STATE PLANNING ORGANIZATION

July 2006

INFORMATION SOCIETY STRATEGY (2006-2010)





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"It is necessary to get the maximum benefit from science, technology and all discoveries of civilization, in line with the requirements of the time."

Mustafa Kemal ATATÜRK

FOREWORD

Information is the most important element of civilization. As the development of civilization can only be possible through continuous regeneration of information, the indispensable prerequisite for progress and development is access to information and its effective and appropriate usage. Hence, we should see the "level of prosperous civilizations" as an indicator of the capacity of producing and using information.

In our era, information has become the most significant and fundamental "input" for all kinds of social and economic activities as an infinite resource that is regenerated on a daily basis. The market-based industrialization process that preceded the information era was based on possessing entrepreneurial spirit and the ability to adapt to changing demands.

The most important element that supports entrepreneurship has been the necessity to meet the human needs and demands that emerge as a result of mankind's desire to constantly seek for the better with its endless curiosity and to create more prosperous living conditions for the next generations.

What marks this era of information is the availability of means and opportunities for producing, using, processing, storing, sharing and accessing information, which get more widespread, diverse and faster day by day, especially with the developments in the information and communication technologies.

These means and opportunities transform the nature of entrepreneurship on one hand, and enable provision of mankind's increasing and varying needs from global resources on the other.

Information and communication technologies draw societies and cultures together; link and hence strengthen all economies, enterprises and individuals around the world in a network that is becoming more and more widespread every day.

The opportunities offered by these technologies are being used more and more by people in their daily lives and activities, by the businesses in all business processes from production to marketing and after-sale services subject to global competitive conditions, and by public agencies in fast and quality service production.

There is no doubt that the inability to keep pace with these developments is tantamount to lagging behind in all areas for countries and societies. Information supported with science, ethics and universal values needs to become an asset belonging to the whole humanity, and should be set free of the monopoly of narrow circles and should be made accessible to wider social segments.

The information society vision of Turkey and of the Turkish Government is not only to become a society using technology, but also to create an asset for both her citizens and for all humanity, and to make new and solid contributions to accumulation of universal civilization.

We believe that in order not to lag behind with regard to information society and in order to avoid exposure to unfair competition in all areas, we have to renew and develop ourselves and our institutions.

To this end, our government has included the e-Transformation Turkey Project in its Urgent Action Plan. I am proud and happy to see the delivery of the medium-term information society strategy which constitutes the most essential step of the Project that aims at mobilizing our material and human resources in order to realize this transformation in a way most suitable for the conditions of our country.

Our government, having legislated the "Freedom of Information Act", allocated huge resources for R&D and provided 24.000 schools with ADSL internet access, is extremely satisfied with the speed and acceleration gained in well functioning services and the benefits achieved so far from the e-Transformation Project which has been activated in parallel to policies in all areas that will make Turkey a developed country. The e-Transformation Project plays a massive role in the economic, social and cultural development of Turkey, and draws us closer to our national goals with every passing day.

It is my opinion that the information society strategy is an important opportunity for Turkey on her resolute journey towards the goal of becoming a country of focal point in science and technology production, using science and technology as effective means, producing more value with information-based decision-making processes, and being successful in global competition with a high level of welfare.

I hope that the information society strategy, implemented with determination, will enlighten our path on this journey and will be an important step towards our goal to become a more prosperous country.

Recep Tayyip ERDOĞAN
Prime Minister

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INTRODUCTION

Innovations in Information and Communication Technologies (ICT) have an important effect on the development of globalization and influence all areas of economic and social life, all segments of the society and deeply affect how public services are delivered, businesses function, and citizens lead their daily lives. In other words, these innovations cause a social transformation. These technologies already put their mark on the twenty-first century and laid the foundation for a new social transformation towards "information society".

Since the early 2000s, initiatives towards transformation into an information society are observed to be increasing all around the world. New products and services as well as increased productivity stemming from the developments in the ICT have also started to change the nature of international competition which used to be defined by the quantities of production factors. The Lisbon Strategy which aims to make the European Union the most competitive and dynamic knowledge-based economy in the world by 2010 is one of the most comprehensive examples of the efforts to adapt to this change. The eEurope 2002 Action Plan prepared within this framework has continued with the eEurope 2005 Action Plan which includes new and more refined objectives. The Lisbon Strategy which was updated in 2005 as i2010 is redirected towards new targets with information, innovation and social inclusion as its core topics.

In Turkey, endeavours on transformation into an information society have also started to gain momentum since early 2000s in parallel to these developments. Turkey has become a party to the eEurope+ Initiative, which has been designed for EU candidate countries in 2001.

The "e-Transformation Turkey Project" that was included in the 58th and 59th Government Urgent Action Plan was launched in 2003 and hence all individual studies being carried out in our country have been gathered under an umbrella project and accelerated. The e-Transformation Turkey Project aims to carry out the process of transformation into an information society in a harmonious and integrated structure all over the society with all citizens, enterprises and public segments.

General coordination of the Project has been assigned to the State Planning Organization and the e-Transformation Turkey Executive Board with the participation of the State Minister and Deputy Prime Minister, Minister of Transportation, Ministry of Industry and Trade, top-level bureaucrats and non-governmental organizations (NGOs), and the Advisory Council with the participation of public and private sectors and NGOs have been established.

In this process, "Turkey's Information Society Transformation Policy" which was prepared with the participation of all relevant parties, has been adopted by the e-Transformation Turkey Executive Board. The policy document states Turkey's vision of transformation into an information society as follows: **"To be a country that has become a focal point in the production of science and technology, that uses information and technology as an effective tool, that produces more value with information-based decision-making processes and that is**

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Since the inception of e-Transformation Turkey Project, which was formulated with a participative approach, two action plans covering 2003-2004 and 2005 periods were launched and implemented successfully. In conjunction with the short-term targets of the action plans, an initiative for preparation of Information Society Strategy covering 2006-2010 was also started in 2005 in an attempt to enable Turkey to benefit from ICT effectively and to identify the middle and long term strategies and targets for the realization of transformation.

In the Information Society Strategy, the current situation of main constituents of the society; citizens, public sector and businesses as well as the ICT sector and Turkey's potential for transformation into an information society by 2010 have been evaluated, and a range of targets for 2010 together with the required steps for accomplishment of those targets have been identified within the framework of the strategic priorities determined henceforth. Furthermore, R&D and Innovation strategies have been integrated based on Scientific and Technological Research Council of Turkey's (TÜBİTAK) "Vision 2023" studies and on the decisions of the Higher Council of Science and Technology; consequently, the integrity of the strategy has been ensured. On the other hand, measurement criteria and methodologies have been introduced for monitoring and evaluation of the implementation, together with new structures to support the strategy implementation.

It is expected that the Information Society Strategy and its annexed Action Plan would be the basic reference document for citizens, the public sector, private sector and the NGOs, in short for all segments of the society, within the next five-year period, and will shed light onto future schemes.

1. The Information Society Opportunities of Turkey

The ultimate goal of transformation into an Information Society is to get a bigger share from the world production and to raise the level of social welfare by increasing competitive power.

The prerequisite for raising social welfare is to attain sustainable growth and sustainable employment. Sustainable growth is possible by increasing the competitive power based on increased productivity. Effective use of capital and labour is as important as their level in generation of the overall value added. ICT is among the key enablers of productivity increase and effective use of information, which is becoming the most important factor of production next to capital and labour. ICT plays a critical role in increasing productivity by providing new opportunities for producing, processing, storing and sharing information, easy access to and effective usage of information in decision-making processes, as well as for formation of new organizational structures and development of new business processes, and access to new markets.

In this respect, it is imperative to use ICT effectively in all areas of the economy and social life to ensure sustainable growth and competitiveness.

Societies that succeed in making this imperative a reality have the opportunity to achieve a strategic competitive advantage by increasing their economic efficiency.

Although ICT and the globalization of the world economy provide great opportunities to countries in the race for development and international competition; they also pose new threats. In periods of great technological revolutions, some of the physical and human capital becomes obsolete, which in turn may lead to loss of some advantages that technologically and economically advanced countries enjoyed earlier. If the less developed countries can make use of this period, it would provide an opportunity for these countries to leapfrog the more advanced countries. If, on the contrary, the countries lagging behind fail to benefit from this period, they may risk being pushed back fast even further from their current positions. Therefore, in such periods when the competitive balance between countries is reshaped, it becomes more crucial than ever to figure out the right policies and take the right steps as quickly as possible.

Especially after 1980s, the innovations in the ICT field have brought about fundamental changes in the economic and social life, and the products and services based on these technologies have become indispensable elements of our lives today. Whilst labour productivity does not increase as expected in the short term during the process of disseminating these technologies to production units, rapid increases in production, productivity, employment and wages are observed in the medium term after necessary organizational structures are

established and business processes are re-designed and effective usage of ICT is achieved.

When ICT becomes widespread in all segments of the society and create a "**network effect**", the contribution of these technologies reveals itself more rapidly and more concretely. For example, it is estimated that the contribution of ICT on labour productivity improvement is around 60% in the US and 40% in the EU since the second half of 1990s. In the same period, 25% of EU's economic growth was due to ICT.

Despite some occasional high economic growth performances, Turkey has failed to achieve a long-term sustainable growth. Recently, with the continuing structural reforms and the climate of macroeconomic stability, confidence in economy has increased and high growth rates have been achieved. Even if this economic growth is sustained in the short term supported by the EU harmonization process and by other measures, serious risks will emerge in the way of improving Turkey's global competitiveness unless productivity increase is achieved in the economy. So, in order to eliminate these risks, ensuring continuation of sustainable high economic growth has become the highest priority besides maintaining recently achieved macroeconomic stability. With its potential for productivity increase, ICT constitutes one of the fundamental instruments in realizing this priority.

The effect of ICT investments on economic growth is higher in comparison to other investments because of the network effect; as benefits acquired by the elements in a system increases with new entries into the system.

According to macroeconomic projections, it is estimated that with the activation of the strategy and creation of the network effect, the contribution of ICT to our economy for the next thirty years will reveal itself in an additional GNP growth of 2 percent annually, of which 1.4 percent will be through increased labour productivity and 0.6 percent through increased employment. In this way, a considerable growth in national income will be achieved in the next period, and employment problems we face today will be solved in the long run.

Making marginal advancements in the ICT is not sufficient for Turkey, it needs a serious jump if it is to realize the anticipated development by ICT. Anticipated economic gains could only be achieved through the increased physical capital generated by the investments made by the citizens, the private and the public sector by regularly increasing the ratio of ICT spending in the GNP, as well as by building human capital that will exploit these technologies effectively. Furthermore, because of the fact that adoption and effective utilization of new technologies by the production units and the society takes some time, and the fact that the effect of investments on productivity reveal themselves only after a certain period of time, this jump must be made without delay.

Hence, Turkey will be able to realize sustainable economic growth by increasing her global competitiveness and productivity as a result of the

1. The Information Society Opportunities of Turkey

network effect, which will be created by constructing the relationship between and within the government, the citizens and the businesses based on the ICT. Thus, Turkey will be able to reinforce her position within the economic and social networks emerging on a global scale.

The Information Society Strategy will be a fundamental instrument in coordinating all actors of the economy with an integrated approach, in directing all efforts and resources towards the same objective, thus attaining the set targets in order to achieve the transformation summarized above.

2. Turkey's Potential Towards 2010

Since the beginning of 2000s, national and international efforts to move towards information society are growing at an increasing pace across the world. The European Union has been taking an important part in these efforts, which have intensified with the effect of the ICT-based productivity increase and economic growth achieved especially in the Northern American countries in the 1990s. The Lisbon Strategy introduced by the European Council in 2000 envisions Europe becoming the world's most competitive and dynamic knowledge-based economy by 2010.

Efforts towards information society are elevated to a global scale with the World Summit on Information Society organized by the United Nations, the first phase of which took place in 2003 in Geneva and the second phase in 2005 in Tunisia with the participation of 175 countries including Turkey.

The priority areas and challenges addressed in all these information society initiatives generally focus on the following:

- Sustainable growth and increasing competitive power
- Increasing quality of life
- Eliminating digital divide
- Increasing human resource competencies and employment
- Effective provision of citizen-focused public services in multi-channel environment
- Promoting e-commerce
- Ensuring standardization and security in Information Society applications
- Creating value by developing market-oriented R&D and innovation
- Making broadband communication infrastructure commonly available.
- Enriching the content and information society applications
- Benefiting from convergence potential of technologies
- Leveraging media channels in the development of Information Society

2. Turkey's Potential Towards 2010

The above-mentioned issues are also considered as priority areas and challenges for Turkey.

Having adopted EU's Lisbon Strategy targets and being a party to international initiatives on information society, Turkey has numerous initiatives underway to transform the country into an information society. However, it has been observed that these initiatives were usually carried out independently from each other and based on the priorities and needs of institutions instead of country's priorities and needs, and thus failed to create the expected level of impact in transformation into an information society. Therefore, an effort was initiated to create an Information Society Strategy involving a more integrated approach rooted in economic development and increasing social welfare with targets in line with the conditions and needs of the country and outlining policies, methodologies, tools and resources to achieve these targets.

Turkey is in the "preliminary" phase of transformation towards information society. In the forthcoming period, Turkey will have to achieve her set targets by using her available competencies and resources in the most effective way, so as to accelerate transformation into an information society with all her citizens and private and public sectors, to reach the level of countries that are advanced in this field and become an effective player on international platforms. In this context, it is very important to understand the potential of various elements that would play a role in the process of transformation of Turkey into information society.

2.1. Citizens

Usage of ICT by individuals in the society not only fundamentally affects their own lives but also closely related to the transformation of the government and the businesses which provide products and services based on these technologies, and to the development of the ICT sector. Therefore it is important to ensure that citizens adopt ICT speedily and make these technologies a part of their daily lives in the process of transformation into an information society. Such a development will also trigger and accelerate the transformation of other elements that offer goods and services to meet the demands of citizens.

In this context, it is necessary to inform citizens about the benefits of ICT, provide opportunities of access to these technologies and equip them with the skills to use these technologies.

In Turkey, the development in citizens' usage of information technologies and communication technologies follow a different pattern. Although fixed line penetration rate has saturated around 26% and mobile telephone penetration has reached 60%, the computer ownership and Internet usage rates are still low.

2. Turkey's Potential Towards 2010

In Turkey, the percentage of individuals using the Internet in the population is 13.9% as of 2005, and the proportion of broadband subscribers is 2%. A comparison of these rates to EU25 averages as of 2004, which are 47% and 6.5% respectively, indicates that there is still a long way to go in terms of increasing computer and Internet usage by citizens.

What is more, ICT usage in Turkey differs widely depending on the employment status such as; employed, unemployed, students, housewives, retired, etc. and also by income level, education, gender, age groups and geographic locations. In other words, our country faces a digital divide both in the national and international context.

