37 (α= 0,05 level)

$F_{0,05;4,172}$= 2,37 < 7,975

Levene significiant (.000) should be bigger than 0,05 and the null **hypothesis 2A has been rejected.** It means that the awareness of e-government will vary depending on education level.

The same test can be made between awareness of e-Kadıköy and education level.

$H_{2B\,0}$: The awareness of e-Kadıköy will be the same irrespective of which education level the citizens have.

$H_{2B\,0}$ = u_1=u_2=u_3=u_4=u_5 where u_1, u_2 , u_3, u_4, u_5 signify the means on the awareness of e-government.

Table 6.9: Test of Homogeneity of Variances (Kadıköy-Awareness)

Levene Statistic	df1	df2	Sig.
2,809	4	173	,027

Table 6.10: The ANOVA table of awareness of e-Kadıköy

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9,433	4	2,358	1,494	,206
Within Groups	273,112	173	1,579		
Total	282,545	177			

Levene significiant = ,027 (> 0,05)

$F_{0,005;4,173}$ = 2,37 (table value) 2,37 > 1,494 (computed value)

It is smaller than table value that the null **hypothesis 2B has been accepted.** In this case, there is no differences in the awareness of e-Kadıköy at the education level.

According to this result, though the awareness percentage of e-Kadıköy is almost same as e-government , E-Kadıköy and its services are known better than e-government .

6.3.3.3 Hypothesis 3

H_{30} : There will not be a relationship between e-government usage and e-Kadıköy usage

Table 6.11: Model Summary of Hypothesis 3*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,327(a)	,107	,102	1,250

Table 6.12: The ANOVA table of Hypothesis 3**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33,301	1	33,301	21,311	,000 (a)
	Residual	278,143	178	1,563		
	Total	311,444	179			

R <0.70 and R Square <0,50, in this case it is necessary to make F test.

According to the F test result;

$F_{0,005;1,179} = 3,84$ (table value)

3,84 < 21, 311

The table value is smaller than the computed value. The null **hypothesis 3 is rejected.** It means there is a relation between e-government and e-Kadıköy usage.

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* (a) Predictors: (Constant), Kadıköy_usage
(b) Dependent Variable: e-government _usage

** (a) Predictors: (Constant), Kadıköy_usage
(b) Dependent Variable: e-government _usage

6.3.3.4 Hypothesis 4

H_{40}: The seven independent variables (skill, e-Kadıköy awareness, Internet preference, willingness to use online services, meeting expectations, economy, security) will not significiantly explain the variance in e-Kadıköy Usage.

The below model summary Table 6.13 reports the strength of the relationship between the model and the dependent variable.

R, the multiple correlation coefficients, is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates almost a strong relationship.

R Square, the coefficient of determination, is the squared value of the multiple correlation coefficients. It shows that about half the variation in e-Kadıköy usage is explained by the model.

Table 6.13: The Model Summary of Hypothesis 4*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson				
					R Square Change	F Change	df1	df2	Sig.
1	,682(a)	,465	,443	1,044	,465	21,239	7	171	2,056

The regression and residual sums of squares are approximately equal, which indicates that the model explains about half of the variation in e-Kadıköy usage.

The ANOVA table reports a significant F statistic, indicating that using the model is better than predicting the mean.

* (a) Predictors: (Constant), security, skill, e-Kadıköy_awareness, Internet_preference, meet_expectations, electronic_interaction, economy
(b) Dependent Variable: e-Kadıköy_usage

It can be seen below that the highest number in the BETA is, 0,484 at the 0.0001 levels (sig t). This variable of economy is the only independent variable that is significant.

Table 6.14: The Coefficient table for Hypothesis 4*

Coefficients(a)						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		ß	Std. Error	Beta		
1,000	(Constant)	0,946	0,336		2,813	0,005
	Skill	-0,090	0,082	-0,082	-1,101	0,273
	Internet Preference	0,149	0,069	0,145	2,154	0,033
	Willingness to use online services	-0,343	0,115	-0,212	-2,973	0,003
	e-Kadıköy_awareness	0,238	0,073	0,216	3,266	0,001
	Meet_ expectations	0,242	0,098	0,179	2,469	0,015
	Economy	0,627	0,095	0,484	6,625	0,000
	security	-0,084	0,115	-0,048	-0,727	0,468

The **Multiple R** (.682) is the correlation of the seven independent variables with the dependent variable after all the inter-correlations among the seven independent variables are taken into account. The **R square** (.465) is actually the square of the multiple R (.682). The F statistic produced (F= 21,239) is significant at the 0.00001 levels.

What this means is that 40 percent of the variance (R square) in use e-Kadıköy website has been significantly explained by the seven independent variables. Thus **hypothesis 4 is substantiated.**

* (a) Predictors: (Constant), security, skill, e-Kadıköy_awareness, Internet_preference, meet_expectations, electronic_interaction, economy
(b) Dependent Variable: e-Kadıköy_usage

6.4 Research Findings

6.4.1 Measures of associations & correlations

The results show that the greatest number of individuals in the sample were not good at using Internet and similiar technologies (63,9 %).

