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The first Forum on the Information Society with Central and Eastern European Countries (CEECs) was hosted by the European Commission in Brussels on 23 June 1995 and brought together representatives of European industry and research with delegation representing the Ministries responsible for the Information Society, telecommunication operators, industrialists and researchers of the associated CEECs.

In the framework of the approximation of the CEECs to the European Union (EU) this Forum provided an opportunity for identifying new themes for cooperation by stimulating the dialogue among the participants.

The new industrial revolution generated by information and communications technologies (ICTs) has far-reaching consequences. Technological progress in processing, transmitting, storing and retrieving information in whatever form will change significantly the way people work, study and live together. Participants were invited to express their views, experience and expectations of these developments and discussed what should be done on the political level to ensure that the CEECs could be a full partner on the evolution towards the Information Society and how these developments would influence, or be influenced by the European integration process.

The second Forum was held in Prague on 12-13 September 1996 which gave a serious impetus to follow up actions by the CEEC governments to make faster progress

towards realizing the Information Society. The Hungarian Government took the responsibility for organizing an international panel related to the policy and Strategy formulation.

This panel was held in Budapest in June 1997 with the objective to formulate recommendations for the 3rd Forum concerning the elements of policy and strategy for the Information Society. In particular, the aim was to raise awareness about the specific problems of the CEECs, to find possible fields of coordination and cooperation between the EU and the CEECs where common action is mutually beneficial and to make suggestions for new forms of cooperation at national and European level.

The one hundred registered participants represented twenty-one countries, among them twelve CEECs and nine EU Member States.

The one and a half day discussion proved that the subject was inexhaustible but as the chairman of the panel I had to be strict on keeping the time constraints therefore many valuable ideas remained unveiled. I felt obliged to give a way at least for a number of the lecturers of the panel to elaborate their views on the subject to wider audience by offering them the possibility to summarize their ideas in the form of an article.

This issue is devoted to this purpose and I hope that the Reader will get a taste of the subject what is meant by Integration to Europe in the field of Information Society.



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GOVERNMENTAL TASKS FOR THE REALIZATION OF THE INFORMATION SOCIETY

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In the article the author presents a number of strategic, political, legal and economic tasks of governments necessary for the creation of the information society in view of entering the EU. It summarizes the government level actions to be implemented by the financial resources of the state budget in connection with the coordination of information and telecommunication technology developments and applications.

1. INTRODUCTION

For the last two decades we have witnessed the development of information and telecommunication technologies which have resulted much more future effects than we had ever expected before. As a result of the technological development the costs of storing, processing and transmitting information have radically decreased, consequently the organization of the production of goods and the distribution system of the produced goods have basically changed.

As a result of the constantly growing application of information and telecommunication technologies we are living in a historical era where living conditions are changing extremely fast, and where opportunities for producing value, for higher living conditions and more comfortable services are opening up. Appliances and services based on new technologies will effect all branches of economy, public administration and the social and cultural life of citizens.

Telecommunication and information technology appear almost inseparably in the so-called telematic applications, which is referred to as the convergence of the two fields. Apart from that a newer technological convergence is taking shape, in the course of which the storing, processing and the conveyance of audiovisual information appear in the form of electronic media in the telematic applications. The basis of the technological convergence is the fact that visual information is conveyed as a set of digital signals similarly to other types of information including the opportunity to carry interactive control signals.

The convergence of telecommunication, information technology and the electronical media is the basic technology for the modern society of the next century, the information society, in which access to the network of information will be an organic part of everyday life.

2. STRATEGY AND POLITICS

The economies and societies of the Central and East-European (CEE) region have to face this new challenge as well, apart from the creation of the conditions for the sustainable development, since that very modernization will create the conditions for entering the highly competitive

global system of world economy. It will enable them to join the European Union and the developed countries of the world where the connectivity of infrastructure and application systems is a basic requirement.

The information society is one based on knowledge where access to information and services is almost unlimited and independent of physical distances. That provides the CEE region with special chances to enter the international economic-social life, and to fulfil new roles and functions in providing and using the new telematic services.

In theory the new technologies offer opportunities for creating new jobs. At the same time worries, fears that new technologies may strengthen existing inequalities by enabling the concentration of production in a few prominent regions or may divide the societies between those who have access to information and services and those who are excluded from their usage, also seem to be justified.

The formation of the preparatory strategy for the new era is the responsibility of the governments. It should be analysed where a country can join the world-wide division of labour. We have to ensure that our countries will not only play the role of a consumer but that of a producer, applier and exporter as well, and that new equipment should be used to modernize public administration and to increase the economic efficiency and competitiveness of exportable products and services. We must not ignore that if the CEE region falls back in the introduction of technologies determining the next one thousand years we may get into an irreversibly disadvantageous situation at the new markets, on the other hand we have the chance to jump over stages of development, and the application of the new technology may become the major driving force of modernization, and to the integration with Europe.

3. INVOLVING ENTREPRENEURIAL CAPITAL

Primarily the business activity of the entrepreneurial sphere plays an outstanding role in the formation of the information society, nevertheless countries which realized the advantages and potential dangers of the application of new technologies in time, generally do not allow market forces to have a total control over their futures, and they are creating national strategies for the proactive governmental collaboration, and state subsidies, which in certain fields may be direct state financing, e.g. in the creation of systems improving the efficiency of public administration and those reducing operational costs.

The means of the government for the creation of an

"investment-friendly" environment for the reduction of risk factors of private investments are as follows:

- establishment of clear licence mechanisms referring to conditions of entering the market;
- market protection for a limited period ensuring specific rights to counteract fixed concession obligations to the development of infrastructure;
- clear, legally set, and inflation proof tariff policy for the period of the specific rights and obligations;
- financial and economic control (tax- and customs preferences).

4. HARMONIZATION OF THE REGULATORY ENVIRONMENT

Political forces expect total liberalization to stimulate the boom of innovation and competition, the improvement of the standard of services, the decrease of charges, and last but not least the extension of the customers' ability to choose.

In most European countries from 1 January, 1998 in accordance with the guiding principles of the European Union existing limitations will cease, the building of infrastructure will be liberalized, which will enable the appearance of alternative network providers at national markets.

The Hungarian legal environment is fully in line with the main streamline of the European Union guiding principles, nevertheless the signed concession agreements will surely delay liberalization. At the same time these agreements provided the investments necessary for the fast development of fixed and mobile networks.

Concession agreements prescribe extremely strict obligations to provide services in the less attractive business areas, which also justifies a certain level market protection of investors for the period of the predictable return of their investments. That transition period unusual in more developed European countries is due to our lagging behind in infrastructure and the conditions of the creation of financial resources necessary to catch up, consequently it is not a factor acting against general liberalization requirements.

However, the market protection of concession services does not mean total protection, since their temporary exclusive licences is confined to a decreasing, less significant segment of telecommunication services, namely the fixed and mobile public telephone services, and the nation-wide paging services, and not the dynamically developing data transmission services.

5. UNIVERSAL SERVICE OBLIGATION

In the field of liberalized telecommunication services future service providers in Hungary are not bound by the universal service obligation, this way they may concentrate their development strategy on profitable areas with the application of the most modern new technologies. As a consequence they may concentrate the extension of networks to flexibly meeting the solvent demands only.

At present the new telecommunication service providers entering the market do not have an immediate obligation to provide universal service, since that is guaranteed by the concession contracts. In the present situation the problem is solved by internal cross-financing within concession

services in a way that they sell services at a price higher than production costs in more profitable areas.

However, following the December 31, 2001 deadline referring to exclusivity a mechanism should be started which distributes the financial costs of maintaining the universal service obligation among the players of the telecommunication market, maintaining the market equality of the competitors. Following global liberalization no telecommunication supplier may be obliged to maintain its services without compensation at an acceptable level in non-profitable regions with the limitation that it should not raise its charges beyond a certain reasonable level.

The cross-financing opportunity is coming to an end, since competitors will force the introduction of cost proportionate tariffs with their prices in profitable regions also. Since the regulation of that has to be carried out in the European Union from 1 January, 1998, experts are doing serious preparatory work in the field.

In the emerging information society more and more people will depend on modern telecommunication both in their private lives and at work. From the very beginning the telecommunication policy of the European Union has aimed at hindering the falling of the society into two parts, one consisting of those having access to new services and the other containing those being excluded from them, say because they are unable to pay for them. Apart from global liberalization they wish to maintain a form of universal service obligation: they want to make a given circle of telecommunication services accessible to everybody at a reasonable price.

The concept of universal service obligation can certainly not be fixed for ever, it is rather a regularly supervisable service minimum which depends on the economic performance of countries and the endurance of subscribers. The services could be accessible to everyone at reasonable prices to the extent the country's economic potential allows.

6. JOINING EUROPE

In spite of the fact that the Bangemann report of June, 1994 did not address the CEE countries directly, it still had an indirect message, that unless these countries adjust their national strategies to the European Union, they will miss the chances offered by the information society.

Owing to that very fact the active participation of the CEE governments have supported the initiative of the European Union to organize annual international forums on the topic of information society together with the CEE countries. Here an indirect dialogue may start among member countries in connection with the harmonization of governmental tasks which form the regulatory framework for the construction of the information society and which determine policy referring to the entire society.

The 2nd Forum organized in September 1996 in Prague, decided to set up a working panel to discuss the strategy and policy of the European Union and the Central Eastern European countries in connection with the information society at an expert level, and to present recommendations for the 3rd Forum at ministerial level in October 1997 in Brussels.

7. WAYS OF REALIZATION

On one hand the governmental development strategy will accelerate the development of the industries directly affected (telecommunications, information technology, and electronic media) on the other hand it may define to what extent the individual sector of economy will apply electronic information resources.

Ways of realizing the governmental policy:

- *legislation* referring to the creation, collection, storage, handling and conveyance of information;
- *regulation* referring to the technical and commercial cooperation defining the conditions of service activity
- direct or indirect *budgetary subsidy* supporting the development of the concerned industries;
- *development* of information systems enabling access to governmental public information resources, thus *helping* the widespread use of electronic information;
- *spreading knowledge* in connection with the handling of electronic information;
- developing regulations necessary for the widening of *citizens' democratic legal practice* by means of the information society;
- *cultural policy* creating electronic data bases in connection with the preservation, spreading and protection of national culture.

8. TELECOMMUNICATIONS POLICY

In the telecommunications policy the behaviour pattern desired to be followed by the governments in their different roles should be fixed for a defined period so that market players (investors, suppliers, users and manufacturers) can build their own business strategies on it as a stable bases. Naturally as time passes this policy may be modified according to the new challenges, nevertheless it should always be long-term.

Telecommunications policy determines the tasks of the government in different functions.

As proprietor:

- the expectable changes of state ownership in the individual service areas,
- the distribution mechanism of limited resources (frequency and public area) in exclusive ownership,
- the definition of the market entrance opportunities of stately owned public service providers. (e.g. railways).

As regulator:

- market structure to be maintained in the concession area,
- conditions of new market players for entering the market,
- the mechanism of financing the universal service obligation,
- the direction of the change of the official price regulation,
- creation of an stable business environment neutral in competition,
- basic principles of laws promoting the introduction of new services.

As authority:

- the character and measure of official charges and duties,
- the range of supervisory functions,

- the forms of the interest reconciliatory mechanism.

As user:

- the areas of developments and equipment purchase realized from state subsidy,
- and the operating principles of the systems.

As a co-financing body:

- the subsidiary mechanism of the Telecommunication Fund,
- the opportunities for utilizing tax allowances,
- to provide stable guarantees for bank credits.

Telecommunication policy should take European regulation principles and practice into consideration — basically for the sake of increasing competitiveness —, and enable the appearance of parallel networks in the local networks also. Theoretical solution should be given to the problem that existing cable ducts are practically owned by monopolistic service providers, and they cannot be obliged to let free channels, whereas they are able to set monopolistic rental prices.

The allocation strategy of frequencies and service licences in connection with new mobile technologies, and the regulatory plans concerning the entering opportunities of concessional service providers to the cable television network services areas should be clearly defined.

The government intentions regarding the development of special purpose fixed and wireless systems have to be published, since that may influence the market behaviour of the new service providers to a great extent.

9. ELABORATING NEW REGULATIONS

The technical convergence of telecommunication and information technology applications have not only resulted in a more unified technology, but dynamically developing information technology enterprises have been constantly renewing themselves in the competition sphere, which has led to the liberalization of state monopolies in telecommunication services. The newer convergence with electronic media will most probably influence the broadcasting and distributing policy also, presumably towards further liberalization.

From the point of view of cultural policy a selectable public service channel should be necessary for the preservation and distribution of cultural values.

The demand for the development of the new regulation is appearing in the case of live radio programmes transmitted through Internet. Naturally, the purpose of the regulation may not be to hinder new technical opportunities from spreading, but it has to solve the problems of the contradictions of existing laws, and maintain pluralism in the access to information resources. The supply and utilization of new services should be defined in the relevant regulations concerning them, and the protection of consumers and data should be defined as well as the responsibility of characters regarding keeping laws.

The new laws should encourage the wide range and fast introduction of new innovative developments both by the simple mechanism of service licences and the permission of the unlimited access of users. Service providers should be obliged to publish all the information regarding the service in advance, and to guarantee the protection of the

users' personal data. For example the law should regulate the conditions of collecting and processing information regarding citizens, as well as the access rights to data and correction opportunities, as well as the compensation mechanism for damages owing to false data. In order to define which data may only be processed in cases defined by law, the production of marketing materials on user habits or the data transmission to countries lacking necessary data protection may be prohibited.

On one hand modifications are indispensable because information as goods may reach any point of the world through the telecommunication network, on the other hand information regarding users collected in connection with the use of telecommunication networks, and the processing and publication of them may violate personal rights. The publication and access to materials prohibited by law or otherwise dangerous for the young should be limited. The conditions of the security of electronic documents and the legal acceptance of the so-called digital identifiers should be defined.

The protection of intellectual property referring to data banks and programme transmission is important, with special regard to chances given by modern duplication procedures. There is free access to certain materials through public data networks, but they may not be photocopied, edited or modified freely. Law may regulate universal service obligations concerning new services. Thus communities, schools, hospitals and public institutes may receive services at the prescribed level at reasonable prices.

The ability to arrange legal actions through electronic channels is becoming more and more significant. That requires the modification of a few existing laws, for example to promote paperless electronic data interchange (EDI). The national data collection project has to be extended to all official statistics, national basic registers and to data collection regarding government control, which enable the economic analysis of the development of telecommunication, information technologic and media sectors.

10. GOVERNMENTAL NETWORKS AND SYSTEMS

The government acts as customer and sponsor in the development of the public administration telecommunication infrastructure, in the purchase of telecommunication and applied information technology terminals, and in the improvement of new application systems modernizing its own operation. The decision process in public administration can be accelerated with the application of up-to-date equipment, at the same time the relationship between central and local organizations may be improved, and public service data bases and information services supporting citizens' administration can be created. Government institutions collect, process and convey a huge amount of data and materials. The efficacy of governmental work may improve depending on the degree of the application of up-to-date telecommunication and information technology.

Since the government is one of the greatest consumers of new devices and services, it may influence the market in an extraordinary way with its purchase policy. It may set an example in the application of new technologies, thus

with the development of the electronic public procurement system, with the publication of information through the electronic media, and the purchase of that type of information, as well as making access to those possible in data networks (gazettes, laws, company information, public procurement reports, land registers, address registers, geometric information representation of infrastructural networks, etc.). With the standardized solutions applied in its own systems it determines the interface standards of the connected systems without extra prescriptions referring to the "outside world".

It is important that development resources based on public funds expended on up-to-date telematic systems should be used effectively and coordinately. That does not only refer to the information networks determining the cooperation of governmental institutions, but to systems supporting the work of offices arranging the affairs of citizens also, to systems updating the customer relations of social security, customs, taxation, land registry and local authority offices, as well as to systems in education, and health care.

11. APPLICATIONS DEMANDING GOVERNMENTAL SUPPORT

In the creation of the information society the profit oriented participation of the business sphere and applications created for the purposes of the government play the main role, however certain strategic areas require governmental support, which may accelerate modernization with its synergical effect. In general they are investments whose return may only be justified in the long run.

The education and training policy have to take the tendency into consideration that the production of goods and new services rely more and more on knowledge. Investment in knowledge plays a great role in employment, competitiveness and social solidarity. The basis of the economic success of a region or the reason for its falling behind may be the fact whether its residents are able to apply new technologies which is true also about international labour division as well as the national one. Great attention should be paid to the teaching of the new technique.

The realization of all that may lead to such actual government measures which give opportunities to local authorities (schools) in the form of indirect support to acquire and operate modern information technology equipment. It is essential to stress that it is not enough to support the connection to the telecommunication infrastructure and the purchase of equipment, but the process may require governmental contribution in the creation of a preferential telecommunication charge package to be introduced generally also.

Apart from the education of the young attention should be paid to the special training of the elderly and the disabled. That way they are also capable of adjusting themselves to the new society and participating in the social labour division.

Education should also develop the sense of orientation of future citizens in the information flood. Besides the governmental support of the connection of educational institutes to the global information infrastructure it is

another extremely important government obligation to encourage education which helps to distinguish between valuable and valueless, relevant and irrelevant information.

