





TURKISH INDUSTRIALISTS' AND BUSINESSMEN'S ASSOCIATION

# **Information Society and *e*Turkey Towards European Union**

**Executive Summary**

**July 2001**

**(TÜSİAD Publication No-T/2001-07/304)**

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ISBN : 975-8458-20-5

Lebib Yalkin Publishing & Printing Co.

# FOREWORD

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*TÜSİAD, in accordance with its mission and in the context of its activities, initiates public debate by communicating its position supported by scientific research on current issues.*

*The following report entitled "Information Society and eTurkey Towards European Union" is the executive summary of the original study prepared by TÜSİAD Information Society and New Technologies Commission led by Lütfi Yenel and its working groups*

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***July 2001***

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# 1. INTRODUCTION

Infocommunications has started taking an indispensable role in the developing world. Those organisations that adapt themselves to the pressure created by globalisation and liberalisation and step into the postindustrial stage survive. Not many findings of the TUENA work, that analysed what Turkey should do in this aspect, could be put into action.

Despite all pressure from globalisation and liberalisation, the world is not getting to be a unified entity on the other hand. Gathering around intra-national alliances like EU, new "blocks" emerge. Neither technology, nor society on his or her own, is adequate to pave the pathway to the future. As a consequence, the cost of the foreseen transformation to the information society may not be shared equally between the nations. History tells us that an intolerable difference in this aspect is destructive and should be avoided. The social aspects are therefore to be treated together with the economic ones when setting infocommunications policies.

There is a strong need for a longer-term foresight that considers the opportunities the information society presents, as well as the threats. It should focus on how Turkey is going to respond to the global transformation, to create a model, emphasizing on her weak science-technology-innovation links.

In the coming decade we are going to experience how the traditional ways of value creation, working, service providing, organising and managing will fail. Those communities who pursue their policies to adapt themselves to the new concepts in employment, (global) competition and technology, are bound to become leaders in their environment. Infocommunications and biotechnology may perhaps be playing a key role, but it must not be disregarded that opportunities are coupled with threats and complications. There is a single must to cope with this situation: **readiness**.

In the transformation where for creating competitiveness, natural resources and low labour costs are replaced by organisational and technological capabilities and the rate of transformation increases globally; the digital divide is getting to be the main threat. The threat is that, Turkey may become a default user and follower of the technologies. The threat is that, if not steered carefully, Turkey will not end up as an actor in the value add chain, but as an actor in the consumer chain.

Today, the majority of the world trade takes place on the northern hemisphere. In the near future, the infocommunications services will also be focused there. The digital content will not be made available to all users equally. We must expect the formation of "national" or "regional" digital islands.

One of the ways to stay competitive globally is to make maximum use of the available capabilities and capacities. But doing so, if the innovation strategies are disregarded, it will soon be discovered that the attained competitiveness cannot be sustained. The clue for a successful sustained competitiveness lies in the national innovation system, and how this is run. Essential is that all related parties take place in the steering of innovation policies.

It is not possible to stay out of the transformation where internet and related technologies are dominant and still be competitive. The new eBusiness techniques will have to be rapidly adopted. Even delaying these may be a threat. The question is not "Will eBusiness affect us?"; it is rather "How eBusiness will affect us?". To enjoy the opportunity, each company must prepare her eBusiness plan right away. One aim of this report is to give insight for the eBusiness plans and to trigger the activity.

## **2. INFORMATION SOCIETY**

New: internet; fuelled by: new technologies; new tool: information

What is new is that the internet and related technologies are being utilised in everyday economics. Internet being easy to use and open to public has created a rapid deployment of the new media. Cellular communication capabilities have accelerated this. Competition has penetrated into everything, because internet made it possible for the end user to access all the competitors.

Technology was appealed because of this, and information has become the new tool. It is necessary to understand what information means for economy in order to understand the new economy: It is easier to get the information one needs, when compared to machines. What is difficult is to create new information and to keep that up-to-date.

Turkish industry relies highly on labour intensive products, and thus is squeezed to keep the labour costs at a minimum in order to stay competitive. This cannot be realised forever. The value add our industry creates should be in the knowledge portion of the products. All incentives and regulations that enable this conversion should be applied as soon as possible. If not, Turkey will be bound to miss to step into the information age synchronised with Europe, just as it was in the industry age. This time however, due to the rapid acceleration of the information society, once on the poorer side of the digital divide, a nation will hardly find the chance to jump to the other side.