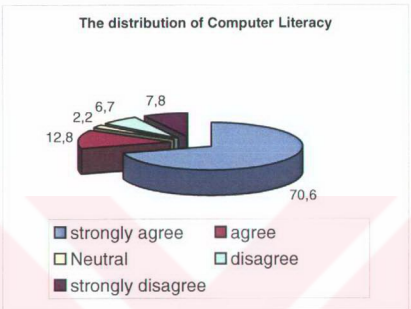

Figure 6.2: The distribution of Computer literacy among the responders.

The 13,9 percent of responders use e-government sites constantly but 27,2 percent of responders used e-government sites at least once.

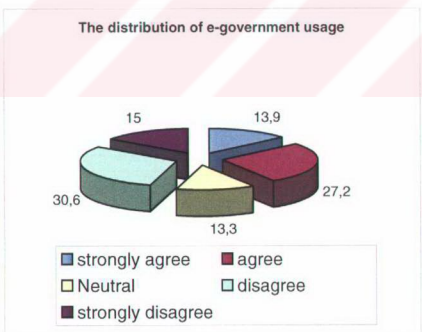

Figure 6.3: The distribution of e-government usage.

Similiar to e-Kadıköy website usage , 10 percent of responders use e-Kadıköy website very often but 21,7 percent of responders used e-Kadıköy website at least once.

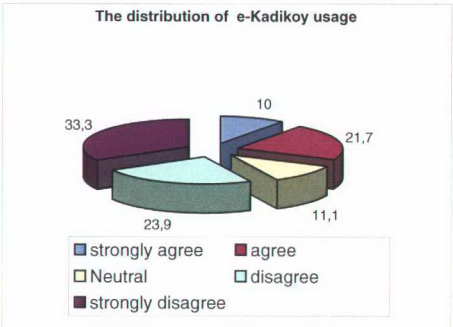

Figure 6.4 : The distribution of e-Kadıköy usage

The 60 percent of responders are between 25-35 years old.

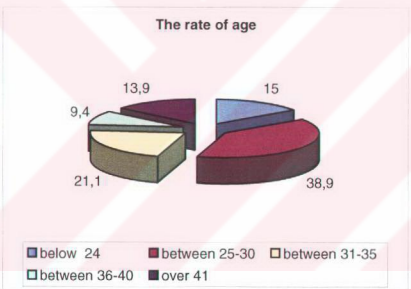

Figure 6.5: The rate of age of the responders

It was found that 53.3 percent of the responders were men and 45,6 percent were women ;

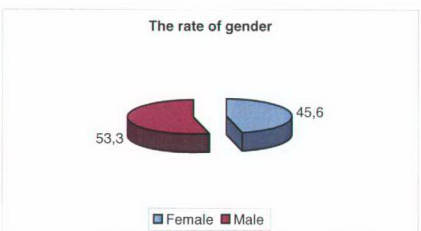

Figure 6. 6: The rate of gender

Of the responders, about 42,2 percent graduated from university, 33,3 percent had post-graduate education, 17,2 percent completed high school, 4.4 percent the elementary school and 1.1 percent the primary school.

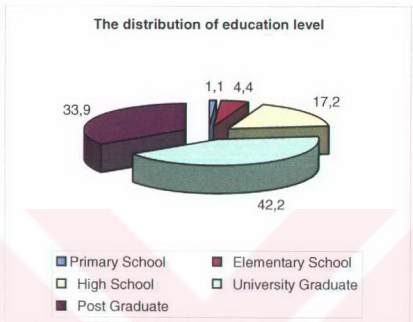

Figure 6.7: The distribution of education level

According to results related to income, the income of a large number of responders was between 1.000.000.000 TL and 3.000.000.000 TL (56.1 %). The incomes of 19.4 percent were between 500.000.000 TL – 1.000.000.000 TL, of 13.4 percent were over 3.000.000.000 TL, and of 5.6 percent were below 500.000.000 TL .

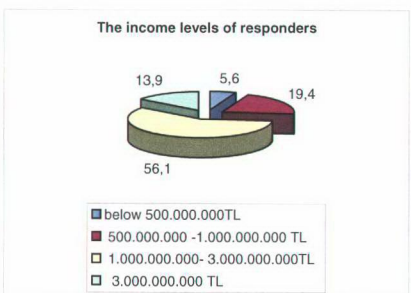

Figure 6.8: The income levels of responders

It can be seen that the mean on the awareness of e-government portal and website, e-government and e-Kadıköy usage are very low. It means that the data pertaining to those

variables are under the average. Meanwhile, the average of traditional access to government is also low. It shows that the tendency of sample group is towards electronic interaction with government.

6.4.2 General Findings

- Computer literacy is around 36% with respect to individuals without university education and 97% with respect to individuals with university degrees.
- While 83.3% of individuals are using computers, only 80% of them are using e-government and 37% of e-government users are users of e-Kadıköy.
- 64% of individuals are computer- literate and prefer the Internet for their relations with Municipality. 45% of them do know about the existence of e-Kadıköy and only 61% of people who are aware of e-Kadıköy, do actually use it.
- 64% of individuals are computer literate and prefer the Internet for their relations with Government. 29% of them do know about the existence of e-government and only 80% of people who are aware of e-government, do actually use it.
- 77% of computer-literate individuals use e-government services and 35% of them use e-Kadıköy.
- 13.5 % individuals educated in the university and who are computer-literate prefer face-to- face communications with the authorities. 20% of individuals educated in high school or lower and who are computer- literate do the same.
- 78% of e-Kadıköy users declare that the website met their expectations. 68 of them declare to have saved time and money, 74 % declare that the website was safe for personnel data and monetary transactions and 42 % of them think that it helps to minimize bureucracy.
- 0,2 % of e-government users do not use e-Kadıköy, because they think e-Kadıköy is not safe for entering their personal details and for monetary transactions.
- 28% of e-government users are also using e-Kadıköy but they have no idea about internet security neither for e-government nor for e-Kadıköy.
- 29% of individuals, who prefer face to face communication declare that they would attend courses or some other sort of educations if available. 0.9% of them are educated in the universities, 15% in high schools and 0.6% in primary schools.