The government has to invest in the telematic *research and development* and define the strategic directions of those. The participation in the international R&D cooperation should be supported, since that is a stronger guarantee for the spreading of new results at the market apart from the unification of resources. Especially the participation in *pilot projects* may help the preparation for the information society. On the one hand they raise awareness for new application opportunities, accelerate economic development, and create demand for new services and make the investigation of new application possibilities under realistic circumstances possible. At the same time experience may be gained about new legal and regulative problems, as well as the possible social and political obstacles regarding the introduction of new technologies.

Research should be started to explore the social effects concerning the spread of telematics, within that mainly the investigation of the prospects of creating solvent demand. Thus it can be investigated within the framework of pilot-projects whether that is economically feasible in the CEE environment to exploit the technical opportunity of teleworking. The chances of operating the Open University are also to be investigated.

The effect of telematic systems on environment protection should be studied, since the appearance of those in the motoring industry, the transport systems, traffic control and last but not least in the decrease of transport demands may contribute to the protection of environment and the reduction of the waste of resources to a great extent.

The spread of cashless equipment in everyday life, the creation of information systems improving the competitiveness of small and medium size enterprises, the faster development of industries producing electronic data, within that the production of reliable, global information of public interest, may be encouraged by the support of development.

The development of systems providing access to data of public interest and the purchase of equipment necessary for their operation for the creation of a telematic network from which the data would be accessible for everyone should be promoted.

Health administration should pay great attention to the introduction of new technologies, since the level of services, and the provision of services to regions with less favourable conditions could be improved, the exactness of diagnostics may be increased, and the economic efficiency of the provision of services may grow. The standardization of patient identity cards and personal data of patients is a significant task, and it is also essential to make their use obligatory in health care institutes. The international development trends should be followed constantly, so that the CEE region may join European level systems. Owing to the confidential character of the stored health care data, rights of access to those should be strictly regulated.

Public libraries are the basic data sources for citizens. The connection of these data bases to the network is a cultural-political task of social significance, which may not be financed from the income of libraries. It would influence the spread of new technologies in a disadvantageous way if the costs of development and operation were to be covered by users, since they used to have access to that information for a symbolic sum. If electronic libraries were accessible for the same symbolic amounts, the spread of the new technology would accelerate considerably, and the informed society would come into being faster.

12. CONCLUSION

Political and strategic tasks in connection with the information society cover an area much wider than the development and operation of telecommunication and information systems making the internal operation of the administration more efficient.

The propagation of the new equipment of information communication as well as the development of information systems of public utilization will be realized mainly on the grounds of business interests and competition, therefore it can be supported and regulated by the government only in an indirect way. The government cannot make its decisions without the inclusion of the professional organizations also representing the interests of the appropriate professional circles and communities involved. Both the professional and political matters must be kept at issue and discussed in order to make it possible for the government to bring about well established decisions regarding the questions as

- the strategy of preparation for the Information Society;
- drafting a policy on the use of telecommunication and information technology throughout the national economy;
- involvement of the private sector and professionals;
- principles of the distribution of limited resources;
- the laws regulating the introduction of information technology systems based on the new technologies;
- pilot projects to be supported by the public/private partnership;
- recommendations concerning the development efforts worthy of governmental support.

Strategy and policy formulation of the CEE governments towards the Information Society is an important part of their preaccession strategy for integration into the European Union. One of the aims of the CEE governments is to facilitate participation of individuals from their countries in the work of the Information Society forums of the EU and to take part in the discussions and share their views on the relevant matters.

The biggest issue that can be brought about this common approach is the European integration. Both the CEE region and the European Union can benefit from the new technology because it helps the less favoured regions to catch up with the rest of Europe providing a much wider economic area for the European service providers.

Csaba Csapodi for a photograph and biography, see p. 1.

INFORMATION SOCIETY POLICY DEVELOPMENT – EXAMPLE OF FINLAND

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The author reviews 25 years of information society oriented activity in Finland and concludes that each country should find its own unique path to the information society by making the best use of its relative strengths, recognising its weaknesses, learning from the experience of others, and by cooperating with other countries on a similar or higher level of development. While official information society organs may play a role, competitive domestic markets in telecommunications, software and content creation are the real key to progress.

In retrospect, it can be seen that many countries have been concerned with "information society" questions long before this term became current in Europe. Looking back on developments in Finland, a number of decisions during the past thirty years or more have been motivated by "information society" type considerations. Unlike many other countries, where the principal concern has been to establish and maintain a domestic computer or electronics industry, Finland has, by design or by accident, long taken a broader "societal" approach that has brought several advantages.

1. HOW WE GOT TO WHERE WE ARE

This article is not intended as a scientific study of the determinants of Finland's information society development. My purpose is to indicate some factors that I consider significant, and to draw some conclusions.

The strategic potential of *IT* utilization was foreseen and acted upon at an early stage. In the beginning of the 1960's, a national information base began to be established by a series of decisions to build automated *national registers* of objects such as inhabitants, dwellings, enterprises and motor vehicles. Due to the primitive state and high cost of the then available technology, it took much longer than expected for these investments to bear fruit in terms of administrative efficiency or national economic advantages. Today, however, a network of these and other national databases constitute an infrastructure that permits data sharing and economies in data collection in government, and, within bounds defined by privacy rules, immediate access to a wealth of societal information for all.

Large organizations in the private sector have been equally active in pursuit of benefits to be gained from IT. Perhaps most aggressive have been the banks, with the result that Finland probably still is foremost in *online banking services*, particularly to business.

Another major factor is undoubtedly *telecommunications liberalization*, where Finland is today the leader at least in Europe, perhaps globally as well. This position can be traced not so much to superior foresight, but to a unique

series of historical events that led to Finland having, for the past 100 years, two sets of telecommunications carriers: the state-owned PTT like almost everywhere else, and a set of collaborating private local telephone companies, the two camps being of roughly equal strength. The PTT had a monopoly of domestic trunk traffic and foreign traffic, while the PTT and the private carriers wielded each their local loop monopolies.

When data transmission became an issue in the 1970's, bitter disputes arose as to which group would have the right to provide this new service nationally. I recall it as highly embarrassing having to describe our situation at international gatherings. There they were around the table, the other OECD countries with their big powerful monopoly carriers efficiently providing data transmission services, and here was poor Finland with two squabbling camps at times even sabotaging each other's efforts. The issue was resolved by legislation giving both the right to provide these services and imposing on them an obligation to interconnect. With the rules defined, disputants became competitors. The area exposed to competition has since been repeatedly extended to cover all aspects of telecommunications. At the same time, the number of competitors has grown.

With *competition in telecommunications* becoming the worldwide ideal in the 1980's, Finland found itself at the forefront of development. A lot has been said of the blessings of competition. Our experience confirms these claims. Tariffs began to fall dramatically immediately with the onset of competition, and have continued to fall. This did not, however, break the phone companies financially. They have been forced to become more efficient. An enormous increase in the volume of business, brought about by lower tariffs, has helped compensate for any loss of unit profit. If asked today, I am sure Telecom Finland and the other carriers would not wish to go back to the "good old monopoly" days. Today, the carriers themselves employ less people than in the early 1980's, but the telecommunications sector employs many more than 15 years ago.

High demand and low tariffs have, in turned, spurred the development of *telecomms services*. Their variety and quality compares well with the most advanced countries, such as the United States. In the intensity of use of ATM broadband networks, for example, Finland is second to none. This, again, makes it easier to consider applications using broadband.

Public *mobile telephony* services have existed for a long time. A real starting point for the current worldwide boom

was an agreement by the Nordic PTT's in the early 1980's on a Nordic Mobile Telephone (NMT) standard. It provided for cellular analog service and international roaming. This gave Nokia, the Finnish computer, telecommunications and paper conglomerate an opening it did not miss. From this basis, Nokia was well poised to exploit the GSM once this was defined ten years later. Today, Nokia is the first in Europe and second in the world in the manufacture of mobile telephones. Its phenomenal growth has fed a dynamic field of small specialized telecomms and software firms.

Mobile phone utilization is high and still growing rapidly. At current growth rates, Finland will have as many mobile phones as fixed telephone lines by the year 2000 (both at around 65 % of the population). Mobile phones are nothing in themselves. Their significance comes from the uses they can be put to make business and administration more efficient, improve lives for many people, increase security, etc. The ubiquity of mobile telephony, in turn, provides opportunities for industry to devise new technological solutions that may find new national and global markets, such as mobile data transmission and news services.

Finland's current strong position in *scientific computing* had its origin in the vision, held by some persons from the 1960's on, that even a small country should be able to tackle large-scale data crunching problems. This led to the early acquisition of a supercomputer to serve a national network of education, research, large scale industry and the Weather Bureau, in addition to each university having local computing power. Today, Finland has one of Europe's top supercomputer centers.

At the same time, academic contacts with the United States showed Finland's scientific community the value of *networking*. A consequence of these contacts was Finland becoming the first European user of *Internet*. Today, as is often reported, Finland has more Internet hosts per population than any other country, including the United States.

International cooperation has thus been important. Some of the major landmarks in this respect were the NMT standard, the early introduction of Internet, and an *OECD* review of Finland's information technology and telecommunications policies conducted in 1991-92. This study, and its policy recommendations, were instrumental in bringing information society questions to the attention of the top levels of government and industry.

2. MISGIVINGS AND POSSIBLE MISTAKES

In spite of the perhaps favourable picture drawn above, not all is wine and roses. For one thing, one may well question the need to speed headlong toward some "information society" of uncertain nature and with all the *stress and dislocations* rapid change entails. I happen to believe that we are on the proper path, as it appears to be one that is likely to ensure Finland's competitiveness and thus its long term survival in an aggressive and sometimes nasty world. There will be both *good and bad social consequences*; it is the task of democratic institutions to find ways to remove or alleviate the latter.

Nor has everything been done right to maximize our advantages. Although the current generation is not to blame for the fact that Finns are too few, live far away from world centers and have homespun a strange isolated culture based on an incomprehensible language, it could have done more to create a *domestic software industry*. This failing can be partly explained by the small size of the domestic market. OECD country review examiners pointed to another cause: the existence, for too long, of in-house software monopolies serving the public sector and banking and trade sectors, for example.

In the United States, government and large firms have relied on the market for a good part of their software needs, with tremendous positive consequences for national competitiveness in this field. In Finland, inward-looking policies may have discouraged the "undergrowth" of software entrepreneurship at a critical point in development. Today, the software sector is growing well, but has a lot to catch up with.

A crucial determinant of software innovation in the United States has been the ready availability of private *venture capital*. This source is still practically non-existent in Finland, although the problem has been recognized for at least twenty years. We have, of course, banks, but banks prefer safe loans. We have big state-financed development institutions for R&D or rural development, for example, but becoming partner in a small IT firm is often alien to their way of operating. The lack of venture capital continues to hobble the advance of our software and content industries.

With all the emphasis on multimedia today, Finland's *content industry* has been found by some commentators as lacking and incapable of putting enough domestic traffic on the excellent information highways. We certainly have no Hollywood, and probably lack the capacity to generate new sets of Beatles's, but I am not sure Finland is here much worse off than many other European countries. In this context, *European Union* initiatives to foster domestic content production are very significant.

3. INSTITUTIONAL POLICIES IN FINLAND

The first committee on what is today "information society" reported in 1972. Its remit was to consider Finland's chances for a computer industry. It recommended, instead, measures to extend IT education, to improve data communications, and proposed the establishment of a permanent IT advisory body. This *IT Policy Council* was set up in 1975 to advise the Ministry of Finance and operated until 1991. During that time, it published several reports with a large number of recommendations. What is more important, it made direct contacts with key ministries and private sector organizations that resulted in a number of policy developments, notably in education, research, telecommunications and the legal field, including privacy legislation.

Following on a recommendation by the OECD review panel, the Ministry of Finance commissioned the preparation of a *National Information Society Strategy* in 1993-94. This was the first document to attract Cabinet attention. The current government considers information society development one of the key planks in its platform. This does

not mean, however, that a lot of public money would be available for the purpose. However, considerable new budget allocations have recently been directed to the Ministry of Education and to the Center for Technological Research (TEKES) for use on IS-related projects.

There are currently two bodies established to promote information society development nationally: the high-level minister-chaired *Information Society Council* and the expert-level *IS Forum*. Their function is to inform and to open up nationwide communications and debate on information society-related questions and to encourage local and regional initiative. In principle, the Council and the Forum taken together provide a direct duplex channel between the government and the citizen or the citizen group. In practice, it has not been easy to evoke public debate on matters that are not of imminent concern to the citizen. This is attempted through the distribution of a free periodical and a wealth of information on the Web, including the publication of all Council and Forum documents.

The Council and the Forum are collaborating to update the national IS strategy. This work is due to be completed in 1998.

4. CONCLUSIONS, POSSIBLE LESSONS

My main conclusion is that there is *no general blueprint*. The examples from Finland go to show that a country's position in the "race" to the information society is largely determined by its economic and cultural history, by fortuitous events, and by the vision of a few key individuals. If there are one hundred countries today aiming in this direction, there will be one hundred quite different information societies. When seen in this development perspec-

tive, each country has certain strengths and certain weaknesses. There is scope for national policy to discover and to *build consensus* on what these are, and for proposing action to exploit the relative strengths and to remedy the weaknesses.

Know thyself! The last thing to do is to copy what some other country is or has been doing. This is not to say that one should not learn from others, or that one should not cooperate with neighbours and with international organizations. National priorities should, however, be clearly understood and kept in mind.

Create and maintain *competitive conditions*. In the case of Finland, competition is seen in this paper as key to our perhaps greatest national success, telecommunications, and the lack of competition in a critical period as the seed of our probably biggest failure, the weakness of the software sector.

Institutions, such as information society committees, councils, fora, etc., or national information society strategies, can be useful in focusing attention to crucial issues at a crucial time, or for building consensus in an area where there is uncertainty. But institutions are no panacea and should not outlive their usefulness. More important is to generate *local initiative* to build networks of people or of firms, to spur the creation of innovative applications, of new combinations of technologies to develop new products.

I am aware that in many countries of Central and Eastern Europe, the tradition of planning and of centralized co-ordination is still strong. I would discourage such modes of thought, particularly in such a dynamically developing and changing context as information society. The new catchwords should be: *Enable! Empower!*

Ilmari Pietarinen has been involved with IT policy and IS strategy questions as General Secretary of the IT Policy Council (1975-1991), as responsible for Finland's IS Strategy Report (1993-1995), and as liaison for the Information Society Council and IS Forum in the Ministry of Finance since 1996. His main duties at the Ministry of Finance have been government IT policy and representing Finland in various international contexts in government and national IT and IS matters. He has degrees in social sciences and international studies from four universities, including a doctorate in economics.

BASIC COMPONENTS OF THE NATIONAL INFORMATION PROGRAMME: THE LATVIAN APPROACH

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The main theses of the National Information Policy and the vital problems to be solved seem to be similar for all CEEC. Therefore short overview of the key items of the initiated Latvian National Programme Informatics, state-of-the-art analysis and basic problems in several fields are proposed for discussion. All factographic information is fixed in September 1997.

1. GOALS OF THE NATIONAL INFORMATION PROGRAMME

On the way toward the information society each country should create the concept of its development, its unified National Information Policy. The Policy has to be adapted to specific needs and realities of the country to determine exactly its key priorities, but the basic issues of the Policy are similar for all countries [1]. There are many various peculiarities and priorities connected with general transit situation in Latvia as in all Central and Eastern European Countries. Sometimes they are even incomprehensible for Western countries, but all of them should be considered. Thus accents of information policies of EU Member States are transferred to content items now [2], while telecommunications and networking remain one of the basic problems for all CEEC.

The Policy should promote creation of new jobs, progress of underdeveloped regions, increase of level of life of whole society. There is an evident correlation between the coverage of regions by telecommunications and information services [3] and development of these regions (see Fig. 1). It is impossible to develop some business at present without existence of advanced information infrastructure. Wide use of global electronic information services will promote small and medium business and provide to these enterprises potentialities that are quite equal to possibilities of international companies. Reasonable information policy will assist also to decrease the tremendous gap between the real today's feasibilities of small countries and the Powers.

This process is especially important for Latvia. Lack of raw materials and energy resources in our country can be compensated by production of knowledge-based and science-capacious products, especially taking into account presence of high skilled specialists. Individual activities, remote workplaces and small bodies correspond more exactly to mentality of Latvian people. Therefore the Policy should be considered as a substantial part of the strategy of development of the country.

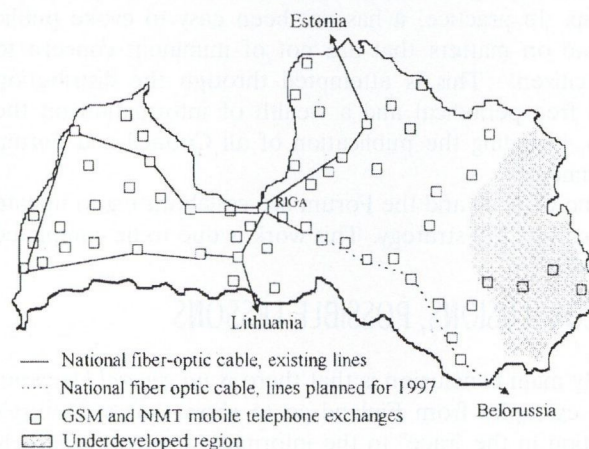


Fig. 1. Infrastructure for information services in Latvia

2. HARMONIZATION OF LEGAL AND REGULATORY FRAMEWORK

To become a full partner in the currently originated European process, harmonization of legislation and regulatory framework with EU concepts at the political, economic, informative, technological levels is an absolute precondition.

