



Informatikai és  
Hírközlési  
Minisztérium

# Hungarian Information Society Strategy

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# Preamble



*(Reasons for and purposes of the creation of the Hungarian Information Society Strategy)*

Based on the decision of the Government of the Republic of Hungary, following extensive consultations within public administration, as well as professional and social debates, the Ministry of Informatics and Communications has drafted the Hungarian Information Society Strategy (HISS). This national strategy defines the tasks on the level of visions, plans and actions through which Hungary will take the path of new development and modernization.

The following analytical material, objectively assessing our opportunities, reviews the paths and tasks Hungary has to set to in order to become a successful, dynamic, competitive, and prosperous country, equal to the other nations of the European Union. The strategy intends to demonstrate the benefits of using the tools offered by information technology, because it believes that the widespread use of processes and services supported by the latest solutions of information technology, as well as social cooperation, will contribute to achieving social welfare and public trust.

*Hungary has only one real alternative: to create an information society as soon as possible and to the best of its power*

The Hungarian Information Society Strategy is a social programme, which relies on the participation of every member of society. The initial steps must, however, be taken by the Government and the Ministry. They need to open up paths, create the necessary conditions and the statutory framework, as well as determine the priorities and earmark funds. They should also set an example, encourage and support the processes of development with the partnership and resources of business and civil organizations, by allowing each individual creative force to unfold, in order to achieve a new and higher quality of life which everybody would share, create and benefit from. Information society does not come into existence through a government decision but through an equal cooperation of the business and civil spheres.

The **first objective** of the creation of the Hungarian Information Society Strategy (HISS) is to make it clear for everyone that Hungary has no alternative but **to enter the age of information**, as intensely and innovatively as possible. Only this way, opening up the path for a new economy, will we be able to achieve sustainable growth. Accordingly, Hungary accepts and supports the implementation of the eEurope programmes to achieve these goals.

*The forming of an information society in Hungary is not a political issue dependent on terms of government. With a collective effort, we have to achieve our goals within ten years!*

The **second objective** is to provide (based on the rules of building strategies) a **comprehensive vision** about the construction of a knowledge-based economy and an information society; an adequately complex and coordinated set of **plans**; as well as a number of **operative programmes** for the realization of these.

*As the eEurope programme is a fundamentally economic programme, **our third objective** is to ensure that the strategy of Hungary's information society will promote **the growth of competitiveness and successfulness of the Hungarian economy.***

*The **fourth objective** of drafting HISS is to demonstrate that information and communication technologies are not mere opportunities but effective tools. The implementation of these strategies will establish the prestige of the IT sector.*

*The **fifth objective** of the creation of HISS is for Hungary to have a long-term plan and programme concerning the development of the information society, approved by the Government and reflecting the adoption of European values. It is an expectation of the European Union and a condition of granting community subsidies that the country should have such a document. The drafting of the strategy serves to meet this condition.*

*The **sixth objective** of the strategy is to serve as a basic plan. The planning system to be created, which would implement this strategy, is to provide well-founded plans for the implementation of the operative programmes of the second objective above. HISS is the guiding principle and organizational scheme of these plans.*

*The strategy intends to achieve the development of a knowledge-based economy and a modern information society in Hungary, on both state and local levels, within ten years. This strategy has been drafted for those who believe in Hungary, its rise and success, and who wish to contribute to these goals.*

# Executive Summary



By announcing its intention to join the European Union, Hungary marked the path which it intends to follow in the future. The European process of development is clearly progressing towards a knowledge-based (new) economy and information society. Hungary's accession will, for a long while, determine the framework which will have an impact on our social and economic development. If we are not properly prepared and remain merely passive observers or only follow the changes which will occur from a distance, we shall benefit less from the process. Our disadvantage will, sooner or later, turn into dependence, or, in a worst-case scenario, into a subordinate status. Reducing our shortfall is in our common interest: enhancing the competitiveness of the economy will lead to an improvement in the quality of life in Hungary, while for the community as a whole it will **improve the competitive status** of the European region in relation to the North American and Far East regions.

The Hungarian Information Society Strategy (HISS) is a strategy for helping the economy and the society to catch up with European rate of development. In its objectives and solutions, it follows the European values and courses of action, while considering specific Hungarian characteristics and possibilities. HISS reckons that broadening the application of information and communications technologies is the key to Hungary's success. The wide-ranging application of these technologies and their eventual transformation into a production force would guarantee the modernization of the economy, the enhancement of efficiency and competitiveness, and through these a new level of development, that is the objectives of the information society.

Information society is realized when the social and economic weight of the information sector becomes dominant, information becomes the part of the everyday lives of individuals, organizations and institutions and a large part of social communication is conducted via digital channels. As the availability of information becomes more widespread and simple, and its production and transformation are increased, these contribute to the renewal and mobilization of the society, open up possibilities for individual initiative and enterprise, spread the consumption of the products of civilization and of cultural goods, and globalize the acquisition and sharing of human knowledge, as well as multiplying it to a degree never witnessed before.

Identifying with the European values is not a mere formality. The objectives of HISS and the programmes aiming to implement those are fully adjusted to the strategy and strategic programmes of the European Union, the eEurope+ and the eEurope 2005 action plans. This enables us to join those programmes of the Community which support the eEurope (e.g. IST, eContent, eSafety, IDA, etc.), and it also enables us to use the EU's structural funds as resources for the construction of the information society. HISS intends to employ this opportunity within the framework of the National Development Plan by formulating its individual programmes in harmony with the operative programmes of NDP, primarily with priority 4 of economic competitiveness.

The **purpose** of HISS is to review and to systematize the tasks related to the formation of the information society in order to ensure that the responsibilities arising therefrom – to be fulfilled by the whole of society – will take place in a **coordinated** manner. It aims to effect this the following ways:

- with the help of a **model** representing social and economic processes and based on the socialization of information, it systematizes the tasks pertaining to the creation of the information society by determining the **fields where action needs to be taken (fields of intervention)**; by breaking these fields further down it designates the **key areas** within them, while also determining the tasks to be jointly performed by the various participants (government, private field, civil organizations) on these;
- based on this model, it determines the **objectives** to be attained within these fields and, by further refinement, within the key areas. On the level of the key areas it provides a uniform technical management and **coordination** for the require;
- It integrates and generalizes the **sectorial strategies** drawn up by the ministries into a uniform structure, and incorporates the tasks to be performed in the strategies above into the model's key areas;
- based on the priorities of the model and the special strategies, it assigns the **High-Priority Central Programmes** – the most highlighted programmes regarding the implementation of HISS; on these programmes certain programme brochures will be published, determining in detail the objectives, the tasks to be performed, the operating models of their implementation and the methods for measuring the results; the **programme brochures** will form an integral part of the strategy;
- it determines the statutory conditions which are necessary to create the organizational and financial system in which the strategy can be implemented, thereby guaranteeing that the tasks in the individual key areas will be carried out in a coordinated way; furthermore, it designates the tasks regarding the **updating** and fine-tuning of HISS.

In analyzing the changes of transition to an information society, the HISS model identifies the two fundamental pillars of **modernization as the modernization of processes** and the **modernization of services**. The former represents the modernization of the internal working of processes in the broadest sense ("back office"), while the latter means the perfection of those functions of the same processes that are available to a wide range of users ("front office"). The use of information and communication technologies is of primary importance in the case of both pillars.

For the improvement of processes the strategy divides the **fields of intervention** the following way in respect of both pillars:

***Content and services, Infrastructure, Knowledge and skills, Legal and social environment,***

complete with two horizontal fields:

***Research and Development and Equal opportunities.***

The largest field of intervention is that of **Content and services**, which is further divided into the following key areas:

***Economy, Public administration, Culture, Education, Health, Environment,***

which are concerned with the development of the content aspects of the services provided in the corresponding areas of application.

The key areas of **infrastructure** are constituted by its three different levels:

- construction of broadband networks,
- improvement of access and availability,
- availability of public domain data, standards and software tools.

Within each of the other four fields of intervention there is a single key area.

The objectives of HISS are realized via **programmes** of various levels under the key areas. The level of each programme is determined by the significance of the tasks involved, as well as the responsibility and the coordination their implementation requires:

- central high-priority programme (HPCP),
- high-priority special programme (HPSP) or
- special programme.

When working out the programmes, the following four essential principles must be adhered to:

- The programmes should cover the strategy jointly, and the attainment of the strategic objectives should be ensured by their combined implementation.
- Each programme must have its own well-defined goal which can be adequately monitored, and the attainment of which depends primarily on the given programme itself.
- Each programme must have an "operation model", which should have a project approach and should preferably rely on market and business solutions.
- The operation models of the programmes should favour ongoing operations over one-time solutions.

The regulation created with the **implementation** of HISS can guarantee the organizational and financial conditions of the coordinated implementation of the tasks defined in HISS. This includes the creation of the various levels of "HISS programme" certification and the definition of the rights, responsibilities, procedures, decision-making processes and forms of financing associated with these.

The above regulation determines the tasks and competencies related to the **coordination** of the key areas, with special regard to the preceding evaluation of the programme proposals from market players and from other sectors, and the monitoring and assessment of the HISS programmes. Coordination will be supervised by the Interministerial Committee on Information Society.

HISS defines its strategic objectives for a period of 10 to 15 years, which is a long time measured by the standards of information technology; at the same time, the individual programmes are typically short-term, concerning the period between 2004 and 2006. Accordingly, during the **maintenance** of HISS, on the one hand the long-term objectives should regularly be adjusted to the changing circumstances and the development of society and technology with the help of economic, technological and statistical analyses, while on the other hand the short-term programmes should be updated with the method of rolling planning.



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# I. Volume I

## Hungarian Information Society Strategy



### I.1. THE CHALLENGE

At the beginning of the third millennium, Hungary joins the European Union and the European information society at the same time, while also modernizing its social and economic structures. These events are correlated and mutually reinforce one another. Every country in Europe is experiencing a change of era and paradigm, and they are trying to find remedy for the problems of the 20th century with the opportunities offered by the information age. There is a common stake: **the success of every nation in Europe may depend on the content and efficiency of the transition to an information society**, while the improvement of Europe's position and its performance in the new type of global world also depends on this.

At the Lisbon summit in March 2000, Europe's heads of state and government set the goal for the **European Union to become the world's most competitive knowledge-based society by 2010**<sup>1</sup>. As the main instrument of attaining this objective, they assigned the creation of a dynamic knowledge-based economy open to others to join, the attainment of an accelerated and sustainable growth in the economy, full employment as regards the economic and social policy, the reduction of unemployment to the level of those countries that are the most effective in this area, and the modernization of the social protection system. As the direct tools of the realization of the economic policy objectives they determined an economic reform which would prepare the establishment of the knowledge-based economy, and reinforcing the European social model through investment in people and in human knowledge<sup>2</sup>.

*The European Union intends to become the world's most competitive knowledge-based society by 2010. Hungary is resolved on joining this effort!*

The eEurope initiative announced as part of the reform process launched in Lisbon, and the further action plans which serve to facilitate its implementation (eEurope 2002<sup>3</sup>, eEurope 2005<sup>4</sup>) are **economic programmes**. This programme will only achieve its goals through profound changes affecting the whole of society, by recognizing and consciously using the opportunities offered by the tools of information and communication technologies. The primary purpose of the eEurope+ process taking place with the participation of the candidate countries was to help these countries reduce their shortcomings in forming an information society; its role, however, points far beyond this. The fundamental changes in the economy, in public administration and in the national regulatory systems are only mere tools for the immediate integration of the candidate countries into an effective, new European economic order – one, that is competitive on a global scale, and which intends to and is able to maintain a sustainable growth, – as well as for their adoption of the pace of the Lisbon strategy. After almost a decade of conscious preparation, in 2004 Hungary joins a European Union which promotes that economy and information society should become competitive as well as knowledge-based .

**The main common goal of the creation of a knowledge-based economy and information society is the improvement of the quality of life and living conditions for the individual and the community**; and through this, the creation of the modern, European, Hungarian Republic, where everybody loves to live. The surest and fastest way to achieve this in the 21st century is by such values as the promotion and spreading of knowledge, economic competitiveness, identifying with community affairs, equal social opportunities and the preservation of the national cultural and natural environment<sup>5</sup>.

*The main common goal is to improve the quality of life and living conditions for the individual and the community, in order to live in a modern, European Hungarian republic!*

1. Lisbon European Council, Presidency Conclusions, 23-24 March 2000, Para 5.  
2. The Lisbon European Council – An Agenda of Economic and Social Renewal for Europe; Contribution of the European Commission to the Special European Council in Lisbon 23-24th March 2000, COM(2000)7, Brussels, 28 February 2000, p. 11.  
3. eEurope 2002 – Impacts and Priorities, A communication to the Spring European Council in Stockholm, 23-24 March 2001, Brussels, 13.3.2001, COM(2001) 140 final.  
4. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, eEurope 2005: An information society for all, An Action Plan to be presented in view of the Sevilla European Council, 21/22 June 2002, COM (2002) 263 final, Brussels, 28.5.2002.  
5. Based on the statements of the Prime Minister.

The term **modern** refers to the maintenance of a knowledge-based, sustainable and long-term development. On the one hand, this term refers to the updating of public administration, space utilization, health care, education, culture and environmental protection, as well as bringing them closer to the public; on the other hand, it also involves such important areas as the development of infrastructure, the wider use of information technologies, making use of both old and new knowledge and the creation of a civil society capable of representing its interests.