- 8,4% of responders believe that e-government applications would minimize corruptions.
- 20% of responders believe that the existence of e-government is actually some sort of unfair privilage in the access to knowledge. That means, those who can use the internet are somehow priviledged. 79 % of them are e-government users.
- The ratio of males/females among e-government users is almost equal. The average age is 25-35, they are mostly educated in the university and of medium income levels.
- 38% of responders are computer literate and aware of e-government but never use it .
- 49% of responders are computer literate and aware of e-Kadıköy but never use it .

6.5 Limitations & Suggestions for further research

- The research has been conducted by using two different techniques : (a) through the internet (b) by leaving survey questionnaires to some local headmen in the Kadıköy Municipality area. But people interviewed on the internet are anyway computer literate. And the headmen distributed the questionnaires only to university-degree individuals, because less educated people did not understand the questions. So, in both cases, most of the interviewed individuals have been well-educated and computer literate ones. As a result, the computer literacy as an independent variable has been homogenous througout the whole survey and has appeared to be insignificant. It is, but, an important factor for the core concepts and should have been extended to more people of different educational levels. Therefore, to obtain more realistic results, this survey should be conducted by personally interviewing people and filling in the questionnaires, may be by hiring surveyors.

- All negatively-worded items on the questionnaire should have been reversed through a RECODE statement before the items are submitted for reliability test. But this hasn't been done . So, the Cronbach's alfa result has been acceptable, yet not on high level. Therefore, the reverse quetions have been exempted from the reliability test in order to increase the Cronbach's alfa.

- This survey also aimed to find out whether the employees of the Kadıköy Municipality themselves are using the web-site as citizens, also contributing to the preparation & updating of the web-site, if this contributed to the Municipality's decision making and effected its productivity. This question has been announced to the Municipality, but only ten people reverted. So, this question has been exempted before the research analysis.

- This research has only referred to the individuals as citizens. Yet, also the individuals on the government side should be asked for their opinions. It should be examined from their point of views whether the e-government improves the decision-making or the new leadership requirements, whether it helps to decrease corruption and breaucracy.

7. CONCLUSIONS & SUGGESTIONS

It has been explained in *UN World Public Sector Report (2003)* that the potential of e-government as a development tool hinges upon three prerequisites – a minimum threshold level of technological infrastructure, human capital and e-connectivity for all. E-government readiness strategies and programs will be able to be effective and "include all" people only if, at the very minimum, all have functional literacy and education, which includes knowledge of computer and Internet use; all are connected to a computer; and all have access to the Internet. The primary challenge of e-government for development therefore, is how to accomplish this.

E-government has multiple dimensions. Each dimension regards Human factors and usability that make e-government reality. With an increasing global competition, economic deregulation and a growing market-orientation both at the level of nation states and "super-states" (like the EU), the position of the citizen in the information society becomes increasingly important. In this study, the human related factors, which affect e-government usage have been examined. It has been proved that skill or computer literacy, awareness of e-government services, preferring the Internet for any interaction with government and willingness to use online services have formed the catalyst for e-government usage.

Computer literacy is a mandatory key factor for e-government but it is not enough to disseminate e-government usage. In addition to computer literacy, the notion of competence related to the use of e-government, which is called Internet preference in this research, also includes competence in handling e-government services. In this case, the literacy in the wider sense means the ability to grasp and process information content. For effective use of e-government, citizens still need to have considerable computer and Internet skills that are highly correlated with usage experience. Basically, using e-mail, using search engines to find information, identifying sources of information on the Internet and even using chat-rooms are needed for computer literacy. Some of those specifications are also needed for awareness of e-government services.

The low literacy level will be a barrier to the take-up of e-government services, as long as these require more advanced literacy skill than traditional methods such as face-to-face

interaction. The literacy must be expanded widely and the government should support local trainings especially for digitally challenged citizens as non-computer users who are not interested in learning about technology and who do not wish to improve their computer skills.

However, a large percentage of potential users of e-government still prefer to access government services through traditional channels (mostly face to face). What, then, must be done to better address the diversity of user needs and preferences in the development of online public service for the effective e-government usage? The lack of willingness to use online services can be related with the habits while interacting to the public services. As Vihera & Nurmela (2002) pointed out that it is often the telephone rather than the Internet, which is citizen's preferred tool for societal communication. Even among regular Internet users, the majority would prefer to use traditional channels such as the telephone, postal mail or face-to-face exchange rather than Internet to interact with government for service provision. (Karsten, Gareis, 2004 p.12).