The EU has declared its objective trend towards the information society to be a political priority. Under the terms of the Europe Agreement, signed in establishing an association of Latvia with the European Communities and their Member States, it must be a vital part of the pre-amalgamation strategy for our country too. This policy must also be a component of the Latvia's national programme for European integration. The basic political principles should be identical for the EU and for Latvia. Several articles in the Agreement provide for the involvement of Latvia in the creation of a pan-European information infrastructure, development of telecommunications and broadcasting, provision of information services, access to Community data bases, extensive exchange of information.

Huge public and private investments are necessary to realize above-mentioned objectives, they are far beyond the self-financing capabilities of Latvia. To implement its political objectives, to establish favourable investment climate and effective use of innovations, the government of Latvia has started to work with EU in promulgation common

principles in such areas as regulation and competition.

Telecommunications and networking have been one of the leading sectors in the Latvian economy in terms of investment. Up to US\$ 400 M have been invested in development of these services in last years, one third of national investments in 1998 would be directed to progress of national information systems (NIS).

Creation of specialized normative acts related to informatics has been started [4]. Legislation on intellectual property rights and on national secrets, law *On Telecommunications*, *Radio and TV Law*, number of laws and regulations of the Cabinet of Ministers on the NIS regulate various aspects of activities. But the major part of this work is before us. Heightened attention will be attracted to ensuring of efficient public data protection in information systems and networks, taking into account transit situation and relatively high level of illegal activities during this period. Especially it concerns confidence of personal data, commercial information of companies and electronic commerce. Number of normative acts should be corrected taking into account possibilities of advanced electronic technologies.

In many cases information is being duplicated at present, because primary legal documents are stocked by owners of information systems. The main problems at this time have to do with the legal status of electronic documents and their archives, as well as electronic identification data, signatures and seals. These issues have not been resolved properly in Latvia today.

Technological standards are global in nature and Latvia has to observe these standards to achieve interconnection of networks and interoperability of services. The national set of IT standards is being developed on the basis of ISO and IEEE standards. Adoption of international standards will be mainly done by translation of cover sheets into Latvian, full text will be translated only for most widely used standards.

Language diversity is the problem of Latvian information market too. Only languages, that will be used for computerized information processing, will really exist in the next millennium, therefore active work is done in support of the Latvian language and other culturally dependent aspects of information technologies. Translation and adaptation of IT terminology into the Latvian language are going on in cooperation with the Terminology Commission of the Latvian Academy of Sciences. Specific Latvian diacritical characters are already included in the pan-European version of Windows '95. Operating software is adapted in Latvian. A number of standards and regulations determine character sets, code tables and keyboard layout, fonts and data elements, etc.

3. TELECOMMUNICATIONS AND NETWORKING

According to one of the principal theses of the concept of Information Society, the law *On Telecommunications* specifies that all information services and applications should be available to all residents of Latvia. Peripheral regions should not be disadvantaged by virtue of distance and expenditure. In general several operators are permitted to offer telecommunications services in Latvia (see Fig. 2). 30

telephone lines are in operation per 100 residents, 180 000 (24 % of total number) subscribers have been switched to a digital network. More than 50 000 subscribers are using mobile cellular (GSM and NMT) telephone services.

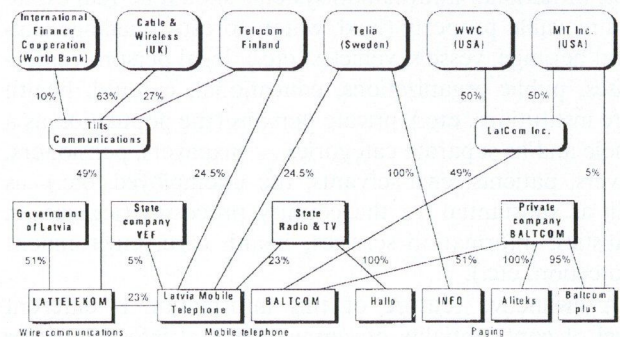


Fig. 2. Telecommunication operators

The law *On Telecommunications* states that *Lattelekom* is the exclusive provider of all basic fixed (wire) public telecommunications services in Latvia, both international and domestic. This situation contradicts one of the basic principles of a full liberalization of networks and services in EU (hence in associated countries too). Therefore governmental commission has been established for negotiations with *Tilt Communications* to review the respective part of the law. The negotiations have not finished yet, but it is planned to privatize share of government in 1998 and to open telecommunications market for free competition till 2003 [5].

Lattelekom's current tariff structure also is a result of the operator's monopoly status. Service fees are set by the independent Telecommunications Tariff Council. There are several imbalances in tariff system due to crossfinancing services in rural regions from international traffic tariffs. Tariffs for mobile communications and data transmission services are determined by the market.

Data transmission networks employs wide spectrum of networking technologies (Router, FDDI and FR, TCP/IP and X.25). More than 7000 computers have been connected to Internet, several international connections (up to 2 Mbps) are used for international traffic. Cooperation and unification of government, academic and public data transmission networks would be considered. In many cases the information that is used is identical, total level of traffic is not great, maintenance of a joint network in the country would be more efficient and less expensive.

The convergence of information and communications services is taking place at this time. In addition to providing telecommunications services, *Lattelekom* has become active as Internet provider. The private company *Baltcom*, which has provided paging and cable TV services, entered mobile telephone market too. All providers of networking services also offer opportunities to create various information sources. This process provides a stable basis for the development of truly universal service.

4. NATIONAL INFORMATION SYSTEMS

Processing and usage of information that can be deemed as being of national significance is one of the vital com-

ponents of the Policy. This information is necessary for state or regional administration, for development of national economy, finances, education and social life, for forming a general image of the country [6]. The main subjects of national information systems should be real estate and movable property (land, water, forests, buildings, cultural heritage, vessels, vehicles, etc.), legal persons (enterprises, public organizations, educational, cultural, health care institutions, etc.), private persons (the population as a whole and its separate categories — taxpayers, pensioners, drivers, patients, civil servants, the unemployed, etc.) as well as substantial for the country processes (legislation, statistics, information services, health care, environment protection, etc.).

A distinctive feature of this information is different level of confidentiality of *various kinds of information for different* users. It ranges from the strictly confidential (custom or taxpayers information) to the publicly available in principle (legal acts, bibliographic information, study programmes).

Due to necessity of close interoperability of all NIS, it is advisable to develop all set of the systems as a unified distributed mega-system with a common data field as well as unified interface, access principles and authorization procedures. All end-systems independently of their ownership — various information systems, their remote data entry and access points, the users of information, should be joined by means of the high speed Government Data Communications Network (see Fig. 3). It will allow to move basic data entry and using procedures to places where information has been originated or exploited. The network must provide undistorted data transmission, a guarantee of several levels of confidentiality and security of information, uninterrupted action time. It has to be interconnected with public data transmission network (the Internet environment) via gateway that contains a reliable firewall system.

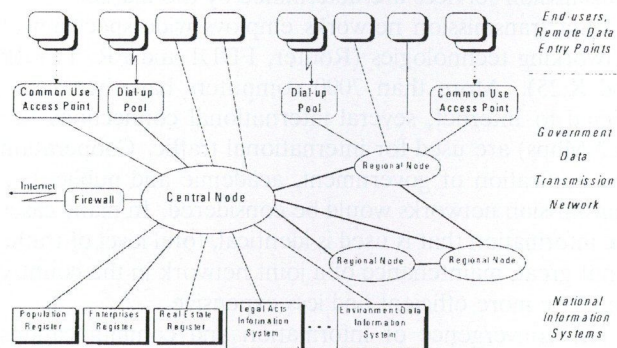


Fig. 3. National information systems: the mega-system

The unified mega-system should be spread to all regional and rural administrative centers and to number of cities, border checkpoints, ports, etc., to all institutions where information has been originated or used. On-line access should become a basic one for data entry, information use and exchange, but on-line connections by means of separate communications channels, however, must not be an end in itself, their usage should be well-grounded both technically and economically. Connection of smaller local centres will have to be done on a selective basis, in

many cases rural centres (villages) will be able participate via dial-up connections. Access points of common use for several branches would have to be established in cases where the traffic level is low.

Intensive use of the NIS has already begun, in some cases even before the creation of the respective system has been fully completed. There are secondary systems in several cases (e.g., Environmental Data and Information System, Forest Inventory Data Base) which are at more advanced state of readiness than is the appropriate primary register. A number of systems cooperate with corresponding European or global information systems such as INFOTERRA, EUROSTAT, the European Environment Agency, the European Network of Academic Recognition Centers, etc.

5. MARKET FOR INFORMATION SERVICES

Free circulation of information and availability of information services is a precondition and a tool for democratic functioning and development of society. It is the state's obligation to ensure distribution of information as well as easy and inexpensive access to well-developed information services for everyone, to avoid any discrimination between *information rich* and *information poor*, to guarantee legal rights and social possibility to pay for access.

Hence processing of various kinds of information, provision of information services should be considered as the kernel of the Policy. Therefore Latvian market for information services, demand and supply of services, their availability and quality as well as prices for them were analyzed in spring 1997 from the point of view of consumers.

The Latvian approach imagines realization of qualitative information supply by integrated use of both — printed and electronic technologies therefore all the information sources as well as personal contacts were included in the survey. Although the general rating of using of electronic services shows insufficient level of their spreading at present in comparison with use of printed media (see Fig. 4), a number of users of electronic services increases in line with development of technical infrastructure in various institutions and in households too. Roughly 70 % of all respondents had marked use of some of electronic services. Electronic technologies develop rapidly first of all for international information supply, for information browsing and search. Printed media still dominate for local information and mostly for full text documents.

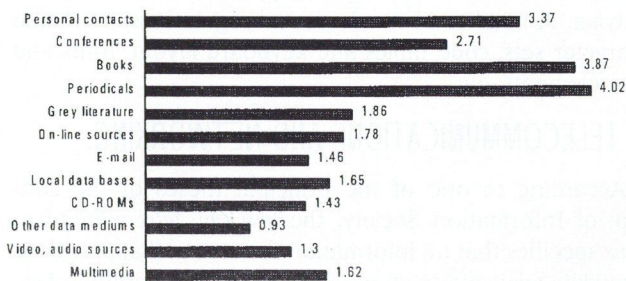


Fig. 4. Relative significance of various information sources

Availability and quality of information that is received from different sources were estimated quite equally on middle rating, while the price for information from all sources was appraised as too high.

Survey on information brokerage shows that libraries remain the main and the most popular providers of information, 97 % of all respondents had mentioned library as an information broker which services they use. To satisfy huge demand for information it is necessary to modernize style of work of libraries in accord with today's requirements [7]. Automation of library data processing, global information browsing and search, effective document delivery service, creation of electronic information sources — all these advanced applications and services should be developed as an integrated library information system. Private and individual information brokers are estimated lower than others for the present.

The barriers that are connected with financial problems are the main ones to more wide use of electronic services. Only the next obstacle is insufficient familiarity of users with advanced electronic services. Language problems are not so important already. The less important barriers are staff costs and resistance from management.

Presence of information sources in libraries and their public availability in all regions of the country, general computer literacy of the society had rated as the main problems that should be solved by the government to increase usage of electronic services. These today's priorities partially coincide with recommendations of European Commission [8] that accent protection of personal data and legislation problems too. Wide interpretation and promotion of electronic services, presentation of new services, publishing of information materials, participation in workshops and exhibitions should be made much more active by the information vendors.

6. LIFE-LONG EDUCATION AND TRAINING, R&D PROGRAMMES

Latvia traditionally has been one of the basic and most developed regions in former Soviet Union for research, design, production of information and communication products for various purposes, both hardware and software. Therefore high skilled personnel exist on all levels — researchers, engineers, technicians, workers. Introduction of advanced programmes and technologies should be combined with transition from teaching-based education to learning-based one to reproduce this personnel, especially it concerns higher and professional education, training and retraining.

Several degrees of *computer literacy* should be assured by various education institutions of Latvia, only partly it is implemented at present. Basic level for all residents should be obtained in schools. Ability to use advanced telecommunications and information applications and services, to formulate tasks for information systems is necessary for specialists in all fields, it should be assured by higher education establishments. Postgraduate education on various levels, training and retraining sessions are organized for older generation (including high level managers and decision makers) and for unemployed people. Bachelor's and

master's degrees in various information technology fields are provided in five universities and similar institutions in Latvia.

Latvia is considered to be a source of high-level scientific and technical know-how, as well as a market for high technologies and advanced production processes [9]. Therefore extensive research programmes in all fields of ICT should be a characteristic in the development of the information society in Latvia, although financing of research remains extremely insufficient in Latvia at present. Less than 0.3 % from GDP was devoted to R&D in 1997 (the fewest share in CEEC), including 470 000 US\$ that are allotted for information and computer sciences and related research.

Today circa 130 Dr. Sc., which are active in ICT fields, are working in 12 universities and research institutions. More than 20 joint research projects are implemented in frameworks of international R&D programmes, e.g., COPERNICUS, TEMPUS, PHARE, 49 research projects in informatics are funded by the state in 1997. Application-oriented subjects to foster industrial competitiveness (software engineering, signal and data processing, automation and process modelling, voice and data transmission systems, development of advanced information technologies and applications, etc.) are the basic themes.

Resignation of high skilled specialists from universities and research institutions is an important problem for computer and information sciences too. Due to insufficient financing of research and higher education high skilled experts have passed to trade and to administrative institutions. Some part of them has removed to Western universities too. International companies are looking for clever young people and offer them well-paid workplaces abroad. As a result average age of professors and doctors of science, of high skilled experts becomes perilously high.

7. ELABORATION AND IMPLEMENTATION OF THE POLICY

Latvian national information policy is elaborated as the National Programme Informatics. It has been approved conceptually by the Cabinet of Ministers, minister of transport is responsible for its creation. National high level expert panel had been organized to elaborate the Programme. Several administrative, state and public institutions had been established to undertake responsibility for development of various components of the Programme.

Two departments within the Ministry of Transport supervise the development of public telecommunications and information services. Department of Communications is responsible for the development of all telecommunications services, while Department of Informatics, which had been organized in 1996, oversees the elaboration of the national information policy and information infrastructure. State Information Network Agency is responsible for development of all government data and voice networks.

Any evolution of information policy must involve appropriate experts from various IT fields. Indeed, several panels are functioning in Latvia at this time. Ministry of Education and Science has established its own IT Council to create a policy for the implementation of IT in schools,

colleges and universities, to develop information systems for academic purposes. Such panels should be organized at all ministries and other institutions (e.g., European Integration Bureau) and local authorities to develop ICT in their particular sphere.

A number of components of the National Information Policy have been elaborated and adopted. *National Programme for Development of Communications* had been elaborated in 1994, draft of its new version — *Latvian Telecommunications Sector Policy* should be prepared in 1997. *Concept of Provision of Scientific and Technical Information for Latvia* as a strategy of development of libraries has been adopted by Association of Academic Libraries and approved by Latvian Academy of Sciences in 1997. Latvian Radio and TV Council had adopted *Concept of Development of Electronic Mass Media* in 1996. Special programme for development of cable TV was approved in 1997.

Today's priority for Latvia is development of information systems that play a substantial role in vital interests of the country, such as the development of the national economy, education, the collection of taxes (Enterprise, Population, Taxpayers, Vehicle's and Driver's registers, Custom Cargo Information System, etc.). These priorities are considered during the first stage of creation of unified national information mega-system. Totally 11 ICT projects are financed from the National Investment Programme 1997, 23 ICT projects should be included in the Programme for 1998. Further development of the Enterprise Register, State Revenue Service Information System, Government Data Communications Network, information systems for education and libraries, etc. are among them. Some information systems (Real Estate Register, Information System of the Central Statistical Bureau, etc.) are elaborated under the auspices of projects financed by the PHARE program, the World Bank or some foreign government (Denmark, for example).

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8. CONCLUSIONS

Many centers of crystallization have appeared in Latvia, real activities have begun in various fields bearing on telematics — legislation and standardization, telecommunications and networking, information applications and services, R&D and education. A number of government, academic, commercial and public institutions are operating in detached fields, but all activities have not taken place in a coordinated way. As a result level of development of various systems, applications and services differs greatly. Non-developed telecommunications and data transmission networks frequently hamper access to already existing information sources. In some cases it has led to duplication of data or inadequate information in data bases. The existing situation is the result of differing general awareness by the high level decision makers, as well as the financial situation of many of the respective institutions. The development of a unified national information programme and the determination of key priorities will be an essential step toward pooling and coordination of all actions within the state and with respect to EU policy at all levels.

To promote active involvement of Latvia as well as all CEEC in the European process of creation of the Information Society, to provide interconnectivity of communications and interoperability of services with EU information systems, to comprehend all peculiarities of transition period in various CEEC it would be desirable to develop especial Multi-country Programme of PHARE *Development of National Information Policies in CEEC* and to establish in/at ISPO special position of CEEC programme manager.

But the major part of the work must be done by ourselves and directly from its results depends involvement of Latvia in the creation of the Global Information Society.

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IT FOR SMALL COUNTRIES: LANGUAGES AND CULTURAL HERITAGE CONSERVATION

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The importance of ensuring linguistic and cultural pluralism in emerging Information Society is stressed. The task of making of the specialists in the humanities as active participants of Information Society is analyzed. The activities of UNESCO Chair in Informatics for the Humanities in Lithuania are presented.