Turkey's needs and immediate actions to be taken may be summarised as follows:

In order to create new information, the raw material, which is information again, has to be accessed as required. Internet is an intensive and rapid media to access the information needed.

**Target 1: Everyone should be able to access to information, unrestricted and against a reasonable cost.**

Taking into respect the current situation of our industry and the intellectual property content of the products they manufacture as well as the capabilities of our universities, it is highly recommended that a cooperation be established immediately to increase the said content.

**Target 2: Research and technology should be emphasised on, in order to ensure a sustainable economic growth in the medium and longer term.**

Considering the penetration of PC's and the percentage of PC literates, both as the user and support force, the human resources have to be improved. Furthermore, to be able to create new information, new techniques and new coverage (multi-disciplinary) in the way people work (think) is necessary.

**Target 3: Human resources have to be improved.**

It is vital to be able to keep the human resources as a part of our community, once they reach the level of global recognition. The necessary living environment for these people will have to be provided.

**Target 4: Brain drain, encouraged by globalisation should be curbed and reversed, making Turkey a preferable place to work.**

Taking actions to achieve above targets, it must be cared for, to be harmonised with EU, in order not to make alterations and to cause disturbances in the near future.

**Target 5: Harmonisation with EU should be achieved.**

State Planning Organisation (SPO) did not pull herself to strategic planning in the 80's, and preferred to stay in the tactical area. The technology based strategic studies made ever since, (1983 by Prof. Dr. Nimet Özdaş, 1999 TUENA by Bilten) were not put to action. In order to reach the targets in minimum time and cost, a "National Foresight" is vital. The contributors for such a study should include representatives from a wide spectrum including TÜBA (Turkish Science Academy), NGO's, SPO and regulatory bodies.

**Target 6: A platform to create a consensus on a "National Foresight" should be established; results should be recognised and recommendations should be put into action.**

## **2.1 Information - knowledge**

A person may carry, to be utilised in his/her value add activities:

- Acquired information (acquired via any kind of learning or training)
- Genetic information (such as capability to perform arts, sports)

Together with the innovative approach that person may create a value add which is also proportional to the knowledge of the individual. The earnings of the individual naturally will be indexed to the value add he/she creates.

The wisdom in a society will be carried by a group (bilgeler) and these people will be candidates to rule/head the society. At this state, independence of the nations can no longer be protected by the military. It is essential for such a group (bilgeler) to be formed and supported to nourish in Turkey, not only for the sake

of stepping into the information age, but also to avoid handing over the leadership in her home country and in the region.

## **2.2 Turkey's Information Society and EU Relations**

Following a series of reports, green papers and action plans, the innovation system in Europe is aligned with liberalisation and deregulation to enable new services and thus an increase in the amount of value add was created.

In the new economy, the burden of intellectual creativity seems to be carried by thousands of small firms backed by venture capital. The traditional awareness Turkey has in this area must be exploited by a series of incentives.

In contrast to the conventional system that takes the sum of assets to determine the market value of a company, the new value scale is the intellectual property these carry. This may be in technology or in running the business. However, because the dynamics of the new economy not having settled then, most of the intellectual property companies that emerged in the beginning were not able to secure their positions. Nevertheless, **those companies that have based their value on information / intellectual property are to prosper.**

## **2.3 eBusiness**

All new concepts introduced by the new economy will have to be integrated by individual functional groups and departments within each company. Even though the media over which the IT groups in the companies establish these "new way of doing business" concepts, the execution must be by all. Taking into account the way we are accustomed doing our business in Turkey, the following points are worth to emphasize for success:

*eVision:* The CEO of the company, after evaluating the new concepts and applying these to his/her organisation, should issue (in written form) the vision for the company. This document should explain to the employees, the perception of the company of the work it undertakes.

*eManagement:* The upper management of the company, after the vision is issued, should assign, depending on the size of a company, either a part- or full-time member or a group who is responsible from eManagement. The person /

group should be experienced in all functions within the company and as well should be capable of screening the next steps to be taken in eBusiness.

*ePlan:* Should be prepared by eManagement in accordance with eVision. ePlan should be supported and applied by the upper management. This should include the eBusiness transformation schedule and tasks.

*eRevision:* Considering that the technologies, together with the opportunities and threats are bound to change day by day, a procedure should be devised for the tracking of these and revision of the eVision accordingly.