The limited variety of access points for using the online public services affects willingness to use online services. The reasons might be expensive computer ownership at home and access to the Internet. The percentage of Internet at home is 6,9 and ownership of computers is 12,9 in Turkey. The government should support Internet Cafés for effective e-government usage. In addition, the kiosks' usage should become widespread in Turkey for online service delivery. PTT offices can also be extended for giving online public services together with guides for low literacy. The community access centers such as schools, libraries, PTT or existing Internet Café can be key places providing Internet access widely and used by groups that lack Internet Access at home or at work; mainy people with lower incomes, those with lower education levels and unemployed.

Computer literacy is very high with regards to well-educated people .It is very well known that it varies depending on education level. The correlation between awareness and education level has been tested in this study. It has been re-proved that the level of awareness increases parallel to education level. It has also been realized in the hypothesis testing that awareness is the most significiant variable for e-government usage.

But the awareness of e-government services is not only related with citizens but also with the government policy. The decision makers in government should take necessary action to broadcast e-government services in Turkey including the access receipt. Recently, it has been seen in CeBIT- Turkey that almost all of the public institutions and local authorities such as İstanbul Metropolitan Municipality or Kadıköy Municipality introduced their new services especially regarding e-government to the attendees. Those activities should be done in public places like corners in the subway, at the airport or post office. It would be beneficial to make use of TV programs to create awareness of e-government services.

According to the survey result, gender has no effect on computer usage. However, DIE results (April –June 2004) show that men are using the computer 2 times more, and the Internet 3 times more than the women. This indicates that Turkish women are not seriously involved in the business life or contributing to the economy. This must be changed and the government should take necessary actions under Information Society projects.

Like the central government, local authorities are presently at the beginning stage considering Internet usage. At this stage, every local authority is trying to announce its facilities and provide services through its own websites, created with its own resources. Kadıköy is one of those local authority where e-Kadıköy has been developed for the citizens in order to improve their life standards and quality of life.

E-Kadıköy can be an example to show the e-government usage tendency of top users of e-government who are well educated, computer-literate and with high incomes. According to the case study results, the e-goverment users among the responders are also users of e-Kadıköy but e-Kadıköy is known more by the responders. The key significiant factors which explain the variance in e-Kadıköy usage have also been researched. According to the result, the seven independent variables of skill, e-Kadıköy awareness, Internet preference, willingness to use online services, meeting expectations, economy and security affect the usage. A varied parameter of economy which means cost and time saving, is the only independent variable that is significant.

In the globalize world, the pace of changes in urban life observed in the last ten years is amazing. Every change in the various parts of life, brings with itself also some change in the social communication level and structure. Not only because of the globalization, but also with the concept of democracy and individual rights, the needs and expectations from local authorities have largely been changed. Yet, the nature of the Internet is far more suitable for all local authorities to form a common infrastructure, act in cooperation and provide local services and information coherently, instead of acting separately and independently. Here, we can hope that local authorities having geographical proximity to each other can form common web pages, or unions to carry their actions onto the Internet.

7.1 Suggestions

The Turkish government should, first of all, provide proper means to its citizens for access to information at an affordable cost and without restrictions. If we look at such means of access to information in developed countries, services provided on the Internet appear in the lead. From access to information, which is a requirement for information economies, to adding value to that information and bringing it to the point where it's needed, the Internet is involved at each step of the chain.

At first stages of e-government, most of the public institutions initiated their e-government based projects separately. It is difficult to follow those portals or websites to obtain correct and consolidated information. Now it is the time to collaborate for citizens' data and to present them in the unique portal that can be personalized. The government institutions should focus on how to integrate the related data for usability of e-government.

In order for the society to benefit from said facilities in an efficient way, the society should be educated to a proper level of ability to use them. Individuals, who have adopted jobs with a very narrow field of application as a result of contemporary education policies, should be re-educated through some extra courses to meet the need of human resources in other fields, where there is a gap.

Individuals, who should provide added value in the information economies, should be encouraged through some series of measures to stay and do it in their own country, instead of settling in foreign countries as a result of brain drain.

In its journey to the information age, our country needs some kind of organization for guidance and for effective use of its available resources. Some institutions in Turkey carry out the task of shaping the country's future and when needed, significant researches based on forecasting are being done. Institutions representing the industry should be organized and support the state in making long-term strategic planning. They should be closely following up all such undertakings of present and future strategic forecasting, planning and their applications to overcome the shortcomings so far in this respect. A platform of mutual understanding with the presence of all segments of the society should be formed, a wide-screen research of forecasting should be done and its results should be implemented.

For transition into e-government, the widest segments of the society should be educated to a proper level of computer literacy and technology usage. In coherence to that, the need of institutions for well-trained technical personnel at different levels arising while they are getting more and more digitalized should be met. Bearing in mind that e-government can be realized first of all through the concept of e-culture, technology usage should be widely expanded and young generations should receive comprehensive technological education.