1. IT AND CULTURAL AND LINGUISTIC DIVERSITY

The importance of ensuring linguistic and cultural pluralism in emerging Information Society is recognized by many states (especially active at this point are France, Canada, many small European countries) and international organisations, such as UNESCO (UNESCO and an Information Society for all, document CII-96/WS/4, UNESCO, May, 1996.), European Commission. Some tendencies, created by technological advances are seen as a threat to unique culture and language of nations, especially, of small nations. As example frequently given is that majority of the materials presented on the Internet is only in English.

At the same time, advances in information technology provides many opportunities for the development of specialized services for various and diverse cultural needs. For example, information technology (IT) offer tremendous possibilities for the promotion and sharing of cultural heritage via Internet. Other example — creating digital archives on CD's for preservation of documentary heritage. However, transferring of opportunities mentioned above into real things is not easy task. For that purpose it is necessary that the part of our society — intellectuals, specialists in the humanities — would become active participants of Information Society — as users and as it is most important — as content providers. They are the people who could present most valuable and interesting information. At the same time many of them are not aware of IT possibilities or they do not know how to use IT.

And quite opposite situation, many young people, mainly with technical education, know how to use IT, but many of them have nothing valuable for presentation to other people. One of the results of such situation — "flat" content of many Web sites on Internet.

To make the intellectuals, the specialists in the humanities as active participants of Information Society it is necessary special activities. If we pay the attention only to business people, electronic commerce and forget the part of society, which is very important and influent through other communication tools (TV, radio, news papers), the Information Society will be not interesting, one sided and pour.

As the examples of activities encouraging the use of IT in the humanities could be:

- demonstrations to potential content providers in the fields of the humanities of successful applications of IT, such as multimedia encyclopedias, vocabularies on CD's, cultural and artistic collections on Internet;
- training of specialist in the humanities to use IT;
- developing of the special training courses on IT for the specialists in the humanities;
- creating of scientific laboratories, in which researches could investigate the new possibilities of IT in the humanities, the societal impacts *of IT, the problems of copyright, ethics;
- developing the centres equipped with computer equipment for production and dissemination of diverse cultural products.

These activities could create conditions conducive to the development of computer based cultural industries, promoting of IT possibilities.

2. CULTURE HERITAGE PRESERVATION AND DISSEMINATION IN LITHUANIA

The main activities on stimulating of usage of IT in the humanities in Lithuania are concentrated in UNESCO Chair in Informatics for the Humanities, in Institute of Mathematics and Informatics. For that purpose the Multimedia Center for the Humanities (URL: <http://www.mch.mii.lt/>) is created. This center has technical resources for training and developing multimedia products for Internet and CD's. The specialists of the center investigate the possibilities of advanced IT in the humanities and transfer this knowledge through intensive training courses. The center is supported by Lithuanian government, SOROS foundation, UNESCO.

How the specialists in the humanities are stimulated and supported to use IT for presentation of their materials?

1. At the beginning the awareness of the specialists in the humanities that IT is useful and really could be used in the humanities is created. The most effective way — demonstration. There are several products, which are used as demonstration material.

2. The tasks, which could be solved by means of IT, are identified together by specialists in the humanities and specialists in IT. To make the cooperative work of specialists in the humanities and specialists in IT possible, training courses on the various topics on IT for the specialists in the humanities are delivered.

3. The project is set up and planned. During development of the project the specialists in the humanities:

- are provided with technical resources;
- trained and consulted.

In such a way the groups, working in various fields of the humanities, on various projects were created. After training and some practice, the groups of specialists in the humanities start to work independently. Here the list of projects already developed or under development:

Multimedia Dictionary of Lithuanian Dialects. The Lithuanian language is one of two surviving Baltic languages. It has preserved a lot of archaic elements of Proto-Indo-European, especially in the living dialects. The data from the dialects play an important part in solving various Indo-European issues. The aim of the project — to present the description of Lithuanian dialects on CD and Internet. The description includes clickable map of Lithuanian dialects, audio records with examples of dialects. Pilot project is accessible on Internet at URL: <http://www.mch.mii.lt/Tarmes/pradzia.htm>.

Digital Archive of Lithuanian Dialects. The aim of the project — to transfer old audio records of Lithuanian dialects (about 1000 hours) with comments, maps, photos to the digital media in multimedia form on CD.

Ancient Lithuanian Folk Music Instrument Kankles. The aim of the project — to present on Internet the history, typology and spreading of this ancient stringed musical instrument in the territories of the Baltic Sea nations, as well the questions concerning playing traditions, repertoire of traditional instruments, development of the kankles in the 19th-20th cc., the emergency of the kankles as an instrument of professional music, modern repertoire of these instruments. Accessible via Internet at URL: <http://www.mch.mii.lt/Kankles/content.htm>. Fragment of presentation is shown in Fig. 1.

Ornaments in Lithuanian Folk Textiles. The project aims to make available in computer multimedia form the extensive material about Lithuanian folk textile ornaments in 19th and 20th centuries. This material includes textual description of weavers, weaving — looms, material, weaving techniques, graphical presentations of ornaments, photo's of weavers, audio records with weaving songs. The material is collected during expeditions to old Lithuanian villages and is stored in various Lithuanian archives and museums. The material presented in Multimedia Electronic Book on Ornaments in Lithuanian Folk Textiles is structured and provided with an analysis based on interpretative ethnology. The book will be released in the form of CD.

Special edition is accessible via Internet at URL: <http://www.mch.mii.lt/Rastai/main.htm>. Fragment of the book is presented in Fig. 2.

Laimutis Telksnys, professor, doctor habilitatis in informatics, member of the Lithuanian Academy of Sciences. Author of original theory of detecting changes in random processes, investigator and developer of computerised systems for statistical analysis and recognition of random signals. His current research interests are in analysis and recognition of random processes, computerised multimedia systems and computer networking.

The First Lithuanian Book. The Internet multimedia issue: 450th anniversary of the First Lithuanian Book by Martynas Mazvydas and its culture context. Accessible via Internet at URL: <http://daugenis.mch.mii.lt/atspindziai/index.htm>.

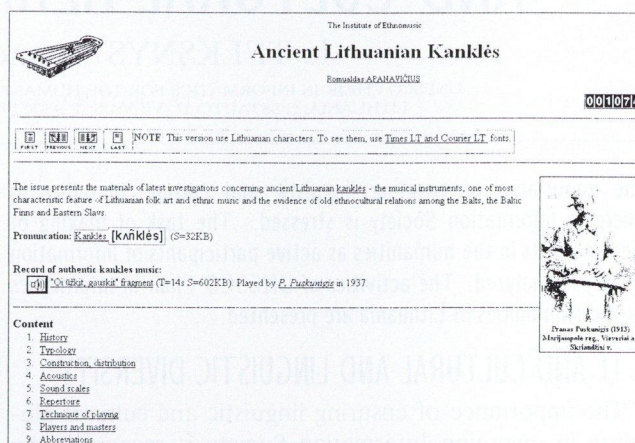


Fig. 1. The fragment of presentation on Internet Ancient Lithuanian Folk Music Instrument Kankles

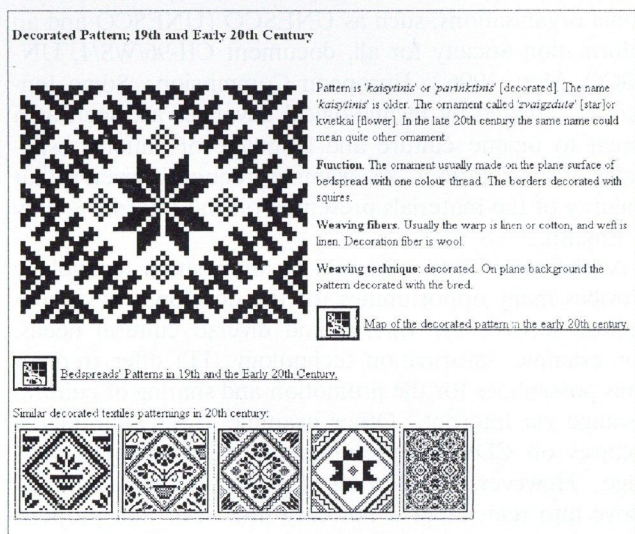


Fig. 2. The fragment from Multimedia Electronic Book of Ornaments in Lithuanian Folk Textiles

3. CONCLUSION

Creative cooperation of IT specialists and specialists in the humanities could maintain cultural and linguistic diversity in the Information Society, ensuring cultural and linguistic identity of all nations.

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INFORMATION SOCIETY: FRAMEWORK FOR REGULATION AND LEGISLATION

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Pieces of information are of great importance for people as well as for the economy. Free flow of information and protection thereof are two contradictory requirements both of which are vital from the point of view of fundamental freedoms of human beings and the smoothly functioning single market. It is the regulator's task to find a balance between those requirements. The article gives an overview of regulatory issues related to personal data and intellectual property rights.

1. OBJECT OF REGULATION: INFORMATION INDUSTRY AND SOCIETY, THE VALUE CHAIN

Two third of the economy relies on manufacturing or services heavily dependent on information technology, telecommunications and broadcasting. The information and communication industries are the fastest growing in the world, growing at an annual rate of 7 to 8 % per year. Their contribution of world GDP is expected to double by the year 2000 to approximately 10 %. This situation is matched in Europe with very strong opportunities for broadcasting, computers software, electronics, publishing and telecommunications companies.

The production of each good or service requires a chain of added value which starts with raw materials and adds value as the product is manufactured, distributed, retailed and delivered. Various stages of the value chain are performed by various structural roles. The model of the value chain of information economy comprises the following items.

Roles	Result
"raw material"	data information
provision/ production	information capture creation of information works (content) information processing information storage
dissemination	broadcasting communication to the public
distribution	whole sale/re-sale information works brokerage information service brokerage management of access/receiving rights management of rights over information
consumption	receiving information
infrastructure	transmitting data

Privacy, data protection, free flow of information and data security need to be pursued by regulation and legislation at every stage of the value chain.

2. REGULATORY FRAMEWORK

2.1. Legislative means

Primary legislation. The objectives of the Community, as laid down in the *Treaty of Rome*, as amended by the Treaty of the European Union, include enforcement of human rights and fundamental freedoms recognized in the constitution and laws of the Member States and in the *European Convention for the Protection of Human Rights* and related conventions. A *convention* is a contract between member states. Obligations include implementation of principles of conventions in national constitutional and legal arrangements. There is a number of *recommendations* dealing with specific areas of data protection. Recommendations are not legally binding obligations, they contain guidelines for national legislation or administrative practice.

World Trade Organisation (WTO) was established by the Agreement concluded in Marrakesh, 1994. The WTO shall provide the common institutional framework for conduct of trade relations among its Members in matters related to the agreements and associated legal instruments included in the Annexes to it. Information economy and society are specifically concerned by annexes on

- Trade in Services and Annexes, including Telecommunications,
- Trade-Related Aspects of Intellectual Property Rights.

Being members of the Council of Europe as well as of WTO, Central and Eastern European countries have undertaken to implement those principles in their national law.

Community secondary legislation. For the social and economic purposes included into the primary legislation, the activities of the Member States and the Community shall include the adoption of an economic policy which is based on common objectives, and conducted in accordance with the principle of an open market economy and free competition.

The Council shall issue *directives* for the approximation of laws, regulations or administrative provisions of the Member States as directly affect the establishment or functioning of the common market. A *regulation* shall have general application and shall be binding in its entirety and directly applicable in all Member States. A decision shall be binding in its entirety upon those to whom it is addressed. *Recommendations* and *opinions* shall have no binding force. In some domains (e.g. Trans European networks, cross border operations, technical standards) the Council may take measures for the appropriate functioning of the common market without internal frontiers.

Given the importance and complexity of information economy and society, all kinds of Community legislation are implemented.

National legislation. Member States shall regard their economic policies as a matter of common concern and shall coordinate them within the Community. A number of issues are left for national legislation in case it does not constitute a legislative or administrative barrier to the proper functioning of common market to this are remedies in case of infringement of IPR). There are institutional and procedural mechanisms for harmonising those national legislation with one another.

2.2. Technical regulation, standardisation and conformity assessment

Fulfilment of policy objectives have their technical conditions which can either support or hamper implementation. Data protection and security requirements must not give way to the emergence of technical obstacles to free and seamless movement of information. There must be a balance between implementation of the two, sometimes contradictory, kinds of principles.

This fact is recognized by both WTO and European legislation which provide for development of harmonized technical regulations and conformity assessment procedures. For the smooth functioning of internal market, as much transparency as possible should be ensured as regards the future national rules and regulations that will apply to information technology, services and telecommunications.

2.3. Self regulation of players

In order to promote smooth functioning of common market without internal frontiers harmonisation concerning certain commercial aspects of activities, behaviours, liabilities, etc. is needed. Agreed levels of minimum requirements on data security and certification thereof will increase trustworthiness in information services.

Harmonisation of commercial practices and certain technical solutions by legislative or regulatory means would lead to bureaucracy and hampering of innovation. Collective agreements, however, such as code of conducts or practices may give commonly accepted solutions to movement of goods and services without internal frontier. Self regulation is needed in various levels: in national level as well as in the level of the Europe, involving sectoral and cross/sectoral agreements, i.e. among and between information users, information services and telecommunications services.

3. BASIC POLICY OBJECTIVES INCLUDED INTO PRIMARY LEGISLATION

The right to privacy and freedom of expression. *European Convention On Human Rights* (1950) contains fundamental rights and freedoms which form basis for the information society. According to *Article 8* everyone has the right to respect for his private and family life, his home and his correspondence. According to *Article 10* everyone has the right to freedom of expression. This right shall include freedom

to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers. A number of subsequent legal documents regarding media and information content, data protection and data security have as their purpose implementation of principles of the Convention in their respective domains.

European Convention On Transfrontier Television (1989) is concerned with programme services embodied in transmissions. Its purpose is to facilitate, among the parties, the transfrontier transmission and the retransmission of television programme services which means freedom of reception and retransmission on the territories of the Parties of programme services.

The Convention contains provisions regarding freedom of expression and information in the domain of broadcasting having regard to fundamental rights of others which means restrictions on abusive or unfair content and remedies thereof (right of reply). Rules contained in it are applicable whether they are transmitted or retransmitted by cable, terrestrial transmitter or satellite, and which can be received, directly or indirectly, in one or more other Parties.

Information economy and society regulation is concerned by the Convention in so far as technology implemented for transmission and retransmission of programme services need to be able to support requirements put forward by it.

Establishing a common market and economic and social cohesion among Member States. *Article 2* of the Treaty of Rome contains the purposes of the Community: "The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing the common policies. Association agreements with Europe of CEE countries include provisions which aim at approximation of those policies.

Services of general interest, universal service. The notion of services of *general economic interest* is a term used in *Article 90* of the Treaty. It refers to market services which the Member States subject to specific public service obligations by virtue of a general interest criterion. Those services are subject "... to the rules on competition, in so far as the application of such rules does not obstruct performance, in law or in fact, of the particular task assigned to them." Liberalisation of services of general interest (such as telecommunications) has given rise to the concept of *universal service* which refers to a set of general interest requirements and should be satisfied by certain operators in the domain e.g. of telecommunication, broadcasting, transport and electricity

In telecommunications universal service implies accessibility to certain services. In broadcasting general interest considerations basically concern the content of broadcasts, being linked to moral and democratic values, such as pluralism, information ethics and protection of the individual.

4. INTELLECTUAL PROPERTY RIGHTS (IPR)

The question of the protection of intellectual property in the information society is a matter of interest to the Community primarily because of the need to ensure that goods and services *can move freely*. Works which

include intellectual property have economic value due to the considerable expending of time, effort and energy imbedded. Only if these rights are *properly protected* will there be *the incentive to invest* in the development of creative and innovative activity, which is one of the keys to added value and competitiveness in Europe industry.

With the development of technology and new services available in the information society reproduction, storage and dissemination of information have become far easier and cheaper than their creation. Therefore it is essential to take better account of the protection of the IPR.

An author of an intellectual property has the exclusive right to authorize or prohibit use or other activities (e.g. reproduction) aiming at the use of his or her performance. In case of the use of his or her performance the author has the right to appropriate and equitable remuneration of his or her efforts. IPR shall not be exhausted by various acts of distribution. Specific pieces of legislation are related to specific types of intellectual works (intellectual property), roles related to those works (rightholders), activities related to works and their use (object of right). IPR are without prejudice to moral rights.

4.1. Broadcasting right

The purpose of the legislation is to provide for the frontierless broadcasting under which harmonised legal circumstances

- there is no direct obstacle in the free circulation of programmes,
- holders of copyright (authors) and related rights (performers, producers of phonograms, broadcasting organisations) enjoy a minimum unified level of protection of exploitation of their rights.

Broadcasting right: Member States shall provide an exclusive right for the author and holders of related rights to authorize the communication to the public by satellite of copyright works. Authorization may be acquired only on contractual basis through a collective society.

Cable retransmission right: Member States shall ensure that when programmes from other Member States are retransmitted by cable in their territory the applicable copyright and related rights are observed and that such retransmission takes place on the basis of individual or collective contractual agreements between copyright owners, holders of related rights and cable operators. The right of rightholders to grant or refuse authorization to a cable operator for a cable retransmission may be exercised only through a collecting society which is responsible also for collecting remuneration for authors.