The meaning of term **European** involves the chance and the opportunity for every citizen of the republic to live in a more affluent, secure, peaceful and value-centred world in the re-united Europe where they do not have to choose between homeland and progress, between nation and republic<sup>5</sup>.

The word **Hungarian** primarily refers to the preservation, development and spreading of the national language and culture, as well as all past and present values. Furthermore, it also implies the solution of such key national issues as demographic problems, social inequalities and supporting Hungarians living across the borders.

The idea of a **republic** expresses the further reinforcement of the rule of law and the institutions of democracy, and the guarantee of the rights of the individual and of minorities. All these implications of the term can now be successfully achieved with the devices, services and institutions of the information age (e-government, e-economy, digital university, intelligent region, etc.).

*We need to out-perform average EU member states<sup>6</sup> to have a chance to catch up and to join the advanced European information societies.*

**The challenge:** wide-spread application of information and communication technologies, as the most essential tools regarding the formation of a knowledge-based economy and an information society; and by the help of these, the modernization and enhancement of growth and competitiveness in the economy and in the society<sup>6</sup>.

Europe, one of the centres of the globalized world, is at a competitive disadvantage in the creation of a new knowledge-based economy and a new culture in the information age in comparison with other regions of the world. The widespread application of information and communication technologies and the simultaneous creation of a knowledge-based economy and society are opportunities, which would improve Hungary's competitiveness and at the same time it may contribute to the improvement of the position of the European continent in global economy.

**The stake of the challenge:** Hungary is at present several decades behind Europe in a number of respects. At the same time Europe, even if proceeding at a moderate rate and having to face temporary setbacks, intends to become a continent of knowledge societies by 2010-2015.

Hungary therefore has **three scenarios** to choose from:

1. Its present disadvantage will continue to grow, because it will keep performing below the European average in the next decade.
2. Through the implementation of the EU's eEurope programme, it will reach the same level and will proceed at the same pace as the member states; this way its disadvantage will not increase, but it will not decrease significantly either.
3. Learning from the Finnish or Irish example, for instance, it attempts to develop more dynamically in several areas of the information age, and gain a better position among European knowledge societies.

The optimal choice is the third one; the second scenario is, however, might also be acceptable as a minimum goal. **This is the challenge the strategy of the information society must therefore respond to by defining comprehensive plans and operative programmes.**

The accession to the European Union and the information age offer the Hungarian nation a **historic opportunity** to wipe out those competitive shortfalls which stem from our geographical features, the lack of traditional natural resources and raw materials, as well as our history. Not only could we improve our external economic competitiveness but might also reduce those social inequalities which had dramatically increased prior to and after the change-over to democratic government, as well as strengthen national cooperation. In harmony with the processes of the European Union, the info-communication technologies (ICT) and content services may help us strengthen our ties of cultural affiliation with the Hungarians living across the borders and scattered around the world, and may contribute to spreading new forms of cultural and intellectual cooperation.

*Elvesztettük a 90-es évekbeli relatív jó pozíciókat, az információs társadalom mérőszámai szerint hátrébb kerültünk a rangsorban.*

6. Hungary's Medium-Term Economic Development Programme – 2003.

7. The comparison must be tangible; the attainment of this objective has to be monitored on the basis of the EU's complex methodology (containing several indicators), and it also has to be compared to the data collected and published regularly.

## 1.2. CURRENT SITUATION<sup>8</sup>

The strategy may only be based on the **precise knowledge and realistic assessment** of the current situation; we may only define our vision of the future, objectives and priorities with regard to this. At the same time, we must face the fact that at present in Hungary there is no established, standard and approved method for measuring how developed the information society is – therefore creating such a method is another top priority. Nonetheless, we had to create a relevant picture of the domestic situation comparing it with the data currently available about the EU, the neighbouring countries, the US and other countries whose experiences could be instructive for us.

**The advanced countries have, in the past five to ten years, experienced a dramatic expansion in the use of information-communication technologies,** and Hungary has

only succeeded in keeping pace with them in resolving the historically disastrous situation in the availability of fixed telephone lines and in the area of **mobile telephone services**. We are clearly lagging behind other countries in the access to computers and internet in households: in mid-2003, less than one third of the households had computers and only around one tenth of them had internet access. As regards the rate of home Internet access, from among the countries awaiting accession only two Eastern European countries are behind us, while just some years ago we measured ourselves against the more advanced Central European countries (e.g. Czech Republic). The number of computers per a hundred persons in the EU is three times the number in Hungary and six times the number in the USA on average. .

*We have lost the relatively good position we had in the nineties; we have fallen behind in the rankings according to the information society indicators.*

At the same time, it may be clearly seen from these surveys (and the example of the successful countries) that a conscious information society development policy can achieve spectacular results with a boosting effect on competitiveness within a relatively short period of time. This is at stake, and this is the primary significance of the Hungarian Information Society Strategy.

As a rule **the indicators concerning the access to hardware and Internet provide a more favourable picture of the present state of the information society than the data concerning the use of these<sup>9</sup>**. The preference for using these facilities for traditional communications purposes (e-mail, information supply and search, etc.) to innovative applications of information-communication facilities (e-work, e-banking, e-commerce, remote diagnostics, distance learning) is particularly striking. There are considerable shortcomings **behind the favourable general picture, and there are also social inequalities in the access to facilities**.

Three tenths of the Hungarian population uses computers regularly or occasionally. This indicator of usage has remained unchanged for some time.

There are some characteristic differences between computer users and non-users in respect of the main social variables. Young adults (18 to 35 years), university, college and secondary school graduates, those falling into the top fifth part of the income bracket and those living in the capital and in county towns are over-represented among users. As regards occupations and activities, white-collar workers, students, managers and freelancers use computers in a higher than average rate.

### 1.2.1. The state of the information economy from the users' side

The current economic environment for the information economy is the flagging growth of the Hungarian economy and the nearly 0% growth rate of the EU's leading member states. There are disparities in the macro-conditions of the Hungarian economy, and remedying these is an important condition of balanced growth. The time has also come for a change of structure. A good example is that in the EU countries the service sector generates some 70% of the added value to the national income. An increasing number of industrial and agricultural activities withdraw from their own sectors and form independent services. Without a similar restructuring, we will hardly achieve further growth. At present the rate of electronic services in the service sector is quite low in Hungary.

*At present the added value generated by the information economy is very low in Hungary.*

<sup>8</sup>. The data given without a source have been derived from the research report entitled "Situation of the Information Society at the End of 2002 and Beginning of 2003" (TÁRKI, GKIeNet, Kopint-Datorg)  
<sup>9</sup>. Appendix No. 1 contains further, more detailed, information concerning the current situation.

Hungarian economy cannot yet be seen as an information economy, as **only a small proportion of the total GNP derives from information goods and services**. One of the most important indicators, the real value added to the value of the individual products by the information economy, is particularly low.

### Business sphere

At present, the amount of sales revenue generated electronically<sup>10</sup> in the economy is around HUF 250 to 350 billion<sup>11</sup>.

As regards the **use of the Internet** in the market sector, traditional forms of usage (information gathering and mail) also dominate. Only two fifths of businesses have their own **web pages** and the majority of these (three quarters) are passive in their function and are mostly confined to providing information. Only one fifth of the web pages surveyed allow interaction and less than one tenth (less than a mere two per cent of all companies) provide possibilities for commercial transactions. At present approximately 2,000 businesses provide high-level web pages<sup>12</sup>.

**Telework** is equally uncharacteristic at companies: only one employee out of every 250 is engaged in it. It is probably a consequence of the problems in the related legislation that telework is featured in the employment contracts of only a quarter of these cases.

The situation is not much better on the consumer side of ICT use either: companies **use** only banking services in a significant proportion (some 50 per cent). The other services (VoIP, EDI) hardly ever feature among the day-to-day transactions.

At the same time, the **attitudes** related to info-communication facilities need major development primarily in the areas of bank relations and marketing.

In companies, by their own admission, only one quarter of the employees have at least the basic **skills** necessary for using computers and the internet. In a hundred employees there are only two or three IT specialists.

### Public sphere

Some 75 to 80 per cent of public administration employees **work** with computers. Every civil servant now uses or would like to use a word processor for their work. It should be stressed that IT facilities are hardly present in training and in management decision support in central public administration. The general efficiency of the usage of these facilities is highly doubtful.

Only one third of local governments have their own web pages, while almost every unit of central state administration has one.

Through the establishment of the network of "document offices", the Ministry of the Interior has taken a major step towards taking services as close to citizens as possible. E-mail use is spreading; there are nationwide online systems and reliable electronic public administration registries.

One quarter of the local governments provide **IT training** for their employees. One quarter of the employees of central state administration has attended similar training. The IT culture of civil servants has improved considerably.

The **inadequate IT infrastructure of the health care sector** and the lack of knowledge management to promote a policy which is based on facts hinder the successful implementation of the national health programme by themselves.



<sup>10</sup> Central Statistical Office: Net sales revenue realized on computer networks: sales revenue is regarded as realized via a computer network if the product or service was ordered electronically, regardless of whether the counter value was paid and the product or service was delivered online or via traditional channels.

<sup>11</sup> Source: Rate of electronic revenue, CSO, 2001: 1%, GKI, 2003: 0.7 % in case of companies with a staff of more than 5 persons.

<sup>12</sup> Source: GKI. The rate of companies having web pages with a staff of more than 5 persons was 41% at the beginning of 2003, which amounts to 23,200 company web pages. The distribution of these web pages on the basis of how developed they are was as follows:

Information only	73%	17,000 businesses
Interaction (e.g. search in catalogue)	18%	4,200 businesses
Transaction	7%	1,600 businesses
Integrated transaction	2%	400 businesses

We regard the "transaction" level to be a "heightened level" as it also gives incentives to electronic sales revenues.

A effort to introduce **uniform registration systems in institutions of higher education** has been under way for almost a decade. The development of an information system for the management of institutes of higher education which would rely on the aforesaid, as well as finding support for its implementation are tasks yet to be resolved.

### Private sphere

The **technology for the introduction of the new mobile and multi-media applications** is already available. Mobile internet provides a possibility to access these applications in motion. Technical facilities exist (WAP, GPRS), but they are not widely used.

A popular solution in the transmission of information is the sending of short text messages (SMS). It is used by surveillance systems to send automatic messages upon the occurrence of unexpected events, or simply by people for interpersonal communication. **Complex systems operate on an SMS basis**, such as, for instance, the notification of banking events.

We are at a considerable disadvantage in the area of **info-communications skills and day-to-day practice** compared to the advanced countries: in December 2002, only three tenths of Hungarian population used computer regularly or occasionally, and only 17 per cent use the internet on a weekly basis at least. The vast majority of internet users have never made a purchase via the internet.

## 1.2.2. The state of electronic contents and services

The majority of the population have been unaffected by the revolution of the information age; **the idea of the information society is not a widely known, accepted and exciting vision of the future for them yet.** This is also related to the fact that the electronic contents and services through which the benefits of the information society could become tangible don't exist or haven't spread yet.

*There is no information society without electronic services and contents.*

The electronically accessible public services, which are now typical in the EU, apart from a few exceptions do not yet exist in Hungary. The number and use of public content services offered to citizens increase only slowly.

Most internet contents currently accessible are only available in Hungarian, being thus accessible but incomprehensible for other nations on the worldwide web.

While some progress has been made, there is no clear distinction yet between the public content services with the participation of the state, and private content services realized on a market basis. The viable "public-private partnership model" in the area of public content services is still lacking (though the relevant legislation is under preparation).

Public content services are scattered, redundant and ad hoc in their nature, lacking the standardization necessary for the cooperation of systems. On the four-level scale of the EU they correspond to the first level, occasionally to the second; in some cases, preparations are in progress (at least it has been considered) to launch third-level (interactive) services.

In the area of public content services, the state communicates in a traditional, top-down manner, and does not make full use of the interactivity inherent in online content services, as well as the opportunities of communication community-wise.

## 1.2.3. The state of infrastructure

As regards the number of computers available, Hungary is lagging behind considerably. In the EU there are three times as many computers per a 100 capita on average, while in the US it is more than six times as many. Among the accession countries we are in the eighth position, preceding Poland, Lithuania, Bulgaria, Turkey and Romania.

The rate of **internet users** in Hungary is higher than the average of accession countries, but it does not reach the half of the EU's, and is lower than the third of the US's average.

### Population

By international comparison, the situation in Hungary is quite unfavourable in this area. From among the accession countries, in respect of the proportion of the population with home **internet access**, only Romania and Turkey are behind Hungary. The number in Hungary is the quarter of the EU's average.

A similar tendency of slow increase is experienced in the other candidate countries, with some remarkable exceptions, like that of Latvia (4%), Estonia (4%), Slovenia (6%) and Malta (13%). We wish to note that the average EU growth rate is 4 percentage points.

According to the survey of the OECD in the year **2000, home internet use was the most expensive in Hungary and in the Czech Republic** from among the OECD member countries. Simple forms of access will only become cheaper with an increase in competition among service providers. In the medium run, however, the population should be provided with a broadband Internet access at a favourable price.

### Business sphere

**Internet penetration** is in direct proportion to the number of employees of businesses. It is 38% in case of businesses with the number of employees under 10 and 91% in case of those with the number of employees over 100. In addition to the improvement in the quality of dial-up access, the number of subscribers using **broadband** services has **increased** recently. Certain **high-level services** (virus protection, spam screening, server operation) have emerged – the ones that infrastructure service providers are able to manage. Nevertheless, the **market and service knowledge** necessary for providing infrastructure services does not yet support the rapid and widespread penetration of services.