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APPENDIX A – The survey of research-English

Survey Name	e-Kadıköy
General Descriptions	The results of this survey will be used for the purposes of the thesis on "e-government"prepared for the MBA programme of Yeditepe University. E-Kadıköy has been chosen as it is a successful application of e-municipal. The participants are expected to dwell in Kadıköy district. The last four inquiries have been prepared for the employees in the municipality. Thanks in advance to those who participate.
Survey Level	General
Prepared by	Sevda Akin
Published on	26-Mar-2004
	Read Survey Consent Form
Item : 1 (Likert-Scale) Government websites are announced sufficiently I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)	
Item : 2 (Likert-Scale) I can use the Internet and similar technologies easily I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)	
Item : 3 (Likert-Scale) I used/use government websites for transactions I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)	
Item : 4 (Likert-Scale) I prefer to to use the Internet for any need of transaction with the Municipality or government bodies. I CERTAINLY AGREE (1) I AGREE (2)	

NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 5 (Likert-Scale) I would like to have access 24 hours a day for my transactions with the Municipality or government bodies. I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 6 (Likert-Scale) I prefer face-to-face communication for my transactions with the Municipality or government bodies. I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 7 (Likert-Scale) I will attend if the Municipality/state provided training on Internet I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 8 (Likert-Scale) The website of Kadıköy Municipality has been announced sufficiently. I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 9 (Likert-Scale) I used/use the website of Kadıköy Municipality for my transactions I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 10 (Likert-Scale) The website of Kadıköy Municipality feature easily accessible, clear and up-to-date information I CERTAINLY AGREE (1) I AGREE (2)

NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 11 (Likert-Scale) It saves time and money to use the website of Kadıköy Municipality for my transactions I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 12 (Likert-Scale) The website of Kadıköy Municipality is safe for personal and financial transactions I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 13 (Likert-Scale) Kadıköy Municipality's online presence reduced bureaucracy I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 14 (Likert-Scale) Using municipal and government websites do not create inequality with respect to accessing information. I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 15 (Likert-Scale) Transacting via municipal/government websites will reduce bribery. I CERTAINLY AGREE (1) I AGREE (2) NO IDEA (3) I DO NOT AGREE (4) I CERTAINLY DO NOT AGREE (5)
Item : 16 (Multiple Choice) Monthly Income Less than 500.000.000 T.L (1) **Between** 500.000.000 -1.000.000.000 T.L. (2) Between 1.000.000.000- 3.000.000.000 T.L. (3) Over 3.000.000.000 T.L. (4)

Item : 17 (Multiple Choice) Gender Female (1) Male (2)
Item : 18 (Multiple Choice) Level of Education Primary School (1) Secondary School (2) High School (3) University (4) Post-graduate and over (5)
Item : 19 (Multiple Choice) Age Less than 24 (1) Between 25-30 (2) Between 31-35 (3) Between 36-40 (4) 41 and over (5)

APPENDIX B – The survey of research-Turkish

Survey Name	ekadikoy
General Descriptions	Bu anket sonuclari Yeditepe Universitesi MBA programininda edevlet ile ilgili tez calismasinda kullanilacaktir. Basarili bir e-belediye calismasi olarak eKadikoy secilmistir. Katilimcilarin kadikoy ilcesinde oturuyor olmasi beklenmektedir. Anketteki son dört soru da Kadikoy belediye calisanlari icin hazirlanmistir. Anket dolduranlara simdiden tesekkur ederim.
Survey Level	Genel
Prepared by	Sevda Akin
Published on	26-Mar-2004
	Read Survey Consent Form
Item : 1 (Likert-Scale) Devletin internet siteleri yeterince duyrulmustur KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)	
Item : 2 (Likert-Scale) Internet ve benzer teknolojileri rahatlikla kullanabilirim KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)	
Item : 3 (Likert-Scale) Devletin internet sitelerini islem yapmak için kullandim/kullaniyorum KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)	
Item : 4 (Likert-Scale) Belediye ya da Devlet dairesi ile isim oldugunda internet vasitasiyla çözmeyi tercih ederim KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3)	

KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 5 (Likert-Scale) Belediye ya da Devlet dairesi ile isim oldugunda 24 saat ulasabilmek isterim KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 6 (Likert-Scale) Belediye ya da Devlet dairesi ile isim oldugunda yüz yüze görüsmeyi tercih ederim KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 7 (Likert-Scale) Belediye/devlet internet egitimi verirse katilirim KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 8 (Likert-Scale) Kadikoy belediyesinin internet sitesi yeterince duyrulmustur. KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 9 (Likert-Scale) Kadiköy Belediyesi internet sitesini islem yapmak için kullandim/kullaniyorum KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 10 (Likert-Scale) Kadiköy belediyesinin internet sitesi erisimi kolay , açik ve güncel bilgiler içeriyor KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 11 (Likert-Scale)

Kadikoy belediyesinin internet sitesini kullanmak, islerimde zamandan ve paradan tasarruf sagliyor KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 12 (Likert-Scale) Kadiköy belediyesi internet sitesi kisisel ve parasal islemler icin güvenlidir KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 13 (Likert-Scale) Kadiköy belediyesinin elekronik ortama tasinmasi bürokrasiyi azaltmistir KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 14 (Likert-Scale) Belediye ya da Devlet internet sitelerinin kullanilmasi bilgiye erisimde esitsizlik yaratmiyor . KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 15 (Likert-Scale) Belediyenin / devletin internet sitelerini kullanarak islem yapilmasi rüsveti azaltacaktir KESINLIKLE KATILIYORUM (1) KATILIYORUM (2) FIKRIM YOK (3) KATILMIYORUM (4) KESINLIKLE KATILMIYORUM (5)
Item : 16 (Multiple Choice) Aylik Gelir 500.000.000TL den az (1) 500.000.000 -1.000.000.000 TL arasi (2) 1.000.000.000- 3.000.000.000TL arasi (3) 3.000.000.000 TL uzerinde (4)
Item : 17 (Multiple Choice) Cinsiyet Kadin (1)