In addition to low usage rates in the society and the differences observed in different groups, another problem we face is the fact that the Internet is not used very effectively. According to the results of the 2004 ICT usage survey on households and individuals, Internet is used for obtaining information and playing games (93.2%) or for communication (76.21%). Only 8.2% of the Internet users access the Internet specifically for training related to employment and the proportion of those who use the Internet to order or sell goods and services is only 3.5%.

From the perspective of access, only 5.9% of households have computers (PC) connected to the Internet in Turkey. Internet cafes and workplaces are the most prevalent venues of access, with rates of 41.2% and 41.1% respectively.

The main reasons for low Internet usage in households are high costs and lack of competency. In Turkey, the cost of broadband access corresponds to 5.4% of the per capita national income, whereas in OECD it is around 2%.

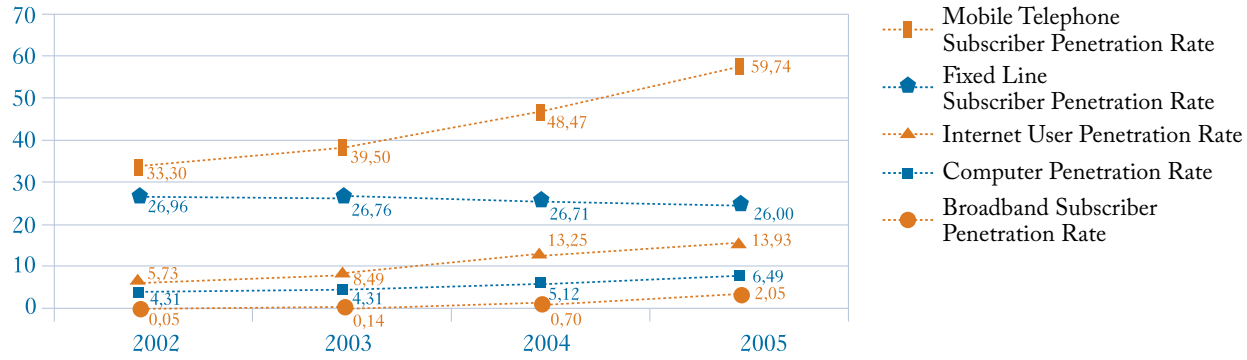
While the problem of high costs is something that can be tackled relatively more quickly with the development of infrastructure and the establishment of a competitive market structure, developing competency requires a more long-term effort.

In Turkey, the proportion of individuals who have received no education/training on information technologies (IT) is 92%. The segment trained on IT usually consists of young people who benefit from the basic computer literacy programs which are becoming more and more widespread in educational institutions in particular and those who usually need IT skills to find a job.

It is striking that in Turkey, more than half of the population (62%) have no idea about the Internet. This is applicable particularly for segments other than students, employees and those who are looking for employment; which shows that there is a need to undertake intensive efforts to raise awareness and motivation in specific segments of the society.

2. Turkey's Potential Towards 2010

Figure 1 – Usage of Information and Communication Technologies by Years



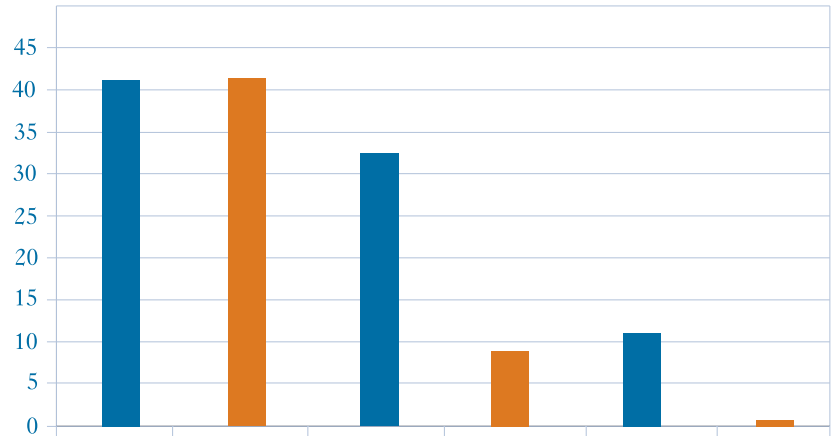
In terms of her demographical structure, Turkey has remarkable opportunities for transformation into an information society in the medium term. The fact that the majority of the population is under the age of 30 (54.9%) and that the individuals under the age of 15 constitute 28.1% of the society is a sign of great potential for Turkey. As a result of this demographic breakdown, which highlights the young generation, the 25-39 age group will be the dominant population cluster in 2020. This means that the employed in this age group will create the highest value added in tomorrow's knowledge economy. Hence, investing in today's young generation and ensuring that they become individuals of the information society will be an important gain for the future.

Indeed, as a result of the investments made in that respect, today most of the secondary and tertiary/higher education institutions have had broadband access. With a ratio of 53.5% students constitute the segment with the highest Internet penetration rate in the society. This is followed by regular employees with 26.6%, and the unemployed with 20.7%.

If Turkey exploits the potential imparted by her demographic structure by making wise choices and by bridging the digital divide among different population segments and in comparison to other nations, she can make successful progress towards transformation into an information society.

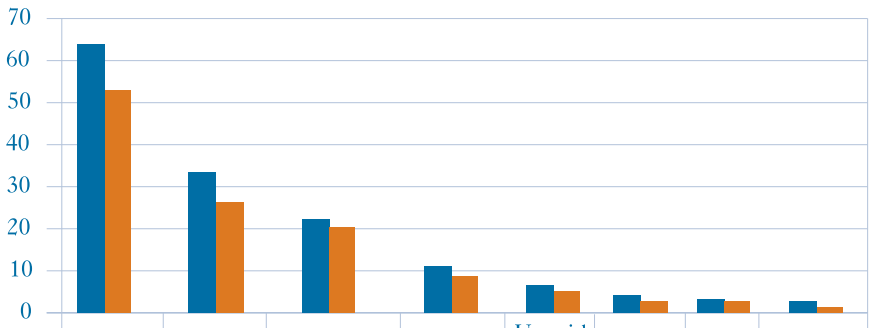
2. Turkey's Potential Towards 2010

Figure 2 – Internet Usage Rates by Place of Access (2004, ages 16-74)



	At Place of Work	Internet Cafe	At Home	At Place of Education	At Other People's Houses	Other
Proportion of Use (%)	41.1	41.2	32.3	8.9	11.1	0.7

Figure 3 – Computer and Internet Usage by Employment Status (2004, ages 16-74)



	Students	Regular Employee	Unemployed	Self Employed	Unpaid Family Worker	Retired	Other	Housewife
Computer (%)	64,41	33,64	22,46	11,15	6,63	4,32	3,27	2,56
Internet (%)	53,47	26,62	20,71	8,53	5,11	2,65	2,68	1,17

2. Turkey's Potential Towards 2010

2.2. Businesses

Today the ability of businesses to obtain, develop and manage information has become the main instrument of economic growth, productivity and competitiveness. In this respect, penetration of ICT into the business and its widespread and effective usage have great importance in ensuring a knowledge based economy, producing a higher value added and in creating new fields of employment.

Main problems in the life cycle of business, i.e. phases of entrepreneurship, starting up and expanding a business in Turkey are access to finance, bureaucratic obstacles and access to information.

Widespread usage of ICT by businesses in interactions and transactions with the public sector or while doing their own business will diminish most of these problems to a certain degree, will lead to the development of new and effective business processes, reduction of operational costs, increase in productivity and increased sales potential by benefiting from the opportunities of access to global markets through widespread usage of e-commerce. In addition to this, intra-sectoral and inter-sectoral synergies will emerge via effective communication platforms between companies.

In Turkey, SMEs constitute 99.8% of all enterprises and 76.7% of all employment. Among SMEs, micro-sized enterprises with 1-9 employees constitute 96.3% of all enterprises. However, the share of SMEs in the GDP remains at 26.5%. It is argued that, this low level of value added produced by SMEs is driven by their low level of technical knowledge and skills, limited opportunities to access ICT and limited ability to benefit from the advantages offered by these technologies.

In Turkey, there are no extensive studies on the ICT usage of enterprises. Nonetheless, it is estimated that around 60% of small, medium and large scale enterprises other than micro-scaled enterprises have at least one computer and 50% of them have Internet access. It is assumed that ICT usage is lower in micro enterprises. It is estimated that the rate of usage of modern business applications such as enterprise resource planning (ERP) or customer relationship management (CRM) by enterprises is around 3% at the most.

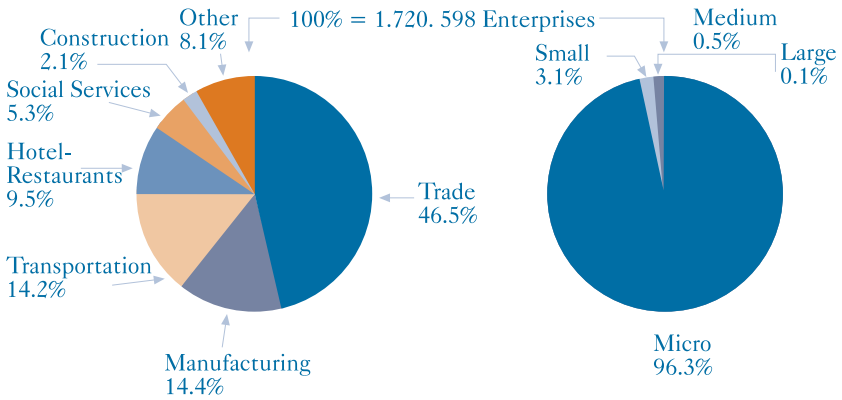
2. Turkey's Potential Towards 2010

The main reasons for this low rate of ICT usage in enterprises include insufficient competency in this area, high costs, and insufficient awareness of opportunities offered by ICT and security concerns.

Although ICT usage is not widespread, the awareness of enterprises on the importance of these technologies is rising. Considering that the rate of Internet usage in businesses in the EU is around 90%, it becomes even more important to turn this awareness into action to increase usage of ICT in enterprises.

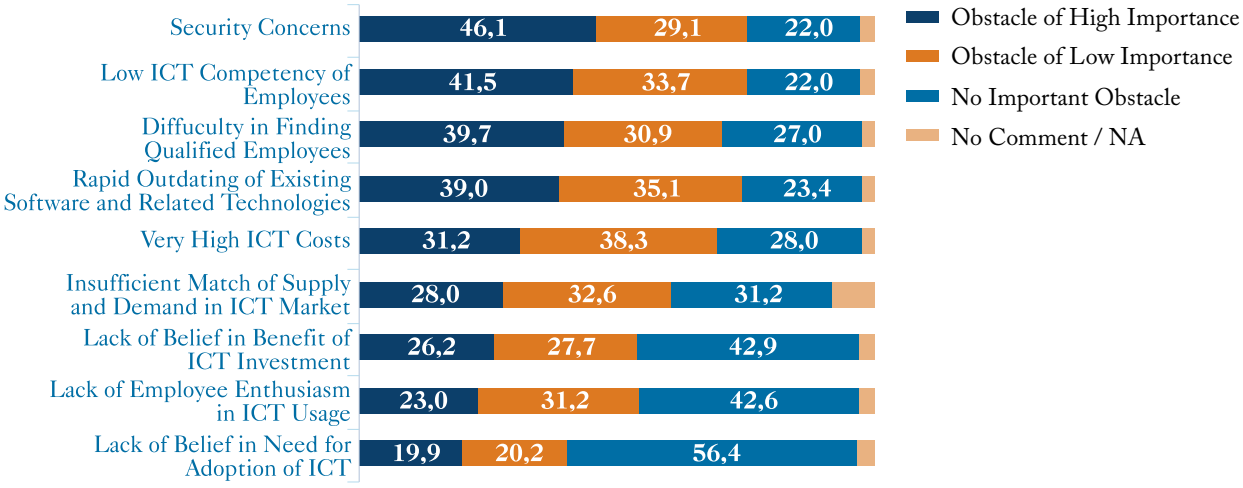
Currently, many agencies and institutions are implementing projects to increase ICT usage, particularly of SMEs, and to develop entrepreneurship and innovation. Guiding these disconnected efforts, under a common vision supported by gradually rising awareness of the importance of ICT can yield important gains in terms of increasing the competitive power of enterprises through Internet access, computer ownership and widespread usage of modern business applications such as e-commerce, ERP and supply chain management.

Figure 4 – Distribution of Enterprises in Turkey by Sectors and Sizes



Source: SSI, General Industry and Workplace Census, 2002

Figure 5 – Obstacles to ICT Adoption (%)



Source: Information Society Strategy, Businesses Survey, 2005

2.3. Government

Public services and the effectiveness of their delivery have a great effect on the economic and social lives of countries. In this respect, it becomes important in the process of transformation into an information society to offer these services in an effective, fast, qualified, continuous, secure, transparent and integrated way, with the help of ICT and in conformity with the needs and expectations of citizens and the businesses. However, the phenomenon of e-government, which is one of the components of this transformation, does not merely mean the transfer of services onto electronic channels; but it also implies an understanding of information-based public administration with productive business processes, inter-agency cooperation capabilities and a common vision.

In Turkey, the public sector has a considerable share in the economy. In 2005, the share of public spending in the GDP was 44.7%, and the share of public revenues was 43.3%. The productivity and value added produced by the public sector, which is the biggest actor in economy, also plays an important role on the competitive power of the economy. With only 14.4% of value added in 2004 in public administration, justice, security, defence, health and education services, Turkey remains at the bottom of all OECD countries.

2. Turkey's Potential Towards 2010

Besides other reasons that reduce economic effectiveness in the public, failure to achieve effectiveness in business processes is also one of the important reasons of the low value added generated by the public sector.

ICT has become an important instrument in increasing effectiveness in business processes. In order to get the maximum benefit from the opportunities offered by these technologies and increase effectiveness in public business processes, it will be necessary to develop interagency cooperation, increase usage of common infrastructures, prevent duplicate investments, establish information-based effective decision-making processes, develop qualified human resources, organizational capacity and establish a citizen-focused, reliable, interoperable, integrated and effective e-government structure.

On the other hand, institutional applications that are carried out in an isolated manner and solely focused on technology, that are not supported with effectiveness improvements in the available business processes, result in capturing only a small portion of the potential benefit that can be gained from ICT usage.

It has been observed that public sector ICT investments are increasing rapidly in the recent years. The public ICT investments appropriation of USD 233 million in 2002, at 2006 prices, rose to USD 534 million in 2006.

Many projects have been put into force for the electronic delivery of public services such as MERNİS, VEDOP, UYAP, e-declaration and so on. In particular, information systems based on a unique citizen ID number have been established, and e-signature applications have been started after establishing the necessary legal and organizational infrastructures. On the other hand, at the services level, applications with complicated processes such as tax and customs transactions are being offered at the maximum level possible, and work is in progress on an e-government portal where citizens will be offered integrated services from a single point.

12 out of the 20 basic public services determined by the EU are being delivered on various levels via electronic channels in Turkey. Turkey's rate of development in the delivery of these 20 basic public services is 53% as of 2005. The 2004 average in the delivery of 20 basic public services is 72% for EU15, and 65% for EU25.