4.2. Protection of computer programs

Computer programs play an important role in a broad range of industries and can accordingly be considered as being of fundamental importance in the information society. The development of computer programs requires the investment of considerable human, technical and financial resources while computer programs can be copied at a fraction of the cost needed to develop them independently.

Computer programs are protected under copyright law as literary works. The *author* of a computer program

shall be the natural person or group of natural persons who has created it. National legislation may provide for recognition of legal persons as rightholder. Where a computer program is created by an employee the employer shall exercise all economic rights.

Protection of computer program means that the rightholder has the exclusive right to authorize reproduction, translation, adaptation, arrangement, alteration and distribution to the public including the rental of the original copy. Protection of computer programs does not include the above mentioned activities in so far as they are needed to lawful use, loading, displaying, running, transmission, storage or interoperability. Copyright shall exhaust within the Community with the first sale within the Community of a copy of the program with the exception of the right to control further rental.

4.3. Protection of databases

Database are similar to computer programs in that they involve considerable amount of investment and effort which need to be protected from unauthorised use. Database goods and service have an increasing role in the economy and an international dimension in the marketplace which calls for appropriate rules for borderless movement. There are two types of rights over databases:

- in case it constitutes the author's own intellectual creation it shall be protected as *artistic works* by copyright based on Berne convention,
- in case it is not an intellectual creation but include qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the content it has *sui generis right* for protection.

The *author* of a database shall be the natural person or group of natural persons who has created it. National legislation may provide for recognition of legal persons as rightholder. Economic rights shall be owned by the person holding the right.

Acts restricted by copyright are reproduction, translation, adaptation, arrangement, alteration, distribution, communication, display or performance without the exclusive authorization of the author. The right to control resale shall exhaust within the Community by the first sale in the Community.

Acts restricted by *sui generis right* are extraction and/or re-utilization of the whole or substantial part of the content as well as repeated extraction and/or re-utilization of insubstantial part of the content which unreasonably prejudice the legitimate interest of the maker of the database.

4.4. Rental and lending rights

Rental and lending rights are related to rental and lending of originals and copies of copyright works. *Rental* means making available for use, for a limited period of time and for direct or indirect economic or commercial advantage. *Lending* means making available for use, for a limited period of time and not for direct or indirect economic or commercial advantage, when it is made through establishment which are accessible to the public (i.e. library).

The exclusive right to authorize or prohibit rental and lending shall belong:

- to the author in respect of the original and copies of his work,
- to the performer in respect of fixations of his performance,
- to the phonogram producer in respect of his phonograms, and
- to the producer of the first fixation of a film in respect of the original and copies of his film.

The rights shall not be exhausted by any sale or other act of distribution of originals and copies of copyright works and other subject matter. Authors and performers have unavailable right to equitable remuneration through a collective society.

Broadcasting organisations have the exclusive right to authorize or prohibit the fixation of their broadcasts. A cable distributor shall not have that right where it merely retransmits by cable the broadcasts of broadcasting organisations. Broadcasting organisations have the exclusive right to authorize or prohibit the rebroadcasting of their broadcasts by wireless means as well as the communication to the public of their broadcasts if such communication is made in places accessible to the public against payment of an entrance fee. *Performers* have the exclusive right to authorize or prohibit the broadcasting by wireless means and the communications to the public of their performances, except where the performance is itself already a broadcast performance or is made from a fixation.

4.5. Term of protection and other issues

Term of protection is an important factor of internal market for intellectual properties as unharmonised terms may lead to choosing countries and taking account of the frontiers. Minimum terms of protection are specified by international agreements for specific types of object of right.

Limitations to IPR include non-commercial, teaching and scientific use.

It is left to the Member States to implement appropriate measures, civil and administrative procedures for enforcement of intellectual property rights.

There are *technical conditions* for enforcement of IPR related legislation especially for a balanced handling of protection issues together with the requirement of free movement. Community legislation includes technical regulation such as encoding and decoding, encryption and requirements for head-ends used for cable retransmission.

5. CONTENT REGULATION

Digitization brings about dramatic changes in the nature, sources and scope of the delivery of communication content, especially the content of public, widely available information and entertainment, and the impact upon governments' ability to influence or control such content. Content regulation is directed towards either restriction of undesired content or promotion of socially and culturally desired content.

It is the responsibility of the government to provide for an appropriate balance between content regulation and

the principle of freedom of information and free flow of information.

Objectives of content related regulation have their technical and legal conditions. Legal conditions themselves have to take due account of technical capabilities.

5.1. Restriction of undesired content

Prohibitions include

- illegal content such as false advertising, illegal use of copyright, infringement of privacy and similar laws,
- harmful content such as obscene or other offensive information which hurts someone's human dignity or the minority rights.

Issues of illegal and harmful content arise mainly with broadcasting, the Internet and digital data transmission. It is a basic question of content regulation who shall be responsible for capture of illegal or harmful content. Although technically it would be most appropriate imposing requirements and liability upon local distributors (e.g. cable retransmitters) and subscriber services this is inappropriate from legal point of view as operators are not law enforcement agencies.

Solution proposed by Community is

- encouraging and facilitating self regulatory systems including representative bodies for Internet service providers and users, effective codes of conduct and hot-line reporting mechanisms available to the public,
- encourage standardization and the provision to users of filtering mechanisms and setting up of rating systems; for example the PICS (platform for Internet content selection) standard.

5.2. Promotion of socially and culturally desired content

The issues of socially or culturally desired content is basically relating to the issue of *media regulation*. These types of goals may not always be as commercially attractive as other forms of programming and information, and so may not be sustained by market-based services alone.

Directive on standards for the transmission of television signals provide for the lawful use of coders and decoders. Operators of conditional access services shall offer to all broadcasters on a fair and non-discriminatory basis technical services enabling the broadcaster's digitally transmitted services to be received by viewers authorized by means of decoders administered by the service operators. In order to have a fair access to it by the subscriber it is the regulator's task to provide for licensing of standardized television sets and sockets permitting connection of conditional access. New technologies such as multichannel technologies which will make expansion of system capacity and transmission media much cheaper will tend to help support content diversity.

The Community also encourages building up of model contracts used by cultural institutions as well as codes of conducts for users and distributors.

6. DATA PROTECTION

Increasing use of automated processing of personal data over the past few decades has exacerbated the risk of

illegal use of personal data and facilitated their transfer across frontiers between countries with great difference in the level of protection provided to personal data. Object of regulation is protecting fundamental rights and freedoms of natural persons in particular with respect to the processing of personal data.

Lawfulness of processing of personal data means implementation of principles of

- data quality,
- legitimate processing,
- prohibition of processing of sensitive data,
- reconciliation with principle of freedom of expression,
- information to be given to the data subject,
- the data subject's right of access to data,
- the data subject's right to object,
- confidentiality and security of processing,
- notification of the supervisory authority.

Principle of *data quality* means that personal data must be collected for specified, explicit and legitimate purposes and not further processed than compatible with it, adequate and not excessive to that purpose, accurate and kept to date, kept no longer than necessary. *Legitimate data processing* means that data may be processed only if it is a legal obligation or the data subject has given his consent, or it is a vital interest of the data subject or public interest.

Certain categories of controllers are being encouraged both on national and Community level to draw up codes of conduct taking account of specific features of the various sectors. The Council of Europe issued a number of sector specific recommendations and studies concerning data protection.

7. INFORMATION SECURITY

The trustworthiness and protection of information is essential for the proper functioning of information society. Information security threats are growing with the diversification and multiplication of communication services and use of electronic information by business, administrations and individuals.

Community commercial policy has led to liberalisation and harmonisation in the field of communication services. In order to ensure trustworthy information services and applications in Europe and its relations with other parts of the world action is needed on an Europe scale to reduce the risk of threats to security and safety while avoiding to obstruct innovation or economic and social developments. Control over security mechanisms, however, must not lead to the creation of new barriers to trade in goods and services.

Demand related security functions. The protection of information and communication systems needs to consider requirement of users such as business, administration and individuals and their interworking. Security objectives, functionalities and solutions have to be matched to them.

Basic security requirements may vary depending on the sector-specific needs. Requirements for basic security functions on the demand side are as follows.

Secure access control relies on a mixture of identification mechanisms (authentic naming) identifying the remote person or system, authorisation mechanisms determining the authority of the remote person or system to carry out different types of actions, random (unpredictable) components affording protection against the re-use of once-valid access control messages under invalid circumstances, cryptographic techniques to protect the above from modification, copying, etc.

Requirements for electronic cash are unlimited transferability (from one user to another), divisibility into sub-amounts required, independence from on line third party security services, privacy/untraceability, security and uniqueness — i.e. cannot be forged or copied.

Requirements for security services are: non-repudiation of origin which means that a called user (e.g. the receiver) cannot deny to receive the information, claim of origin enforcing e.g. copyright, claim of ownership e.g. in case of bills of lading or exchange, untraceability for the protection of privacy, time stamping for using as evidence or proof in case of litigation, digital signature having the same legal consequences as hand-written signatures, protection of privacy e.g. of sensitive information, provision for lawful interception by law enforcement agencies, etc.

Actions proposed by the Green Book on information security include

- provision Europe-wide services for increasing trust (digital signature, claim of origin, etc.),
- establishment of Europe-wide confidentiality levels for various types of information,
- establish common information security evaluation criteria and certification regimes including mutual recognition of conformity assessment certifications,
- formulate common legal and regulatory framework, liability principles for information providers, intermediates and value added service providers,
- to put in place dispute resolution mechanisms,
- to establish common principles covering communication crime and electronic evidence,
- develop general and sector specific codes of practice and base line controls,
- strengthen support for international standardisation.

8. CONCLUSION

As a result of the convergence of technologies, the traditional distinction between industries such as telecommunications, computing and media is diminishing, since the same underlying technologies and skills are applied to each. This will facilitate the generation of new products and services and the way they are produced, and, emergence of new roles and new players.



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A VIEW OF UNIVERSAL SERVICE IN A HIGH COST AREA

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This paper looks at the issue of universal service obligations (USO) in telecommunications in the light of Irish experience and conditions and in the context of the European Union's (EU) policy for telecommunications.

1. INTRODUCTION

Ireland's national regulatory policy on telecommunications is still evolving within the EU framework. An independent regulatory office has recently been created and the first regulator takes up office on 1 July 1997. Consequently, the policy positions of both the operator, Telecom Eireann, and the regulator remain negotiable. In the circumstances it must be emphasised that the views expressed in this paper are those of the author and do not necessarily represent the policy position of Telecom Eireann or of the Irish regulatory authorities.

Broadly speaking, provision of all telecommunications services in Ireland, other than voice telephony, is liberalised. Network provision will be fully liberalised from 1 July 1997. A derogation has been obtained until 1 January 2000 on competition for voice telephony services. Those interested in arguments used to justify restrictions on competition in the context of USO and otherwise should refer to EU Commission's decision of 27 November 1996 (Doc.97/1 14/EEC) on the Irish application for an extension of the period to adjust to full competition.

2. TRADITIONAL USO

The features of USO during the industrial society were:

- exclusive concern with telephone service,
- implicit service obligation,
- vague price and quality obligations,
- heavy cross-subsidisation of access costs from long distance and

international call charges, which helped keep connection and rental charges below cost and encouraged take up of service.

From a commercial viewpoint the operator had two problems in meeting USO, which still continue in the information society:

- high costs in providing access to service in rural and isolated areas,
- low revenue from low users in other areas.

Monopoly operating conditions provided the ability to cross subsidise service access and low users at the expense of high average prices to the generality of customers.

3. THE IMPACT OF THE INFORMATION SOCIETY

The technological changes in computing and telecommunications that ushered in the information society and the consequent global expansion in the use and exchange of information transformed the operating environment of telecommunications. The technological advances altered the cost structure, causing long distance and international costs to fall dramatically in absolute terms and relative to local network conveyance and access costs. This in turn reduced the costs of entry to the market for long distance and international traffic and made competition in these services possible.

The increased use of telecommunications by the business community meant that business was no longer willing to tolerate the prevailing high prices for long distance and international calls, which were seriously out of line with costs. Governments also came to realise that an efficient and competitive telecommunications service was critical to national competitiveness and economic growth in the information society.

The combined forces of technological change and market pressure made competition inevitable and forced the re-structuring of prices on operators. This re-structuring required the re-balancing of prices to better reflect costs, resulting in progressively lower charges for national long distance and international telephone calls and leased lines, and increases, relatively or absolutely, in charges for local telephone calls, telephone access lines and short haul leased lines.

The new operating environment required the re-appraisal of the traditional policy on USO, given that the availability of universal access to service is even more important for economic and social participation in the information society. From the customer's perspective the general effect of price re-balancing is to increase the average cost of service for low usage customers, who benefit least from reductions in long distance and international call charges. From the existing operator's perspective competition results in loss of market share in the profitable international and long distance market at the same time as prices and profit margins in these markets are being forced down. The resultant reduction in profit, it was argued, diminished the ability of the existing operator to carry USO costs. In addition, where the traditional operator was privatised, the company's duty to the commercial interests and expectations of its shareholders would take precedence over social interests.

In the new environment policy makers have had to address USO more explicitly and to consider the following issues:

- what is the appropriate scope of USO in the information society,
- how is responsibility for the cost of meeting USO to be shared in a competitive environment,
- how is the cost to be measured,
- how is service to be kept affordable to low income customers,
- who is to be responsible for setting and implementing policy on USO.

The EU adopted an integrated approach to these issues, as part of its policy to open the market to effective competition.

4. IMPORTANCE OF THE ISSUE OF USO IN IRELAND

Although Ireland already has a very modern telecommunications network, which extends into all areas of the country, the issue of USO is still important for the following reasons:

- relatively low overall telephone density (38 exchange lines per 100 population),
- telephone service is not affordable by many households at current price levels (17 % of households do not have telephone service, rising to 25 % in some operating regions and even higher in some rural areas),
- a recent study suggests that up to 30 % of telephone lines may be uneconomic owing to high costs of provision or low usage,
- the same study calculated that 16uneconomic.

Inherent demographic and geographical factors make it very costly to provide service in large areas of the country, regardless of operational efficiency. These factors include:

- the skewed population distribution (about 33 % live in Dublin and its environs),
- low population density (about 51 per km² overall, much less when Dublin is excluded),
- low urbanisation (43 % of the population lives in centres of less than 1500 population),
- the pattern of rural dwelling (individual houses rather than village clusters),
- the mountainous nature of the terrain and very low density in the west of the country,
- the high average telephone line length (16 % of lines exceed 5 kms).

In urban areas individual houses, rather than flats or apartments, predominate and this feature reduces economies of scale in the urban access network.

The capital cost of providing an access lines in the most costly western region is roughly four times the cost in Dublin and more than double the national average. Weather conditions and the terrain also result in high maintenance costs. The maintenance cost per access line in the same western region is more than double that in Dublin and 1.5 times the national average. These underlying features, together with exceptional costs associated with the rapid modernisation of the network in the 1980s, largely financed by debt, have resulted in a very high cost base.

International and long distance charges are still too high, despite substantial reductions in recent years. While some re-balancing of local call charges has been possible, the company's ability to offset reductions in long distance and international telephone call charges by increasing access charges is limited. Connection and rental charges are already among the highest in the EU. Under a price cap regime introduced by the government connection charges may not be increased by more than the rise in the, consumer price index (CPI) and rental increases are limited to CPI + 2 %. Moreover the price cap imposes a limit of CPI on the overall increase in bills for the lowest quartile of customers. The annual rate of increase in the CPI is very low at present.

Telecom Eireann fully accepted a universal service obligation in line with the traditional policy. It provided a basic network of uniform quality to all areas of the country, regardless of the commercial return. At the customer level, it provided services at standard charges regardless of location or the type of customer. No other policy was considered to be politically acceptable. At most it delayed the provision of exceptionally costly lines at times when it had difficulty in meeting service demands generally. Advances in wireless technology provide lower cost solutions than wired service in some remote locations, but in general do not greatly alter the overall cost burden.

The company feared that in a competitive environment it would be left to bear the cost of serving the most costly areas and low usage customers, while its competitors creamed off the big business customers and concentrated on serving the business corridors with scale economies.

The need for further time to reduce the cost base, including the debt burden, and to reduce prices was the main argument in securing EU agreement to a period of adjustment to full competition in the telephone service. Although USO was an element in the costs, the derogation did not concern USO. The Irish regulator will have to address that issue before the period of derogation expires.

5. GENERAL THRUST OF EU POLICY ON TELECOMMUNICATIONS COMPETITION AND USO

EU competition policy has the following main thrusts:

- telecommunications networks and services in the Community must be fully open to competition, subject to any Community determined restrictions applicable community-wide on the number of operators,
 - telecommunications prices must be cost-oriented and based on transparent and non-discriminatory criteria; current price structures must be re-balanced to achieve this where necessary,
 - non-discriminatory inter-connection agreements must be made between operators,
 - independent regulation of policy at national level,
 - Commission to police competition.
- Policy on USO comprises the following key elements:
- more explicit definition of USO,
 - general definition of the cost burden of USO,
 - explicit criteria for determining who should carry responsibility for USO,

- national regulators to have responsibility for the details of compensation for USO,
- Commission approval required for any national USO funding schemes.

6. THE EU DEFINITION OF USO

The EU in its proposed Directive on Inter-connection in Telecommunications defines universal service as: *a defined minimum set of services of specified quality which is available to all users independent of their geographical location, and, in the light of national conditions, at an affordable price.*

The minimum set of services includes a basic fixed voice telephony service, a mobile telephony service and voice band data transmission service of at least 2.4 kbit/s.