### Public sphere

Public administration is for the most part provided with **access to internet and to computer facilities**. Internet access is provided in three quarters of the local governments, while a nearly full access is available for the central government.

Access within the educational sector is provided by the **Sulinet** network, as well as the **NIIDP** (National Information Infrastructure Development Programme)-**Hungarnet** network created for higher education, research and public collections. The provision of secondary schools with Internet access with the launching of the Sulinet programme was among the first in Europe. **The maintenance and improvement of both networks require attention and investments.**

13 A World Telecommunication/ ICT Indicators Meeting (January 2003) ajánlása alapján az IKT-használat az infrastruktúra és a pénzügyi lehetőségek mellett a vállalati tudásbázistól függ.

## Telecommunication

The statutory liberalization of the telecommunication market has not yet yielded spectacular results. Competition, particularly as regards conventional services, has not yet forced service providers to cut the prices of their services substantially, and has not yet resulted in the development of a real buyer's market.

The main obstacle to the development and spreading of user habits characteristic of advanced information societies is the lack of broadband services available and affordable for wider sections of private and business spheres.

### 1.2.4. The state of IT skills

While the use of internet, as well as its frequency and quality are fundamentally determined by the prevailing social and economic conditions, what is "in the heads" also plays an important role in this respect.

The professional recommendations of ITU in January 2003<sup>14</sup> suggested the assessment of the knowledge base of ICT-use as a factor for measuring ICT-use. The ICT skills indicator assessed on the basis of **education, command of languages** and **newspaper reading habits** can thus probably become one of the legitimate indicators for measuring the information society.

#### In education and adult training

An increasing number of teachers are able to use IT facilities, but the extent to which they integrate this into their teaching practice is far from satisfactory. Teaching about information society is not present either in public education, or in higher education and adult training.

#### Among the general public

The majority of the users interviewed believe that their computer using skills are inadequate. In spite of this, four fifths of computer users are able to list the main parts of PCs and two thirds of them are able to perform file transactions and to work with a word processor. Most users are able to use spreadsheet programmes and to search information on the worldwide web.

### 1.2.5. The state of the legal and social environment

The concept of legal environment is used here in a wider sense, including both the self-regulation of the economy and state regulation. These two areas are not clearly separated yet. As a result of a legislative programme focusing on the commercial dimension of the information society, between 1999 and 2002 the legal foundations necessary for the development of the electronic economy were adopted).

#### Approximation of legislation

The process of the approximation of legislation in Hungary is determined by the agreement entered into with the EU, as well as joining other international treaties and conventions.

As part of the preparations for our accession, **in 2003 a number of new laws with the purpose of approximation of legislation will be adopted concerning the information society**. Among the most important are: the comprehensive modification of the copyright law, the amendment of the law on information society services and electronic commerce, and the adoption of new legislation on electronic communication, postal services and the general rules of public administration proceedings.

14 Based on the recommendations of the World Telecommunication/ ICT Indicators Meeting (January 2003), the use of ICT depends, in addition to the infrastructure and the availability of funds, on the knowledge base of corporations.

In connection with the **regulation of telecommunications** the Act XL of 2001 on Telecommunications should be mentioned, upon the adoption of which the full incorporation of the EU's community achievements was a prime consideration. The most urgent government and ministerial decrees aiming at the establishment of a competitive market have also been drafted in connection with the Act. The results of the measures implemented to date have contributed to the opening of the market; however, the boosting of genuine competition on fixed cable telecommunication markets, as well as the abolishing of monopolistic positions are proceeding slowly.

With a new legislation package which entered into force in July 2003, the EU revised the existing legislation on telecommunication on the internal market; Hungary will realize the approximation of legislation through the adoption of the new Electronic Telecommunications Act by the time of the accession.

At the same time, we can state that **the new, "electronic" institutional regulatory system is not yet fully in place**. Certain (lower-level) laws that hinder the effective and competitive operation of the knowledge-based electronic economy have not yet been amended, new decrees are yet to be adopted and self-regulatory mechanisms are to be complemented by further instruments.

*As regards the approximation of legislation, our position is satisfactory. However, actual implementation, the full establishment of the institutional regulatory system, and the harmonization of important details with domestic conditions are tasks yet to be performed.*

## The state of IT security

In Hungary, **the legal framework of IT security** concerning today's technological systems, the role of information technology, and the exposure of IT systems (especially the internet and Windows) is in effect lacking.

In contrast to the practice in advanced countries, **it is characteristic of the state of IT security in Hungary** that

- its weight and management are not in proportion to its significance,
- it is scattered under the management of the various areas it is divided into
- it is hindered by statutory and management deficiencies in a number of areas,
- it has no uniformly applied methodology or system of technical criteria,
- it does not join in the main international trends.

## Exposure of users

A characteristic feature of information and communication technology is that it requires a great deal of special, rapidly changing, renewing and growing number of skills. This is particularly important as regards making good decisions, both on the part of simple users and of organizations acting as users. As a result of this specific feature, there are great differences in the **level of knowledge and skills** of the various players of the IT market, users and service providers. These differences in skills result in the exposure of users to various risks.

The situation is only aggravated if the service provider side of the market does not "function" properly either; if **competition** is for some reason, for instance due to the emergence of monopolies, **restricted**.

The situation of users is made even worse if this difference in skills is exploited by someone to the detriment of users, as may be experienced day to day with the latest **viruses, Trojans, "hacked" programs**, home pages and databases.

*Without establishing trust in the internet it is impossible to move on towards the formation of the information society.*

Similar exposure results, though in a different sense, from the **gathering and systematization of information** "describing" or characterizing the data, habits and activities of users, and the "stealing" of their personality thereby.

All these circumstances raise the **need for the complex protection of users** in addition to traditional IT security. At present such endeavours are only observed in the form of civil initiatives.

## Social “expectations”

Until the end of 2002 the expansion of the information society appeared to come to a halt in Hungary. The majority of penetration data indicated stagnation caused not only by the limited financial and infrastructural possibilities but, in contrast to prior false professional beliefs, also by a specific set of **attitudes**. It also transpires from the surveys about the development of the information society<sup>14</sup> that, due to **lack of interest**, internet use increased in recent years to a much smaller extent than anticipated. This was, in some cases, coupled with anxiety, suspicion towards novelties and, for various reasons, towards service providers, as well as distrust.

In 2003 changes could be discerned. The number of those not using the internet due to **lack of interest** was reduced by 10%. Parallel with this, the number of internet users reached some 20% by a significant increase.

The prevailing mentality, however, still fails to consider information and knowledge as resources, and information technology as means of production.

### 1.2.6. The state of equal opportunities

The spread of modern information and communications technological devices has a cumulative effect on the generation of social disadvantages, that is, the different modes and extent of access to and methods of use of info-communication facilities, as well as the employment of available online contents and services further increase social differences. This phenomenon of considerable presence in Hungary is expressed with the concept of **digital divide**.

The most typical digital differences in Hungary in the access to and use of computers and the internet are determined by the factors of professional activity, age, education, size of income, type of locality and ethnic affiliation. Based on international experience, these differences are expected to grow in Hungary in the next few years.

Only a small proportion of localities in Hungary have access to **reliable, high-speed internet**. In the vast majority of domestic regional and local governments there is no possibility for such access yet, and neither is there for the majority of citizens using the services of local governments or the organizations rendering various public services.

### 1.2.7. The state of research and development

Hungary has a substantial scientific background and resources of research in the areas related to the establishment of the information society. At the same time, unfortunately the **large institutions of the nineteen-eighties engaged in computer and IT research and development were, a few exceptions apart, dissolved**. The institutions of higher education constituting the base of IT and telecommunication research and development (R+D) have been to date unable to compensate for the considerable loss of teaching staff they underwent at the beginning of the nineties due to the drain exerted by the business sphere. These trends can only partially be compensated for by the welcome expanding of domestic and EU R+D tender systems.

*We have great opportunities and traditions in the area of R+D, however, in addition to fostering and profiting from them, it is also important to create new ones.*

The “creative and inventive” human capital which has evolved as a consequence of the specific Hungarian cultural heritage has high-level innovative skills (e.g. telecommunication, distributed computer systems, computer graphics, image processing, computational linguistics, speech processing, analogic computing, embedded systems, knowledge management systems). On these grounds, a number of multinational companies have located their R+D infrastructure to Hungary.

However, in this area too **the structures connecting companies and research and development institutions are lacking**.

To guarantee sustainable growth in the economy, certain high-priority areas of the national economy must be favoured. Among these are the R+D activities connected with the development of the information society.

<sup>14</sup> TNS, Interbus research

## I.2.8. The state of the information economy from the side of the IT industry

It is important to stress that **the IT sector in Hungary is advanced** in comparison with the whole of the national economy; in expertise and skills, it is only slightly or, in some instances, not at all, behind the capabilities of the most advanced countries. The latest ICT products, skills and services present on the markets of the more advanced countries all become available on the Hungarian market after a short delay. The direct contribution of the ICT industry to the whole of the national economy is increasing considerably every year – it can therefore rightly be called a **driving force industry**, and it can be stated with certainty that **Hungarian IT industry is able to meet the requirements** of the society as regards **constructing the information society** in every respect.

*The Hungarian information technology and information communications industry is able to satisfy the needs of the Hungarian information society and economy.*

## I.3. CURRENT TRENDS

Implementing the strategy and realizing our vision of the future depend to a large extent on prospective internal and external conditions, and on the international and European trends defining and influencing these.

### I.3.1. Economic circumstances

The economic development of a country is strongly determined by international economic processes, therefore the development of the Hungarian information society will also depend on the economic indicators of the European Union receiving us.

It is therefore essential to make our projections with regard to the economic growth expected in the European Union. The spring projections of the EU Commission and the OECD expect a 2.5% growth in the European GDP in 2004, while the region's imports will increase by some 6%. The OECD's medium-term projection, too, reckons with an approximately 2.5% annual growth in the whole of the European Union as the average of the years 2005 to 2008.

Global economic recession, which is deeper and more persistent than anticipated, has reduced the growth potential of the Hungarian economy considerably. While the quarterly growth rate of the GDP steadily accelerated following the low point in the first quarter of 2002 (2.9%), another low point was registered in the first quarter of 2003 (2.7%). It is likely therefore that the increase of the GDP will hardly exceed the 3.3% rate of 2002 as regards the whole of 2003.

The long-term objectives of the economic policy continue to be modernization and the attainment of the European level of development. To attain this it will be necessary primarily to improve competitiveness and the ability to attract foreign capital; to reach financial and price stability; and to promote the cohesive forces of economy and society. These can be attained only with sustainable growth, and (in respect of our relations with our environment) within the European Union.

### I.3.2. Political circumstances

We also have to reckon with the dominating political circumstances of the information society. It is particularly important to reach a consensus regarding the priority and maintenance of the strategy within the political elite. In the absence of this, the objectives of the strategy may become subordinated to the short-term interests of political electioneering.

*The establishment of the information society is not an issue of daily politics but of long-term national strategy.*

Apart from this, the EU's political environment and information society policy directly influence the expectations concerning the information society, just as the requirements concerning regional policy and public administration also have considerable impact on this area.

### I.3.3. Technical and technological environment

Information technology and telecommunication will continue to effect rapid technical changes in the next few years. The Hungarian Information Society Strategy is fundamentally technology-neutral and does not wish to "commit itself" to the currently existing technical solutions, thereby leaving scope for the application of new technologies, services and social innovations. The strategy attempts to strike a balance between optimal technical solutions and maximum social benefits.

This means that, while the comprehensive strategy must rely on the opportunities offered by new devices and procedures, when implementing the part strategies and programmes we should aim at maintaining technology-neutrality.

**Technology-neutrality** means that we do not give competitive advantage to any technology (whether it is xDSL, cable modem, microwave, satellite, GSM or UMTS), but we enable them to compete in a healthy market environment. It also means that in the comprehensive strategy we reckon with new technological opportunities (e.g. mobile communication).

From among the trends of technological development present in the first few years of the 21st century in the area of informatics primarily the following should be taken into consideration in the formulation of the Hungarian Information Society Strategy:

- the new, special target devices will have such a user-friendly, flexible interface, that will enable people to communicate with the different IT systems surrounding them in a natural manner which will, in the long run, change the form and role of the currently known forms of computer technology (e.g. personal computers) considerably;
- the performance and bandwidth of telecommunications networks will increase further and wireless network technologies will spread considerably, supporting the interconnectibility of devices;
- such technologies will be developed and widely used which will enable the employment not only the resources of a single computer, but the programs and data distributed on the entire network when performing a task;
- in addition to the continued increase in the performance of processing and storage IT devices, other devices based on completely new paradigms (nano-, quantum-, biocomputing, etc.) will also appear.

As a result, more and more practical objects and constituents of the made environment will contain ICT tools and solutions. The **"ambient intelligence"** thus evolving will raise the standards of the services of the information society to much higher levels than experienced before. Experts of research planning in the EU regard this as one of the most dominant technological phenomena of the years to come.

In strategic planning, we assume the existence of a technological environment which is shaped by the joint effect of the phenomena listed above, taking account of the fact that, **due to the openness of the Hungarian economy**, and in particular, the market of IT industry, **international influences reach Hungary very quickly**.