*eCompetition:* The threats should be treated seriously, and their impact on a perfectly functioning system should be forecasted. Action plans to recover from each threat should be readied. Competition is no longer going to be only from an emerging rival company. It may also emerge from the changes in the supply chain or the distribution channels, or even a technology change in a rival company resulting in cost reduction.

### **3. INFRASTRUCTURE**

The formation of the information society cannot be achieved simply by building the information infrastructure and providing access to each and every individual to get any information they may need. Two other infrastructures have to be aligned for the proper use of the access to information and creation of the value adds: law and human resources.

#### **3.1 Telecommunications**

Telecommunications in Turkey is itself a new economy provider as well as a new economy consumer. The regulatory body (Telecommunication Authority) has been established and is gradually being powered (self-powered) to set up the rules of the game to be staged. It is also seeking ways to get the contribution of the players to set up new rules or to alter the existing ones. The de-regulation, and the re-regulation seem to be pacing in the right direction after years of delays, liberalisation and unbundling of the local loop being the primary issues. It is anticipated that the shares of Turkish Telecommunication Co., Inc. is rapidly exposed to the public.

Among the related sub-sectors of telecommunications, software has not received the recognition it deserves. Having the opportunity of creating a work place with only 2k\$ investment, it is perhaps the fastest paying back area. This area should be supported by incentives provided elsewhere.

The taxation of services provided within or over the telecommunications facilities is high and even deferring. For example, a Treasury share is asked from any transaction over the GSM (even buying a drink from a vending machine), in addition to a VAT (KDV) ranked for luxury spending. Even more shocking is the same rank of VAT applied to internet connection charges.

### **3.2 Human Resources**

Human resources, the quality and the quantity of the brain force, are an indispensable contributor to the information society. The quality of the people is quite different from that of an industrial society and very different from that of Turkey today. To gain the required quality, incremental improvements are not adequate, the Turkish education system has to be revised, and perhaps re-built. The compulsory 8-year education and PC literacy programmes may be a good starting point for this. Turkish economy does not need that much of a labour force as it did some years ago. The tasks carried out are rapidly shifting to office work.

In the new economy, it is common for a company to cooperate with some other on a strategic basis, to structure itself as customer or product centric, to void any hierarchy within the company, to grow rapidly and even to cooperate with its rivals. The employees are therefore required to be self-learning, flexible, information based, mobile, and creative. Managers who carry and share the company vision lead them. What Turkey lacks is these leaders in this structure. There is a shortage in the properly trained, educated managers. Import of such resources does not have a high chance of success, due to the emotional part of management. In the near future the best qualified of the available work force in the above aspects, will prefer to work in the better part of the (digitally divided) world, and therefore Turkey will not only be threatened by inadequate number of new entrants, but will also face the drain of those that are at hand.

As for the non-managers, the digital world requires the knowledge of approximately 1,200 technical and/or digital words, which is almost equivalent to

learning another language. Digital divide will not take place only between the countries. It is bound to take place between the regions of a country or even between the residents in a city.

As given in "The World Competitiveness Year Book 2000", Turkey has a single positive position in the ranking among the developed countries: this is in the "interest of the youth in science and technology". In this aspect, Turkey takes the 19<sup>th</sup> place, right after USA. The shocking point is that, after further studying, when these young people start to produce value add, the technological level they create falls to 41<sup>st</sup>. Our target in a visible near future is to improve this to around 30.

There is a high unemployment rate, at the same time a vast need for qualified work force. Among the first ranking are software, hardware, electronics and telecommunications engineering; followed by internet application program and graphics designers. As for support task force, software support technicians are leading electric-electronic technicians. The total amount of electric, electronics, telecommunication, computing and software engineers in Turkey reaches 28,000. Only about 1,000 are added to this figure annually.

Other than Turkey's own needs, the developed countries are also an attraction centre for the qualified workforce Turkey has and will have. Germany and USA are leading in this area. The rate of increase in the number of above stated technical people (4%) is incomparable to the annual growth of certain services made available by these people: internet 58%, GSM 20%, fiber cable (length) 6%. These figures indicate a definite and increasing shortage.

The PC literacy of our work force (in all sectors) must be targeted to be 60% by 2005. The key points being cheaper, faster, more secure internet; investing in human resources and education; and promotion of the use of internet (*eBusiness*, *eState*, *eHealth*, *eLearning*, *eContent*). The present day workforce must be provided with facilities and opportunities to design and develop these technologies and/or applications.