At the discretion of the national authorities, the fixed voice service may include directory inquiries, directory assistance, emergency services, public payphones and, services for the disabled. This definition is regarded as a "narrow" definition of USO, in that it provides for only limited data transmission and excludes access to ISDN. The EU policy, however, envisages that the definition will evolve to meet market needs.

The definition focuses on the *user*. In this way it appears designed to ensure that all areas in a country should have access to the basic telecommunications network facilities necessary for effective economic and social participation in the information society.

In expressly requiring that service be *affordable* to all customers, the definition goes beyond the traditional requirement that service only be available, if demanded. The reference to *all* customers implies, intentionally or not, that the attainment of *actual* universal service should be a social objective. Effectively this would mean that a shortfall in the realisation of 100 % household penetration for telephone service, for example, should depend ultimately only on personal choice not to have service.

The EU has neatly left to the national regulator the determination of what is affordable. It has provided no guidance as to how affordable is to be ultimately determined, other than the general reference to national conditions.

The principle of affordability must be considered also in the light of the EU policy on cost based pricing. That policy requires that access deficits, i.e., losses on local line charges, be eliminated through increasing telephone connection charges and rentals, either across the boards or differentially. The aim of this policy is to remove access deficit compensation from inter-connection charges. The policy does not require uniform national pricing, but the affordability principle and political realities would appear to preclude charging above standard rates in high cost areas. On the other hand increases in standard charges required to eliminate access deficits could result in service becoming unaffordable to low income households in normal cost areas who currently have service.

One solution to the latter problem, should it arise, is for regulators to require operators to design service packages to assist low income users. Such packages would have to be paid for via USO compensation or otherwise. Another

option is a State subsidy towards standard charges for particular categories of customers as part of social policy. In Ireland the government already subsidises through its social security budget the provision of telephone service for pensioners living alone or for elderly couples where one partner is incapacitated. The subsidy includes free rental and an allowance for calls. Currently about 78,000 customers (8 % of household lines) benefit from this subsidy. Some disabled also benefit. It is unlikely, however, that this policy will be extended to other low income categories. Subsidy of standard charges does not help operators. On the contrary it increases the USO burden by encouraging the take up of service. Only the subsidisation of costs would assist operators and that is highly unlikely.

7. EU POLICY ON RESPONSIBILITY FOR USO AND THE COST BURDEN OF USO

From an Irish perspective, the EU definition of USO does not present any problem. The key issue in regard to USO is the effectiveness of the arrangement for cost sharing. On the wider issue of fair competition, the general service obligations placed on new entrants to the market are also very important. If new entrants are allowed by regulators to concentrate on narrow market segments, their cost advantages must result in unfair competition. Accordingly, fair competition is not solely about the burden of USO; it relates also to preventing competitors achieving significantly lower average costs from the type of service coverage offered.

The EU draft Directive provides that an operator with significant market power, defined as normally having more than 25 % of the market, is liable for USO. For the immediate future only Telecom Eireann is likely to bear the liability in Ireland.

Where USO is considered to represent an "unfair burden" on the operator liable for USO, the national regulator may establish mechanisms for sharing the burden with other operators who are not liable. Providers of non-basic services are exempt. There is still debate as to whether mobile telephone operators should contribute to USO costs.

Compensatory mechanisms may take the form either of an addition to inter-connection charges or of a separate fund financed by levies and administered independently of the operators. Such mechanisms can be used only to compensate for USO costs relating to voice telephony and voice band data services and they require the approval of the EU Commission. If the definition of USO were to be widened, operators would reasonably expect that the compensation arrangements would be adjusted to include the cost of the new facilities specified.

The draft Directive, citing the principle of proportionality, provides that cost contributions must be related to the share of the usage of the public networks. This principle could leave a disproportionate cost burden on the existing operator, if the competitors are allowed to concentrate on limited but highly profitable business sectors, while keeping down their share of network use.

Costings and compensation amounts are required to be updated annually and published. Where the amounts

are raised by supplements to inter-connect charges, the amounts must be unbundled from the inter-connect charges.

The cost burden of USO is to be determined by calculating the net cost (loss) based on the net costs (losses) attributable to:

- *elements of the services which can only be provided at a loss or provided under cost condition falling outside normal commercial standards,*
- *specific users who can only be served at a loss or under cost conditions falling outside normal commercial standards.*

Apart from the proportional sharing aspect already mentioned, the definition of the burden raises two concerns for operators. First, no method of determining when the burden is "unfair" is specified. Second, the approach to costing the burden is uncertain.

The assessment of the burden is left to the national regulator to decide, subject to review by the Commission when approving any USO compensatory mechanism proposed. Conflict over what is fair could easily arise as contending parties press their commercial interests. The risk of this occurring is increased by the uncertainty surrounding the costing of the burden.

The Commission attempted some guidelines on costing. It suggested that revenues and costs should be "forward looking". Precisely what this means is unclear, but there appears to be a preference for the concept of long run incremental costs. The latter concept, much loved by economists, is imprecise even in economic terms and of dubious value to commercial and financial decisions in the market place. Such theoretical approaches may result all too easily in unproductive, adversarial exercises.

From long association with these issues, we believe that the use of conventional commercial costings is the more realistic costing method. This usually takes the form of allocating total costs across products and services. While the basis of such allocations can never be perfect, the allocations can be related to operational reality. A clear advantage is that the costing information is actual and is constantly up to date from the operator's costing system, a critical consideration if USO costs are to be updated annually. The approach does not preclude the identification of the incremental costs and revenues associated with uneconomic areas or customers. Nor does it prevent adjustments being made in respect of any measurable inefficiency that has raised the cost of the existing network on the basis of the technology available when it was built or arising from current operational performance.

Given the dominance of the existing operators in their markets it follows from the principle of proportionality that they will continue to carry the greater part of the burden of USO costs under any costing regime. Consequently, Telecom Eireann will continue to bear the bulk of USO costs in Ireland in addition to any costs the regulators (national and EU) may decide should be disregarded on grounds of inefficiency.

Assuming there is a sensible, pragmatic approach by the regulators to compensating for USO once competition commences and that new entrants are required to provide nation wide services, the EU policy should provide reasonable support for the maintenance of USO in Ireland dur-

ing the key period of transition to full competition, while avoiding the imposition of burdens on new entrants that would slow the development of competition.

As to the respective methods of compensation we consider that an addition to interconnection charges is the better arrangement because it would make transparent the unit cost of USO compensation and its evolution over time as business volume and shares alter.

8. IS UNIVERSAL SERVICE COMPATIBLE IN THE LONG RUN WITH A FULL COMPETITIVE ENVIRONMENT?

It is likely that a fully competitive telecommunications environment, i.e., several competitors, will become the norm in the EU and in all developed economies in the years immediately ahead. Where full competition already exists, there is no evidence that universal service has retreated. Fears that universal service will suffer if traditional operating and pricing structures change have habitually been put forward ever since the break-up of ATT in the U. S. There, as elsewhere, they proved to be totally unfounded and the benefits to customers from greater competition have been enormous. Nor is there evidence from any country that monopoly can deliver universal service more quickly or cheaply than competition.

Few would now dispute that competition brings substantial benefits, financial and otherwise, to the telecommunications customers generally. These benefits include:

- lower prices overall and discount packages,
- technological and product innovation,
- improved quality of service and customer care,
- the ability to change some custom if dissatisfied.

Service providers also benefit through:

- forcing organisational focus on efficiency,
- increased growth of the total market,
- reduction of unit costs from market growth and the greater incentive to technological innovation.

Traditional operators tend to be obsessed by potential losses of market share from competition. In our view that is the wrong issue. The real issue is the rate of growth of the total market. Experience generally shows that price reductions, quality improvements and more intensive marketing produced by competition increase the rate of market growth above that caused by ongoing economic and social development.

In modern telecommunications networks volume increases rapidly reduce the unit costs of transport of calls. Given that access network costs are relatively fixed in the short-run, and will fall in the long run from technological advances, volume increases also reduce the relative unit cost of the access network per traffic unit conveyed through it and hence the amount of USO compensation per unit.

In the long run these trends will, we believe, make the issue of USO costs redundant and universal service will be achievable without the continuing need for special support measures. Competition will in fact create the cost and price environment that will deliver universal service quickly. Accordingly, the EU policy is likely to prove to be

no more than an interim arrangement needed to smooth the political path to full competition.

9. THE POSITION IN TRANSITIONAL MARKETS

It may be objected that the conclusions in the previous section reflect conditions in developed economies and that until a telecommunications market is well developed no operator will have the financial strength to bear the cost of USO and face competition. Furthermore, from the viewpoint of investment efficiency, competition may reduce the opportunities for scale economies in the basic network, e.g., in switching and transmission.

Certain market conditions, e.g., severe economic collapse, may give weight to an objection on these grounds, but the objection is not of general validity. If the market is undeveloped the immediate impact of USO at individ-

ual customer level will also be limited and national policy should recognise this in setting development objectives and priorities for operators. Moreover, where the market is undeveloped more flexible arrangements for sharing the burden of access network development are possible. The burden of USO can be spread through granting local or regional franchises. Such arrangements, however, necessitate effective inter-connection arrangements and the provision for a fair and explicit contribution from the operator or operators of long distance and international services towards local access and local conveyance costs. If these arrangements are financially unfair, the local and regional operators will be unable to finance the development of the local networks, which are the basis for universal service. The EU policy affords a basic guideline to policy-makers in transitional economies in this regard, although it may require some adaptation to national circumstances.



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REQUIREMENTS OF STATISTICAL DATA FOR THE FORMULATION OF INFORMATION SOCIETY STRATEGIES AND THE IMPLEMENTATION OF POLICY MEASURES*

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Each country has to cope with the challenges of the emerging information society and has to formulate and implement its own policies in line with its national situation and characteristics. For this purpose detailed information is needed. The more focused policy measures are, the more specific data are required, and vice versa – the more specific data are available, the better targeted policy actions can be formulated and efficiently implemented. Although a lot of data are around there is a considerable lack of reliable information. The information gap has to be closed in order to put policy making on a solid basis.

For an effective policy formulation and its implementation, an inventory of existing data should be made, priorities for the collection of new data should be set, and the methodology should be decided on considering time and budget constraints. The national statistical offices are invited in this context to rethink their own data collection activities by taking account of the economic changes towards an Information Society.

1. INTRODUCTION

The collection and exchange of information on information society issues at international level is of utmost importance for the formulation of information society strategies and the implementation of policy measures because the Information Society is a global matter.

As the United States of America is leading in the development towards an Information Society, there is no doubt that the policy of the European Union has been, and still is, strongly inspired by US initiatives. Exchanging information between the EU and Central and Eastern European Countries and amongst the CEE countries themselves, is one aim of the EU-CEEC forum and is of mutual benefit.

However, besides the formulation of strategies and policy implementation at European level, each country has to cope individually with the challenges and has to formulate and implement its own policies in line with its national situation and characteristics.

For that purpose more detailed information is needed which allows the assessment of the position of each country in relation to others, as a basis for judgement on which strategies and policy measures can be taken over,

* The views expressed in this article are those of the author and do not engage the European Commission

which have to be adjusted, to what degree and in which way.

2. WHY IS INFORMATION BASED ON DATA NEEDED?

For the formulation of visions and broad strategies considerable information and some key data might be needed, but almost no specific and detailed data.

Since, according to Max Weber, policy is not the ability to dream but to realise the feasible, the need for detailed information based on reliable data derives from the fact that political visions have to be turned into reality (if the political business is taken seriously).

The first step in formulating any effective and efficient policy is the formulation of a realistic objective to be achieved on the basis of an analysis of the current situation. For this purpose facts and figures are required. At this stage, the availability of comparable figures on the situation in leading and "competing" countries is of great interest. Benchmarking is the new catch word in this context.

The results of the analysis provide politicians with an overview and arguments for political actions.

Both to formulate concrete political actions and for their effective and efficient implementation, further data are required, which depend on the focus of the policy measures, be it on specific industry sectors, small and medium sized enterprises, or user groups.

Last but not least, data are needed to evaluate the effectiveness and efficiency of the policy measures to provide a sound basis for decisions on any follow-up activity.

The following rule can be formulated: the more focused policy measures are, the more specific data are required.

3. WHAT KIND OF DATA IS REQUIRED?

For the formulation of broad strategies only few key data are required which are equally found to a varying degree in all information society policy documents. These key data comprise:

1. data on current infrastructure, industry structure and market volume, such as TV, telephone and PC penetration, networks structure, Internet hosts, turnover of telecoms and IT industry, share of ICT industry in GNP, employment figures;

2. data on the evolution of the structures, i.e. time series of the above-mentioned key data covering some previous years and giving perspectives (trends);
3. data on user behaviour in current situation and evolution such as TV consumption, use of PC, Internet usage;
4. comparable data on leading or comparable countries, in order to show the relative position of the country in question.

However, if the broad strategies are to be turned into concrete actions to promote effectively the development towards an Information Society, a lot more data have to be considered. Reference can be made to a check-list of numerous indicators which was developed in the context of a methodology for the Commission's study on electronic information services markets in all Member States¹. It gives an impression of data needed for a comprehensive understanding of the information market. This check-list of indicators is not comprehensive, if all aspects of the Information Society (for example telematic application services) are considered.

The following rule can be formulated: the more specific data are available, the better targeted policy actions can be formulated and efficiently implemented.

4. WHAT IS THE CURRENT STATUS OF AVAILABILITY OF DATA?

There are a lot of data around. However, obtaining reliable data on issues related to the Information Society remains a problem, despite ongoing market research carried out by private research companies, professional associations and public authorities. The reasons for this are the complex subject matter, the fast-evolving markets and new emerging products, and differences in methodologies for data collection.

This is especially true for software and content-related industries. Data are hardly or not available at all, be it at national or at European level. If data are available, they are often either not reliable, outdated or not comparable. This is also true for the important area of user behaviour.

It is generally recognised that the most reliable figures are to be found in the area of telecommunication, followed by some information on the IT industry, due to a longer established position in the economy.

It can be concluded that there is a lack of reliable information, a fact which is generally agreed upon by the governments and the industry. Hopefully this lack will be overcome in the near future with information policy issues becoming an important policy agenda point in all developed countries. A joint initiative of the OECD and the European Statistical Office is already underway to create a framework for information society statistics, and the European Commission (DG XIII/E) intends to repeat its Member States' survey on electronic services.

¹ See Manual on Assessing Markets for Electronic Information Services for Professional Purposes, October 1994, Annex E. (This and the 1997 revised manual can be ordered free of charge from the Commission by fax +352 4301 33190.)

5. HOW TO COLLECT THE DATA?

When founding decisions on data it is of utmost importance to assess and to be aware of the *status of reliability* of the data.

Whereas official reliable statistics are hardly available in most of the areas of the Information Society, and because government as well as industry require reliable data, attention should be drawn to data collection methodologies under the aspect of reliability.

The following ranking with respect to reliability can be established with increasing reliability:

- *best guess*, given by experts;
- *rough estimates*, provided by experts based on research of secondary information;
- *estimates*, based on a survey with partial participation of the surveyed population;
- *reliable estimates*, based on a representative sample surveys;
- *reliable figures*, based on a survey of the total population in question.

Concluding this ranking a piece of advice can be given: don't rely on data if you do not know *how* and by *whom* they have been created. Be aware that data can easily be manipulated for various reasons.

Besides the methodology there is another aspect to consider concerning data collection. Although many people are not willing to accept the fact, information and especially reliable information has its price — in terms of time and money.

The following rule can be formulated: the more reliable the data should be, the higher the costs and the time needed to collect them.

All who are in the information gathering business know that there is always a considerable tension between the desire to collect the most reliable figures and budget and time constraints.

This tension should be taken into account when data are needed for policy formulation. It can be sufficient in many cases to rely only on best guesses or rough estimates, which could well reflect the reality. Often it has turned out that rough estimates have been confirmed by profound surveys.

Therefore it is recommended to follow a cost/benefit approach, bearing in mind the purpose of the use (see rules above), when deciding which method of data collections should be applied.

In any case information society policy formulation and implementation should not be delayed by reasoning that sufficient data are not yet available because any policy action promoting the Information Society is an investment in the future, and even the most reliable figures reflect only the current situation and do not indicate what will really happen in the future.

6. RECOMMENDATIONS FOR ACTIVITIES IN RESPECT TO DATA COLLECTION

If figures are needed for policy formulation and its implementation, a distinction should be made between short-term needs and longer-term requirements.

In the *short term*, government and industry have to work with data which are currently available or can be made available within a short time (independent of their reliability status).

In the *longer-term* perspective it should be reflected upon which data are necessary for an effective policy formulation and its implementation according to the policy measures envisaged. An inventory of existing data should be made, priorities for the collection of new data should be set, and the methodology should be decided on considering time and budget constraints.

In this context the *national statistical offices* are invited, together with the governments responsible, to rethink their own data collection activities by taking account of the economic changes towards an Information Society.

At *international level* it is to be recommended to work closely together on methodological issues and specifically to participate actively in the OECD/EUROSTAT activity to create a framework for collecting information society statistics.

At *European level* it can be recommended:

1. To extend the ISPO project "European Survey of Information Society Projects and Actions (ESIS)" to the CEE countries. The survey provides quarterly information on information society issues including some basic figures of all Member States of the European Union.
2. To apply a common agreed methodology (as for the above-mentioned Commission study on electronic services in the EU Member States, or the OECD/EUROSTAT methodology) for any envisaged data collection in order to make figures internationally comparable.