Survey findings show in general that the needs of citizens are not taken into consideration in delivering public services and that service processes are not designed in a citizen-focused way. According to the results of the public institutions survey; 52% of the institutions show user needs among the most important criteria in service provision, whereas 61% of the institutions do not identify citizen needs in any way whatsoever.

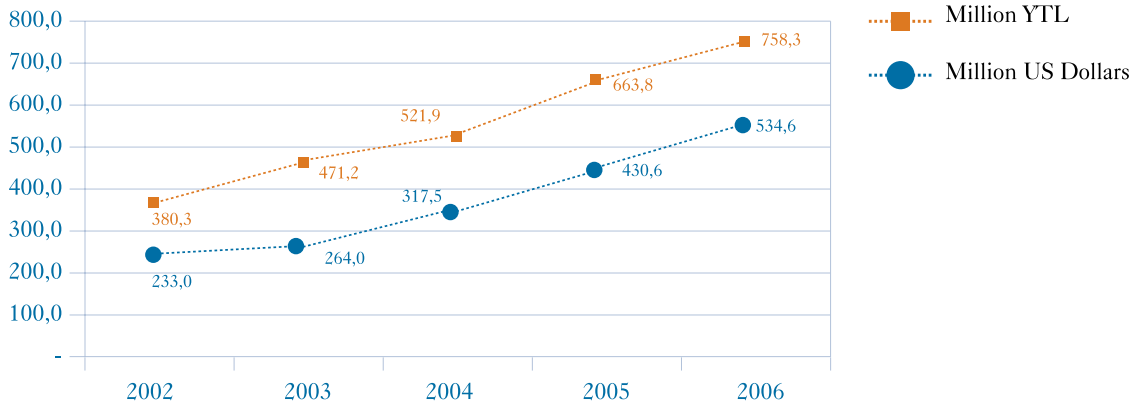
In addition, despite of increased public investments in line with the priorities determined through the e-Transformation Turkey Project and the transition to electronic channels for some of the basic services, it

2. Turkey's Potential Towards 2010

is seen that information sharing in the public sector has not developed sufficiently except for a few limited-scale examples. Preventing duplicate ICT investments in the public sector, which are expected to increase gradually in the coming periods and establishing an integrated e-government structure are important for ensuring efficiency in resource utilization.

In consideration of the results of the public institutions survey, it is encouraging from achieving effective public administration standpoint to see that many institutions have grasped the importance of a citizen-focused approach and of the applications which need to be implemented under a common vision and in cooperation and to see that agencies are informed and willing participants in the transformation. As transformation gains momentum with this rising awareness and willingness, increasing efficiency and productivity in the public sector, reducing the administrative burden on enterprises, and increasing the quality of life and usage satisfaction of citizens emerge as big yet achievable opportunities.

Figure 6 – Public ICT Investments (on 2006 prices)



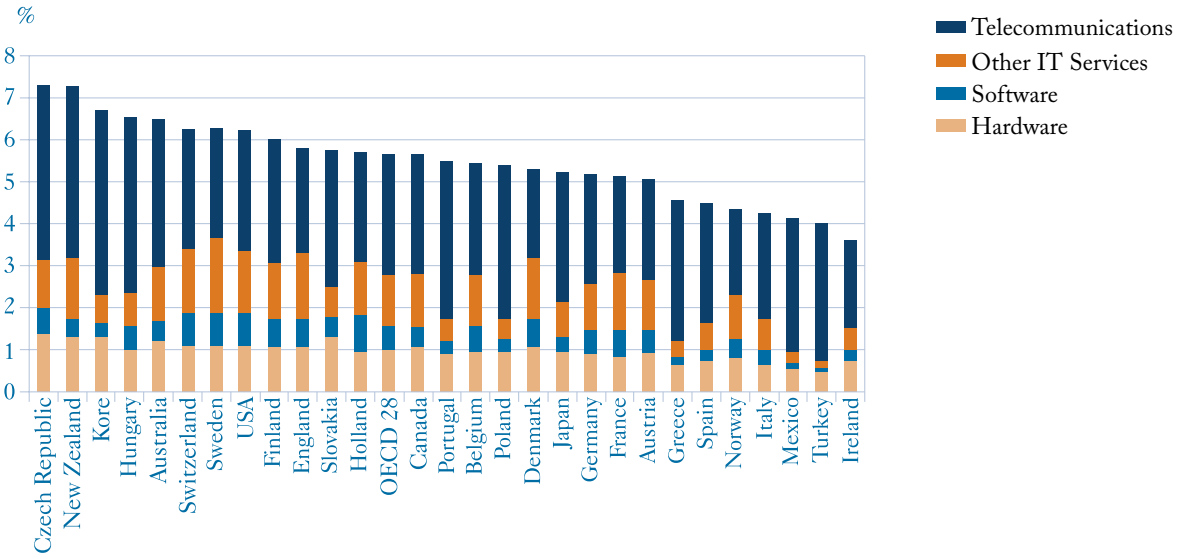
2.4. ICT Sector

In Turkey, efforts to liberalize the telecommunications sector have gained momentum with the establishment of the Telecommunications Authority in 2000, and the sector has been opened to competition as of the beginning of 2004. On the other hand, 55% of the shares of the Türk Telekom A.Ş. have been privatized via block sale in 2005.

In the field of mobile communications, operators working under the revenue sharing model have started to operate under licensing regime in 1998. A rapid development was experienced in this field, in which 3 operators are still active, especially after the granting of licences.

2. Turkey's Potential Towards 2010

Figure 7 – Share of ICT Expenditures in the GDP



Source: OECD IT Outlook, 2004

It is estimated that in 2005, the telecommunication market has reached 10 billion USD and the IT market has reached 3 billion USD levels.

As of 2005, user penetration rate of fixed and mobile telephone are 26% and 59.7%, respectively. In Turkey, the number of broadband subscribers is around 1.5 million, whereas Internet user penetration rate is 13.9%.

The ICT sector is composed of two sub-sectors, namely information technologies and telecommunications. The ratio of the telecommunications sector size to GDP (3.3%) is close to the OECD average (3.2%), whereas for information technologies the same ratio (0.8%) is way behind the OECD average (2.9%). This structure indicates that the priorities for these two sub-sectors must be different towards the year 2010.

Important factors that affect success in the process of transformation into an information society are quality, security, diversity, speed and cost of communication and access. The fact that effective competition has not yet been established in many service and

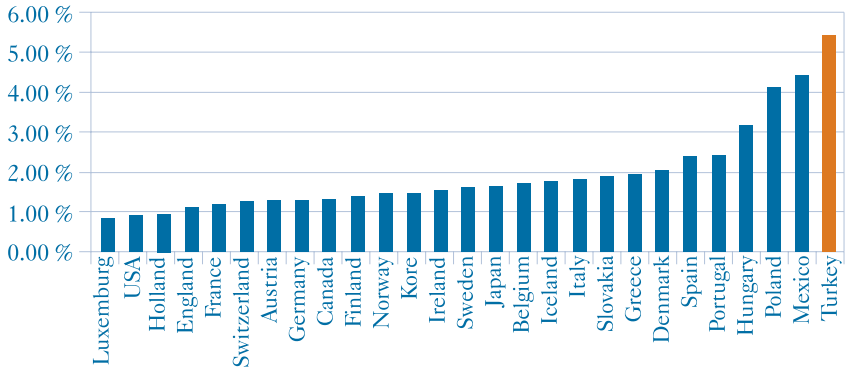
infrastructure areas in the telecommunications sector hinders emergence and operations of alternative operators and deteriorates the balance between service quality and cost to the disadvantage of the user.

On the other hand, the heavy tax burden on telecommunication services and the limited availability of broadband access infrastructures are other factors that affect usage of telecommunications services.

In the process of transformation into information society, the priority issues of the telecommunications sector include ensuring emergence of alternative services and infrastructures by establishing effective competition; increasing diversity; reducing taxes, which are very high compared to other countries, down to reasonable levels, and rolling out the broadband communication infrastructure. There is a potential for a significant increase in the investments in the sector on condition that the competitive environment is improved and the tax-related changes are completed.

In Turkey, the foremost problems in the IT sector are related to financial resources, competency, experience and scale. The average tenure of the largest 20 companies in this sector is 13. Due to the narrow market and the limited development in vertical markets, companies have difficulties in developing technical expertise and experience, face inadequacies in terms of expanding to external markets. Competition being based on price rather than innovative solutions further hinders growth.

Figure 8 – Ratio of Broadband Access Cost to Average Per Capita Income



Source: OECD Communications Outlook 2005

[1] Turkey's regulation report card score, which is an indicator based on the criteria of effectiveness of the regulatory body in its general functions and in conflict resolution, the market availability and popularity of basic access products, and effective implementation of the regulations, is estimated to be between 155-170, which remains at the bottom of the list among EU countries in terms of competition levels.

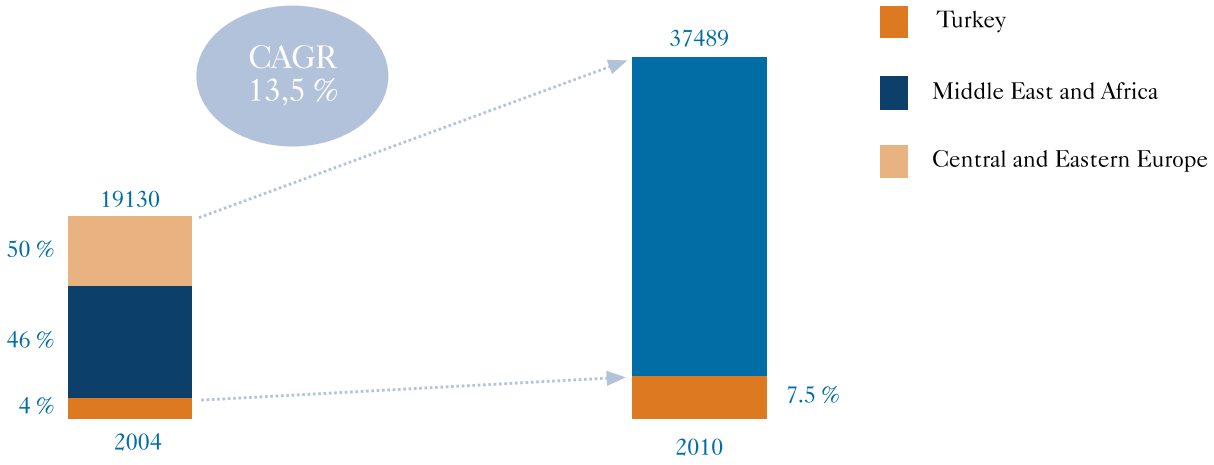
2. Turkey's Potential Towards 2010

Development of the IT sector in the domestic market followed by expansion into external markets through productivity increase will constitute the basis for growth. Numerous information society applications that are planned, in particular the e-government applications, will create direct demand to the sector. The increase in computer literacy and ownership are other elements that will support the growth on the demand side. This increased demand in internal markets will improve the financial base of companies and provide them an important opportunity to gain experience and references.

Turkey's regional markets present a significant potential for IT exports. Today, Turkey constitutes only 4% of the Middle East, Central and Eastern European software and services markets, which are expected to achieve an annual growth rate of 13.5% through 2010. Expansion into these markets will ensure growth of the sector and creation of value added for Turkey, and may significantly increase the export volume and the associated market growth.

The ICT sector has the role of "creating an enabling environment", which is critical for transformation into an information society. The expected results of a forward-leap in this sector through 2010 will have a fundamental effect on Turkey's transformation into an information society. Making the right choices in taking advantage of the potential Turkey has in both the telecommunication field and the IT sector and taking the right steps will speed up the achievement of the benefits expected from the Information Society Strategy.

Figure 9 - The Middle East, Central and Eastern Europe Software and Services Market (Million USD)



Source: IDC

2. Turkey's Potential Towards 2010

2.5. R&D and Innovation

Although, Turkey's R&D and Innovation level is not within the desired ranges when compared to OECD and EU countries; significant developments have been achieved in recent years. Turkey's rise to 19th place in 2005 in the world scientific publications list shows that an important capacity has been created in production of academic knowledge. However, the increase in the research capacity is not transformed into technology and commercial products since the cooperation between research institutions and the real sector has not yet reached the desired levels. Other reasons hindering transformation of research outcomes into products and services in a sufficient rate may be counted as disproportionate weight attributed to success in international publications in academic career promotion; and lack of sufficient demand in the real sector, due to their insufficient awareness and experience about how to increase competitiveness through R&D and innovation.

There are various supports provided by many institutions for strengthening the capacity of R&D and innovation. Indeed, while the resources allocated from the budget to R&D by the public in 2003 was USD 114.3 million on 2006 prices, they reached USD 523.8 million in 2006. It is estimated that overall R&D expenditures reached 0.8% of the GNP.

The EU 6th Framework Program in which Turkey participated in order to develop R&D and innovation capacity has emerged as a major opportunity. However, Turkey has failed in getting a return in the level of the contribution she made, due to her insufficient research capacity.

The "National Science and Technology Policies: Vision 2003-2023" document prepared under the coordination of TUBITAK identifies Turkey's mission, vision, objectives and strategies in the fields of R&D and innovation, and this document was taken as basis in determining the R&D and Innovation targets of the Information Society Strategy.

In the Vision 2023 document, the vision related to ICT was expressed as follows: "to become a country which contributes in a gradually increasing rate to the sustainable growth of her GNP directly through the brands and technologies created, and indirectly through the support given to other sectors via the communication opportunities and information sources it provides; and which is the most preferred country in the world in at least three fields".

2. Turkey's Potential Towards 2010

The strategic technology areas identified in line with this vision are ICT and design technologies. The priority areas identified for the ICT sector are:

- Integrated circuit design and production technologies,
- Image devices production technologies,
- Broadband technologies,
- Image sensors production technologies.

With regard to design technologies, foreseeing that the competency gained in this field will affect all major sectors from automotive to electronics and from medicine to aviation and defence in the country, the following priority areas have been identified:

- Computer-aided design and computer-aided manufacturing,
- Virtual reality software and virtual prototyping,
- Simulation and modelling software,
- Grid technologies and parallel and distributed computing software.

The relationship of R&D and innovation policies identified in Vision 2023 to the Information Society Strategy is addressed under four headings:

- Developing effective support models for R&D,
- Supports for R&D-based, innovative and high value-added ICT production,
- International cooperation,
- Usage of ICT in R&D and innovation activities.

3. Strategic Priorities of Turkey

With her young and dynamic demographic structure, growing economy, and experienced entrepreneurs who can take the advantages of the globalizing world economy in an ever-improving way, the process of transformation into information society, implying a holistic social and economic transformation, offers great opportunities for Turkey. By leveraging these opportunities effectively, a holistic transformation strategy should be followed until 2010 in order to achieve a sustainable economic and social development through improved international competitiveness based on knowledge and increase social welfare.

Within this scope, first of all, the conditions and needs of the country have been identified in order to develop the right strategies and take the right measures at the right time for transformation into an information society that has many implications over all aspects of the economic and social life. All elements contributing to Turkey's transformation into an information society until 2010 have been identified and strategic priorities and targets have been determined considering the trends and dynamics in the world.