### I.3.4. Cultural environment

The social penetration of innovations is fundamentally determined by the community's cultural and communicatory traditions and expectations, as well as its open or closed attitude towards innovations. The lifestyles of communities and the changes in the content and form of their communication will have an impact on the application of ICT tools. But there is also a reverse effect: through the use of info-communication devices, **the cohesive mechanisms maintaining the community can be reinforced**.

The spread of ICT tools, too, has an effect on culture itself; an ever wider range of **new cultural contents and services** will appear bringing about radical changes in the lifestyles of communities. For the purpose of preserving the continuity of national culture, it is very important that our cultural heritage should also be accessible via new types of media, digitally: so far both civil (e.g. Hungarian Electronic Library) and state (e.g. Digital Literary Academy, National Digital Data Warehouse) initiatives are scattered and insufficient in their volume.

The preservation of cultural values is an important task of the state; information technology plays a role in this not only as an effective tool for archiving works created in other media. It is important to recognize that **the preservation of values should be extended to the values created via the tools of the information technology**.

### I.3.5. Human skills

The "socialization" process preparing for the advent of information society does not last for generations, but for a remarkably short time. Schoolchildren and the elderly have to learn and acquire the new skills of the information society practically at the same time. The success of Hungary's information society depends on the extent to which this learning process will cover every section and age group of society.

**Distance education** and **distance learning** will become important means of "lifelong learning"; e-learning is the version of these supported by ICT tools. The framework systems of this form of learning are already widely known; the fact that according to market research e-learning has already become one of the most dynamically expanding segments of the economy, is a good indicator of how wide-spread they are.

By the end of the decade comprehensive public e-learning networks offering accredited higher education and further training courses need to be established in Hungary. The objective is not only the development of the curriculum but also the setting up of an information system which would monitor the knowledge, abilities and skills acquired and the progress made.

### I.3.6. Regulatory environment

The market environment of the electronic economy is global: while the member states of the European Union will continue to remain our most important partners, we will also have to take account of other international regulatory endeavours relating to trade relations outside the EU. In the next phase of our legislation, the organizing role of normative and self-regulation in the economy will be more emphatic than ever before: Europe's economic future will greatly depend on how effectively common legislation of the community and the legal systems of the old and new member states will be able to promote the implementation of political objectives.

The new information society norms, which at present mostly exist in the form of Commission communications, draft directives and regulations, and the smaller part of which are in the various phases of negotiation and conciliation before the European Parliament, project the development of a consciously planned and coordinated set of tools. The primary concern of these are enhancing information and network security, establishing favourable legal conditions for the business sphere, promoting online public services and electronic administrative solutions, and establishing the conditions of electronic transactions; while in a broader context, enhancing the consistency of the norms of business and private law, liberalizing the official regulatory conditions stifling economic growth and promoting self-regulatory mechanisms and alternative dispute resolution (ADR) systems. The new directives having already reached the bill phase will, according to plans, be passed in 2003-2004, and will be adapted by the national legislation of the member states (including Hungary) by the end of 2005. The legal instruments of the knowledge-based economy and electronic commerce, having exceeded the boundaries of special regulation, constitute the most dynamically developing area, extensively affecting the government, the non-profit sphere and the market players. The role of the state should extend to informing those concerned about the planned changes in good time and in an adequate manner, providing the necessary conditions for giving their opinion and should take these into consideration when formulating the position of the Hungarian government.

The main forces of production in the new electronic economy are knowledge and information. Every player of the Hungarian economy should have access to the information they require.

It is equally important to provide domestic and foreign market players with reliable, up-to-the-minute information data bases both in Hungarian and in foreign languages, from which to obtain the necessary information promptly and above all free of charge. This is simultaneously an essential condition for creating consumer and business trust in the services of the Hungarian electronic economy.

The fulfilment of this requirement necessitates not only action plans assisting the realization of strategic objectives, but also a legal regulatory environment which enables the acquisition of the necessary skills at every level of the Hungarian education system, as well as the recognition and accreditation of courses providing special qualifications in out-of-school training systems.

From the respect of the foreign market players, it is essential to make the Hungarian information economy contents and legal instruments available in foreign languages: in cross-border electronic trade relations, this is not only an important means for building trust but is also an obligation prescribed by community law.

## 1.4. VISION OF THE FUTURE

We speak of an information society when the social and economic weight of the information sector becomes dominant, information becomes the part of the everyday lives of individuals, organizations and institutions, and a large part of social communication is conducted via digital channels. **The widest and easiest possible access to information and its increased production and transformation contribute to the renewal and mobilization of society, open a path towards individual initiative and enterprise, widen the consumption of civilization products and cultural goods and render the acquisition and sharing of human knowledge global by multiplying it to a degree never witnessed before.**

Hungary has a lot to gain, too. The success of adaptation simultaneously creates a competitive economy, skilled citizens and a country present as an attractive partner in the ever more trans-national space of production, consumption and relations. It creates a society where everybody has access to the public information infrastructure and to the simplest and cheapest use of the contents therein, and everybody is able to operate on the tools for accessing information. It creates a public sphere the services of which can be used simply and promptly by everybody. An environment where the publication of information generated from public funds is as comprehensive as possible and where an increasing proportion of the general public and civil organizations takes part in decision-making and exercises the right to voice their opinions. This path leads to a direct democracy where the citizen, the provider of public services, the decision-maker and the politician are equal parties in the same virtual space – with a task-driven and service-centred public administration in the background.

*Hungary's vision of the future: a competitive information society*

There are no miracles: even in the next phase (until 2006) progress may only be achieved through the successful completion of a number of individual, related, well-planned and executed tasks. How much of the plans are realized depends on the coordination, financing, management and monitoring of the programmes. Implementation will only be successful if the foundations are laid in several areas simultaneously.

*The future cannot be hastened but it can be shaped. Success requires the right approach, hard work and lots of accumulated and applied knowledge.*

The "state" of an information society will be strong and efficient, yet not bigger and not more costly than necessary. It will operate with decentralized, technically well-equipped, well-trained and well-paid civil servants. The activities of the authorities will become more simple and the quality of state public services will improve: bureaucratic mentality will be replaced by a citizen- and result-centred approach. The range of so-called electronic government will expand and Internet-based administration will become the standard, becoming much simpler and faster in the new Hungarian public administration, which will be process-controlled, integrated, automatically managing links between the various records, and directly linked to the common European administrative structures.

The more competitive and affluent citizens, communities and businesses of the forthcoming Hungarian information society carry the promise of a directly experienced democracy and a new quality of life strengthening trust in a meaningful and prosperous life in the country.

## 1.5. THE ANSWER: eHUNGARY

Profiting from the advantages offered by knowledge-based economy and information society requires major changes at the levels of the individual, businesses, state organizations and society as a whole.

The basis of constructing information society is the wide-ranging application of information and communication technologies. Analyzing the changes in the transition to the information society, the strategy considers the modernization of processes and services the two fundamental pillars of the modernization of the economy and the society. The creation of a knowledge-based economy and information society is possible by relying on these two pillars.

The modernization of processes primarily implies the transformation of the internal working of the economy and the public sphere; by this, we mean the modernization of activities related to production and execution, as well as planning, monitoring and management. In accordance with an IT-centred approach, modernization requires an analysis of the actual processes and, if necessary, their streamlining, re-planning and re-organization, in the course of which the tools offered by information and communication technologies should be used in as many segments of these processes as possible. This type of transformation of the internal processes and the processes between organizations ensures an increased efficiency of activities and, consequently, that of organizations, and eventually leads to an improvement of competitiveness in the economy and of the transparency and democratic operation in the public sphere..

*First pillar: introduction of information technologies into processes – modernization of processes through the application of information and communication technologies.*

Info-communication technologies make the modernization of services possible by advanced online services. Electronic servicing can be realized at several levels of development, from online information access, through the execution of one- and two-way transactions, to integrated administrative solutions. At the same time, the modernization of internal processes creates new processes for the production, generation and management of information. Electronic services primarily provide access to information.

*Second pillar: implementation of electronic services – modernization of services with the aid of information and communication technologies.*

The construction of an e-Hungary relying on these two pillars<sup>15</sup> lies in the centre of the strategy. There is a natural connection between the pillars but it is not always necessarily possible to infer from one to the other. Online services represent the external aspect, the “front office” of the functions performed by the organizations for users. Yet electronic services can only be implemented in their most sophisticated form (for instance with the use of integrated administration), if the internal operation or “back office” is sufficiently informatized. It also ensues from this connection that the problems and conditions of implementation and, accordingly, the elements of the solution, are in many respects common.

Systematic knowledge development and knowledge application relying on the two pillars of information technology, that are the modernization of processes and services (an example for the latter is the creation of content industry), as well as the conscious development of society and, as part of this, the modernization of regions and sub-regions (that is, creation of e-municipalities and e-regions), lay the foundations for the **development of a Hungarian knowledge-based society.**

Changes and progress will occur in harmony with the specific features of the social, economic and technological environment. **The development of the information society and the knowledge-based new economy is an unstoppable global process. We wish to intervene in this process with the strategy in order to make development more effective, more rapid and, above all, more conscious, while remaining balanced, just and sustainable.**

We primarily need interventions which enable the attainment of the desired objectives **on a market basis. The involvement of the government is necessary to ensure that the processes also take place in areas where the operation of the market would not guarantee it on its own**, and where an example set by the state triggers a process with such intensity that it considerably reinforces the development and operation of the market.



*eHungary: conscious and organized nation-development through the application of “informatized” processes and the implementation of electronic services; mass accessibility of these services and development of a manifold and versatile information culture.*

15. In harmony with the programme of the European Union entitled “eEurope 2005: An information society for all”.

Promoting, as well as rapidly and effectively supporting the development of the information society and the knowledge-based economy is a public concern. Every Hungarian citizen and business should be given the opportunity to voice their opinions and represent their interests individually or collectively, via systems of interest representation: the processes related to regulation must therefore be public, transparent and trackable.

*The development of the information society fundamentally occurs on a market basis and interventions must take place according to this principle, that is relying on market players.*

HISS marks out the following potential points and forms of intervention in the various fields of intervention:

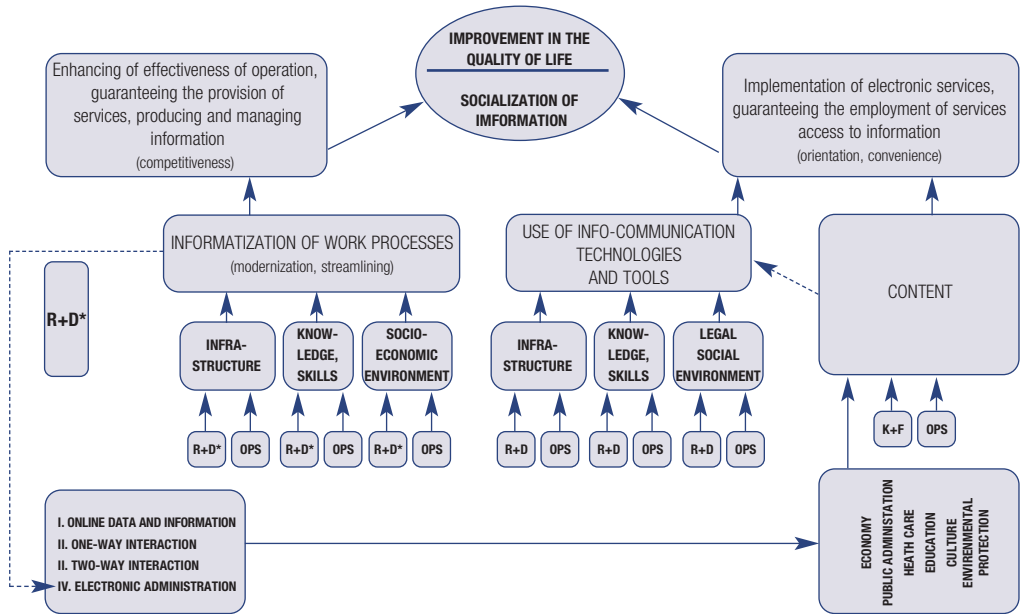
Field of intervention	Informatization of processes	Electronic services
<b>Content and services<sup>16</sup></b>	Business Process Reengineering (BPR); promotion of distance work and distance learning; electronic division of labour; building clusters of enterprises; use of electronic certificates, electronic settlement and payment systems; digitalization of culture, transformation of processes in health care, education, public administration, etc.	development of content services and content industry; provision of public information; introduction of online (public) services and of e-public administration, etc.
<b>Infrastructure<sup>17</sup></b>	construction of a nation-wide broadband network; community service points; availability of basic information, basic software, etc.	construction of a nation-wide broadband network; community access, etc.
<b>Knowledge and skills</b>	expanding the knowledge and skills of decision-makers, experts, citizens, etc.	widespread promotion of digital literacy; lifelong learning; promotion of skills in information and communication technologies; preparing individuals for transforming information into "knowledge", etc.
<b>Legal and social environment</b>	IT security, authenticity, reliability, quality; formulation of information and communication recommendations, standards, professional codes of conduct, ethical rules	solution of the problem of customer protection; enhancement of IT security; social acceptance and popularization of information technology; incorporation of fundamental information rights in the Constitution, etc.
Horizontal objective	Informatization of processes	Electronic services
<b>Research and development</b>	research and development in the fields of information and communication technologies; international research cooperation; development of relations between research institutes and businesses, etc.	technological research and development; (informatized) research in the field of social sciences; theoretical and practical research into information society; technical IT research in special areas (education, health care, etc.); etc.
<b>Equal opportunities</b>	improving the opportunities of service providers having a less favoured position in the IT sector; modernization of regions and sub-regions with the facilities offered by the information age, reduction of inequalities in the access to information and knowledge, etc.	dealing with situations, communities and regions that are disadvantaged as regards IT from the users' side, etc.