The education system of the country must be redesigned to satisfy the needs of the new economy and the information age.

### **3.3 Law**

Turkey's present day system was not designed for the new economy or for the information age. It is not possible to let the developments take place first and then trim the law to suit the already in-operation business.

The areas to be developed are not a few. The level of development is not incremental. Statements such as "... undersigning must be made by hand. Any signature put down by a machine is not valid. ..." are common. Fore standing topics are: electronic signature and contracts, validity of electronically registered documents, internet related crime, courts entitled to handle electronic (virtual) crime and laws to be applied, protection of the end user, protection of trade marks and intellectual property, security and protection of personal data, responsibilities of ISP's, issues related to telecommunications.

## **4. RESEARCH IN THE INFORMATION AGE**

Even EU is concerned about the percentage of the GNP (currently 1.8%) reserved for research and development. The figure is 2.8% and 2.9% respectively in USA and Japan. The trade deficit of EU is around 20 to 50% in leading edge technologies. Though EU has the right to direct its research and development activities from a single source, there is hardly any policy in that manner which has been put into action. This is because the national policies overlap, but do not add up.

In the 21<sup>st</sup> century we will have to invest in science and technology harder than before. Infocommunications and environmental technologies will govern the next decade. The former as it is a major enabler for almost any technology in question, the latter for the prosperity of the community.

Currently a substantial R&D incentive programme is in effect in Turkey. This is based on the June '95 dated law, which was later, modified in November '98. Starting in '99 an agreement with EU (DGXIII) was reached for the Turkish government to support Turkish projects locally, as if EU supported these, within the context of the 5<sup>th</sup> framework programme. In addition to this, EUREKA and COST programmes are recognised by the state and were made functional.

A threat that may be converted to opportunity is that in the 6<sup>th</sup> framework programme, Turkey will have to pay to the common research fund, about 200 to 300 M€ . If the Turkish firms or research and development entities are accustomed to submit projects and have the experience that allows them a support, some of this money may be made available to Turkish design development bodies. Otherwise Turkey will be in the state of funding the R&D in Europe to start with, with cash payments and afterwards by buying the products resulting from this research and development.

## **5. eTURKEY**

Turkey has differences compared to EU. These differences, when manipulated properly may provide the advantages of the country in making the quantum jump to step into the information age. To accomplish this, the picture must be viewed from the Turkish point of view, not the EU. Most reports and action plans issued take the actions foreseen by EU and elaborate on these; analysing how Turkey can or cannot respond. Another vital point is that, not the present standing point of the EU, but its future position at the time Turkey plans to integrate with has to be aimed.

The value add, in most manufactured items in Turkish industry presently lies in the labour content. Some though, have created images and brand names of their own and let the production of their goods take place anywhere in the world, depending on its cost against quality. These obviously make use of the infocommunications tools in large scale.

Most supply chain management and consumer people also make use of these tools.

GPRS now is at the verge of providing a public packet switched access to internet. But the state tax (VAT) on it was increased to 26% like all other internet access.

Measures to remove such disablers must be taken and it must be assured that such disablers are not faced in the future.

Turkey's differences must be converted to advantages. Care must be taken though, to avoid the presentation of a phasing out technology. Those phasing out may be cheap, but mostly turn out to be restricting. A calculated risk taking is necessary.

**Most important role for the state is to self-utilise the infocommunications tools: eState.**

Electronic signature, virtual notary, electronic contracts and similar tools must be made as valid tools available, as the starting point of eBusiness. Security over the internet must be provided.

**Regulations must be rapidly adapted.**

Most services in Turkey are provided in fora, and regulations arranging the functions of such services are established later. In infocommunications tools and other enabling technologies and services provided, Turkey does not have the time to let services be provided without regulation. To efficiently use the time, a national foresight study is needed.

**A national foresight study must be made and needs to be supported with appropriate strategies run by the government.**

To be able to provide an "unrestricted access to information at a bearable cost", the **internet connection must be separated from the voice network**. CATV is lean in Turkey with 800,000 subscribers and 2 million home passes. With current rates, it is not feasible to provide CATV service to some scarcely populated areas. However, the local loop access cables (property of Türk Telekom) are modern cables in good condition, since most were laid after mid 1980's. A DSL connection therefore is able to provide 4.5Mb/s access rate to 13 million of the existing 19 million telephone subscribers. For such a service, it is necessary to visualise FTTH in Europe.