Turkey's process of transformation into an information society will be pursued around the following 7 fundamental strategic priorities.

3. Strategic Priorities of Turkey

1 **Social Transformation;** "ICT Opportunity for all"

Through effective usage of ICT by citizens in their day-to-day and professional activities, economic and social benefits will be increased.

2 **ICT Adoption by Businesses;** "Competitive advantage to businesses through ICT"

SME's will be encouraged to engage in e-commerce through increasing computer ownership and Internet access in one hand, and ICT needs of sectors and regions that have strategic importance will be determined and sector specific productivity programs will be launched meeting these needs, on the other.

3 **Citizen-focused Service Transformation;** "Delivery of public services at high standards"

With the help of ICT, public services will be moved to electronic channels, prioritizing services of high usage and high return. Business processes will be reengineered in line with user needs, and hence effectiveness in service delivery will be ensured.

4 **Modernization in Public Administration;** "Public administration reform supported by ICT"

An effective e-government model having organizational and process structures in conformity with country's conditions and prioritizing efficiency and citizen satisfaction will be developed via ICT.

5 **A Globally Competitive IT Sector;** "IT sector active as an international player"

The focus will be on expanding into foreign markets by developing sector competencies via public-private partnerships and with project-based services in the field of IT services, and on vertical solutions with highest competitive advantages in software.

6 **Competitive, Widespread and Affordable Telecommunications Infrastructure and Services;** "The opportunity of high quality and affordable broadband access to all segments of the society

In order for the development and widespread usage of telecommunications infrastructure and services, an effective competitive environment will be established in the services and infrastructures in the telecommunications sector; and hence, a conducive environment will be created for the establishment of telecommunications infrastructures based on new technologies and for the provision of fast, secure, continuous and quality services at affordable prices.

7 **Improvement of R&D and Innovation;** "New products and services in conformity with the demands of global markets"

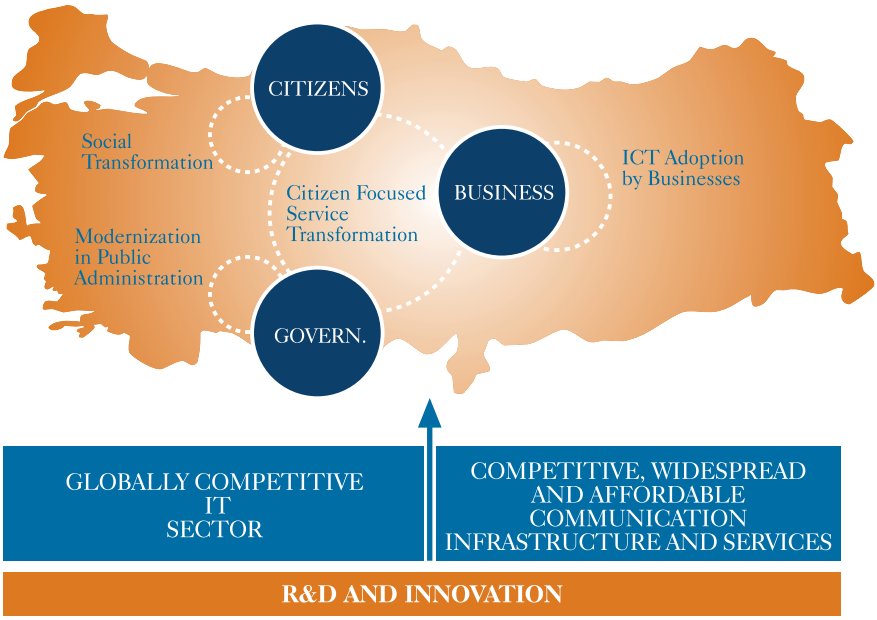
As an innovative sector with a high value added and with an increasing demand in global markets, priority will be given to R&D activities in the ICT sector; development of new technologies in this field and transformation of these technologies into products will be supported. On the other hand, ICT will be used to the maximum extent in the development and improving effectiveness of R&D and innovation activities.

3. Strategic Priorities of Turkey

The first four of the above mentioned strategic priorities are devised to induce a change on stakeholders in the economic and social transformation, namely, citizens, the public sector and businesses, whereas the other priorities are directed to either strengthening the ICT infrastructure that will be necessary to achieve this transformation and the sector that will provide this infrastructure, or to developing new products and services meeting the market demands and contributing to Turkey's competitiveness.

Turkey's process of transformation into an information society will be implemented with a progressive and holistic approach within the framework of these fundamental strategic priorities.

Figure 10 – The Information Society Strategy Approach



3. Strategic Priorities of Turkey

3.1. Social Transformation

3.1.1. Strategic Direction

"Turning ICT usage into economic and social benefits"

Transformation into information society is a holistic phenomenon which involves not only a change in traditional mechanisms of the economy but also social and cultural change. Effective and frequent usage of ICT by citizens in their day-to-day and professional lives along with the improvement of access opportunities to information will allow them to fulfil their potential and improve their quality of life.

In this social transformation process, Turkey has adopted a strategy focused on ***effective usage*** for increasing economic and social benefit through the usage of ICT. For this purpose, students, employees and the unemployed, that constitute the segments of intense ICT users, have been picked as the target audience. At the same time, these priority segments that will meet the labour demand of the changing economy in the short and medium term will be equipped with ICT access opportunities and ICT skills through training processes supported by ICT, and thus development of the human resources required by an information society will be ensured. By providing access opportunities, competency and motivation to young people, a "driving force" will be created for the transition to the information society.

ICT will be one of the main tools of the training process and it will be ensured that students, teachers and trainers are able to use these technologies effectively. Within this scope, the ICT infrastructure will be completed in formal and informal education institutions, students will be equipped with ICT skills in these institutions, and ICT-supported curriculum will be developed. On the other hand, establishment of appropriate structures and enriching digital content will be supported for self-development of individuals through life-long learning and e-learning.

The disparities in ICT access and usage between various social segments will be reduced, and the disadvantages that may arise in economic and social life as a result of digital divide will be prevented. Computer and Internet user penetration will be increased throughout the country, and eventually, the gap between Turkey and developed countries in this field will be eliminated. To this end, the Public Internet Access Points (PIAP) for providing Internet access to underprivileged citizens will be established and these will serve as venues where ICT guidance and training services will be provided.

Moreover, designing the ICT infrastructure and applications in a way that is suitable for the usage of disabled citizens will be adopted as a fundamental principle in order to ensure that disabled citizens who face various problems in economic and social life and in employment are not affected adversely from digital divide.

3. Strategic Priorities of Turkey

3.1.2. 2010 Targets

The young generation will be prepared for the global knowledge economy. Every student graduating from secondary education will have basic ICT competencies.

Via effective usage of the Internet, every one out of three individuals will benefit from e-government, e-commerce, and e-education services.

Internet will become an indispensable part of daily life.

At Public Internet Access Points, ICT training and usage opportunities will be provided to the public.

Half of the population will be Internet users.

Internet will be rendered as a safe and secure environment for all segments of the society.

In line with this strategic direction, Internet penetration rate of over 50% and increase in economic and social benefits are targeted by 2010 via effective use of ICT and making ICT part of the daily lives of individuals.

Students, employees and the unemployed, who are selected as priority segments for effective usage are expected to use their ICT competencies for their individual developments including e-job opportunities, and in using online services such as e-government, e-education, e-health, e-banking, e-shopping, etc. which will be developed via the supply-side policies of the Information Society Strategy.

Actions aimed at increasing the ICT access of individuals will be designed, and necessary measures will be taken to reduce computer ownership costs and broadband Internet access costs down to reasonable levels; and thereby increase computer ownership and Internet access rates in households. Public Internet Access Points will be established with the aim to provide Internet access to individuals who do not have access to these technologies in their homes.

Motivation will be promoted in order to increase Internet usage by taking necessary measures to eliminate the security concerns which constitute a barrier to usage of these technologies by individuals, and to create a safe and secure Internet environment.

3. Strategic Priorities of Turkey

Table 1 - 2010 Targets – Social Transformation

Key Indicators *	Current Situation[2] (%)	Target (%)
Internet users	14	51
- Students	53	96
- Employees	17	77
- The unemployed	21	56
Broadband Internet Subscriber Penetration Rate	2	12,5
Employed and unemployed individuals using the Internet for educational purposes	1,2	39
Students using the Internet for educational purposes	34	78
Individuals doing online banking	2,1	33
Individuals doing online shopping	2,2	30
Individuals using e-government services	5,9	35
Households with computers connected to the Internet	7	48
Individuals accessing the Internet from PIAPs	0,2	5,1
Users experiencing security problems	24	24

* for individuals aged 16-74

3.1.3. In Order to Reach These Targets...

Widespread Access: ICT access opportunities covering all segments of the society will be provided in line with the conditions and needs of the relevant segments.

Establishment of ICT labs in secondary education institutions will be completed. Full-time Public Internet Access Points will be established and the ICT labs in schools will be opened to the public at specific hours of the day as part-time PIAPs in order to provide Internet access and computer usage opportunities to segments which do not have the opportunity to use computers or access to Internet due to lack of financial means or competency. In addition, physical structures of PIAPs will be designed to facilitate disabled citizens' access. In order to raise ICT awareness and draw citizens to these centres, introductory-level computer and Internet training

[2] TURKSTAT 2004 household IT usage survey (age 16-74)(excluding broadband Internet subscriber penetration)

will be provided in informal education programs in different subjects.

Campaigns to increase computer ownership and broadband Internet access in homes will be supported with tax discounts, and citizens will be provided the opportunity to benefit from these campaigns with affordable payment terms.

Focused Competency: Training courses for effective usage of ICT will be provided at schools and Public Internet Access Points (PIAPs) for students, employed and unemployed citizens in order to develop their ICT competencies.

Citizens serving the military and public employees will be able to benefit from PIAPs under specific programs. Programs will be designed at PIAPs to provide ICT usage competencies to SME employees.

The training programs and certificates to be issued by institutes will be standardized, and it will be ensured that teachers and trainers employed at these institutes have the necessary ICT competence.

High Motivation and Rich Content: In order to increase the ICT usage motivations of citizens, awareness programs on the benefits of these technologies in everyday life will be developed and widespread adoption of electronic services delivered by the public and private sector will be promoted.

It will be ensured that the digital content is enriched to meet the needs of citizens and to support lifelong learning, which emerges as a prerequisite of information society.

In formal education, classrooms and curricula will be made compatible with ICT-supported education. Basic references and documents included in formal education curricula, and the contents prepared for self-development and further qualification of individuals included in the labour force will be rendered more accessible in the on-line environment so as to improve the e-learning opportunities of individuals.

The opportunities offered by ICT will be used effectively in the promotion of Turkey's historical and cultural heritage to all segments, and the transfer thereof to future generations.

Necessary regulations will be enacted in order to alleviate security-related concerns, which constitute a barrier to Internet usage by individuals.

3.2. ICT Adoption by Business

3.2.1. Strategic Direction

"Competitive advantage to enterprises via ICT"

A penetration-focused horizontal strategy and a productivity-focused vertical strategy have been adopted in order to increase competitive power of enterprises through specific ICT applications that will ensure productivity increase in goods and serv-

ices production processes in priority sectors, and in order to spread the usage of ICT in enterprises in all sectors.

Horizontal strategy involves encouragement of all SMEs to benefit from e-commerce by increasing computer ownership and the Internet access regardless of their sectoral or regional differences. To this end, resources will be utilized mostly for penetration-focused programs. In line with this strategy, and to ensure that all companies, especially the SMEs, can use ICT in their business processes, the necessary regulations will be enacted and supportive organizational structures will be developed. Furthermore, channels that will enable information exchange will be established and nationwide intensive and extensive communication efforts will be launched in order to raise awareness and financial support programs will be put into practice.

The impact of ICT usage on productivity varies according to sectors. In some of the sectors that invest in similar rates into these technologies, the productivity improves more compared to others. The vertical strategy adopted in that regard involves launching of sector-specific productivity programs to meet the identified ICT needs of sectors and regions that have strategic importance.

Agriculture, automotive, textile, tourism and trading services have been identified as priority sectors based on criteria such as reduction of digital divide via ICT and labour productivity and the share of sectors in exports, imports and employment, and the value added generated by sectors in the national economy.

3.2.2. 2010 Targets

The main target is to increase productivity by using ICT.

In Turkey, almost all SME's, except for micro sized ones, will have at least one computer.

70 % of these enterprises will have broadband Internet access.

15 % of the total annual trade will be realzed through e-commerce.

SME's will be using contemporary business processes; such as ERP (at least 15 %), and SCM (at least 12 %).

The main objective in this strategy is to increase productivity of enterprises by using ICT. The contribution of ICT to productivity improvement takes place in three different ways:

- Productivity improvement is achieved through increased ICT capital per labour by investing in ICT,
- Total factor productivity growth in ICT producing sectors, as a result of rapid technologic advancements in the goods and services of these sectors,
- Total factor productivity growth as a result of diffusion of ICT in all sectors.

In order to increase productivity, the followings are targeted:

- Increasing the ICT skills and raising aware-

3. Strategic Priorities of Turkey

ness of businesses with regard to the benefits of these technologies and how they can use them,
• Facilitating access to information for enterprises and entrepreneurs via ICT,
• Increasing computer ownership, Internet access and usage of applications that will enable integration of business processes into electronic environment and promoting the development of e-commerce.

In accordance with this, 95% of all enterprises except micro ones are targeted to have computers and 70% to have broadband Internet access by 2010. 60-90% of these enterprises will use on-line public services in obtaining information, downloading forms and filling in online forms, and that 30% will do their transactions online.

Shopping on the Internet reduces the marketing and inventory costs of enterprises and increases their sales by offering opportunities to expand to new markets. It is targeted that in 2010, the ratio of e-commerce sales by enterprises to total sales will reach 15%.

The productivity of enterprises will be increased by supporting them in integrating their marketing and sales applications such as customer relations management (CRM) and supply chain management (SCM) applications electronically. Accordingly, the target is that the proportion of enterprises using Enterprise Resource Planning (ERP) will be 15%, enterprises using SCM will be 12%, and enterprises using CRM will be 5%.

Table 2 - 2010 Targets – ICT Adoption by Businesses

Key Indicators *	Current (%)	Target (%)
Ratio of enterprises using public services offered via electronic channels :		
· Obtaining information	-	90
· Downloading forms	-	80
· Filling out forms online	-	60
· Completing transaction	-	30
Ratio of Enterprises that have computer(s)	61	95
Ratio of Enterprises with broadband Internet access	20	70
Ratio of e-Commerce sales to total turnover	0-3	15
Ratio of Enterprises using Enterprise Resource Planning	0-3	15
Ratio of Enterprises using Supply Chain Management	0-1	12
Ratio of Enterprises using Customer Relations Management	0-0,5	5

* For Small and Medium Sized Enterprises (10 or more employees)

3.2.3. In Order to Reach These Targets...

Facilitating Business Transactions with the Government: The administrative burden enterprises encounter when fulfilling their obligations to the government, especially at the start up and operation phases, reduces their productivity and competitiveness considerably. Therefore, frequently used business transactions and procedures such as company registration, environmental permits, patent and brand registry procedures, foreign trade transactions, commercial book and invoice submission and transmission of statistical data will be made available on-line, avoiding waste of financial resources and time. ICT adoption by businesses will accelerate improvements in ease of doing business with the government.