Erkek (2)
Item : 18 (Multiple Choice) Egitim Durumu Ilkokul (1) Ortaokul (2) Lise (3) Universite (4) Yüksek lisans ve ustu (5)
Item : 19 (Multiple Choice) Yas 24'den az (1) 25-30 arasi (2) 31-35 arasi (3) 36-40 arasi (4) 41 ve ustu (5)

APPENDIX C – FREQUENCY TABLES & STATISTICS OF THE RESEARCH

1. Computer Literacy/ Skill

Table C.1: The frequency table of Computer literacy/Skill

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	127	70,6	70,6	70,6
	Agree	23	12,8	12,8	83,3
	No idea	4	2,2	2,2	85,6
	Do not agree	12	6,7	6,7	92,2
	Certainly Do not agree	14	7,8	7,8	100,0
	Total	180	100,0	100,0	

2. Awareness of E-Government

Table C.2: The frequency table of awareness of e-government services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	14	7,8	7,8	7,8
	Agree	17	9,4	9,5	17,3
	No idea	20	11,1	11,2	28,5
	Do not agree	115	63,9	64,2	92,7
	Certainly Do not agree	13	7,2	7,3	100,0
	Total	179	99,4	100,0	
Missing	0	1	,6		
Total		180	100,0		

3. E-Government Usage

Table C.3: The frequency table of E-Government Usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	25	13,9	13,9	13,9
	Agree	49	27,2	27,2	41,1
	No idea	24	13,3	13,3	54,4
	Do not agree	55	30,6	30,6	85,0
	Certainly Do not agree	27	15,0	15,0	100,0
	Total	180	100,0	100,0	

4. **Internet Preferences**

Table C.4: The frequency table of Internet Preferences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	83	46,1	46,1	46,1
	Agree	38	21,1	21,1	67,2
	No idea	22	12,2	12,2	79,4
	Do not agree	20	11,1	11,1	90,6
	Certainly Do not agree	17	9,4	9,4	100,0
	Total	180	100,0	100,0	

5. **Willingness to use online services**

Table C.5: The frequency table of willingness to use online services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	135	75,0	75,0	75,0
	Agree	28	15,6	15,6	90,6
	No idea	3	1,7	1,7	92,2
	Do not agree	14	7,8	7,8	100,0
	Certainly Do not agree	0	0		
	Total	180	100,0	100,0	

6. **Face-to-Face interaction**

Table C.6: The frequency table of Face-to-Face Interaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	21	11,7	11,7	11,7
	Agree	18	10,0	10,0	21,7
	No idea	18	10,0	10,0	31,7
	Do not agree	93	51,7	51,7	83,3
	Certainly Do not agree	30	16,7	16,7	100,0
	Total	180	100,0	100,0	

7. Training Needs

Table C.7: The frequency table of Training Needs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	40	22,2	22,2	22,2
	Agree	31	17,2	17,2	39,4
	No idea	26	14,4	14,4	53,9
	Do not agree	48	26,7	26,7	80,6
	Certainly Do not agree	35	19,4	19,4	100,0
	Total	180	100,0	100,0	

8. Awareness of e-Kadıköy Services

Table C.8: The awareness of e-Kadıköy Services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	17	9,4	9,4	9,4
	Agree	58	32,2	32,2	41,7
	No idea	30	16,7	16,7	58,3
	Do not agree	46	25,6	25,6	83,9
	Certainly Do not agree	29	16,1	16,1	100,0
	Total	180	100,0	100,0	

9. e-Kadıköy Usage

Table C.9: The frequency table of e-Kadıköy Usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	18	10,0	10,0	10,0
	Agree	39	21,7	21,7	31,7
	No idea	20	11,1	11,1	42,8
	Do not agree	43	23,9	23,9	66,7
	Certainly Do not agree	60	33,3	33,3	100,0
	Total	180	100,0	100,0	

10. Meet expectations about e-Kadıköy

Table C.10: The frequency table of Meeting Expectations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	14	7,8	7,8	7,8
	Agree	22	12,2	12,3	20,1
	No idea	83	46,1	46,4	66,5
	Do not agree	41	22,8	22,9	89,4
	Certainly Do not agree	19	10,6	10,6	100,0
	Total	179	99,4	100,0	
Missing	System	1	,6		
Total		180	180	100,0	

11. Economy

Table C.11: The frequency table of Economy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	14	7,8	7,8	7,8
	Agree	14	7,8	7,8	15,6
	No idea	77	42,8	43,0	58,7
	Do not agree	45	25,0	25,1	83,8
	Certainly Do not agree	29	16,1	16,2	100,0
	Total	179	99,4	100,0	
Missing	System	1	,6		
Total		180	100,0		

12. Security Expectations

Table C.12: The frequency table of Security

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	9	5,0	5,1	5,1
	Agree	6	3,3	3,4	8,4
	No idea	132	73,3	74,2	82,6
	Do not agree	16	8,9	9,0	91,6
	Certainly Do not agree	15	8,3	8,4	100,0
	Total	178	98,9	100,0	
Missing	System	1	,6		
Total		180	1	,6	