Human resources of Turkey need to be revised both in quality and in context. It must be kept in mind that an ample amount of this resource will be migrating to EU and USA, to balance the gap that has emerged there. A few of the measures to create the necessary work force in short term may be: education programmes on infocommunications for those who have lost their jobs; training the "conventional

economy" managers on new economy; technical certification programmes; making the NGO's take part in the education programmes; making the infrastructure of the internet related and educational facilities of the schools to non-students beyond teaching hours; re-arranging rates and taxes on services for access. Organising technology areas (like Sophia Antipolis) where living standards are above average of Turkey's may help to keep some of the brain-drain people at home.

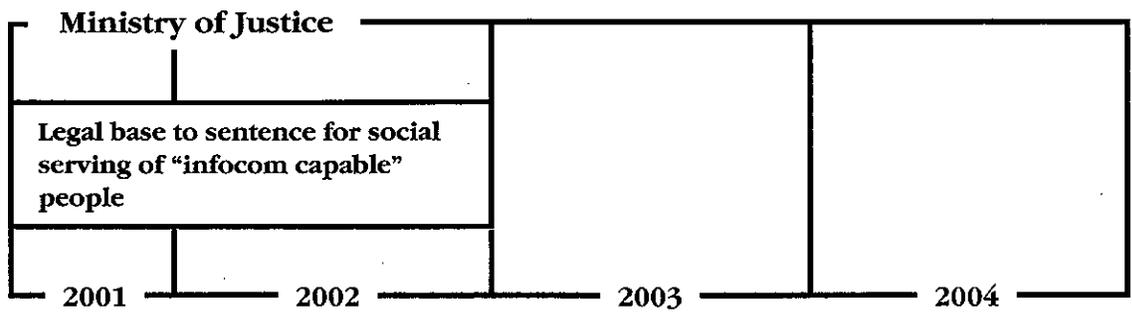
In longer term, some measures foreseen are as follows: providing mobility and opportunity for further improvement for qualified education staff; enabling brain-drain reversal; increasing number of foreign languages recognised; PC literacy courses during military service; support and guidance of hobby centres; introducing infocommunications to the agricultural people; foresight oriented educational programming; re-arranging basic education taking into account the new economy.