Providing Easier Access to Information: Today, ownership of information and the ability to use it effectively provide important competitive advantages for enterprises. To utilize these advantages, it has become vital to reach the right information compatible with the purpose, easily, swiftly and timely. To this end, consultancy mechanisms will be established for entrepreneurs to receive help in drafting business plans, reach financial resources, start-up business and similar matters and on the other hand consultancy services will be provided to existing companies from a single point on subjects such as ICT, business development, e-commerce and HR management, etc. Moreover, it will be ensured that domestic and foreign investors are informed from a portal about the rising sectors and incentives granted in Turkey.

Developing the ICT Competency of Enterprises and Employees: In order to ensure that enterprises can use information effectively by getting maximum benefit from ICT; support mechanisms will be developed to encourage ICT usage of employees and also employees will be motivated to receive vocational training via distance learning. Additionally, modern business applications will be diffused into enterprises. An organizational structure will be developed to support SMEs operating outside of the manufacturing industry and especially the service sector.

ICT awareness of employees in rural sector will be ensured so that these technologies are used in production and marketing processes to the maximum extent.

Developing e-Commerce: e-Commerce allows enterprises, especially the SMEs, to get a bigger share from world trade. In order to ensure that enterprises benefit from this opportunity at maximum level, the security problems slowing e-commerce diffusion will be eliminated by promotion of e-signature and by introduction of other legislative regulations; a certification mechanism will be established based on inspection of companies engaged in e-commerce in terms of their conformity to identified standards by authorized bodies, and the awareness of enterprises in this area will be raised. Programs will be designed to encourage enterprises engage in e-commerce.

3. Strategic Priorities of Turkey

3.3. Citizen-Focused Service Transformation

3.3.1. Strategic Direction

"Public services at highest standards"

The citizen-focused service transformation strategy involves transferring frequently used and high-return public services to electronic channels with the help of ICT, and ensuring effectiveness in service delivery through re-engineering of business processes in line with user needs.

In the implementation process of this strategy based on service transformation, the main principle will be the consideration of user satisfaction issues when re-designing business processes between public institutions and services delivered to citizens and enterprises. The priority in service transformation will not be merely to transfer available business processes to electronic channels without making any improvements; on the contrary, the aim will be to deliver these services, which will have business processes redesigned according to user needs by integration or simplification when necessary, in an effective, uninterrupted, fast, transparent, reliable and integrated way. In order to facilitate access to electronic public services by citizens and enterprises, it will be ensured that these services are reached from a single portal and via multiple channels.

Electronic service delivery will help create a considerable saving in financial resources and time for citizens and public institutions. With the effectiveness and interoperability capabilities ICT will provide in public sector service processes, losses and leaks will be prevented, public revenues will be increased and information-based policy decisions will be made, as a result of which contribution to social welfare increase will be ensured and also transparency, reliability, accountability and participation in public administration will be increased.

The backbone of e-government will be built by establishing databases which will include updated and reliable information such as address records database, title deeds information system and finally an information system based on a single ID number for legal persons as in the case of real persons.

With regard to the electronic content, regulations will be enacted on the management of digital rights that govern the balance between consumers and digital right owners.

3.3.2. 2010 Targets

Citizens will access public services 7/24 basis on whichever channel they prefer.

In 2010, 70% of the public services will be provided online; citizen satisfaction from electronic public services will be at least 80%.

In 2010, one out of three public transactions will be carried out on electronic channels.

Citizens and enterprises will be able to access any information they need from e-government portal.

With the citizen-focused service transformation, public services will be provided effectively via electronic channels, user preferences and needs will be taken into account and by doing so service access, usage and service satisfaction levels will be increased. In this scope:

- Number and level of development of services provided via electronic channels,
- Usage of services provided on electronic channels and
- Level of satisfaction from services provided via electronic channels will be increased.

According to this, in 2010 70% of all possible public services will have been transferred to electronic channels, while improving their maturity level. In transferring services to electronic channels, priority will be given to frequently used high-value services in consideration of the cost-benefit ratios, thereby ensuring efficient utilization of resources.

Table 3 - 2010 Targets – Citizen-focused Service Transformation

Key Indicators	Current (%)	Target (%)
Service Level		
Percentage of services provided via electronic channels	N/A	70
Level reached in EU 20 Basic services	53	100
Service Usage		
Percentage of transactions conducted via electronic channels	N/A	33
Service Satisfaction		
e-Services user satisfaction index	N/A	80

3. Strategic Priorities of Turkey

Taking into consideration that the economic and social benefit that will be gained with citizen-focused service transformation will not depend on the number of services transferred to electronic channels but on increasing the usage of these services, it is targeted that every one in three public sector transactions will be performed via electronic channels by citizens and enterprises by 2010.

Public sector service procedures will be designed in line with citizen needs, and raising user satisfaction levels in electronic public services up to 80% will be targeted by 2010.

3.3.3. In Order to Reach These Targets...

Citizen-focused Approach: Public sector service processes will be improved by taking into consideration the needs of the business and citizens. The process will primarily aim at improving user satisfaction and results of regular measurements and benchmarking will be used as fundamental inputs in service improvement efforts.

In transforming public sector service delivery, procedures will be standardized and timely and quality services will be offered to users. In service delivery, customisations according to user purposes and needs will be allowed. It will be possible for users to track at which stage the requested service is, and when necessary, citizens will be informed so as to ensure transparency in service provision.

Service Transformation: In the designing stage of public services, existing processes will be analyzed, simplified and integrated when necessary. Effective information and document sharing between public institutions will be ensured, administrative burden on citizens and the business will be reduced, and the total service time will be shortened. In electronic service delivery, all processes from applying to completion of service will be conducted electronically, to the extent allowed by business processes. Identification, electronic payment and similar common transactions will be carried out from a single portal; access to services will be facilitated and business processes will be made faster.

Communication Management: Improvements in public services and electronic service applications will be promoted to target users with various campaigns and via effective communication channels. The usage rates for electronic public services will be measured, and increased by incentive measures.

Health Services: In the health field, common standards will be established, and a health information system will be developed which will keep health records centrally with the effective usage of ICT. Early health warning mechanisms will be established with the help of information technology. Health services such as getting appointments, access to personal records, payment, health reports, etc. will be provided via electronic channels in observance of privacy of personal information. Remote health consultancy, diagnosis and treatment supports will be provided with tele-medicine applications.

3. Strategic Priorities of Turkey

Educational and Cultural Services: In higher education, interactions such as enrolment, dormitory and scholarship applications among others will be transferred onto electronic channels. An integrated data bank will be established for primary and secondary education to support the process of achieving information-based education policies. e-Testing applications will be made more widespread. Library services, catalogue scanning and content access services will be made available on electronic media.

Justice and Security/Police Services: By developing the national justice network, the effectiveness of the justice system will be increased, and easy access to justice services will be provided to citizens. Services such as acquiring driver's licences, police reports and motor vehicle licensing procedures will be provided via electronic channels. Inter-agency data sharing between law enforcement and justice agencies will be made operational, and it will be made easier to carry out the scientific analyses using this data and take preventive measures and policies.

Social Security and Welfare Services: Within the scope of the social security reform, the information systems of existing social security agencies will be united under one organisation and efficiency in services will be ensured. By putting into practice the electronic citizenship card application, losses and illegal usages in the social security system will be prevented. Employment and employee searching services will be provided from a single portal electronically. With the information exchange opportunities offered by ICT, fair distribution of social benefits will be ensured.

Citizenship, Records and Permits: Land title-cadastre registries and address records will be transferred onto electronic environment. Through information sharing between relevant agencies, transactions will be made faster and all citizenship applications and various document/certificate applications will be transferred onto electronic channels and delivered transparently.

The application of an electronic citizenship card, which will include obligatory minimum health information for cases of medical interventions as well as basic ID information, will be started. This card will be used as the basic identity verification tool, and will facilitate and increase effectiveness of businesses and transactions in the daily lives of citizens. Agency and/or service-based smart card applications will not be allowed.

Agriculture: Development of an agricultural information system will be completed; agricultural support mechanisms and agricultural policies will be established based on scientific analyses with the help of IT.

Business: With the application of unique identification number for legal persons, the necessary basic infrastructure will be established for effective delivery of public services such as online company start-up procedures, environmental permits, construction and building/real estate permits, etc. for companies. Information on company activities will be compiled in accordance with international standards and exchanged electronically between relevant agencies that will also contribute in determination of national industry and trade policies and strategies based on information.

Transportation: New technologies will be used so as to prevent traffic jam in transportation and ensure effective utilization of the available infrastructure. Applications for effective management of the transportation demand will be implemented. Electronic payment platforms in the transportation system will be standardized and improved.

Public Finance: In tax-related transactions, data-mining analyses will be used effectively, and with effective audits based on these analyses, informal economy will come under record, consequently, tax losses and evasions will be reduced and public revenues will be increased.

Applications enabling electronic storage and submittal of invoices and commercial books will be started by which commercial transactions will be facilitated and auditing system will be made more effective.

Local Governments: Services provided on electronic environment by local governments will be improved, data sharing will be ensured and principles related to these procedures will be set up. Successful applications in online delivery will be diffused. Through e-Democracy applications, effective public participation in governance will be ensured. In addition, information-based performance appraisal mechanisms will be extended to local governments.

3.4. Modernization In Public Administration

3.4.1. Strategic Direction

"Public administration reform accelerated via ICT"

The opportunities offered by ICT have opened up new horizons in the public administration. With the developments in ICT, new forms of communication have emerged between the government and the other segments of society and thus it has become possible to speed up business processes and transactions, to increase efficiency in policy-making and decision-making processes and to ensure transparency and participation of relevant social segments and citizens in decision-making.

Nevertheless, in order to ensure adaptation to these novelties and raise the quality of life of citizens and welfare of the society, it is necessary to develop new organizational models, to redesign services and business processes, and to ensure an integrated, sustainable and extensive public administration reform in line with the necessities of the modern era. From this point of view, the new public administration approach, which is shortly referred to as the "electronic government" implies not only a technological change but also a process of organizational transformation.

In this transformation process, our strategy is to

put into practice an effective e-government model, which prioritises productivity and citizen satisfaction and which incorporates organizational and process structures that are in conformity with the country's conditions, with the help of ICT.

Therefore, ICT will be the most important tool in developing cooperation and collaboration skills between public agencies, avoiding waste of resources, increasing productivity in business processes, and developing information-based policy and decision-making processes that are among the main objectives of the public administration reform.

In public sector ICT procurement, with the use of open standards and application of software development quality standards, elements that hinder competition and that create dependency especially in the field of software and services will be eliminated. Application of open-source software in the public sector will be promoted, and it will be ensured that the advantages offered by such software are used at the maximum level.

3.4.2. 2010 Targets

The target is to increase productivity in all public sector business processes and the citizen satisfaction from public services, by supporting modernization in public administration via ICT.

The success level of projects in ensuring usage of ICT as an effective tool in the modernization of public administration is also critical in achieving the objectives. Therefore, project management skills in agencies will be increased so as to ensure the implementation of projects with a modern project management understanding based on robust feasibility studies and focusing on citizen demands and needs. In this scope;

- High level of saving in public current expenditures will be ensured and revenues will be increased,
- Decision-making processes will be made effective via correct usage of information,
- Satisfaction level from public services will be increased,
- Success rates in project implementation will be increased

In accordance with these indicators and as a result of applying the strategic priorities, which are based on rendering business processes effective via using ICT, it is targeted that in 2010, there will be an annual saving of 9% in public current expenditures. It is planned that a considerable portion of these savings will be created as a result of the cost advantage that will be ensured through public procurement executed in electronic environment which is expected to reach 90% in 2010 with the launching of the e-procurement system.

It is expected that the remaining portion of these savings will be incurred through effective service provision supported by back-office procedures carried out in electronic environment. In this scope, all public services that can be offered online will have been transferred to electronic channels after necessary improvements in back-office processes, in 2010.

It is targeted that the success of public ICT projects will be increased by taking necessary measures to increase project management competencies in agencies, and that the number of projects not completed within time and budget will be at a level of maximum 10%.

Within the scope of modernization in public services, the target will be to increase customer satisfaction in general public services, to the level of countries that have advanced in this field.

Table 4 - 2010 Targets – Modernization in Public Administration

Key Indicators	Current (%)	Target (%)
Efficiency in Public Administration		
Savings in annual public sector current expenditures	-	9
Public procurement in electronic environment	-	90
Public services with online back-office processes	N/A	100
Projects completed within budget limits and schedule	N/A	90

3.4.3. In Order to Reach These Targets...

Information Society Organizational Structure and Governance: Intra-agency, inter-agency and supra-agency organizational structures, which will ensure coordination, implementation and monitoring of strategies and actions determined in the process of transformation into an information society will be established or the existing authorities will be improved. The proposed reorganisation will ensure cohesion between supra-agency and agency policies and strategies, development of implementation competencies of agencies, the collection of all intra-agency IT departments under one coordination unit so as to prevent repetition and increase effectiveness of the e-transformation process, and an effective cooperation environment between agencies will ensure that the targets are owned at the highest level. In the process of implementation of Strategy and Action Plan, the success level of implementation will be monitored periodically, and necessary measures will be taken in accordance with the results of such monitoring.

Shared Technology Services and Infrastructure: In the electronic provision of public services; shared services such as electronic payment and electronic identification and verification will be provided on a central infrastructure and shared infrastructures such as e-government portal, mobile services platform, secure public network, disaster recovery, management centre, call centres and geographic data platform will be established, and some common software will be developed and rolled out to agencies. Hence, inter-agency cooperation will be supported, and opportunities for savings will be created

by preventing duplicate investments.

Effective Procurement Management: Procurement by public agencies carried out via catalogue or bidding procedures will be transferred to electronic channels, and all relevant procurement processes will be done electronically. On the other hand, minimum standards will be established for ICT procurements, which will ensure an increase in the quality of goods and services.

Data and Information Management: Data ownership will be defined; data and information storage on digital environment will be encouraged, and main structures that will enable secure and effective information exchange within the limits of defined authorizations will be put into force so as to ensure that public agencies are able to access data and information they may need in their business processes. In this framework, duplication in data collection and storage in the public sector will be eliminated, and data integrity will be ensured.

Public agencies will adopt the principle of ensuring that citizens or enterprises do not have to provide repetitive information on the same subject, and that the service providing agency obtains necessary information from the relevant agency.

The information available to the public, which carries great significance for the society, will be shared with relevant parties to allow for new value added services. A policy will be developed based on the principle of free sharing of information produced by public resources.