7. CONCLUSIONS

For a successful information society policy information based on reliable data is of utmost importance. The information gap has to be closed in order to put policy making on a solid basis. Therefore all players are invited to make their contributions for mutual benefit: the national governments and governmental organisations to further the data collections and provide the necessary budget, and the industry and users to make the information required available.



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HARMONISED INFORMATION STATISTICS – OFFICIAL STATISTICS FOR INFORMATION SOCIETY

I. DIENES

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Earlier a coherent conceptual framework, SNIA was developed to describe information societies at macro level for the purposes of government. Some of the fundamental concepts — which are in use at Hungarian Central Statistical Office — are sketched and the importance of standardisation of information statistics is emphasised.

1. INTRODUCTION

Statistics support decision makers in conceptualising situations, events and processes. Statistical concepts are needed to be laid into the fundamentals of policy and strategy backgrounds, and statistical figures are needed to outline the positions and objectives. No good decisions can be made without good quality statistics. The stakeholders concerned are population, groups of population and governments of countries and enterprises. As long as various stakeholders make various types of decisions the statistics they need should be different. Business players and other interest groups have always tried to force government agencies and populations to view the world through their glasses and vice versa.

While several private business corporations, as Paul Kagan Associates, IDG, Dataquest or Nielsen have developed strongholds in the field of media, telecommunications and IT statistics and information, official statistical institutions can not be left out of or be replaced in the field of statistics of information society. Those are official statistical agencies alone that are able to collect, process and interpret so many data from so different terrains which is needed to let see an information society in statu nascendi. Public statistical offices provide information not influenced by domestic and foreign market players and elaborated for use in the legislation and administration process that is continued in the interests of the citizens. Furthermore the provision of a comprehensive picture of an information society is well beyond the capabilities of a market organisation, an individual government agency or a scientific research institute. In the next indents official statistics for information society will be discussed.

2. DESIGN AND ARCHITECTURE OF OFFICIAL STATISTICS FOR INFORMATION SOCIETY

Traditional subjects of government information policy are free speech — First Amendment, privacy, dissemination of government information — synergy of government and private information sectors, freedom of information, transborder flows of information, intellectual property, equitable information infrastructure, antimonopolistic regulation, data protection — industrial and state secrets, com-

mercial speech, universal service, academic freedom, public information goods, censorship — pornography — decency, use of native language by minorities, and language imperialism. In central government, information is viewed in a number of ways: as source of power, as an economic resource, as a produced and consumed commodity, as cultural and moral value and as an object of protection. These aspects should be assessed and harmonised in the frames of a comprehensive information policy which extends to the public and private sectors.

The qualification of a society as an information society should be an operational statistical procedure rather than journalism. In accordance with ITU I believe an information society certainly is a kind of societies, a society with special features that distinguish it from other kinds of societies, particularly from agricultural, industrial or feudal societies. In accordance with a definition by Hungarian Central Statistical Office, a society can be called an information society if and only if information commodities dominate in its national product and consumption.

Information should be understood here as something which forms or formed within (the brain of) either human or machine actors, or represents something in/on the goods/non-durable signals which are outputted, consumed, distributed or accumulated. The volume/amount of information carried by physically existing goods and services — in a standardised communication situation as defined for this purpose — is an attribute of goods and services which is similar to some physical parameters. This interpretation seems to be in harmony with exact theories of information, such as Shannon's. Knowledge is [4].

A good that carries information is called an information carrying good [4]. There is a class of goods and services whose main function is just to convey/carry information, these are called information goods and services. Information goods are physical objects that are to carry or convey information, over which ownership rights can be or is established, and whose ownership can in principle be transferred [12]. This definition does not require that the good should be at any moment of its physical existence apt for alienation or for market alienation, that such goods are usually alienated and demand or market should exist for the object or that kind of object at any moment of its existence. The information goods to be accounted extend to the most commonly used durable media: paper, magnetic media and film. Information goods do not include machines like computers, office and telecommunications devices; rather they include books, diskettes, records and a number of other durable media [4]. Information machines,

equipment, tools and materials should be shown among resources used in social reproduction of information.

Human knowledge, skill, abilities and moral values is information carried by humans, mostly in brain and nervous system should also be the subject of statistics. For the needs of the statistics of information society, non-durable signals should be added to those things that can be produced, consumed, traded etc. Non-durable signals can be supplied to a number of consumers who consume them. Copies of non-durable signals have producers, consumers and users. Their producer may have intellectual property rights, but no physical ownership can be established over them. Provision of non durable signals is an information service.

An activity that leads to the change of volume of information a good, a non-durable signal or a human carries so that no new information good is created will be called information service [12]. Reparation, transformation or mending of information goods, creation of durable signals on or in non-information goods so that no new good will be created and supplying non-durable signals are the main kinds of information services. Updating a database, repairing a book, counselling, consulting, teaching, radio-broadcasting are examples of information services which are classified as economic services in SNA as well. A number of information services, however, are beyond the production boundary of SNA as it is. CPA does not provide operational definitions, the definitions available are not always helpful in classifying real "billed" and priced services. It should be considered necessary, that ITU standards do not define economic transactions, economic services as they are supplied, but technical details of equipment and technical processes.

In a society like defined as an information society, those are not only telecommunications and computer services industry alone that should be shown through statistical figures. What is more, statistics for an information society must not focus at indicators of industrial type, i.e. market size, turnover, growth of market, structure of the market by groups of goods and sellers etc. at all, since new phenomena and processes should be concerned throughout the society. The impact of information technologies on society extends to all traditionally studied sectors of society: enterprises, governments, non-profits, households and individuals, and various non-formal ethnic, language, gender and regional communities. The impact of these processes can be observed in new industries, as multimedia, telematics, mobile telecommunication and others, but political conflicts are not less common in the traditional information industries, as education and administration or law enforcement. Societies are different, and so will be information societies. The development towards a new quality: to be an information society is not a one road and not a one way process. The statistics made from an opposite starting point [27] serve to ideologicistic purposes rather than real decisions and may be completely disturbing or misleading. Statistics for government and citizens of an information society should be statistics on that particular information society and should reveal its particular features.

The transition to new kinds of societies, particularly European information societies, where information goods

and services dominate in production and consumption, is characterised by four, more or less independent processes:

- growth of volume and share of information activities;
- overall digitisation which comes together with restructuring of economy and society:
 - teleworking, part-time jobs, ubiquitous entrepreneurship, edutainment, huge government and corporations' databases with data for individuals lead to shift of boundaries between privacy and publicity i.e. households, new industries, occupations,
 - new geographic centres of economic activity,
 - transport is replaced by telecommunications,
 - globalisation;
- information flows are more and more driven into standard, controlled channels, and
- generic information services not bound to specific kinds of contents or media classes gain more and more ground.

Information statistics is statistics on societal reproduction of information, that is information production, consumption, distribution, accumulation, and their resources and actors; when commensurable information goods and services are viewed together, independently of their content and physical carrier. At this, all kinds of information commodities treated. Information statistics require the revaluation of statistical data of telecommunications, culture, audio-visual services and other industries rather than new surveys. Traditional indicators should be generalised to derive new indicators for information society and their value contributes to the value of these new indicators.

Official information statistics are information statistics, produced by government agencies — to serve national legislation, administration, citizens of the countries, businesses international organisations and the Community's organs.

Comprehensive information statistics address the national-level issues, the issues from a national viewpoint, from the point of legislation, national government or prime minister. Other affairs — as particular problems of stimulation of economy, public education, regulation of telecommunication prices, just to mention some of the several information policy issues — belong to the responsibility of one or more ministers. The statistics that are intended to help industrial ministers, like Minister of Post and Telecommunications, Minister of Public Education and Culture, Minister of Justice, Minister of Manufacturing and Trade and similar to perform their duties are called industrial statistics. Industrial statistics address the issues that should be treated at the level of industrial ministers. While traditional telecommunications statistics or education statistics show the phenomena or processes from an industry-internal aspect, industrial information statistics present them as parts of those of the entire information society.

With the extension of information sector, policy issues have been proliferating and the economic aspects gain ground: a sector that covers half the national economy can not be influenced by the traditional privilegisation like a brand-new technology or a niche industry can be. In the enlargement process of the European Union both organs of the EU and of CEE countries need information to conduct structured dialogue successfully.

EU and CEE countries define their own appropriate vision of the information society desired to come and their own conflict areas. Explorative and functional information statistics should be prepared at statistical agencies, by revising all subject areas of official statistics, identifying the areas and indicators that are relevant to the issues of information society.

Official statistics should include functional and explorative statistics. Functional statistics meet the demands for data to perform the lawful duties of organs of national and EU legislations and administrations to cope with known processes and phenomena as well, as validated demands of enterprises and population. It is recommended that the countries organise their functional information statistics according to the functional distribution of responsibilities codified in the constitution and other laws of the countries. The information system of "information society" at any time should fit the lawful system of the countries. Explorative statistics concerning issues not belonging to the responsibility of any agency or of more agencies should be launched by national statistical agencies.

The purpose of explorative information statistics is to identify new, formerly not known or ignored objects and phenomena related to information revolution as well as strengths and weaknesses of industries, countries or regions, making the administrative organs, business stakeholders and population aware of existence or persistence of these objects and phenomena.

Several efforts were made to show emerging information industries and societies in a common intellectual framework. Bell's, Machlup and Porat's [17] pioneering research studies, Rubin's study in the United States and Jussawalla's works all represented significant steps towards a system to account information flows and stocks of knowledge. As an obligatory ingredient, various national information or computer policy strategy documents also provide the reader with information statistics, reflecting and explaining the view and priorities of the strategy. At the same time these efforts could not aim that they cover the whole system of social reproduction of information. While several private business corporations, as Paul Kagan Associates, IDG, Dataquest or Nielsen have developed strongholds in the field of media, telecommunications and information technology statistics and information, official statistical institutions can not be left out of or be replaced in the field of statistics of information society. Those are official statistical agencies alone that are able to collect, process and interpret so many data from so different terrains which is needed to let see an information society in statu nascendi. Obviously the provision of a comprehensive picture of information society is well beyond the capabilities of a market organisation, an individual government agency or a scientific research institute. In the next indents experiences of official statistical agencies will be shortly dealt.

It is recommended that standard information statistics in the EU and CEE countries should have a solid standard conceptual basis, that information societies should be described by an architecture of indicators, a coherent theoretical framework within which the impacts of government measures as well as of spontaneous development, including technical development should be modelled and

simulated. It is recommended that information statistics should be built upon a proper view of life and economy in an information society, which is in harmony with a deep insight into the very nature of information processes and phenomena and with the vision of the kind of commodity production to come. It is recommended that — for the long range — the commodity-producing information societies to come be described in the frames of a new version of SNA/ESA. SNA should be reformed in a way that it can provide a conceptual framework to handle national and international policy issues in and between the new societies based on information flows. It should cover those subjects, objects, relations, acts, actions and activities which are subject to legal definition, require comprehensive treatment and can be subject to operationalisation. New integrated sectors; the main groups of social actors of information affairs and transactions, who are relevant to policy making, should also be added to those of SNA/ESA to reflect real situation, phenomena and processes. Boundaries between production and consumption, final consumption and productive consumption should also be redefined. It is recommended that the Hungarian system (SNIA) should be accepted as a working material in elaborating a new SNA/ESA. OECD and UNSO should be asked to lead a research and development consortium for the revision of SNA/ESA. Eurostat should develop ESA accordingly. It is also recommended that for short term SNA as it is be applied for systematisation and ordering of statistical information on the information society. Comprehensive information statistics should be summarised in national information accounts. An account is a tool which records, for a given aspect of economic life, the uses and resources or the changes in assets and the changes in liabilities and/or the stock of assets and liabilities existing at a certain time [25]. The fundamental concepts of SNIA are as follows.

Institutional units are entitled to own goods or assets in their own right and therefore are able to exchange them, take economic decisions and engage in economic activities for which they are held to be directly responsible and accountable at law and able to incur liabilities on their own behalf, to take on other obligations or future commitments and to enter into contracts [25].

Economic flows reflect the creation, transformation, exchange, transfer or extinction of economic value; they involve the changes in the volume, composition, or value of an institutional unit's assets and liabilities [25]. In accordance with this, an action evokes information flow if it leads to the change of knowledge stocks of participants. Knowledge stock is understood as total volume of information carried by the goods owned and humans employed [4]. A transaction is an economic flow that is an interaction between institutional units by mutual agreement or an action within an institutional unit that is analytically useful to treat like a transaction often because the unit is operating in two different capacities [25]. A transaction can be called an information transaction, if it implies the flow of information [4].

Information input, output, production, consumption, use, asset, accumulation of knowledge, capital, stocks of knowledge, productive consumption, capital consumption, export, import, waste and externalities are defined as in-

put, output, production, consumption, assets etc. of information commodities. Unlike SNA, information statistics should make difference between use and consumption: while consumption assumes annihilation of the good or service, use does not [4].

Economic activity is the type of production a statistical (mostly institutional) unit engages. The term "activity" is to be understood as a process, i.e. combination of actions that result in a certain set of products. An institutional unit engages in an information activity whenever it produces information, i.e. it outputs information goods or services [12].

For the purposes of the present study, an industry is a class of a standard general (activity based) industrial classification system, as NACE. An industry consists of a group of establishments engaged in the same type of productive activity [25].

An industry is called an information industry if it is defined by information activities only. In an organisational aspect an information industry embraces all institutional units, whose principal activity can be classified as belonging to those specified in the definition of the industry. An industry is called semi-information industry if it is defined by information activities as well as and non-information activities [12].

In an activity view, information economy embraces all information activities completed in a region during a period. In an organisational approach, primary information economy embraces those institutional units that belong to information industries, that is, whose main activity is a kind of information activities [12].

Generally speaking, valuation is the process and way, how a size measure (a number) is ordered to the things produced, consumed, used, distributed etc. Valuation of a transaction can happen in value/monetary units or natural units. In the SNA, transactions are valued at the actual price agreed upon by the transactors. Market prices are thus the basic reference for monetary valuation. In the absence of market transactions, valuation is made according to costs incurred or by reference to market prices for analogous goods or services [25]. The progress of digitisation makes the introduction of a new kind of valuation possible, even desirable for information carrying commodities. While the valuation of transactions in SNA has practically been based upon general substitutability of goods and services for money, opportunity of exchange for money, the valuation of information goods and services in information statistics should be based upon their general substitutability for a digital carrier or a digital record. Accordingly, it is not information which should be considered as resource or product, but goods as well as non-durable signals which carry/convey information — in agreement with SNA where it is not "value" which is considered as a resource or product, but goods which have or carry value. The tables for main indicators — called twin (bit and monetary value)

tables — show "information economy" in a commodity approach. These tables do not belong to the standard set of tables of SNA/ESA, for they contain figures for such groups of goods and services whose elements are scattered in a number of industries of standard SNA/ESA as it is. This set of twin tables, however, creates a bridge, a direct linkage to SNA/ESA.

Harmonised official statistics should support the common view for decision making by national governments and supranational organisations in international affairs. It is recommended that all groups of goods in HS, CPC, CPA and PRODCOM be classified into information goods, information carrying non-information goods and non-information goods NEC, and a new classification be established for those durable products not yet taken into account as goods. Furthermore, the kinds of machines, buildings, materials that have been used for production of information goods should be identified in terms of HS, CPC, CPA and PRODCOM. These should be called information machines, buildings and materials, respectively. It is recommended that through direct analysis of transactions, described in contracts and tariffs throughout Europe CPA be revised concerning information and telecommunication services, all groups of services in the revised CPC and CPA be classified as information services, information carrying non-information services and non-information services NEC. A new classification should be established for those non-durable products, which carry information. It is recommended that categories of human information and the actions that lead to the acquisition, maintenance and loss of this information should be defined in a way that is apt for statistical study. The contents of concept of labour and labour resource: should be re-valuated with a special reference for students and life-long learning, employment and social security. Standard information occupations should be identified by the categories of ISCO. It is recommended, that a more detailed than the present NACE classification of economic activities should be in information statistics.

Harmonisation of official information statistics in the CEE region should be organised in the frames of a project, a common effort of EU and the countries involved and should serve the interests of both sides. It is recommended that — added to harmonised national-purpose information statistics of the CEE countries — supplementary statistics show the transition process of CEE countries. These statistics should extend to the issues of the

- requirements of the EU defined for the CEE countries going to join the Community,
- issues of common Community policy established in various documents,
- phenomena and processes in the CEE countries that influence the convergence and adaptation, particularly international conflict areas between EU and CEE countries and between CEE countries.

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1982 he was pioneering in the study of Hungarian information economy, society and policy. In 1994 at a Fulbright scholarship in Berkeley, CA, he defined the Standard System of National Information Accounts to measure the macroprocesses and phenomena of information society. Having returned, he managed information and telecommunications statistics in HCSO. Meanwhile he served as a consultant to major corporations. This year he joined the Bertelsmann group.

CURRENT ISSUES IN EUROPEAN DATA PROTECTION

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Risk of data processing to fundamental freedoms – Council of Europe Convention 1981 – growth of laws throughout Europe – variations between member states – 1990 proposals for Community harmonisation – adoption of Directive 95/46/EC – relation to Human Rights Convention Article 8 right to private life – other international instruments – common standards in legal instruments – growth of data processing – transborder flows of data – resource problems of Commissioners' offices – Privacy Enhancing Technologies – fraud detection using data matching – freedom of media – balance with privacy rights.