In order to successfully implement the strategy a change of social mentality is required: individuals need to become more autonomous, businesses more flexible, and the state more self-restrained.

The Hungarian Information Society Strategy determines the tasks through the fulfilment of which the strategy can be successfully implemented. The **market sector and the civil and state spheres** all have to play a part in implementation, while the active participation of representatives of **professionals and academics** is also essential.

16. The infrastructure of the information society is usually described through a four-tier model: telecommunication networks, systems and services; computer networks, systems and services; data bases and content services; info-communication applications. The term "content and services" "covers" levels 3 and 4 here.  
 17. Basically corresponds to levels 1 and 2 according to the model above.

Diagram 1: Components of the Hungarian Information Society Strategy



The repeated representation of the objects of "R+D" and "opportunities" in the figure above is warranted by their different contents (technical, technological, social, scientific, etc.). The special role of Content can also be clearly seen in the diagram.

## I.6. Strategic Objectives and Responsibilities

The most important objective of the strategy entitled "eEurope: An information society for all" is that Europe should, by 2010, become the world's most dynamic and most competitive knowledge-based economy, supporting a sustainable economic growth.

**The prime objective** of the Hungarian strategy of the information society is **to join eEurope and to create the conditions for catching up**. This strategy identifies the adoption of the objectives defined in the eEurope action plan and changing domestic circumstances and conditions resulting in the difference between the Hungarian pace of development of the information society and the average rate of development of the European Union as the primary means of attaining the most important, comprehensive social objectives defined above. As a result of the desired changes, **the level of development of the Hungarian information society will, within some 10 years following the country's accession to the European Union, reach the average level of the European Union, thereby creating the social and economic foundations which will enable Hungary to play a defining role in the Central- Eastern European region.**

*In creating an information society we have to be among the more advanced countries of the European Union within 10 years. All obstacles to this objective should be removed.*

In determining the strategic objectives and responsibilities of the Hungarian information society, we relied on the supreme common goal, the objective of improving the quality of life, bearing in mind that we have to take into consideration those challenges facing Hungarian society which are independent of the interests of the IT industry. We wish to provide answers which are based on real values and which will remain valid regardless of different terms of government.

***For the individual, the attainment of the objectives defined in HISS will lead to an improvement in the quality of life and living conditions:***

- in the field of work (employment, quality of work performance),
- in learning and acquisition of skills,
- in recreation (hobbies, entertainment, self-fulfilment),
- in maintaining and establishing human contacts,
- in protecting the private sphere (protection of personal data and information),
- in conducting affairs in the public sphere (access to information, expression of opinions, etc.).

***The introduction of the new services envisaged in HISS will result in an increased pace of development in the society:***

- through its impact on the performance of the economy,
- by creating the tools for establishing equal opportunities,
- through the preservation of culture and language,
- by creating an effective public administration system providing services for its users,
- by creating an open and transparent public sphere and a strong civil sphere

To achieve the two main results above, HISS takes account of the strategic objectives of sectors and defines responsibilities in harmony with the policies of the individual sectors, the successful completion of which will provide prompt and efficient answers to the new challenges even in the short term. HISS provides a framework for the attainment of the sectoral objectives by coordinating the tasks, consolidating the common strategy into a standard structure<sup>8</sup> and designating strategic objectives.

The tasks assigned to the strategic objectives are systematized in the present document according to several criteria to minimize overlaps and produce effective division of labour. The strategy draws up programmes for the clear designation of executive responsibilities and for managing close correlations between the tasks.

Coordination between and supervision of the programmes require further subdivisions according to the key areas of the tasks. The purpose of the key areas is to provide unified professional management and coordination for the programmes with various priorities, as well as operating and financing models assigned to them in the interest of realizing the objectives of HISS.

*This strategy has been drafted in order to be implemented successfully. To this end,*

- *the strategy must be put into effect in the main fields of intervention and through programmes executed in the key areas in withing them.*
- *executive responsibility for the tasks and programmes must clearly be determined;*
- *a system of monitoring and follow-up evaluation must be put in place;*
- *a mechanism must be created for rolling planning enabling us to incorporate the lessons we have learnt and to take changes into consideration.*

***The strategy's fields of intervention and the key areas within them are as follows:***

### **1.6.1. ELECTRONIC CONTENTS AND SERVICES**

The development of contents and services may be classified into the following **key areas**:

#### **1 Economy**

It is desirable to manage the programmes serving to support the wider spreading of the modern IT tools (and thereby the improvement of competitiveness) in the economy in a single "key area". Within this, central programmes covering both "back office" and "front office"-type activities should be implemented. As part of the first category, primarily the application of intra-organization and inter-organization integrated systems should be promoted, while the programmes falling into the second category should mainly deal with the development and promotion of electronic commerce in a wider sense.

18 Recommendations of the Ministry of Informatics and Communications for the sectoral strategies, based on Government Decree No. 1214/2002. (XII.28.) Korm. (February 2003)

**Creating the competitiveness of the knowledge economy represents the opportunity with which we can accelerate Hungary's effort to successfully catch up with the advanced countries.** To this end, we have to find the **leading competitive and export-capable sectors** of our knowledge-based economy. Another important factor in the enhancement of economic performance is the creation of a competitive situation and a system of the positive **boosting of competition**.

## 2. Public administration

This is one of the most important key areas of the Hungarian Information Society Strategy, because the extent and quality of the informatization of public administration **have a fundamental influence on the growth rate of the information society**, and consequently, on the performance of society.

*Creating a modern Hungarian e-public administration system is one of the top priorities of HISS.*

This key area includes programmes related to providing IT support for the activities of state and local government administration. The main part-areas are:

- central government (state administration, e-government)
- non-governmental state agencies (Courts of Justice, the Parliament)
- local governments.

Electronic government also has an impact on the part areas of the key areas. In respect of electronic government a special part strategy and programme plan has been drafted (eGovernment 2005) related to the programme for the modernization of state administration.

The above part areas, which, of course, also cover a considerable segment of the special programmes in addition to the central programmes, are served from a technical point of view by the Public Data programme (featured in the third key area of Infrastructure as a field of intervention), which promotes the creation and use of information and IT applications that could be used in several areas, primarily in connection with the creation and management of data base, as well as their organization into structured systems.

A task with a horizontal impact on the whole key area of Public administration is the maintenance of transparency and interactivity, enforcing the criteria of democracy within the individual systems. The tools necessary for implementation are provided partly in the eDemocracy programme in the key area of Legal-social environment.

## 3. Culture

The key area Culture **serves the gathering and structural systematization of Hungary's cultural values, the multilingual digitalization, as well as the on- line and off-line accessibility of these**, with regard to the dual obligation of preserving and disseminating the cultural heritage, both for Hungarians living in Hungary and across the borders. The result of this task would be the completion and coordination of new library, museum and archive catalogue systems relying on the tools of information technology. The formulation of the multi-tier system of accessibility will broaden both the scale of use (experience, learning, research, sale) and the range of users. This new form of access to our cultural values will enable Hungarians living across the borders and the rest of the world to gain an insight into Hungary's cultural values. This key area assists the objectives of the sector with new technologies:

- creating equal opportunities to access and embrace culture,
- preserving values and traditions, yielding access to existing values in their original form, in the spirit of multi-culturalism,
- creating new values, supporting new works of art and new methods of expression in every area of culture.

## 4. Education

The top priority here is supporting educational activities and training **with the tools of information technology** at various levels of education (kindergarten, school, higher education, adult training); the creation and circulation of **digital curricula** (including multi-media education and distance education curricula); **and the development of administration systems in education**. **E-skills** should become an integral part of teacher training.

**Distance learning** is a tool of particular significance with regard to **lifelong learning** and establishing equal opportunities. For its wider penetration it is necessary to establish and operate of institutions in the virtual space, as well as to spread the technologies required for their implementation and to continuously improve their content (special distance education curricula, methods).

Another important component of lifelong learning is **adult training**, which in addition to offering equal opportunities, also serves to increase the rate of employment (+10% over 10 years) and to raise competitiveness.

*The three most important elements of modern education:*

- *supporting and renewing education with the tools and contents of informatics;*
- *offering education in the skills necessary for orientation in the information age;*
- *modernizing the operation of institutions of education with the use of ICT tools.*

A top priority should be to **teach the skills required by the active players of the information age** (information society, knowledge-based economy, e-economy, e-public administration, knowledge management, etc.); including, in justified cases, the operation of university or school courses and institutions specializing in the instruction of these skills.

Another task group in this key area is **the modernization of electronic services in institutions of education**. As part of this task group, we should provide for the modernization of the operation of higher education institutions and the introduction of comprehensive information systems, covering business management, education, registers of facilities and research, as well as the management of institutions of higher education relying in these, all satisfying the standard criteria.

## 5. Health

**The pace of the informatization of health care must be accelerated;** the key area serving this goal **has to cover every area of the communication and IT development tasks related to health care** through the coordination of the developments in the part areas listed below. These developments should be implemented partly through central and partly through special programmes, by creating and operating:

- information sources, knowledge bases and expert systems supporting health care and the performance of workers in this sector,
- IT systems for the storage and processing of health care data,
- systems enabling the online transmission of data and information between health care institutions,
- systems enabling online contact between members of the public and health care institutions,
- IT support systems facilitating both health care and the administrative tasks of health care institutions,
- internal IT systems for social security,
- systems for online contact and data supply between the general public, the business sphere and social security institutions.

## 6. Environmental protection

This key area is responsible for gathering and disclosing to the public the information about the main sections of the sector (environmental protection and nature conservation, water management, meteorology, waste management, etc.). We should promote the establishment and operation of **systems satisfying EU legislation**. With the tools of modern informatics we need to "activate" environmental information, so that they effectively contribute to the considerable improvement of the environmental situation.

One of the greatest challenges of the information society is the management of electronic waste, the resolution of which requires far more attention than ever before.

### 1.6.2. INFRASTRUCTURE

Following the usual four-tier model of the infrastructure of the information society (1 – telecommunications networks, systems and services; 2 – computer networks, systems and services; 3 – data bases and content services; 4 – info-communication applications), HISS here also designates several key areas. In determining the tasks involved, we should remember that infrastructure is both a tool and a service, while we should also take account of the process, as a result of which ever more sophisticated services are becoming infrastructural in their nature.

## The infrastructural tasks are covered by 3 key areas.

### 1. Broadband infrastructure

We classify the tasks falling into the first tier of the four-tier model into this key area, primarily in the interest of creating a **nationwide broadband infrastructure**. As part of this key area, we must launch and operate programmes, as a result of which over a period of 4 to 6 years a nationwide high-speed network will be created satisfying the long-term info-communication needs for all settlements locally.

At the same time, the development of the information society at an appropriate pace is impossible **without an effective and competitive telecommunications market**. The consistent liberalization of telecommunication, which is the result of the successful liberal review of the legislation currently under way, is a fundamental condition of the development of the economy and society, and not a mere telecommunications policy objective. If, in line with international experience and practice, the government acts for a while to reinforce new service providers in weak positions (e.g. with regulations relating to service providers with considerable market power), it will serve the prompt development of a healthy competitive market.

*Within the foreseeable future everyone should be provided a broadband access. In addition to necessary infrastructure, this objective also includes affordable prices by Hungarian standards.*

**For the construction of a nationwide broadband telecommunications infrastructure**, settlements and regions can be classified into three categories:

- In the case of those falling into the first category, on the basis of business criteria creating broadband infrastructure will be economically profitable.
- In the case of those falling into the second category, the costs of the construction and use of the infrastructure could be reduced with "soft" public policy tools, giving opportunity to a wide range of users, and enabling it for customers to meet the investors' profit expectations.
- The third category is constituted by regions and settlements where the state should assume an in-merit role in the construction of a modern broadband infrastructure. In these cases, results can and should be achieved through the adaptation of the subsidy and infrastructure utilization models applied in advanced countries. With adequate preparations and the provision of substantial own reserves, we may expect considerable EU resources for these projects.

### 2. Access

The **second** key area covers the tasks facilitating access to info-communication tools, computer systems and services. Particular attention should be paid to tasks which aim to remove the obstacles hindering the widespread realization of **personal access**. At the same time, we must create the possibility for accessing information and using info-communication tools for everyone<sup>19</sup>. To this end, some form of **community access** must be provided in every settlement within the shortest possible time. (See also the chapter entitled Fine-tuning of Strategy)

### 3. Infrastructural services

The **third** key area covers the elements of the third and fourth tiers of the above-mentioned model, that is, the tools and services provided on an infrastructural basis. Society has special expectations towards the public sphere. Such are, for instance, equal opportunities in accessing to published information from government or public administration sources. The application of open source softwares and the cooperation of the public, private and civil spheres give a potential solution to the cost-effective supply of public data and software<sup>21</sup> as infrastructural services.

<sup>19</sup> Az IHM ajánlái az ágazati stratégiák készítéséhez, a 1214/2002. (XII.28.) Korm. rendelet alapján (2003. február)

<sup>20</sup> "Free software" is a question of freedom, not a question of price. The term "free software" refers to the freedom rights of users. Namely, users are granted the right

- to run the program for any purpose.
- to study the operation of the program and to adjust it to their needs. A pre-condition of this is the availability of the source code, the "open source code".
- to publish copies to assist fellow-users.