At the local government level, a provincial inventory system will be developed and planning and investment decisions in provinces will be made more effective via an information-based decision support system.

Electronic Communication: All intra-agency and inter-agency correspondence will be transferred gradually to electronic channels, within certain security standards, and with the widespread practice of e-signature and standardization of electronic document management systems. All internal and external correspondences in public agencies, except for those retained by laws, will be exchanged via electronic environment in 2010.

Human Resources and Competency Development: The competency of the personnel employed at public agencies on e-government applications will be increased, and the widespread usage of ICT will be encouraged. On-the-job training support will be provided for those who are responsible for developing e-service projects and implementing the applications at public agencies. Legal arrangements will be made to facilitate employment of technical personnel, and inter-agency transfer of specialists/experts will be rendered easier by developing flexible assignment arrangements.

Basic principles for project management will be applied in all agencies; performance appraisal of project targets will be monitored and reported, and information-based decision support processes will be established.

Security and Privacy of Personal Information: Necessary organizational arrangements will be made to ensure and sustain safety and security of electronic communication and network connections at public agencies and nationwide. In addition, legal arrangements will be put in place in order to ensure information security.

The privacy of personal information will be respected in the delivery of e-government services, and authorization limits for access to personal information will be defined. To this end, legal arrangements for protection of personal data will be put in place.

3.5. Globally Competitive IT Sector

3.5.1. Strategic Direction

"IT sector as an International player"

The IT sector is the leader among other sectors in terms of intensity of competition, under the global conditions of knowledge economy. Global competitive power is the main condition for a national IT sector to be productive and able to compete with international corporations and to find itself a place in external markets.

Competitiveness can be increased by focusing on areas which can create a long-term and sustainable strategic competitive advantage. In this scope, the focus will be on project-centred services and outsourced services such as application management, hosting, management of business processes, etc. in the field of IT services, and on vertical solutions such as telecommunications, health, education, defence industry, etc. which offer a higher competitive advantage, in the field of software.

The target is to ensure that the IT sector strengthens its financial structure, gains experience and references in the domestic market which will grow as a result of public investments and activities directed to transformation into information society, and strengthens its financial structure. Having acquired these competencies, support mechanisms will be activated to give the sector the opportunity to expand into prioritized regional markets and increase its competitiveness and develop its export potential.

In the implementation of the strategy, a critical role falls onto the public sector as the biggest buyer. In order to develop software and services sector, the goods and services required by the public sector will be procured, as a principle, via public-private partnerships (outsourcing). In addition, use of open-source software in the public sector will be encouraged.

3.5.2. 2010 Targets

Turkey will be positioned as a software and services hub among regional countries.

Share of IT market in the GDP will be increased from 0.8% to over 2% which is the average for OECD countries.

The target is to transform the IT sector into a software and services hub among regional countries as of 2010 and increase its competitive power on a global scale.

Similar to the developments achieved in 1990-2000 by India, Ireland and Israel which have adopted an export-focused strategy in the field of IT, Turkey's IT exports are targeted to go up to minimum USD 400 million from its current level of USD 80 million with an average annual growth rate of 38%. And the domestic IT market is targeted to achieve an annual average growth rate of 24% and reach USD 9,160 million in 2010.

Table 5 - 2010 Targets – Globally Competitive IT Sector

Key Indicators	Current	Target
Internal Market Size		
Packaged software (million USD)	390	1.267
Services (million USD)	574	1.525
IT Hardware (million USD)	2.086	6.368
Export Size		
Packaged software (million USD)	30	161
Services (million USD)	40	215
IT Hardware (million USD)	10	31
Ratios		
Share of IT sector in GDP (%)	0.8	2.2
Ratio of software and services exports to software and services market (%)	7.3	13.5

3.5.3. In Order to Reach These Targets...

In designing the actions to put the strategy into practice; the vision, policy, legal infrastructure and sector competencies in parallel to the IT sector ecosystem have been taken into consideration.

Development of Human Resources: In order to provide qualified workforce in different competency levels to the sector; the number of engineers who have received education on IT-related fields and the number and qualifications of trainers will be increased, the curriculum will be improved at various stages of education in line with sectoral needs and technical training and certificate programs will be expanded.

Sector Organization: Governance structures and related processes aimed at ensuring continuity and effectiveness in increasing competencies and expansion of the sector into external markets will be designed. Occupational standards and definitions will be established for the IT sector. Also, techno-parks will be regulated in a way that will give priority to the vertical focus and university-sector cooperation. An "Informatics Valley" will be set up in order to ensure that Turkey becomes a hub of production and operation for international IT companies.

Developing Sector Competencies: Consultancy and training services will be provided in order to develop the competencies of the sector in the processes of development, marketing and sales of goods and services. In addition to building the necessary infrastructure for penetration into foreign markets, the software quality certification acquisition by companies will be directed via public purchases and encouraged via financial incentives in order to increase quality of goods and services.

Increasing Exports: To promote expansion of companies operating in the IT sector into foreign markets, market surveys will be conducted to identify the opportunities in regional markets. Foreign offices for joint utilization will be established for the purpose of expansion into these markets. Planned participation in domestic and foreign international organizations will be ensured and promotional activities for domestic sector companies will be carried out under a common brand. Moreover, export incentives will be granted on a wider scale.

Developing the Demand: Appropriate public sector IT services will be procured via public-private partnerships (outsourcing) and relevant policies to this effect will be determined to accelerate the development of the sector.

3.6. Competitive, Widespread and Affordable Communication Infrastructure and Services

3.6.1. Strategic Direction

"High quality and affordable broadband access facilities for all segments of the society"

In the transition to information society, a climate of effective competition will be established in the telecommunication infrastructure and services in order to ensure development and widespread usage of telecommunication infrastructure and services that allow effective communication between the government, citizens and enterprises. In this way, fast, secure, continuous and quality communication services will be offered at affordable costs, and a conducive environment will be created for installation of telecommunications infrastructures based on new technologies.

In addition, installation of shared/common infrastructure by operators will be encouraged to ensure effective utilization of resources and reduce new infrastructure installation costs. Terrestrial digital television broadcasting will be launched in order to ensure effective utilization of frequency resource and support diffusion of information society services.

Ensuring that all segments of the society benefit from broadband communication services that provide faster access to information is an important priority in terms of transformation into an information society. An effective competition environment that will be ensured in the telecommunications sector constitutes the most important component in developing the broadband infrastructure, and in increasing the usage of the services that will be provided via this infrastructure. Furthermore, the demand for broadband service of the public sector will be aggregated to speed up this process and ensure expansion of broadband infrastructure in a way that will cover vast segments of the society.

Taking into consideration the macroeconomic balances and the benefits of transformation into the information society, the tax burden on data and Internet services will be alleviated to reduce the costs which have an adverse effect on the expansion of communication services. This reduction in costs will enable expansion of communication services and increased productivity in the economy with the resulting network effect. The productivity improvement that will be achieved as a result is expected to provide an annual increase of 0.38% in the GDP growth rate as of 2010. In addition, it is also envisaged that overall tax revenues will be increased with the growing tax base as a result of the widespread usage of telecommunications services.

3.6.2. 2010 Targets

Main target is to complete necessary regulations in the telecommuni-cations sector for effective competition, and to expand broadband access network

The competitive environment of the sector will be developed to rank within the top 5 among European countries.

95% of the total population will be able to access to broadband infrastructure. Ratio of broadband access end-user cost to per capita income will be pulled down to OECD average.

The main target is to introduce and implement the necessary regulations in order to ensure effective competition in the telecommunications sector in line with the current economic and technological developments, and to ensure widespread broadband access. The level of success in achieving these targets will be evaluated based on three criteria:

- Benchmarking of sector competitiveness with the EU countries on the basis of regulatory scorecard
- Ratio of population covered by terrestrial broadband access infrastructure to overall population
- Ratio of end-user cost of broadband access to per capita income

The regulatory scorecard of Turkey, which is currently estimated to be around 170, will be increased up to 335 as of 2010, and Turkey will catch up with the leading countries of the EU in establishing a competitive environment in the telecommunications industry.

The broadband infrastructure will be accessible to 95% of the population in 2010.

In addition to increasing the broadband access, it is expected that broadband access costs will fall considerably as a result of the increased competition and reduced tax rates. As a result, monthly broadband access costs will be pulled down to 2% of per capita national income at the end of 2010, which is the average in OECD countries.

3.6.3. In Order to Reach These Targets...

Creating a Competitive Environment in the Telecommunication Sector: In the telecommunications sector, the environment of competition is shaped around the activities of the players in the sector, and around the regulations and authorizations of the Telecommunication Authority considering the expectations and complaints of these players. The priority steps that will be taken in order to improve the current competitive environment include putting into practice the regulations on authorizations for next generation mobile systems and broadband wireless access systems on which studies are still being conducted. The regulations and authorizations that will be introduced are mostly elements that will not require any additional cost on the public and will create fast results. Moreover, introducing and implementing the necessary regulations in line with the current economic and techno-

logical developments is critical for the sustainability of the competitive environment.

On the other hand, a feasibility study will be carried out to analyse the separation of wholesale and retail service units of incumbent operator for the purpose of increasing the applicability of cost-based pricing and reducing problems experienced in tariffs due to the position of the incumbent operator as the infrastructure-provider for other operators and also their competitor in the same service markets.

Tax Arrangements in Communication Services: The taxes on communication services constitute a significant proportion of the service provision costs. The Special Communications Tax (SCT) imposed on communication services in addition to the Value Added Tax increases the tax burden; moreover, the different SCT rates applied for mobile and fixed communication services cause an unfair distribution of tax burden between similar services. To this end, SCT will be revised in a way that will reduce the cost of service provision and the differences between services, which in turn will increase demand to and usage of communication services and ensure a fair competition environment between mobile and fixed services.

Developing and Expanding Communication Infrastructure: In order to ensure effective resource utilization in investments that will fund the expansion of telecommunications infrastructure, operators will be encouraged to install shared infrastructures. In addition, broadband infrastructure investments will be rendered attractive and widespread through aggregation of public sector demand.

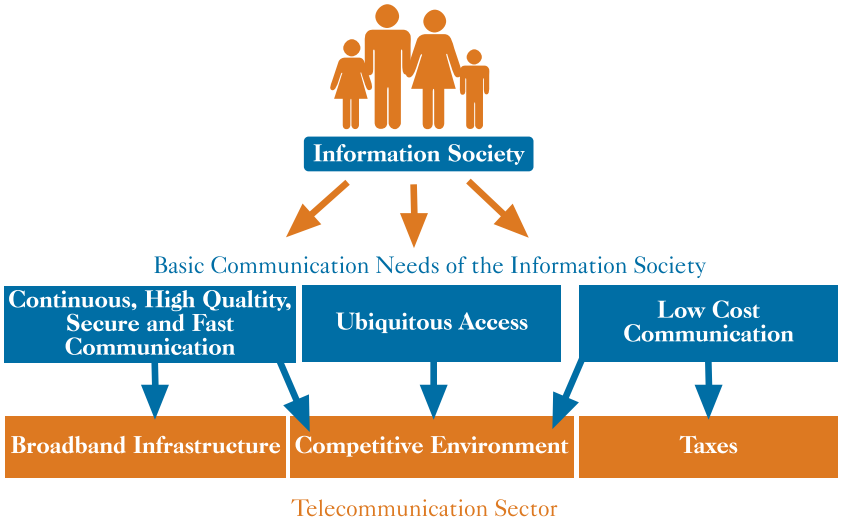
Table 6 - 2010 Targets – Competitive, Widespread and Affordable Communication Infrastructure and Services

Key Indicators	Current	Target
Rank of sector competitiveness among EU countries	10+*	1-5
Ratio of population covered by broadband access infrastructure to overall population (%)	≈ 75	95
Ratio of end-user cost of broadband access to per capita income (%)	5,4	2

* The study conducted in 2004 by ECTA includes 10 EU countries.

3. Strategic Priorities of Turkey

Figure 11 – Telecommunications Sector- Information Society Basic Communication Needs Relationship



3.7. Improvement of R&D and Innovation

3.7.1. Strategic Direction

The improvement of R&D and innovation system becomes more and more important in terms of increasing competitive power by producing goods and services compatible with market demands, and to get a bigger share from the global market.

Therefore, priority will be given to developing the research capacity, improving university-industry cooperation and creating an awareness of R&D and innovation in order to increase the competitive power of the real sector in addition to overall R&D spending and the share of the private sector in this spending.

Support mechanisms for R&D and innovation activities will be developed and made more effective following a two-prong approach. First of all, the research initiatives at agencies that generate know-how supported by the government budget will be re-prioritized according to national priorities and real sector requirements. Secondly, commercialization of the generated know-how will be encouraged.

In the ICT sector, innovative with a high value added and an increasing demand in the global markets, priority will be given to R&D activities.

Development of new technologies in this field and transformation of these technologies into products will be encouraged. On the other hand, ICT will be used to the maximum extent in developing and increasing effectiveness of R&D and innovation activities.

Being a technology field where international cooperation is most common, the development of cooperation particularly in R&D activities will be addressed with priority in the ICT sector to acquire familiarity with foreign markets and to gain experience.

3.7.2. 2010 Targets

In the 10th meeting of the Higher Council of Science and Technology (BTYK) held on 8 September 2004, increasing the share of R&D spending in the GDP to 2% until 2010 was adopted as the target, 1% of which will be sponsored by the public sector and another 1% by the private sector.

A selective approach has been adapted to appropriate 20% of the overall R&D spending in ICT and design technologies, which have been determined as the strategic technology fields, in supporting the information society transformation.

As of 2010, the total researcher capacity of Turkey is targeted to reach 40,000.

3.7.3. In Order to Reach These Targets...

New researcher training programs will be developed in the specified research areas to meet the demand for researchers. The R&D studies completed in cooperation with the real sector will be evaluated among academic promotion criteria to ensure interaction between academia and the business sector.

In conjunction with the priorities set forth in the Vision 2023 Project, R&D studies will be initiated via targeted projects led by the government. Relationships between research institutions and the sector will be established by ensuring participation of corporations in R&D studies.

Joint projects will be encouraged to ensure that the technical know-how in the institutes operating under TÜBİTAK is diffused into the private sector.

In the field of ICT, mechanisms providing special funding and technical consultancy to R&D-intensive and innovative companies will be developed. In this scope, technology development centres (incubation centres) and bases that provide special support services will be established, and start-up capital and venture capital applications will be developed. Consortiums and clusters will be supported.

Multinational corporations in the field of ICT will be encouraged to establish R&D departments in Turkey, and a suitable environment will be created for cooperation between national and multinational corporations.

4. Implementation of the Strategy

4.1. Organizational Structure and Governance Model

In order to activate the Information Society Strategy in an integrated manner with all its aspects and to reach its targets, it is important that all segments of the society, especially the public agencies and institutions, the business and non-governmental organizations, adopt the strategy and act in harmony in line with the common targets.