13. Reduce Bureaucracy

Table C.13: The frequency table of Reduce Bureaucracy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	64	35,6	35,8	35,8
	Agree	50	27,8	27,9	63,7
	No idea	52	28,9	29,1	92,7
	Do not agree	11	6,1	6,1	98,9
	Certainly Do not agree	2	1,1	1,1	100,0
	Total	179	99,4	100,0	
Missing	System	1	,6		
Total		180	180	100,0	

14. Reduce Corruption

Table C.14: The frequency table of Reduce Corruption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	6	3,3	3,4	3,4
	Agree	9	5,0	5,1	8,4
	No idea	10	5,6	5,6	14,0
	Do not agree	44	24,4	24,7	38,8
	Certainly Do not agree	109	60,6	61,2	100,0
	Total	178	98,9	100,0	
Missing	System	1	,6		
Total		180	1	,6	

15. Belief Digital Divide

Table C.15: The frequency table of Belief Digital Divide

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certainly Agree	78	43,3	43,3	43,3
	Agree	51	28,3	28,3	71,7
	No idea	15	8,3	8,3	80,0
	Do not agree	19	10,6	10,6	90,6
	Certainly Do not agree	17	9,4	9,4	100,0
	Total	180	100,0	100,0	

16. Income

Table C.16: The frequency table of Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 500.000.000TL	10	5,6	5,8	5,8
	Between 500.000.000 - 1.000.000.000	35	19,4	20,5	26,3
	Between 1.000.000.000- 3.000.000.000 TL	101	56,1	59,1	85,4
	Over 3.000.000.000 TL	25	13,9	14,6	100,0
	Total	171	95,0	100,0	
Missing	0	9	5,0		
Total		180	100,0		

17. Gender

Table C.17: The frequency table of Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	82	45,6	46,1	46,1
	Male	96	53,3	53,9	100,0
	Total	178	98,9	100,0	
Missing	0	2	1,1		
Total		180	100,0		

18. Education

Table 18.1: The frequency table of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary School	2	1,1	1,1	1,1
	Elementary School	8	4,4	4,5	5,6
	High School	31	17,2	17,4	23,0
	University	76	42,2	42,7	65,7
	Post Graduate	61	33,9	34,3	100,0
	Total	178	98,9	100,0	
Missing	0	2	1,1		
Total		180	100,0		

19. Age

Table 19.1: The frequency table of Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below 24	27	15,0	15,3	15,3
	between 25-30	70	38,9	39,5	54,8
	between 31-35	38	21,1	21,5	76,3
	between 36-40	17	9,4	9,6	85,9
	over 41	25	13,9	14,1	100,0
	Total	177	98,3	100,0	
Missing	0	3	1,7		
Total		180	100,0		

20. Statistics

Table C.20: Item Statistics

	Mean	Std. Deviation	N
skill	1,68	1,266	180
edevlet_awareness	3,52	1,060	180
edevlet_usage	3,06	1,319	180
Internet_preference	2,17	1,364	180
Willingness to online acc	1,42	,865	180
Face to face	3,52	1,221	180
Training needs	3,04	1,455	180
Kadikoy_awareness	3,07	1,267	180
Kadikoy_usage	3,49	1,400	180
meet_expectations	2,84	1,035	180
economy	2,66	1,084	180
security	2,86	,831	180
bureucracy	2,08	1,005	180
digital_divide	2,14	1,333	180
corruption	1,63	1,030	180
income	2,68	,954	180
sex	1,52	,523	180
education	4,00	,986	180
age	2,63	1,290	180

Table C.21: Statistics (next)

		Skill	e-gov_awareness	egov_usage	Internet_Preference	willingness to use online serv.	F2F_interaction	Training_needs	eKadikoy_awareness	eKadikoy_usage	meet_expectation	economy	secure	reduce_bureaucracy	belief_dd	reduce_corruption
N	Valid	180	179	180	180	180	180	180	180	180	180	180	179	179	180	179
	Missing	0	1	0	0	0	0	0	0	0	0	0	1	1	0	1
Mean		4,3	2,5	2,9	3,8	4,6	2,5	2,96	2,9	2,5	3,2	3,3	3,1	3,9	3,9	4,4
Std. Error of Mean		0,1	0,1	0,1	0,1	0,1	0,1	0,11	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Median		5	2	3	4	5	2	3	3	2	3	3	3	4	4	5
Mode		5	2	2	5	5	2	2	4	1	3	3	3	5	5	5
Std. Deviation		1,3	1	1,3	1,4	0,9	1,2	1,46	1,3	1,4	1	1,1	0,8	1	1,3	1
Variance		1,6	1,1	1,7	1,9	0,7	1,5	2,12	1,6	2	1,1	1,2	0,6	1	1,8	1,1
Skewness		-2	1,3	0,1	-0,9	-2,2	0,9	0,12	-0,1	0,4	-0	-0	0,2	-0,5	-1	-1,8
Std. Error of Skewness		0,2	0,2	0,2	0,2	0,2	0,2	0,18	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Kurtosis		1,6	0,8	-1	-0,6	3,6	-0	-1,4	-1,2	-1	-0	-0	2,3	-0,6	-0,3	2,7
Std. Error of Kurtosis		0,4	0,4	0,4	0,4	0,4	0,4	0,36	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
Range		4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
Minimum		1	1	1	1	2	1	1	1	1	1	1	1	1	1	1
Maximum		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Sum		777	441	530	690	824	447	533	528	452	568	601	559	700	694	780
Percentiles	10	2	2	1	2	4	1	1	1	1	2	2	3	3	2	3
	20	4	2	2	2	4	2	2	2	1	2	3	3	3	2,2	4
	25	4	2	2	3	4,3	2	2	2	1	3	3	3	3	3	4
	30	5	2	2	3	5	2	2	2	1	3	3	3	3	4	4
	40	5	2	2	4	5	2	2	2	2	3	3	3	4	4	5
	50	5	2	3	4	5	2	3	3	2	3	3	3	4	4	5
	60	5	2	4	5	5	2	3	4	3	3	4	3	4	5	5
	70	5	2	4	5	5	3	4	4	4	4	4	3	5	5	5
	75	5	3	4	5	5	3	4	4	4	4	4	3	5	5	5
	80	5	3	4	5	5	4	5	4	4	4	4	3	5	5	5
	90	5	4	5	5	5	5	5	4	4,9	5	5	4	5	5	5