A pre-condition of this, too, is the "open source code". "Free software" does not mean "non-business". A free program should also be applicable for business purposes. The business development of free software is no longer an unusual practice. These programs are free business software products.

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- to run the program for any purpose.
- to study the operation of the program and to adjust it to their needs. A pre-condition of this is the availability of the source code, the "open source code".
- to publish copies to assist fellow-users.
- to perfect the program and to publish the perfected program so that the entire community may enjoy its benefits.

A pre-condition of this, too, is the "open source code". "Free software" does not mean "non-business". A free program must also be usable for business purposes. The business development of free software is no longer an unusual practice. These programs are free business software products.

### I.6.3. KNOWLEDGE, SKILLS<sup>22</sup>

The prime forces of production of the new electronic economy are information and knowledge. Everyone should be enabled to gain access to the information important for them. Through the promotion of **“digital literacy”**, we must ensure, on the one hand, that everybody is able to use the continuously renewing information and communication tools for obtaining information and for using electronic services, while, on the other hand, we have to make certain that the information obtained **becomes applicable knowledge**.

*Everyone should be able to obtain information. The information obtained should be transformed into actively used knowledge.*

A fundamental condition of the development of the Hungarian economy and society is that the **new information and skills** generated globally **should also be accessible in Hungarian**. Parallel with this, however, the **command of foreign languages** among Hungarians should be perceivably improved, as this has become essential for the orientation on the worldwide web and for the utilization of the information accessible there.

It is of special relevance, that the acquisition of skills by the experts taking part in the implementation of HISS could be supported (perhaps even in an organized form), so that they can perform their work by systematically relying on the necessary theoretical and practical knowledge and skills.

### I.6.4. LEGAL AND SOCIAL ENVIRONMENT

The actual extent to which the services of the information society are used is greatly determined, in addition to financial and intellectual factors (access, literacy, content), by the extent to which the potential users trust that the operation of the services is high-quality and does not violate their various rights. Therefore, an important constituent of IT security is the acquisition and retention of **users’ trust**. Guaranteeing the **quality** and **security** of IT systems (tools and applications) is of fundamental importance. To this end, the task in hand is to create the necessary regulatory, organizational and technological conditions.

An equally important constituent is maintaining the trust and guaranteeing the protection of users to improve the way in which people “relate to” info-communication tools; similarly, the task here, too, is to provide the regulatory and organizational conditions for solving this problem.

One of the most difficult tasks in this key area is the socialization of the **“informatics mentality”** which regards information and knowledge as a genuine resource and informatics an effective means of production.

The programmes in the other key areas also have regulatory aspects. In this key area we wish to deal with the general and fundamental questions related to the information society. In addition to interest representation, PR and technical solutions, legal regulation has a prominent role in shaping the social environment and users’ attitude and in gaining and retaining trust. The key area covers a number of the aspects of regulation.

Such important political objectives as the statutory declaration of the so-called second- and third-generation fundamental rights of citizens (for instance, the **fundamental information rights**) represent long-term goals.

Among the regulatory tasks we need to determine what types of tasks require no direct state intervention; in such cases we should favour **industrial self-regulation**.

Regulation related to the knowledge-based economy and electronic commerce can only be successful in cooperation with the professional and users’ interest representation organizations. The tools of **normative regulation** and **self-regulation** will only be effective if they rely on and complement one another. In this respect, we must encourage and facilitate the strengthening of self-regulatory mechanisms and the approval and widespread application of **professional codes of conduct** (developers’, traders’, users’, etc.) and **ethical rules**. In the course of normative regulation, we have to rely on the open (or public) legislative process (PPP).

18 Recommendations of the Ministry of Informatics and Communications for the sectoral strategies, based on Government Decree No. 1214/2002. (XII.28.) Korm. (February 2003)

## The horizontal areas are as follows:

The horizontal areas are to be assigned to each field of intervention and key area.

### I.6.5. RESEARCH AND DEVELOPMENT

the area of research and development, the information society strategy designates the most important areas and objectives of research and development, on the one hand, and, on the other hand, describes the specific research and development infrastructure which serves to realize the vision of the information society with special regard to features specific to Hungary.

Therefore, it is advisable to distinguish three groups of research and development tasks:

- The purpose of technical research and development concerned with the subject-matter of info-communication (including the underlying research in natural sciences) is to prepare and to formulate new products, procedures or services where innovation and professional excellence have direct effect in the field of info-communication.
- The purpose of research and development related to info-communication (including the underlying research in natural sciences) is to prepare and to formulate new products, procedures or services in which the tools of information technology and/or telecommunication are used innovatively in different fields; novelty and professional excellence have effects primarily or only in other professional and/or scientific areas.
- Research and development relating to information society (including the underlying research in social sciences) aims at the penetration, social acceptance and establishment of info-communication technologies, as well as the identification of factors hindering the development of the information society, etc.

While it is not a task of research and development in the strict sense, the existence, operation and continuous development of an adequate infrastructure is an essential condition of research and development. The latter is often coupled with the solution of research and development tasks. To illustrate this, we can mention the Hungarian NIIP and the European GÉANT networks, or the GRID which is still in the phase of research and development, and which is subsidized by the European Union in the countries participating in the EU's sixth framework programme (FP6), as well as in other parts of the world.

The R+D programme of the information society (IS), the mission of which is to contribute to the development of the Hungarian information society and the long-term competitiveness of the knowledge-based economy, contains the most important responsibilities serving the objectives of the IT R+D activities of the various sectors.

The R+D programme of the Hungarian information society is in harmony with the R+D programme of the EU's sixth framework programme related to the information society. An important objective is to prepare the domestic R+D base in a centrally coordinated thematic manner for its successful participation in the international R+D market and to present an attractive image of Hungary to foreign investors. Particular attention should be paid to enabling Hungarian researchers and research teams in the largest possible numbers to take part in the EU's research, technical development and demonstration programmes.

The results of R+D serve the development of the information society if they lead to solutions which create new and effective possibilities for production, trade and services and reach the phase of application within a reasonable period of time. For this purpose, three main conditions need to be satisfied:

- the social and economic environment should be capable of receiving and accepting applications,
- research results should reach a phase of development where they take the forms of marketable products and/or technologies,
- new products and/or technologies have to be launched on the market.

The above conditions can be satisfied through the development of R+D and innovation and the reinforcement of relations between the research and development sector and the economy. The innovative capability of small- and medium-size businesses should be developed both indirectly (for instance, by setting up cooperative research centres) and directly (by supporting innovation). The R+D activities of the corporate sector can be directly assisted by developing the existing research facilities and establishing new ones. When developing the innovative capability of companies, the innovative capacity and cooperation structures of the provincial R+D centres should be primarily strengthened.

As part of improving the conditions of research and development, researchers should continue to be linked to broadband networks. While the Hungarian research network operating at European standards allow this, we have to ascertain that these

standards are maintained. Improving the conditions of R+D requires that the organization of science becomes more effective, an important element of which is the tracking, measuring and monitoring of the projects in progress.

An important issue in the knowledge industry (at universities, in research institutes, etc.) is the ongoing support of the **adequate and prompt utilization of the generated new knowledge**, the **launching on the market** of inventions and developments, as well as the necessary **R+D institutions** (technology parks, science parks, innovation e-market, etc.). In the case of the R+D activities related to the development of the information society, as elsewhere, we also have to pay particular attention to the promotion of utilization.

### 1.6.6. EQUAL OPPORTUNITIES

Alongside the enforcement of the "horizontal principle", the equal opportunities strategy of HISS intends to pursue the practice of former strategies based on the principle of positive discrimination.

With our accession to the European Union, we shall become a full member of a community, which sees **social and economic cohesion** as one of its main values. eEurope 2005 was conceived not only in the spirit of the idea "an information society for all". As stated in the document, every member state should formulate its own strategy as to how disadvantaged groups can be integrated into the information society. Accordingly, HISS regards the guaranteeing of equal opportunities as a top priority. HISS concentrates on the areas in which the social disadvantages stemming from living conditions or arising for regional or linguistic reasons can be reduced through the provision of equal opportunities in the access to and the use of info-communication tools. The strategic key area of Equal opportunities distinguishes three target areas:

- social equal opportunities,
- regional equal opportunities,
- inter-regional equal opportunities.

The strategy has set the maintenance of **social equal opportunities** as one of its main goals. ICT tools help simplify services in every area of life and enable everyone to access certain contents. However, the use of info-communication tools is based on the already existing social inequalities, thereby deepening division within society. Digital inequality (often referred to as the "digital divide") is not a new phenomenon in the sense that the circumstances inducing it had also existed prior to the spread of ICT tools. The main fault lines of the digital divide lie along the dimensions of qualified/unqualified labour, high/low income, young/old, town/village, healthy/disabled, man/woman and ethnic affiliation. The task of the social equal opportunities target area is to reduce traditional social exclusion through the promotion of access to and use of ICT tools and online services, and to achieve a much wider social participation relying on these aids.

In the target area of regional equal opportunities, we wish to reduce the inequalities, existing within the country, between certain regions (sub-regions, counties, groups of counties) and settlements. This applies to the quantity and quality of the available info-communication infrastructure as much as to the differences traced in the further layers of the infrastructure and the attached services.

Providing **inter-regional equal opportunities** refers to the creation of similar conditions for the Hungarians living across Hungary's borders and for the national and ethnic minorities living in Hungary to those enjoyed by the citizens of the mother country. Our objective is to create high standard opportunities both in cultural relations and in economic cooperation. Following our accession to the EU, through the virtualization of borders, this problem will be "toned down" into a regional issue of the individual countries.

The attainment of equal opportunities in the above three areas is one of the conditions of establishing a knowledge-based society in Hungary.

## 1.7. Fine-tuning and Maintenance of the Strategy

### 1.7.1. Management of priorities

In the given phase of strategic planning establishing the priorities of the various tasks becomes particularly significant, partly in favour of efficiency, and partly due to the need for distributing scarce resources. The priority of a specific task depends on a number of aspects. Due to the structure of HISS, each task contributes to the "construction" of one of the pillars, aims to have an impact in a field of intervention and serves the objectives of a key area. In addition, we can also determine how a completed task will serve the prime objective of the strategy, the improvement of the quality of life. Based on a detailed analysis of the constituents, we may find that the answers given to the questions raised on fundamental points of decision have changed. A change in a decision may be caused by "external" factors, such as changes brought about by technological development or in the available funds. Alternatively, it may be caused by "internal" factors, since when the various programmes of the strategy are successfully implemented, the requirements set towards the strategy will naturally change, re-evaluating the relevance of the individual key areas and fields of intervention.

*In establishing our priorities, we have to consider the contribution of the individual task to the strategic goal, its feasibility, the anticipated effects and the amount of investment required.*

The establishment of priorities is **largely a technical issue**, yet with regard to **politics**. In contrast, a reverse approach having no regard to factual professional criteria, distorts the order and relevance of priorities. Therefore in the fine-tuning of the strategy, politics should continuously rely on the opinions of experts. Political priorities might change primarily with respect to the sources of funding. Consequently, it is important to handle priorities dynamically.

The strategy aiming at the most effective utilization of **resources**, should, first of all, precisely assess the available resources, whether human, intellectual, financial or technical. It is therefore essential that the next stages of the development of the Hungarian Information Society Strategy are based on thorough economic, technological and statistical analyses, and that no decision on programmes and priorities are made without such analyses.

**Economic analysis** should, on the one hand, assess the current state of the performing potential of the national economy from the respect of the development of the information society, including not only the funding options and solutions but also the expertise and potential of human resources. On the other hand, it should examine the direct and indirect effects of the information technologies (ICT) on the whole of the national economy, and based on the available data, should estimate the return of the invested public funds and state subsidies.

**Technological analysis** should demonstrate the current opportunities offered by the rapidly developing technologies, including not only the visible trends of tools and services and their probable effects, but also the possibilities of adapting modern business and process organization procedures and services (back office). To illustrate this: with cost analyses it is possible to determine the adaptable telecommunications policy worthy of subsidizing, while with comparative analyses it is possible to assess the advantages and disadvantages of flat-rate or utilities-type services. The definition of the utilities infrastructure must be standardized on the basis of technical criteria.<sup>23</sup>

The basis of the economic and technological analyses supporting the strategy should be a yet lacking **industry-level** monitoring system. This monitoring system, while related to them, is not the same as the success indicators of the strategy or the monitoring systems of the programmes. An industry-level monitoring system would demonstrate the development of the ICT sector and the role of the sector in the national economy year by year with coherent, comparative analyses. Measurements and analyses must be performed in a way compatible with the EU's statistical systems (Eurostat, EITO).

These three underlying systems reflecting the prevailing situation at all times have to become an integral part of the updating process of HISS, and should serve as the basis of decisions on the determination or alteration of priorities.

In implementing HISS, we have to provide for the ongoing maintenance of the strategy by formulating alternative scenarios at decision points and by updating the action plan by applying **rolling planning**. The priorities of the various tasks (and programmes) have to be reviewed from time to time.