By ensuring this harmony at the highest level, an implementation process effective on political and administrative leadership, decision-making, programming, resource allocation, implementation, coordination and supervision levels is targeted with high enforcement capability, transparency and accountability. The roles, duties and responsibilities of stakeholders will be defined within the framework of good governance principles, and a suitable environment will be created for their active cooperation and interactive collaboration.

Within this framework, the institutional reorganization model for the strategy in terms of the roles and responsibilities of actors at supra-agency, inter-agency and intra-agency levels will be as follows:

e-Transformation Turkey Executive Board; The highest level policy-making, decision-making, assessment and steering body in the Information Society Strategy implementation process. The Board will be restructured in order to carry out these functions more effectively.

State Planning Organization – Directorate General for Information Society; It will carry out the following functions: general coordination of the strategy, advising the Executive Board on policy-making, allocation of resources, identification of standards and alignment mechanisms for an integrated e-government structure, monitoring the alignment of projects towards strategy targets, guidance to agencies in managing project implementation, communication, measurement, assessment and reporting.

Prime Ministry – Directorate General for Public Administration Development; will have a major role in ensuring alignment between strategy targets aiming at modernization in public administration and citizen-focused service transformation, and the efforts for the re-organization of public administration.

Türksat A.Ş, Satellite Communication and Cable TV Corporation; will carry out the applications for installation and operation of the technical infrastructure for the delivery of e-services from a gateway under the auspices of the Ministry of Transport, and development of common service delivery platforms.

4. Implementation of the Strategy

Council of Transformation Leaders; will consist of selected group of "transformation leaders" assigned to direct e-transformation efforts at the policy level in each public agency and organization. The Council will provide a common platform for effective implementation of the strategy and for ensuring inter-agency cooperation.

Intra-Agency Organization; The duty and responsibility related to implementation of the strategy at the agency level will fall on Strategy Development units which have been tasked with establishing and developing management information systems in Law no. 5436.

Ministry of Interior – Directorate General of Local Administrations; will be responsible for coordination of the Information Society Strategy at the local level implementation. In his remit, the Directorate General is responsible for: determining local policies that are in harmony with and complementary to general policies, ensuring effective coordination between local governments, ensuring effectiveness in investments by knowledge/technology sharing in similar technology applications and by ensuring conformity to specified standards, monitoring implementation, and appraisal of performance. While fulfilling these duties, the Directorate General will work in close cooperation with the SPO Directorate General of Information Society.

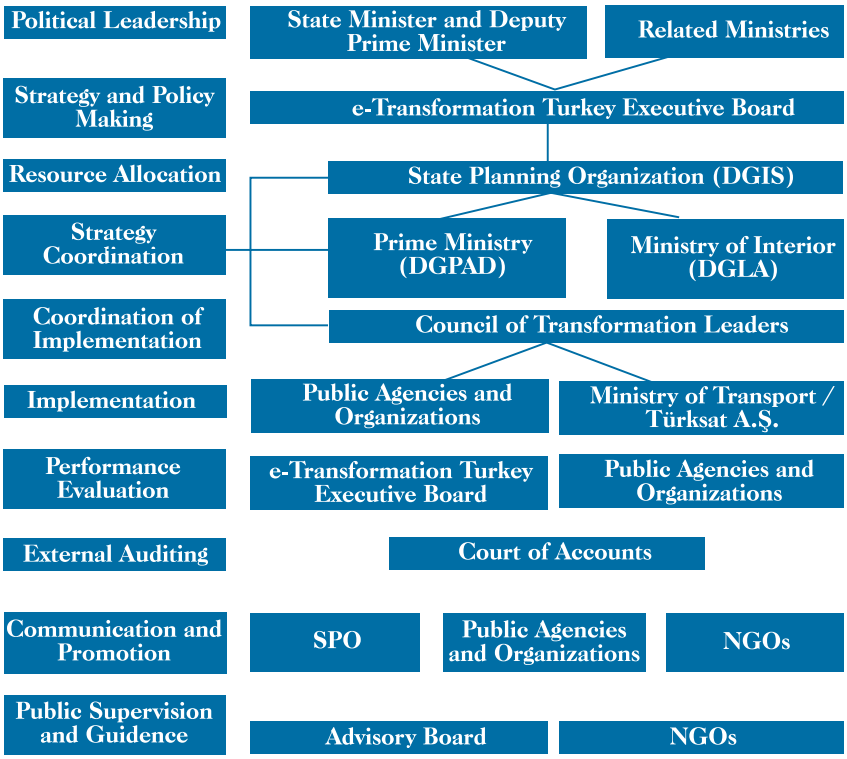
Advisory Council; will consist of representatives from NGOs, universities and private sector, for the purpose of ensuring effective participation and support of all segments of the society in the process of transition to information society, benefiting from their knowledge and experience, and establishing the necessary solidarity and cooperation environment. The mechanisms for the Advisory Council to support the activities and decisions of the Executive Board within the strategy implementation process will be developed.

Performance Auditing; The activities of agencies and organizations responsible for the implementation of the actions included in the Annex to the Information Society Strategy will be audited regularly with regards to relevant actions and in line with specified indicators, and will be reported to the e-Transformation Turkey Executive Board. In addition, the external performance audit of the relevant organizations will be carried out by the Turkish Court of Accounts as per the applicable legislation.

Other structures; In addition to the above-mentioned structures, in the process of implementation of the Information Society Strategy, structures for protection of personal data and for national information security will be established, and a Computer Emergency Response Team-CERT will be set up under TÜBİTAK. The mandate of KOSGEB will be extended to include development of support mechanisms for sectors outside of the manufacturing industry. Structures will be introduced to support the ICT sector and to ensure its expansion into foreign markets.

4. Implementation of the Strategy

Figure 12 – Information Society Strategy Organizational Chart



4.2. Action Planning

In addition to the Information Society Strategy, an Action Plan has been prepared for implementation in the 2006-2010 period.

The Action Plan has been designed in a way that will ensure achievement of the 2010 targets determined along the seven strategic priorities for transformation into an information society. An intensive preparatory and transformation process is necessary in the initial years in order for Turkey to achieve these targets and transform these actions into economic and social benefits as soon as possible.

The actions are planned to start in 2006, and will be intensified in 2007-2008 to trigger demand rapidly and achieve the targeted economic and social benefits,

and finalized in 2009-2010. Expansion of technological infrastructure and competency development programs planned for citizens and enterprises which create the demand will be implemented heavily in the initial years, whereas projects for the delivery of public services electronically based on the principle of citizen-focus are spread on a longer term. Investments will be made in human resources and standard development efforts in the initial years to develop the IT sector and increase its competitive power in foreign markets in the long run, but it is expected that returns will be obtained in relatively longer term.

The distribution of the above-summarized actions in the time plan is based on the strategic prioritisation principle, which takes into consideration the expected benefit and ease of implementation. The timing of the total investment cost and return has also been taken into consideration in prioritising the actions. Since the preparation and transformation programs are concentrated in the first three years, the investment costs will be relatively higher in the first three years and will progressively decrease in the following years. It is expected that the years 2009-2010, when the benefits expected from the investments will materialize, will be Turkey's leap period.

On the other hand, the implementation steps and cost analyses in the Program Definition Document prepared in parallel to the actions included in the Action Plan serve only as indicators and will not constitute the sole basis for resource allocation in public investment programs. Agencies and organizations responsible for the actions will prepare the feasibility studies for such actions within the framework of investment program preparation guidelines, and will submit these studies to the SPO. Implementation of public sector projects that are in conformity with strategy targets will continue under the investment program principles, even though they are not included in the Action Plan.

4.3. Communication

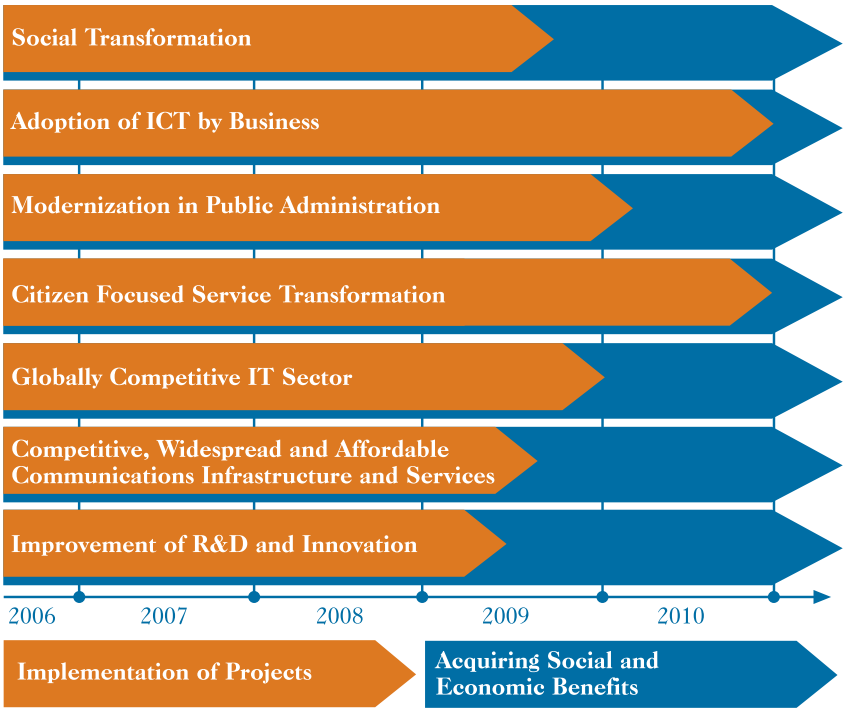
It is important that transformation into an information society is adapted as a common cause by all segments of the society to ensure continuity and a high level of cooperation between various stakeholders in the implementation process.

In order to achieve the vision and targets provided for in the Strategy, information society efforts will be communicated to all segments of the society through various communication channels, and it will be ensured that the Information Society transformation is adapted and supported. In that line, first of all, all projects and programs will be promoted under a single brand that recalls the concept of "information society". Efforts will be continued to ensure that this brand secures a unique positioning in the minds of individuals and that the benefits of information society are perceived clearly by individuals on cognitive and functional levels.

A central communication unit will be set up, and all promotional, advertisement and information activities will be carried out under a common brand in a consistent and integrated manner.

4. Implementation of the Strategy

Figure 13 – Implementation Process for Information Society Strategy Axes



4.4. Measurement and Evaluation

The success of the Information Society Strategy will be best guaranteed by monitoring of the transformation process via appropriate criteria, and through close supervision of initiatives.

Measurement criteria developed to monitor strategy implementation and proximity towards targets will be one of the main tools for implementers and decision-makers in evaluating the progress achieved in the transformation process.

Monitoring of the process includes measurement of progress according to the specified indicators and comparison of results with targets at specific time intervals. It is critical for the success of the strategy to measure the indicators, detect any delays or deviations, if any, and understand the reasons for such delays and deviations before taking the necessary course-correction measures.

Another measurement is benchmarking Tur-

4. Implementation of the Strategy

key's position with other countries on a regular basis on the route to transformation into an information society.

Turkish Statistical Institute (TURKSTAT) will consolidate and report to the SPO the data compiled directly by TURKSTAT or consolidated from public institutions. The SPO will submit the draft evaluation report to the e-Transformation Turkey Executive Board after comparing this data with the targets. The Executive Board will determine the necessary measures to be taken in the light of these assessments.

5.International Relations

The relations with the EU and the Lisbon Strategy and e–Europe Action Plans of the EU have played a triggering and accelerating role in the process of Turkey's transformation into an information society. During the implementation of the Information Society Strategy, EU activities in this field will be followed up closely, and their experiences in the field will be leveraged to the maximum extent. Active participation into EU's information society programs will be ensured in this framework, and standards that will be set forth for interoperable provision of Pan-European e-government services will be observed.

Furthermore, active participation in information society activities carried out by OECD, United Nations and International Telecommunication Union (ITU), and hence maximum benefit from international experiences will be ensured. Active participation of the private sector in international standard development activities will also be encouraged.

Turkey must share the knowledge and experience she will acquire in the medium term on international platforms and in the implementation process of the Information Society Strategy, with the Middle Eastern, Balkan and Central Asian countries in particular, and use the opportunities to contribute to these countries efforts in transforming themselves into information society. In this way, it will be possible for Turkey to become a leading country on regional platforms in the field of information society.

…A Transformation Story…

...A Transformation Story...

5 Years Before, 5 Years After...

The following scenario addresses Turkey's situation before the implementation of the Information Society Strategy (year 2005), in year 2007 when the first campaign is launched, during the implementation process (year 2008) and in the targeted year 2010, within the context of target audiences. This study, which is based on 2010 strategy targets and proposed actions, aims to demonstrate the outlines of the transformation process and the reflections of this transformation in day-to-day and professional life on the axis of "ordinary citizen/ordinary family". The names of persons and companies used in the scenario are entirely fictitious, and any similarities to real life are purely coincidental.

The Sencer Family

Ahmet Sencer: He is the oldest member of the Sencer Family which has 5 members. He is 68 years old; a retired civil servant from the Turkish Maritime Organization Inc. He spends most of his day watching TV at home or chatting with his friends at the professional club. He gives a proportion of his pension to his two grandchildren, and deposits the remainder to his bank account. He provides financial support when the family is in need of money. He is not really interested in technological developments; he usually does not even use the cell phone which his son bought for him; he still collects his pension by going to the bank branch and does not use ATM services.

Kenan Sencer: 46 years old. Graduated from Commerce Vocational High School and only employed person at home. He has been working as a civil servant at the municipality for 23 years. After 2 years, he will complete 25 years in his job and will be entitled to retirement. He has been married for 22 years. He sponsors educational expenses of two kids and the needs of the house; sometimes he gets financial support from his father. He is partially interested in technological developments that facilitate daily life. He uses computer at work but only with work-related software. He has no knowledge of other programs or Internet.

Aliye Sencer: 41 years old. Graduated from Vocational High School for Girls; has never worked outside home. She spends most of her day doing housework. Chores such as paying the bills or depositing the instalments are also left to Aliye Hanım since her husband works full-time. She likes watching TV; she is an ardent follower of especially women's pro-

grams and the series aired in the evening. She wants both her kids to get university education.

Özlem Sencer: The eldest daughter of the family; 19 years old. Graduated from a state high school; speaks English at intermediate level. She is a freshman at the Istanbul University Department of Business Administration, which has an English curriculum. She took the exam last year, but had to go to English Prep Class since she failed at her Language Proficiency Test. In general, she is known as a successful student. She is interested in technology but since there is no computer at home, and since the computer room at the university is always very crowded, she cannot do research or study as much as she wants. She is particularly interested in authentic jewellery and clothes. Apart from university, she also wants to go to a fashion design course. She is already having some conflicts with her father about what she will do after graduation; her father insists that she work at a bank, whereas Özlem is determined to set up her own business.

Efe Sencer: The youngest member of the family; 14 years old. Student at primary education, he is in the last grade. He is preparing for high school exams. He is planning to go to a Technical High School and then study computer or Aeronautical Engineering. He is interested keenly in technology; he tries to follow up all kinds of technological developments; but he has limited means to do so. For long he has been demanding a cell phone from his family, but his parents think that he is still too young for it. For almost a year, he has been trying to convince his grandfather to buy him a computer. But his demand is always refused, as computers are expensive and as his parents think that he will neglect his lessons when a computer is bought. Efe, whom we can identify as this family's face turned to outside word and technology, represents the new generation.