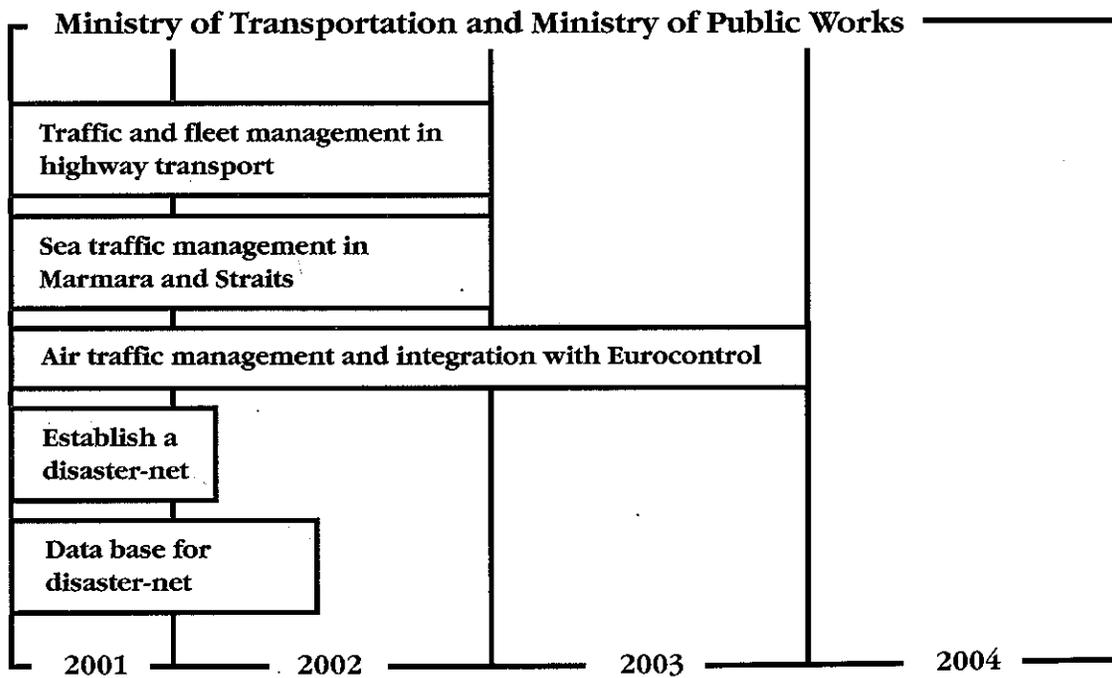
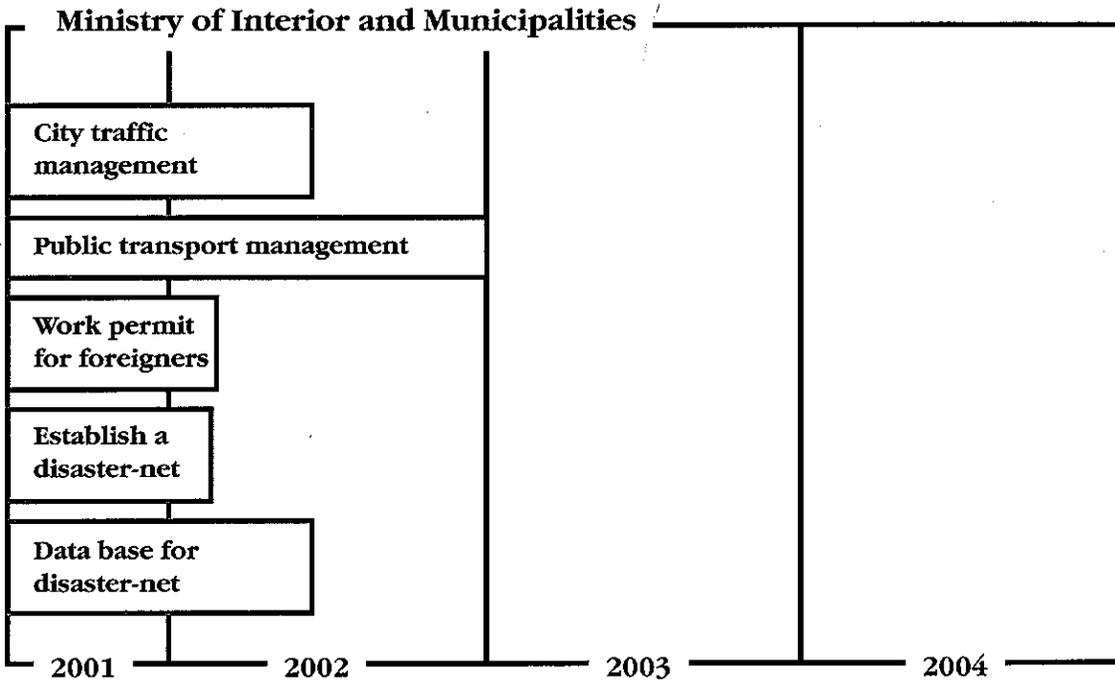
**Action Plan**

A detailed action item list has been made and corresponding actors and technically feasible durations for these actions have been assigned.