<sup>23</sup> The e-government strategy defines state administration services in a public utility-type infrastructural system. At the same time, some suggest, that the general development of the infrastructure should also be based on a public utility-type method. By this three things are meant: broadband Internet should reach every household in the traditional sense of electrification, by "each household" the fulfilment of universal service obligations should be meant (equal opportunities), and everybody should only pay for the services so made accessible in proportion to use. It is therefore necessary to initiate a professional debate concerning the extended definition of the public utility-type infrastructure to reach a new consensus.

In the course of updating, we have to pay attention to the decision points where, as a consequence of changes in external or internal circumstances, it is possible to create alternative versions and scenarios.

In analyzing our priorities, we need to distinguish strategic and tactical issues and priority levels. The management of strategic priorities is dealt with in the next chapter. It is also a task of rolling planning to dynamically determine the priority levels to deal with the order, funding requirement, etc. of the tasks to be performed (e.g. High-Priority Central Programmes).

## 1.7.2. Fundamental decision points

### Priorities of pillars

The two pillars result in the improvement of the quality of life in different ways, and different conditions are likewise necessary for their successful realization. The modernization of processes and the development of the electronic economy involve a fundamental structural change. Accordingly, the realization of this objective is more difficult, slower and more costly. The result is, however, more significant, affects a wider sphere and is more long-term in its effects through the increased competitiveness of the economy and a general rise in the quality of life. The modernization of services in general and the introduction of electronic services does not require and does not cause profound changes without the modernization of the internal processes. The realization of this objective is therefore more simple, quicker and less capital-intensive. Successful implementation, however, promises to make our lives more comfortable and orientation in life easier even in the short run.

*Without the modernization of internal processes services cannot be raised to adequate levels and standards..*

Without the modernization of internal processes services cannot be raised to adequate levels and standards.

For making a decision and selecting the correct scenario, it is necessary to be aware of the relationship between the two pillars. The informatization of processes means the modernization of the internal operation of organizations. Since the other pillar is the external form of the services of the same organizations, the relationship should be sought between the internal operation and the resulting services. We distinguish four forms of the services of the information society. It is easy to establish from their mere definitions that this relationship is rather weak on the first two levels (online information access, one-way interaction). In the case of transaction services (third level), this relationship is somewhat stronger, however, as these transactions are mostly only associated with a single process, they do not require integrated internal operation. This becomes critically important in the case of the services at level four (integrated transaction, electronic administration).

The “ideal” solution of an optimistic scenario would be the introduction of new electronic services at the highest level (4). In this, both pillars would gain considerable resources, since the newly created services could only rely on informatized processes. According to the “minimalist” solution of a less ambitious script, we would be satisfied with services at level 2, or perhaps 3; in this case, however, no structural change would occur. The quality of life might be improved as a result of more convenient services, but the role of a “regional knowledge centre” will, most certainly, not be realized; furthermore, the competitiveness of our country will continue to decline in comparison with the neighbouring states until the more ambitious scenario can be launched. It can therefore be stated that when planning state developments (e-public administration, including, in particular, e-government services) the optimal scenario will be given priority, that is, as far as possible, the combined and balanced implementation of front office services relying on mature back office systems (see e-government strategy).

### Priorities of forms of access

With respect to the considerable shortcomings in Hungary regarding access to the services of the information society (number of computers, Internet penetration), the performing potential of the economy and, in contrast, the network opportunities offered by advanced tools and the intensive needs arising therefrom, the most neurotic decision point of the strategy at present is related to the **mode of accessing advanced services**. The demand for access to information and communication tools can basically be satisfied in either individual or communal forms. The two solutions require fundamentally different strategies.

Informatics, including the means of telecommunication, ultimately carries personal attributes: the tools and services primarily support **personal use**. Therefore, individual access should be given priority.

Individual access can only be solved generally if the quality of life is improved considerably, and people can thereby afford the relatively expensive devices. The other possible solution is the state making substantial efforts to subsidize the purchase of equipment. We wish to facilitate individual access primarily with tax benefits and other special initiatives (Sulinet-Express, employees' initiative, etc.). This solution, however, requires considerable funds from the central budget.

HIS also lays stress on the **communal forms** of accessing information tools (e.g. Public Net, e-Hungary points, InfoPoint). This solution gives opportunity for everyone to use electronic services, while requiring substantially less financial resources and being capable of arousing interest in the Internet and indirectly expanding the market.

"Community access" is not necessarily realized from public funds. "Communal" facilities, that is, facilities shared by a group of people, can be maintained by communities (state, local government), but can also be operated by businesses on a market basis or can even be operated as civil, non-profit initiatives.

**Individual forms of access and communal ones cannot be and should not be contrasted; the balanced development of both is desired.** The utilization of the available scarce resources at any given time in the course of rolling planning for either forms should be based on professional considerations supported by analyses.

#### Level of implementation

Another decision point occurs in connection with the question outlined in the part entitled Principle of subsidiarity in the chapter on the Tools of implementation discussing the possibility of transferring planning and implementation to a regional level.

The principle of subsidiarity (i.e. that responsibility of making decisions and adopting measures have to be delegated to the lowest competent level within the hierarchy) can only apply to the level of implementation in a general sense. In the case of strategic decisions with impacts extending beyond public administration (for instance market regulation, where responsibility of decision making remains within public administration, but its consequences have effects beyond that), it is essential to reach an actual technical consensus.

In planning, it is in any case an important consideration that the EU gives priority in supporting regional cohesion and local programmes for the development of disadvantaged regions via structural funds.

### 1.7.3. Effects of technological development

Changes in the factors outlined in the chapter on current trends, and the domestic projections related to their impact raise some issues of strategic importance, which **therefore have to be addressed in the course of rolling planning, possibly resulting in the re-evaluation of priorities.** In evaluating and updating the programme plans, the following questions need to be answered:

- What end-user equipment will be applied for using the services of the information society (what measures and business models could promote their sufficient penetration)?

- What network access technologies will be used widely (what measures and business models could promote the sufficient penetration of these to serve competitiveness)?
- What impact will the reduction in the costs of data transmission and storage, the rapid development of devices, the appearance of various target devices and the services attached to them as well as the rapid moral obsolescence of the existing ones have on user habits (home vs. community use)?
- To what extent and how will company and business organization procedures relying on the new tools change the processes of business life and the requirements raised for the participants?
- What impact can performing the majority of tasks via networks have on the business models of the info-communication industry and the state (subsidization) policies related to them?

For answering these and similar questions, regular research work has to be conducted parallel with the implementation and updating of the strategy, in the course of which we have to monitor the studies of the various consultancy firms (e.g. Gartner, IDC) as well as the international projects on technology forecast (e.g. FISTERA). It would also be desirable to launch and conduct projects of this kind (e.g. the Hungarian Technology Forecast Project, TFP, successfully carried out at the end of the nineties).

The potential **scenarios** of realizing our vision are built on the factors outlined in the chapter entitled Current trends, and on the assumptions about the decision points described above. Depending on the given combination, these can be optimistic, less ambitious (pessimistic), or optimal, i.e., the best attainable version under the given circumstances.

## I.8. Tools of Implementation

HISS is a national strategy drafted by the Government, primarily from the viewpoint of the Government itself but with a social responsibility for the problems. The resolution of the tasks involved will basically result from the normal operation of the market. We can also largely rely on the own initiatives of the private sphere. There are several areas where problems will not be solved on an exclusively business basis (small market with low credit rating, social problems that cannot be tackled at the micro-economic level); consequently, in places where necessary and justified, and where it does not interfere with the operation of the market, the state should also assume a role.

The responsibility of the government and state as well as public administration is not to create the information society, but to assist and to support the development of the information society and to help avoid, or at least reduce any harmful social phenomena arising in the course of the process (equal opportunities, change in structure of employment, etc.). Accordingly, the **areas of state involvement** are as follows:

- Drafting strategies; formulating operative programmes, orientation, coordination
- Regulation; creating an adequate environment
- Developing state and public administration, introducing e-public administration; setting examples
- Funding and support

This order reflects the logic of the support for the development of the information society on the state's part – and it that sense also represents an order of priorities.

### I.8.1. Drafting strategies and programmes; orientation and coordination

The rapid development of the information society is a national interest, therefore drafting an effective and relevant strategy is also a national responsibility. The role of the state in this process is to bring together the social and professional forces and to coordinate the formulation of the strategy. The Government will inevitably put forward a certain political orientation; however, with regard to the long-term nature of the strategy pointing beyond government terms, orientation is not tied to day-to-day political considerations; it is a "policy", and not politics.

One of the most important principles of the European Union's practice is **"programming"**, that is specific planning based on

23 Az e-kormányzati stratégia közműrendszerben definiálja a közigazgatási szolgáltatásokat. Ugyanakkor az infrastruktúra általános fejlesztésének is vannak közműalapú támogatói. Ez alatt három dolgot értenek: a villamosítás hagyományos értelmében minden háztartásba jusson el a széles sávú internet, a „minden háztartás” egyetemes szolgáltatási kötelezettségeket is jelentősen (esélyegyenlőség), illetve az így elérhető szolgáltatásokért mindenki csak a felhasználás arányában fizessen. Szükségesnek látszik tehát a kiterjesztett köznevelési szakmai vitája és rögzítése.

strategic foundations, while the national/regional development plans of the member states are the implementations of these. The scope of HISS extends to the EU's next financial planning period (beginning as of 2007); accordingly, beyond the presently existing conformity, the drafting of the next Hungarian National Development Plan should fundamentally rely on the objectives, priorities and proposed programmes set out in HISS.

*The strategy of developing the information society has to become the basis of the National Development Plan.*

An important feature of the adequate socio-economic environment to support the implementation of the strategy is the adequate cooperation between the state, private (business) and civil spheres. We attach particular significance to the effective forms of cooperation between the various sectors (PPP) and to inter-special cooperation which manifests itself in the coordination and reasonable division of responsibilities, and consequently the better utilization of resources.

### **1.8.2. Legislative regulation and self-regulation**

Considering that the implementation of the strategy is not exclusively a task of the state, neither is regulation only state and legal regulation. It is an important requirement in the implementation of the strategy that the competencies of industrial self-regulation and state regulation should be clearly separated. Creating a knowledge-based economy, as well as a transparent and reliable regulatory environment which is essential for its implementation and operation is a social task, the performance of which requires a national consensus, the cooperation of regulatory forces and those affected by regulation.

The scope of the regulation points well beyond the handling of issues directly related to the development of the information society (e.g. communication, electronic signature). It is particularly important to support the development of the adequate economic environment with regulatory measures (e.g. technology-intensive investments and foreign investments). In regulating education and labour markets we have to take account of the requirements raised by the information society and the consequences of the paradigm-shift. In the transformation of the health care system, we can and should rely on new opportunities. It is a general requirement that in legislation we have to consider the opportunities and requirements of the information society from the sides of the market service providers as well as users.

### **1.8.3. Development of public administration; setting an example**

By becoming the user of the latest info-communication tools, the government and public administration can speed up the development of the information society in a manifold and effective way. With the new IT applications, they encourage the players of the economy and the private sphere to use the tools of the 21st century. In turn, the services of e-public administration promote the spread of electronic services in the private sphere too.

*Efficient and genuinely useful public administration services demonstrate the benefits of the information society to the whole of the country.*

Setting an example, as a strategic tool, is well manifested by the government and public administration introducing certain initiatives (electronic administration) within their own sphere of operation (as state projects), thereby demonstrating that numerous tasks can be performed more effectively with the aid of information technology. In Hungary, the state is the largest IT consumer. Therefore it assumes major responsibility in deciding about its purchases, as it is capable of exerting considerable influence on the market.

### **1.8.4. Funding and financial resources**

Financial resources no doubt attract the greatest attention among the means of the strategy. This attention is focused primarily on state and community resources. Given that HISS primarily expects market players to realize its objectives, in its funding it also considerably relies on private capital. Resources from the central budget are necessary partly to raise and channel private capital and partly to finance tasks which cannot be implemented on a market basis.

One of the advantages of the accession to the European Union is that Hungary will be able to have access to the EU's Structural Funds to finance its developments. To this end Hungary's National Development Plan (NDP) has been drafted. The objectives, the strategy and the main priorities of supporting determined in the National Development Plan for the period between 2004 and 2006 are to be realized by five operative programmes<sup>24</sup>. The objectives of HISS and NDP, especially regarding priority 4 of ECOP, are common. This guarantees the possibility of using community resources in implementing the strategy; while the necessary contribution of the state to these resources will be covered by the central budget.

<sup>24</sup> Appendix No. 3: Priorities of the National Development Plan and its Operative Programmes

### 1.8.5. Principle of subsidiarity

When implementing the strategy, we have to adopt the EU principle of subsidiarity. According to this principle, responsibility for decisions and actions have to be delegated to the lowest possible competent level within the hierarchy.

The structural interaction of the **High-Priority Central Programmes**, the **High-Priority Special Programmes** and the **Special Programmes**, as well as the determination of the responsibility of ministries and its division within them are important issues from this respect.

Local (regional) governments also play a major role in the social implementation of the strategy. They may fulfil this role in two ways. One alternative is that the ministries responsible for certain initiatives or programmes cooperate with local (regional) governments in the implementation of the already defined programmes. The other alternative is that the local (regional) governments draft new programmes or supplementary local strategies that fit into the mainstream of HISS.

### 1.8.6. Organizational framework

It is of prime importance in implementing HISS that the top level organizations to perform the coordination tasks in the implementation of the programmes (ministry, inter-ministerial committee) have been set up. This, however, only provides a possibility. It is also necessary to clearly define who the responsibility affects in implementing the programmes, regardless of the method of financing. Since the division of tasks within and between programmes may be considerable, it is equally important that the coordination of these should be done by a specified person in charge, at least one for each key area.