2005 – Everybody has their own problems!

One Monday evening, the Sencer Family is together at the dinner table. Each member of the family has had different problems throughout the day. Efe starts first. Efe, who is a primary education student in his last grade is on the one hand studying his school homework, and on the other hand is going to private courses to prepare for the High School Entry Exam.

Efe complains about the heavy content of the courses in this new semester which has started a short time ago, and again brings up the issue of buying a computer. His teachers do not give assignments that can be prepared based on encyclopaedic information any more. Now, each homework assignment, particularly the term paper, must be based on detailed research, using numerous references. Efe says that under the circumstances he cannot prepare good homework and repeats his computer demand. His parents, as a result of the endless pleas of their son, have looked at the computer prices a few days ago, and unfortunately saw that their budget is not enough for the task. Father Kenan Sencer explains the situation to his son. Efe says that there are various installment options. As a reply, Kenan Bey says that they cannot buy a computer even on credit with

installments, that they can cover a "more important" need of the family with that money. Efe attempts to raise his objection, saying that computer is also important, but Aliye Hanım, rather harshly, says that Efe would probably spend most of his time playing computer games if they buy a computer. Efe is also reminded that he is banned from going to Internet cafés opened by "anonymous persons". Efe looks at his grandpa in despair, but Ahmet Bey does not look so well that day. He has marks of weariness on his face, with irregular and deep breathing.

Kenan Bey notices his father's condition and gets worried. He offers to take him to the hospital. Ahmet Bey says it is not necessary, and tells that with all the insurance registry procedures, queues, etc. the one who goes to a hospital leaves it even sicker. Since they have had similar experiences before, the family is aware that Ahmet Bey is right. They offer to go to a private doctor, but Ahmet Bey also refuses this offer. He says he went to the bank to collect his pension; although he always waits for one or two days to avoid the long queues, he still had to wait for a long time standing up in the line. Özlem asks her grandfather why he never uses the ATM. Her grandfather ignores the issue saying "My mind does not work for those kinds of things". Özlem says that it is very easy to use these cards, and that she will help him if he wants, but as always, her grandfather says that "there is no need to bring new customs to an old village" and repeats that he absolutely distrusts machines. In short, Ahmet Bey is determined to go through the same trouble every month!

Kenan Bey, while checking his father's condition with one eye, turns to his daughter and asks if she has completed her enrollment procedures. Özlem says she waited all day in the line, but managed to do it in the end. The tuition queue, student ID card application queue, student pass application queue, consultant instructor queue to select course modules, library card queue and all, the young girl was on foot all day and is very tired. Her father says that she has to get used to it and that in the future when working in a bank she will be just as tired. Özlem strongly opposes this idea. She declares that she will set up her own business, and that she will not have to stand in queues because she will hire staff to do it. Her father calls them all a "dream". He changes the topic saying "You do not even know how to talk on the phone; the phone bill is again too high". He says that they are not rich enough to pay such high bills and that although they must get this service they can act in a more thoughtful manner.

When the issue of bills comes up, the kids grow silent and start to look at their laps, because they know that now the turn will become to their mothers. As always, it was again their mothers who paid the utility and phone bills this month. Aliye Hanım complains about how long she has to wait every time she goes to the bank. Moreover, sometimes the invoices do not come up on the clerk's monitor or a previously paid invoice is displayed as unpaid on the system. Tired

of dealing with all these, Aliye informs that this time she had a problem with the electricity bill. The invoice of two past months is displayed as unpaid on the system. Despite Aliye Hanım's insistence that all bills were paid on time, the clerk said he could not do anything about it, and that it was registered so in the computer records. Therefore, Aliye Hanım went back home, located the invoices and went back to stand in another queue. She wrote a petition for changing the computer records, had the paid invoices photocopied and delivered them to the related clerk. After explaining all these, Aliye Sencer says, "Hah, so they put up a computer! What good is it to me if people don't know how to use it and can't solve any of the problems!"

Kenan Bey feels a little offended in the face of these words, because he also is working with computers at his job at the municipality and experiences similar problems. He feels uncomfortable thinking that other people may be saying such words against him. He counters his wife, saying "As they really teach how to use them properly!". He says they were given a short training, but that they could only learn enough to carry out their tasks at work. He goes on to tell a problem he experienced that day. A business owner has applied to the municipality to get an operation license and Kenan Bey was dealing with the matter. However, within that process so many additional documents and certificates from so many public agencies are needed that it is difficult to follow up all those both for Kenan Bey and the business owner. As a result, tension between the clerk and the applicant becomes inevitable. The application of the business owner could only be processed after waiting for two hours for a fax to arrive from another agency and after four telephone conversations with another agency. This whole process was wearying for both parties.

These kinds of dialogues that continue throughout the dinner have spoiled the moment and even the taste of the food. The fatigue of the day is reflected on everyone's face; after watching TV for a while, all family members have gone to bed.

Looking at the end of the day, in effect grandfather Ahmet Bey has collected his salary; father Kenan Bey has processed the application of the business owner; mother Aliye Hanım has completed the procedures about the lacking invoice record; Özlem has finished her enrollment procedures; and Efe has buried himself in encyclopaedias and started to do his homework. In short, things run, whether smoothly or not, in the end. But, must everything be so hard?

2007 – Something will change in Turkey!

The Sencer Family is living in the busy routine of every day. Grandfather Ahmet Bey still waits in the pension queue; father Kenan Bey is excited about his coming retirement, but is still struggling with the problems at work; mother Aliye Hanım is living within the same cycle of housework and bill payments; Özlem comes and goes between her third year courses and her dreams; after passing the high school exams, Efe has started second grade and still goes on about his computer demand. Our family, in another September evening, is watching TV after dinner.

In all news bulletins, there is this new campaign which heralds a brand new era for Turkey. With this

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government-supported campaign "everyone will have a computer", "there will be no houses left without computer". When watching this news, Efe says, "They are doing false news there; there will be one house left without a computer, and that house will be ours". Yet, there is something Efe does not know: for a long time, there have been many news articles with contents such as computers, the Internet and a new world, which has had a positive effect on his family. Hearing this reproach by his son, Kenan Bey says, "Just wait for a while, let us learn about this campaign; if the government is supporting it, it is bound to be something good."

The next day Kenan Bey runs into one of his friends after work; he asks his friend, who is very interested in computers and technology, if he knows anything about this new campaign. His friend invites Kenan Bey to his office and says that they can learn anything on the subject from Internet. Kenan Bey carefully reads the page displayed on the screen, and makes his decision. And while chatting with his friend, he tells about his post-retirement plans. In fact, he wishes to open a small stationary shop with his retirement allowances. But he has some reservations about both the legal process and the issue of bank loan, as well as about transactions such as accounting, recording, inventory, etc. which he will have to deal with after opening the shop. His friend tells Kenan Bey that legal procedures and the loan really take long time, but that transactions such as accounting can be easily done via the computer. When Kenan Bey confesses, a little embarrassed, that he knows very little about such programs, his friend suggests the idea of hiring a young man to do that kind of stuff. Kenan Bey readily accepts the idea. Then he says that all things aside, he has to buy a computer for his children.

In the coming years, there will be important changes in the Sencer family and in all Turkey.

2008 – Seems Like Life is Becoming Easier...

It has been 1 year since the first computer campaign heralding change in Turkey. Within this time there have also been a lot of changes in the Sencer family's life. Grandfather Ahmet Sencer can now deposit his pension to his account in another bank via the Internet with the help of Efe. Moreover, on his last visit to the state hospital for check-up, his

appointment was taken via the Internet, and he succeeded in getting examined without having to wait in the line. Father Kenan Sencer has retired and opened his all time desire, a stationary shop. The bills, which had been paid for years by Aliye Hanım waiting in long queues, are now being paid on the Internet

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thanks to the computer at home. On her senior year at the university, Özlem is trying to finish her final thesis and at the same time she is making authentic jewellery and selling them. Efe is preparing for university entry exams; he still aspires to become a computer or aeronautical engineer.

One October morning, Efe gets up early as usual and goes to school. Ahmet Bey has already made his breakfast, and took off to the club. Aliye Hanım is sitting by the breakfast table, comfortably sipping her tea, and Özlem wakes up. Today she will not go to the school; she will continue her research on the Internet for her thesis. When having breakfast, she asks her mother what she has planned for the day. Her mother says that the telephone bill for the last month did not arrive, that she will go and ask Türk Telekom if there is any problem. Although she is okay with paying the bills on the Internet, doing these kinds of things on the Internet still do not sound safe to Aliye Hanım. At that moment Kenan Bey also gets up and comes to breakfast. That day, he is hiring a new staff member. Kenan Bey's greatest expectation from this young man is that he is someone who has good knowledge on computers. According to the rumours, this young man who is graduated from tertiary education has received computer training in a Public Internet Access Point (PIAP) and has learned to use many of the programs.

Sometime later Kenan Bey goes to work. While Aliye Hanım is washing up the dishes, Özlem goes straight to the computer. She starts her research on e-commerce for a section in her thesis. Meanwhile, she sees a lot of web sites where people can sell on the Internet the staff they produce on their own. Moreover, this thing has no security risks. Özlem starts to think whether she can sell her jewellery in that way. Without losing any time she contacts one of these sites and receives an affirmative response. All she has to do is take the photos of her products and send them to the site with the relevant information. She decides to take the photos with the second-hand digital camera, which Efe had bought on the Internet. Only in half an hour she finishes everything and sends them to the site. Özlem is now an entrepreneur!

When the family reconvenes at dinner, in fact everyone has something to say. Grandfather Ahmet Bey, when talking with his friends at the club, has learned that one of his friends' son has set up a new computer firm. Moreover, this entrepreneur contacts foreign companies on the Internet and easily buys and sells goods. Ahmet Bey, despite failing to understand fully what kind of a business it is, has heard his friend saying "Such things are now possible they say; they sell their goods by pressing on one or two keys. My son is very pleased with all the process". Turning to Efe, he says "maybe if you become a computer engineer you can also do similar businesses". Efe laughs and says, "first let me be an engineer and you will see what I can do!".

Meanwhile, Özlem says that she also has started a similar business, and explains about her e-commerce initiative. Kenan Bey and Aliye Hanım have some doubts about the whole thing, whereas Efe is sure that his sister will make money from this business. Moreover, he says he will be able to help his sister with regard to Internet and computers very soon, as in an announcement they made at the school, they have declared the start of an information technolo-

gies course. Being the future computer engineer, Efe is really glad with this news.

While kids impart enthusiastically the events of the day Aliye Hanım takes up the floor and says "In fact I have also learned something new today". Due to a new telecom operator which started operating a short while ago, our operator has also made discount. The reason why no invoice arrived for the previous month is that due to this price discount, the phone costs of the Sencer family are now very low and therefore from now on the bill will be sent every two months. Kenan Bey smiles and says, "Competition always works," "let us keep track of this other firm, if it is offering better conditions then maybe we will switch to it. In the end we can always change the firm without having to change our phone number".

Özlem asks his father about the boy he hired that day. Kenan Bey says that the training they offer at PIAPs is better than he anticipated. It seems this young man is able to use comfortably the more advanced program which they have bought to keep the inventories of the stationary department store which has grown more compared to the previous year.

The big transformation, the signs of which were first given in 2007, is starting to make increasing differences in the lives of individuals.

2010 – Where did we come from, where are we heading?

From 2005 when we met the Sencer family to 2010, great changes have taken place in Turkey. These novelties, which have changed the life of individuals and the whole society, have expedited the countries process of accession to the EU. The link between Turkish companies and foreign firms have developed, foreign investments have increased, public services have become faster and easier, and education quality has increased.

In this general positive picture, let us go back to the Sencer Family and take a look at the projections of this huge change in their lives:

In fact, when compared to the other members of the family, the person with the least change in his life is Grandfather Ahmet Sencer. As always, he is still spending his time with friends and family. But now, he does not wear himself off for pension collection or health checks, and is able to do all these things easily especially with the help of Efe. Even this minor change has changed Ahmet Bey's attitude towards computers, and he has started to support his grandchildren's demands related to new technologies by setting aside a part of his pension to this purpose.

Father Kenan Bey has expanded his stationary shop, and has become a middle sized enterprise. He has even opened a second department store in another quarter. Thanks to a local program which is one of the newest products of the ever developing Turkish software industry, he has established a very efficient network between the two department stores. Hence Kenan Bey can now do everything from a single point. Meanwhile, with the decreasing prices of laptop computers and wireless communication networks, Kenan Bey who is now very

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familiar with technology, has established such a system, and has started to work from home at least two days a week. In other words, Kenan Bey now really allows himself the enjoyment of his retirement!

Mother Aliye Hanım has been relieved of the burden of paying the bills and getting information. Now, she can allocate more time to her family and friends. Sometimes she even sits up with Özlem to design new jewellery, or sells on the Internet the jumpers, scarves or hats she knits. Aliye hanım, who has never worked as an employee in her life, can now earn her own money.

Perhaps the greatest change has been in Özlem's life. In her e-commerce venture, which she started with a few jewellery pieces, she has moved up swiftly and has opened her own store on the Internet. Later on she wanted to conduct face-to-face sales, and has registered to the Chamber of Commerce and gotten her operation license, since official registry transactions are now very easy and can be done from a single point. Now, she is a business owner both on the digital and in the real life. She conducts business with countries such as India, Russia and Indonesia via the Internet; she brings in clothes and jewellery from these countries, and similarly sells Turkish clothes and jewellery to them. Facilities in customs transactions and modern applications such as e-signature have eliminated the loss of money and time in exports and imports. Moreover with the simplification of public agency procedures which can also be carried out from a single point, she was able to easily complete the passport, visa, etc. procedures and has gone numerous times to the countries with which she does business, whereby she both improved her business relationships and increased her view of the world. Meanwhile she has succeeded in completing her fashion design education, which she always wanted. With the advanced e-learning applications, she has received her training on the Internet without having to leave her house or workplace, and has become a certified fashion designer. Perhaps the best side of these changes is the ending of all her discussions with her father on "whether she'll work at a bank or not"!

And what about Efe who brags about being the first one to bring the idea of technology to the house? Efe really made the computer engineering department at the university entry exam. Thanks to the ICT education he received at high school, he was very well-prepared for the university and managed to draw the attention of his instructors and has been encouraged to participate in a certificate program in the US which offers distance learning opportunities. With the financial support of his university and a non-governmental organization serving in the field of ICT, he enrolled the program and is planning to do a graduate program abroad after finishing his university.

The Sencer Family which consisted of 1 pensioner, 1 civil servant, 1 housewife and two students in 2005, now consists of one pensioner, 2 SME owners, one individual entrepreneur and a promising scientist in 2010. The Sencer Family is the mirror of Turkey's changing face.

STATE PLANNING ORGANIZATION
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