	skill	edevlet_awareness	edevlet_usage	Internet_preference	willingness to use online servics	face to face	training needs	Kadikoy_awareness	Kadikoy_usage	meet_expectations	economy	security	bureucracy	digital_divide	corruption
skill	1,00	-0,32	0,24	0,40	0,58	-0,36	-0,50	-0,05	0,09	0,28	0,42	0,10	-0,04	0,35	0,49
edevlet_awareness	-0,32	1,00	0,23	0,05	-0,47	0,07	0,30	0,27	0,08	-0,04	-0,23	0,11	0,09	-0,13	-0,30
edevlet_usage	0,24	0,23	1,00	0,29	0,06	-0,19	0,12	0,03	0,33	0,23	0,22	0,27	0,04	0,30	0,15
Internet_preference	0,40	0,05	0,29	1,00	0,32	-0,54	-0,15	0,31	0,33	0,28	0,39	0,28	0,34	0,33	0,35
willingness to use online services	0,58	-0,47	0,06	0,32	1,00	-0,21	-0,27	-0,08	-0,01	0,28	0,38	0,11	-0,08	0,27	0,54
Facetoface	-0,36	0,07	-0,19	-0,54	-0,21	1,00	0,22	-0,17	-0,24	-0,19	-0,34	-0,25	-0,20	-0,12	-0,18
training_needs	-0,50	0,30	0,12	-0,15	-0,27	0,22	1,00	0,09	0,09	-0,03	-0,17	0,11	0,12	-0,02	-0,14
Kadikoy_awareness	-0,05	0,27	0,03	0,31	-0,08	-0,17	0,09	1,00	0,44	0,38	0,23	0,30	0,35	0,01	-0,04
Kadikoy_usage	0,09	0,08	0,33	0,33	-0,01	-0,24	0,09	0,44	1,00	0,44	0,53	0,27	0,35	0,30	0,13
meet_expectations	0,28	-0,04	0,23	0,28	0,28	-0,19	-0,03	0,38	0,44	1,00	0,50	0,44	0,19	0,30	0,32
economy	0,42	-0,23	0,22	0,39	0,38	-0,34	-0,17	0,23	0,53	0,50	1,00	0,43	0,30	0,41	0,38
security	0,10	0,11	0,27	0,28	0,11	-0,25	0,11	0,30	0,27	0,44	0,43	1,00	0,23	0,01	0,04
bureucracy	-0,04	0,09	0,04	0,34	-0,08	-0,20	0,12	0,35	0,35	0,19	0,30	0,23	1,00	0,26	0,06
digital_divide	0,35	-0,13	0,30	0,33	0,27	-0,12	-0,02	0,01	0,30	0,30	0,41	0,01	0,26	1,00	0,37
corruption	0,49	-0,30	0,15	0,35	0,54	-0,18	-0,14	-0,04	0,13	0,32	0,38	0,04	0,06	0,37	1,00

Table C.22: Pearson Correlation Coefficients

CURRICULUM VITAE OF THE AUTHOR

SEVDA AKIN

PERSONAL INFO

Date of Birth: 31.10.1963
Place of Birth: Gönen

EDUCATION

1980 - 1986	Hacettepe University-Electronics Engineering BSC	Ankara
1974 - 1980	Izmir Kiz Lisesi	Izmir

EMPLOYMENT

2001 -	**AVEA** *Project Management Office –Senior Project Manager*	Istanbul
2000 - 2001	**Oxygen Technologies-Telsim** *Business Development & Product Manager*	Istanbul
1997 - 1999	**LHS AG.** *Billing Consultant*	Zurich
1996 - 1997	**Mobicom A.Ş** *IT Project Manager*	Istanbul
1995 - 1996	**MSM -Avrupa Amerika Holding** *Application Developer*	Istanbul
1991 - 1994	**Alcatel International** *Telecommunication Software Engineer-Consultant*	Stuttgart
1991 - 1994	**NETAŞ** *Software Production Engineer*	Istanbul