To successfully implement the programmes, we classify them by key areas; to these, if necessary, we can assign programmes or tasks operating in a particular area. The combined management and coordination of these will ensure the successful implementation of HISS. Each key area includes programmes with various priorities and responsibilities of execution. Accordingly, the programmes and tasks are classified into 3 priority categories. According to this system, the following programmes are implemented as part of HISS:

- high-priority central programmes,
- high-priority special programmes,
- special programmes.

Central High-priority programmes contain high-priority tasks, and are implemented and funded by the cooperation of several ministries.

High-priority special programmes are normally under the supervision of a single ministry, but their implementation is crucial to the strategy, therefore they have to be coordinated with the high-priority central programmes.

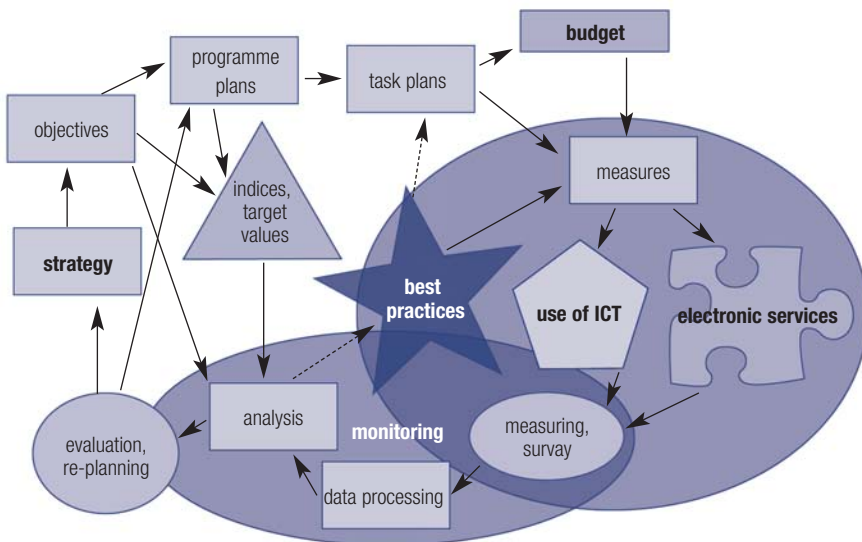
Special programmes and tasks are implemented under special competence.

For the effective utilization of resources, it is desirable to define further priority levels within each of the above three priority categories based on the criteria of feasibility and the anticipated results and benefits of concrete implementation.

### 1.8.7. Monitoring system

The monitoring system is also regarded as a strategic tool. As part of the system, this principle is observed right from the very first phase of planning. We only define objectives which can be made "tangible" through some benchmark or indicator. By this the success criteria of the tasks, projects and programmes can be quantified and the completed work can be evaluated.

The instruments of the strategy, or rather, its methods of solution among other include the drafting of programmes to help perform the tasks. Creating programmes is a part of strategic planning. The programmes enable the complex and efficient management of the various strategic fields (part fields) of intervention. Complexity generally means that a specific strategic objective cannot be realized directly (in a single phase). It is therefore necessary to perform several (multi-tier) tasks (relying on, following and



complementing each other) in a coordinated manner. Programmes perform this coordination by a well-defined (business) model. The use of programmes, that is the coordinated operation is also responsible for the efficiency resulting from the concentrated and expedient utilization of resources.

This monitoring system does not substitute for a yet lacking comparative analysis to demonstrate the development of ICT year after year, or for the formulation of an EU compatible statistical system to steadily track the role and effect of the sector in the national economy.

## I.9. Implementation of the Strategy

Strategic planning takes place within three time frames. Long-term planning, or the top-down method of model creation applies to a term of 10 to 15 years. The model of the strategy will not change significantly in this time frame. The tasks serving the implementation of the strategy are defined for medium and short term periods and the programmes covering only a few years are for the most formulated according to the bottom-up principle. The long-term objectives cannot be realized in 1 to 2 years. However, in the course of an implementation period of several years changes of such magnitude may occur which necessitate the review of the strategy.

As it is pointed out in the chapter on Fine-tuning and Maintenance of the Strategy, the priorities of the various tasks and programmes must be determined from time to time. This requires the storage of the list of tasks in a technically manageable form (a "Task Plan"), as well as its continuous updating. Priority management also requires the monitoring system to be in close contact with the Task Plan. In determining the indicators of the tasks and programmes, we should choose indicators that the monitoring system operates with. The evaluation of the tasks and programmes should also be performed with the assistance of the monitoring system, by analysing the survey results.

*The strategy must be implemented in a professional manner, based on appropriate methodologies and within the framework of an adequate system of institutions.*

*The representatives of the market and civil spheres, as well as the profession should be involved in this process as equal parties to the government.*

The funding of the strategy also requires continuous review and rolling planning. The fundamental concept of the strategy is that it does not intend to “allocate” the amounts necessary for the implementation of tasks from a single, centralized source (budget, fund). By contrast, it plans to perform the tasks by greatly relying on the opportunities of resource coordination, eliminating overlaps and relying every possible resource. This concept also requires the ongoing maintenance of the Task Plan, the up-to-date registration of resources, utilization and performance indicators, as well as the feedback on these. A requirement of rolling planning from another perspective is that, on the one hand, it should be able to provide a useful resource map of the available resources and, on the other hand, it should support the budgetary planning system. As a result of rolling planning and with regard to the prevailing scheme of planning (the guidelines), it should be able to generate a well-founded budget requisition list regarding the planning period.

Since the strategy covers a period of several years, during the phase of implementation new tasks may emerge. The responsibility of rolling planning is to “manage” these, that is, to enable the Task Plan to integrate new tasks (or to “forget or abandon” others). The integration of new tasks into the strategy is not so much a technical issue. It is much more important to formulate a procedure, by which it can be reliably decided whether a given new task can be integrated into a key area, whether the new task also constitutes a new programme or whether it may be added to an already existing programme.

It is thus evident that the process of implementing the strategy is rather complex, and successful execution requires accurate regulation, an adequate organizational framework and well-defined processes, tasks and competencies. Practical realization will take place as follows:

1. Anyone is free to take part in implementing the objectives of HISS and anyone may act independently in the interest of the strategy. With regard to the principles considering the role of the state, central coordination will be provided within the following framework:
2. During the implementation of the objectives of HISS, only programmes classified as “HISS Programmes” (Special Programme, High-Priority Special Programme or Central High-Priority Programme) will take part in the coordination. It is the responsibility of the Minister of Informatics and Communications to draft a legal act on the procedures and decision-making processes by which programmes can be classified as “HISS Programmes”.
3. From among the programmes under HISS coordination, the programmes that point beyond the boundaries of the given programme and that other programmes intend to join will be classified as “High-Priority HISS Programme”. In the case of high-priority programmes, there is also a certain level of cooperation (between ministries, between the private sphere and the state). This cooperation, however, does not require considerable resource coordination (it may cover regulatory, communication and information tasks, as well as financing tasks which do not require the amendment of the central budget).
4. Those “High-Priority HISS Programmes” which need to be co-financed will be classified as “High-Priority Central Programmes” (HPCP). A programme classified as HPCP is entitled to appear as a budget title in the budget of any sector as a task serving the construction of the information society and the development of the information economy. A HPCP appearing in the budget of a sector also appears in the budget of the Ministry of Informatics and Communications, therefore the Ministry of Informatics and Communications will also take part in the implementation of the programme as a co-funder (in addition to taking part in the other forms of coordination and cooperation). It is the responsibility of the Minister of Informatics and Communications to regulate, in the prospective legal act, the process of resource coordination and the applicable forms of conciliation in state administration and budget planning.
5. The above-mentioned legal act will assert that it is the responsibility of the Ministry of Informatics and Communications to appoint the officials in charge of the key areas of HISS and to precisely regulate their responsibilities and competencies (their primary task will be to carry out a preliminary review of the proposed programmes received from the market players and from other sectors, and to perform the coordination of the tasks in relation to the given key areas).
6. The proposed legal act will also state that it is the responsibility of IKTb to discuss the proposals received from these officials, and to make recommendations about their classification and further treatment. The preparatory tasks for this are carried out by STEA with the participation of independent external experts and according to a standard methodology. The classification recommendations of STEA are approved and forwarded to the Minister of Informatics and Communications by IKTb.
7. The legal act will also determine the organizational framework of monitoring (preferably by an independent monitoring sub-committee of IKTb). The monitoring of HISS applies to the ongoing, as well as the final evaluation of HISS programmes. The

ministry responsible for the coordination of HPCP programmes, as well as the ministries involved in the implementation are to report to ITKTB at regular intervals specified in the programme plan. If a programme significantly departs from its declared aim (in the wrong direction), ITKTB may make binding proposals, either to prompt corrections or to withdraw former classification.

8. The legal act will contain further details on the forms of drafting programme plans or proposals. At the first level the form should be that of an "idea tender", where the submitter in question prepares a feasibility study about the programme from the amount awarded. At the next level a "plan tender" is required, while with the financing of this more detailed plans can be elaborated ("investment plans", "programme plans", "project plans").

## Glossary, definitions of terms, abbreviations

### Term

**Information society:** this term is so novel in the whole of sociology and social sciences that neither is it featured in Giddens's *Sociology* published in 1990 (Giddens 1990), nor in the dictionaries of sociology in general (see, for instance, the *Oxford Concise Dictionary of Sociology*, 1994). Instead of a precise definition, we offer a list of entries here provided in the magazine *The Information Society* in 1997 as the definition of the term 'information society':

- changing National Information Infrastructures, especially as they influence cultural expectations and social practices,
- the politics of change in National Information Infrastructures,
- the implications of the coming surge in electronic data interchange (EDI) and electronic commerce among businesses globally,
- the ability of companies to "outsource" portions of their information processing to different countries around the world, creating transborder data flow issues for the countries involved and increasing the rapidity with which jobs migrate globally,
- meanings and implications of political/economic systems that are based on universal access to baseline information services or fees-for-all-services,
- options for, and implications of, various forms of "electronic democracy",
- the rise of "virtual communities" of persons worldwide engaging in "many-to-many" communication among their participants, irrespective of borders or corporate structures,
- the role of place and space in visions and practice of digital libraries and electronic forums,
- cultural changes in relation to Cyberspace — both empirical studies and studies of their representation in popular culture,
- the structure of the information industries, including markets, industrial alliances, the character of work, and management-labour relations,
- ethical dimensions in the development and use of new information technologies; and
- gender issues in the development and use of new information technologies.

**IT mentor:** Qualified personnel primarily working at community computer and Internet access points (see also eHungary Point, PIAP).

The task of mentors varies, but primarily they have to assist people who are unable to use the services offered by the information society on their own and are unable to use and deploy the opportunities offered by information and communication technologies. Assistance may be necessary simply due to a lack of knowledge or skills, or may be required due to some kind of disability. The tasks to be performed may be usage support, assistance, education or propagation, or may even extend to a role, where the mentor "mediates" in the use of an electronic service. Furthermore, they should have adequate IT and computer skills qualifying them to operate the info-communication equipment and perform minimal maintenance tasks. Mentors simultaneously perform the jobs of social workers and system administrators, while at the same time acting as the social educators of the information society.

**eHungary Point:** a public (or partly public) computer and Internet access point satisfying special requirements. These special requirements include the presence of qualified personnel, standard service quality and a standard tariff system. An eHungary Point may operate on a business basis (post office, Internet café), on a non-profit basis (tele-cottage, civil net) and on a community basis (local government, public library). Limited public access is implemented in the case of special access points such as, for instance, pensioners' retirement homes and institutions of the disabled. Depending on the form of operation, the location of operation (locality) or function (e.g. minority community), an eHungary Point may be entitled to various subsidies (e.g. access to public net).

**PIAP:** public Internet access point, which is not necessarily a computer installed and linked to the Internet in a public (or partly public) community area. It may be a special device (e.g. touch screen terminal) through which certain Internet services can be accessed.

## Abbreviations

<b>HISS:</b>	Hungarian Information Society Strategy
<b>ECOP:</b>	Economic Competitiveness Operative Programme
<b>MIC:</b>	Ministry of Informatics and Communications
<b>IT:</b>	Information Technology
<b>ICT:</b>	Information and Communication Technology
<b>BPR:</b>	Business Process Reengineering
<b>ERP:</b>	Enterprise Resource Planning
<b>MIS:</b>	Management Information System
<b>CRM:</b>	Customer Relationship Management
<b>EDI:</b>	Electronic Data Interchange (standard)
<b>B2B:</b>	Business-to-Business electronic commerce
<b>SME:</b>	Small to Medium-size Enterprise
<b>PPP:</b>	Public-Private Partnership
<b>CLBPS</b>	Common List of Basic Public Services, EU recommendation on basic public services
<b>APEH</b>	Tax and Financial Control Office, Hungarian tax authority
<b>OEP</b>	National Health Insurance Fund
<b>ONYF</b>	National Pension Insurance Directorate
<b>VPOP</b>	National Headquarters of the Customs and Finance Guards, Hungarian customs authority
<b>BIX:</b>	Budapest Internet eXchange
<b>VoIP</b>	Voice over IP, voice transmission via Internet protocol
<b>ISP</b>	Internet Service Provider
<b>PIAP:</b>	Public Internet Access Point (see also eHungary Point)