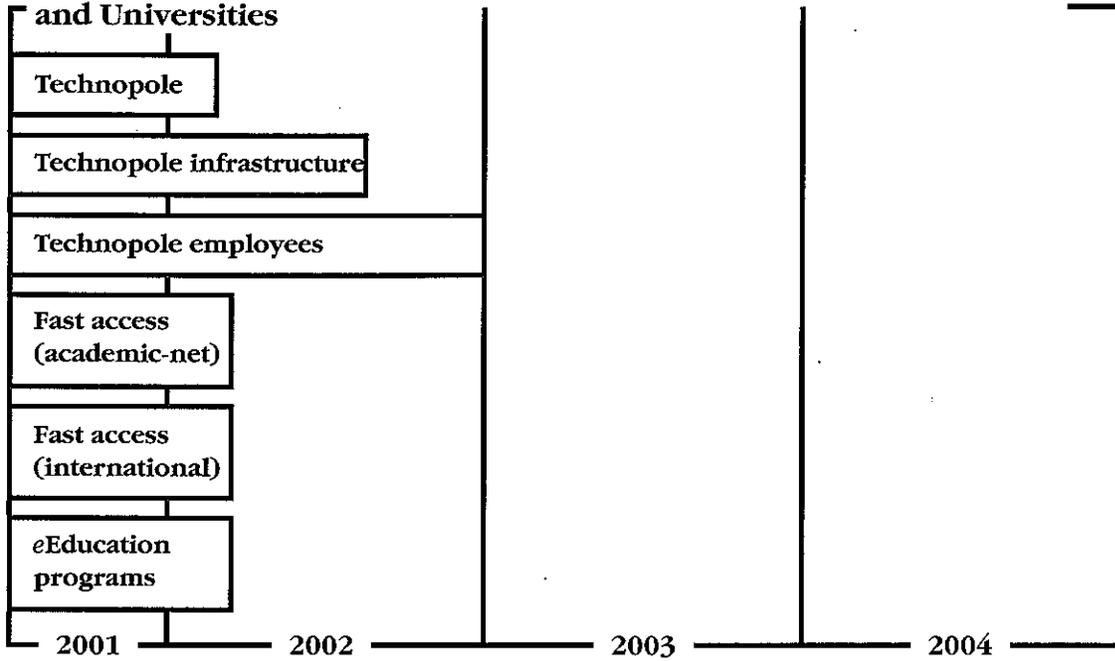
A colour coding has been used in the following charts:

- Human resources (green)**
- Infocom infrastructure (blue)**
- Legal matters (red)**

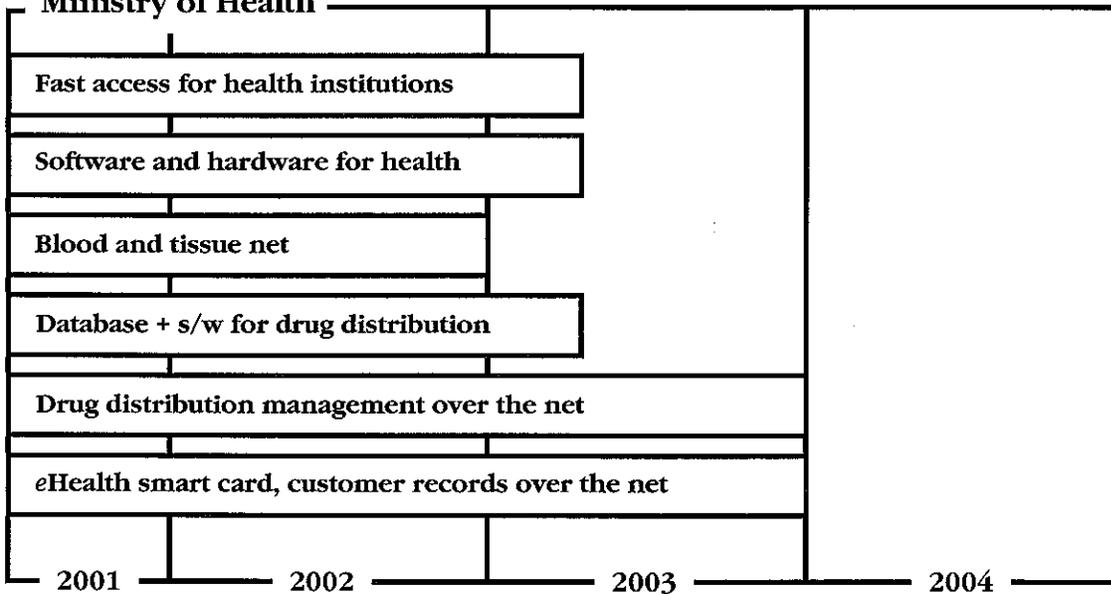




**The Scientific and Technical Research Council of Turkey (TÜBİTAK) and Universities**



**Ministry of Health**



<b>Ministry of Finance</b>			
All taxation made possible over the internet			
Multiple taxation cleared from eLife			
Promotive VAT reduction in eDrug and eInsurance			
Resource for spreading infocom to public			
Tax reduction for R&D employees			
Promotive VAT reduction in wireless internet			
Promotive VAT reduction in eTrade			
Validity of electronic transactions			
Establishment of virtual notary			
Legal base for plastic money			
Funding of eEducation (MoE approved)			
2001	2002	2003	2004

<b>Ministry of Employment and Social Security</b>			
Work permit for foreigners			
Revision of the legal base for new economy			
2001	2002	2003	2004