Data Protection is aimed at ensuring that respect for privacy and informational freedom is incorporated in the development of the Global Information Society. Data Protection arises from the recognition that data processing may present risks to the privacy and freedom of individuals beyond those posed by paper records.

The risk to freedom which the surveillance of citizens poses is well understood and acknowledged in Europe. In a recent case in the United Kingdom a Judge refused to allow papers obtained by the Police to be passed on for use in other proceedings saying,

"if the information obtained by the police, the Inland Revenue, the Social Services, security offices, the health service and other agencies were to be gathered together in one file the freedom of the individual would be gravely at risk. The dossier of private information is the badge of the totalitarian state".

The greater risks posed by automatic data processing over manual data arise from the ability to duplicate information and to transmit it to many people through wide areas. Recognising these risks the state of Hesse was the first to pass Data Protection legislation in 1970. The first international body to deal with privacy and data processing issues was the Organisation for Economic Co-operation and Development (OECD) which adopted a guideline on personal data protection and transborder data flow in 1980. This was followed by the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data opened for signature on 28th January 1981 by the Council of Europe. The Convention set out a common core of principles to be adopted by signatories to ensure comparable standards between states. A state which signed the Convention would allow the free flow of information about its citizens to other signatories of the Convention. The preamble to the Convention makes it clear that it is intended as a mechanism for reconciling,

"the fundamental values of the respect for privacy and the free flow of information between people".

In the decades following the opening of the Convention for signature Data Protection laws were adopted through-

out the European Community and in a number of other states including Israel, Japan and Canada.

The proliferation of different laws within the Community led to concern about the lack of harmonisation; that the establishment and functioning of the internal market might be hindered by the discrepancies between Data Protection requirements in different member states and thus present a barrier to trade.

In 1990 the European Commission proposed a package of Data Protection measures to be adopted by the Community. The core legal instrument in this package was a proposed Directive on the Protection of Individuals with regard to the Processing of Personal Data and on the Free Movement of such Data. That Directive (95/46/EC) was adopted on the 24th October 1995 and must be brought into force in the member states of the Union by October 1998.

The Directive recognises that Data Protection concerns have their roots in the Council of Europe Convention for the Protection of Human Rights and Fundamental Freedoms (of 4th November 1950) and in particular the requirement in Article 8 of the Convention:

1. Everyone has the right to respect for his private and family life, his home and his correspondence.
2. There shall be no interference by a public authority with the exercise of this right except such as in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of rights and freedoms of others.

The preamble to the Data Protection Directive describes the Union approach thus,

"whereas data processing systems are designed to serve man; where as they must, whatever the nationality or residence of natural persons, respect their fundamental rights and freedoms, notably the right to privacy, and to contribute to economic and social progress, trade expansion and the well-being of individuals".

Work on Data Protection standards and norms continues in other areas of the world as well as Europe. The United Nations has produced a set of Guidelines on Data Protection. In Canada a self regulatory mechanism is being pursued based on the concept of Codes of Practice in accordance with standards developed by the Canadian Standards Institute.

At the heart of all the Guidelines and legal instruments adopted throughout the world including the Council of Europe Convention and Directive 95/46, lies a common core of standards which can be summarised thus,

1. There shall be transparency, fairness and legitimacy in the collection of information.
2. There shall be transparency, fairness and legitimacy in the automatic storage and processing of data.
3. The uses and disclosures of data shall be restricted to the purposes for which data was collected or purposes which are compatible with such purposes.
4. There shall be special security provisions for sensitive categories of data, that is data revealing racial origins, political opinions or religious or other beliefs as well as health, sexual life and criminal convictions.
5. There shall be data quality standards, that is requirements that data shall be accurate and dealt with in a timely manner and kept up-to-date.
6. There shall be security standards for the processing and holding of data to ensure there is no unauthorised access or breach of privacy.
7. There shall be limitations on the amounts of data held to that which is necessary and relevant to the proper purposes.
8. There shall be individual rights of access to data, rights to correction of data and redress for inaccuracy or damage caused by misuse.

These essential principles are expressed differently in different jurisdictions and amplified in some jurisdictions but they remain the core of Data Protection standards.

The Data Protection Directive aims to ensure that personal data should be able to flow freely between member states and also that the informational rights and freedoms of all citizens of the Union should be safeguarded *whenever that data may be held*. Accordingly the Directive provides that whereas the movement of personal data may not be restricted within the Union such data should not be sent *outside* the Union unless the member state is satisfied that the third country ensures an "adequate level of protection" for personal data. Article 25 of the Directive states that,

"the adequacy of the level of protection afforded by a third country shall be assessed in the light of all the circumstances surrounding a data transfer operation or set of data transfer operations; particular consideration shall be given to the nature of the data, the purpose and duration of the proposed processing operation or operations, the country of origin and country of final destination, the rules of law, both general and sectoral, in force in the third country in question and the professional rules and security measures which are complied with in that country."

One of the problems facing member states of the Union as they work towards implementation of the Directive is how this requirement to consider the adequacy of the level of protection afforded by a third country can be dealt with. The Directive allows for a procedure in which the European Commission may make a finding that a third country does not ensure an adequate level of protection and provides that the member states shall block the export of data to such a country. The Commission may also find that a third country does ensure an adequate level of protection and sanction the export of data thereto. There are further provisions under which transfers may be made even to states which do not provide an adequate level of

protection where the transfer is necessary, for example for the performance of a contract or required by reason of public interest or the vital interests of the individual concerned.

In the jurisdictions where Data Protection legislation has been enacted there is usually a Data Commissioner although the names vary (e.g. Registrar, Privacy Commissioner). Commissioners are independent from government, although funded by government, and charged with a duty to educate, enforce and inform about Data Protection issues. The problems shared by the Commissioners are formidable. There is enormous development and spread in the growth of computers and uses of personal data as the Information Society develops while Commissioners' offices are usually small and under funded for the work they carry out. In his Annual Report in September this year the New Zealand Privacy Commissioner, Bruce Slane, reported that his office is overworked and lacking in resources. It appears that cases being dealt with by his office may have to wait up to eight months before being dealt with.

The Commissioners also face a massive task in educating individuals and computer users to understand the need to ensure that proper privacy standards are incorporated in computer developments.

In the past data processing systems have not been designed with privacy in mind but now important work has been done on the developments of design approaches which would protect individual privacy. Work on the concept of Privacy Enhancing Technologies was carried out by the Dutch and Canadian Data Protection Commissioners in 1995. This work prompts a re-think of the way personal identities are used in service delivery in information systems. The report pointed out that an individual's identity is only truly necessary for parts of an information system, namely authorisation and accounting functions. In order to enhance privacy, security systems should be designed so that an individual's identity is not used except where it is essential to these functions. The report recommends the use of "identity protectors" which separate real identity from other processes. It also introduces the concept of "pseudo identities" behind which the individual may keep actions private. This is an area of much interest to those involved in the privacy field. The report does not set out technical specifications for system design but rather an approach to system design which encourages those working on them to think about systems which restrict the uses to which private information is put.

As the use of computers increases even more we must continue to work to educate people in Data Protection standards and to ensure that those standards are incorporated into the design of our new information systems.

A further issue of current concern is the continued development of information sharing and data matching activities.

There is pressure to make much wider matches of information than has been traditional, for example to match income tax databases with housing benefit records, records of education grants and social welfare benefits to look for those who may be making multiple applications for welfare benefits to which they should not be entitled. In the private sector similar pressures to use information

about individuals are occurring. For example insurance companies in the UK wish to collect and then match all the information which can be collected about car accidents. This not only covers information about those who claim against the insurance policies but those who are witnesses to the scene, those who are passengers in the vehicles and even those who repair the cars.

In the United Kingdom last year an Act of Parliament, the Social Security (Fraud) Administration Act 1996, was passed in order to allow the government to match the information from different databases relating to different functions of the state.

While as good citizens we all support the aims of detecting and preventing crime, Commissioners question the invasion of privacy such data activities involve in relation to the vast majority of ordinary citizens who are not involved in any form of criminal activity.

Data Commissioners have the task of questioning the basis of such initiatives and reasserting the importance of respect for individual rights and freedoms in the face of them.

Such challenges are not restricted to Europe.

The Quebec Information Commission in its five year report tabled before the Quebec National Assembly referred to the pressures to which developments have subjected them thus,

"even though our legislation guaranteeing access to and protecting personal information is widely recognised for its merits, vigilance remains the order of the day if we are to maintain and consolidate it".

The value of privacy and anonymity, the space to be unseen or unregarded by others whether alone or with companions of ones choice is increasingly recognised in Europe as having been undermined by the intrusions of media coverage and the activities of the paparazzi. However in dealing with this problem governments must deal with the interface, and possibility conflict, with freedom of speech and freedom of the press.

Freedom of expression is enshrouded in Article 10 of the Human Rights Convention.

The challenge facing European states is to find the balance between these two areas of fundamental rights in the information society.

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NATIONAL STRATEGIES, NATIONAL CO-ORDINATING CENTRES. CO-ORDINATION AMONG EU AND CEEC POLICY MAKERS

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The author's intention was to try to give a general overview of the present situation prevailing in CEECs on their way to lay down the foundation of the Information Society (IS) and also to offer possible solutions to unique problems faced by candidate countries in this specific domain of EU-CEE co-operation. The issues raised in the frame of this article do not represent the official position of the administration in connection with IS building. The subjects touched upon herein are to be considered as reflections of the author, "food for thought".

1. INTRODUCTION

The ever-developing communication networks and interactive multimedia applications provide the foundation for the transformation of existing social and economic relationship into the Information Society. The development of appropriate policies that fully exploit the contributions of advances in technology in the context of Global Information Infrastructures (Networks) — Global Information Society, is a must.

In lot of the countries all over the world, the governments can not but pay special attention and care focused on new developments observed in world ICT market, in the process of elaborating country-specific IS policies which reflect adequate responses to daily emerging challenges. CEECs are no exemptions in this regard. It even would be more appropriate to presume that CEECs are, more or less, enforced to find the best suitable to their countries solutions in easing their recent socio-economic hardships via joining the most advanced countries-driven "Information Society train".

If in case the governments in CEECs are devoted to achieve, even though limited by circumstances, targets, they must dedicate themselves to actively participate in building Information Society at home. It is their duty to elaborate a pro-active longer-term Information Society strategy in order to keep — at least — abreast with international developments in possibly all IS-related domains.

2. SOME OF THE CHARACTERISTICS OF BUILDING THE INFORMATION SOCIETY IN CEECs

2.1. *Region-specific tasks and expectations*

Government's tasks in CEECs are, at least, two-fold:

- to elaborate appropriate policy/regulatory guidelines, to provide economic and financial incentives for developing new ICT services,
- to stimulate the development of ICT network-based ser-

vices through extensive and purposeful introduction of new information infrastructures in central/regional/local administrations. In the end, governments strive for achieving the above tasks with the aim:

- to improve the quality of appropriate preparatory activities in the decision-making process,
- modernising and updating the information-communication/dissemination within the public administration,
- (as a consequence) to provide constant flow of information for all branches of the administration,
- to improve the flow of information between the executive branch and the legislative arm,
- harmonising and constantly developing the information structures between different government sectors/ministries.

What could be envisaged — among others — by governments in order to facilitate appropriate developments in building the Information Society and to give the necessary impetus to enhancing co-operation between different players of IS market at home?

- create a well-functioning, appropriate legal framework,
- co-ordinate central budget-financed ICT projects, programmes,
- introduce and facilitate the widespread use of ICTs in public administration at all levels,
- create Information Society-friendly, supportive economic environment, economic background,
- provide tax incentives, tax relief to Information Society investors,
- help managing initial Information Society investments,
- manage Information Society-related training and public education,
- elaborate and adapt appropriate ICT/Information Society standards in upgrading public administration's ICT infrastructure,
- broaden the spectrum of state budget-financed R&D project domains,
- take active part in international (EU) Information Society co-operation,
- raise awareness among potential Information Society market players and also among different social groups with special emphasis on younger generations.

The above "self-made" list is, by no means, full and exhaustive, it intends to draw the attention to some major domains of priority concern, it should be considered as recommendations to be addressed by relevant government offices.

The challenges faced by CEE governments are, in some extent, double or may be triple in comparison with those faced by their Western partners.

2.2. Specific features of building the Information Society in CEECs

No general conclusions could have been derived as far as general characteristics are concerned, we may signalise some of the general trends in ICT/Information Society development in CEECs. The general trends observed are as follows:

- the basic acts, regulations on telecommunications, on broadcasting, on the protection of (personal) data, licensing, numbering etc. have already been enacted and entered into force in most of the countries (n. b. it has been done only in recent years),
- there is no adequate and updated data/information/statistics on ICT equipment, Information Society services, on PC's penetration, on the level of digitisation etc.,
- central public administrations (government) are — as a rule — "nominated" to play the leading role in elaborating Information Society strategy and policy, leaving little space for non-governmental initiatives,
- as a result, the implementation of "Information Society strategy plans" remains with the government, all Information Society-related actions are supposed to be co-ordinated by one of the central executive bodies, in most of the cases by the ministry of telecommunications (and informatics),
- at the same time, however, there is not a single/unique organisation at present with expressed responsibilities of co-ordinating Information Society building activities having appropriate competencies (and financial background),
- ICTs have been introduced and are in use in different domains, mainly in public health-care, research, higher education, banking, transport,
- the use of basic and advanced ICTs is marginal or almost nil in agriculture, in taxation, in trade,
- Information Society related R&D activities are mainly concentrated in state-run central research and educational institutions,
- ICT manufacturers are predominantly foreign-owned or joint venture companies, some CEECs depend on foreign suppliers in equipment deliveries, the bulk of ICT producers employ less than 50 people (each),
- the telecommunication infrastructure is relative weak, underdeveloped and its quality does not correspond fully to generally accepted (EU) standards,
- there are no regular working contacts with relevant EU (Information Society) organisations, offices, DGs neither in Brussels nor in Member States,

Policy makers and strategy planners should pay special attention to reducing differences and softening discrepancies prevailing in many candidate countries and — at a later stage of development — to introduce a well-tailored policy designed to eliminate them. It is the Information Society that can offer great opportunities and a big chance to do so by offering much easier and wider access to all kind of IS services/products via reducing the costs of searching for these services/products or for markets which have been

considered for a long period of time (physically) inaccessible due to their remoteness and lesser degree of economic development.

2.3. Proposals for efficient national co-ordination, creating co-ordinating centres in CEECs

One of the proposals recommended to put forward in this regard, might be the creation of advisory forum (fora) comprising members of entrepreneurship and of government officials on an ad hoc and/or on permanent basis (as it might be necessitated by changing economic circumstances), to hold regular consultations on:

- new developments in world Information Society evolution process,
- new opportunities in Information Society investments,
- emerging obstacles in Information Society investments,
- consumer protection issues,
- Information Society-related rules of labour legislation, social security.

One of the possible solutions in setting up the above advisory fora may be the creation of selected panels as follows:

- Structural panels

Task: help managing structural changes and "KIT" (keep-in-touch) with the bulk of Information Society players in disseminating adequate information on IS-related matters.

Participants: government/administration + entrepreneurs organisations + interest articulation representatives.

Objective: to reach wide national consensus on requirements of Information Society in the given country.

- Administrative panels

Task: help managing legal/administrative adjustments.

Participants: government/public administration + regulatory organisations standardisation/statistical offices + consumer associations.

Objective: to adhere to the internationally recognised Information Society legal/standard/statistical systems.

- Social panels

Task: help preparing common opinion on setting balanced objectives in building the Information Society.

Participants: government/administration + interest articulation organisations, trade unions, social funds.

Objective: to involve people's organisations in formulating IS policy guidelines thus making the transition to Information Society easier by achieving the highest possible coherence in Information Society strategy planning and policy making.

By setting up the panels it seems necessary to define that group of interested people/organisations who/which are supposed to be involved in nearly all preparatory work.

Panels' possible partners appear to be:

- SMEs, big public/private ICT companies, farmers, agricultural associations,
- central/regional/local administrations,
- content providers, operators,
- universities, research establishments,
- interest articulation organisations,
- political parties.

The aim is by no means to create an "almighty" Information Society central body/organisation/office, rather to in-

volve all interested parties in each and every CEE country to reach common agreement on comprehensive Information Society planning and implementation measures.

In the course of setting up the above structures we aim to elaborate and develop, as a matter of urgency, a uniform, coherent national approach for the governments to handle all major dimensions of the Information Society i.e. social-political, sustainable economic development, and information/telecommunication technology and research.

The panels would not be real decision makers, they would rather play the role of practical/professional advisors, taking part in preparing IS-related decisions. The panels will — upon request — be giving advises to all interested market players without prejudice to the government's general economic development policy guidelines. The framework of panels' activities should be flexible and open enough in order to leave enough space for independent (national and international) Information Society initiatives, new ideas.

All this is by no means an attempt to deny the decisive role of market forces in building the Information Society in CEECs. It is the market, the private capital, as the driving force, the motor of Information Society development and it should be at the forefront of the whole process. The Information Society must be market-driven, enjoying full administrative, legislative and financial support given to it by governments.

The simple adaptation of advanced IS/ICT technologies and applications developed elsewhere can serve in CEECs as a means of fulfilling basic needs. At the same time a great variety of needs would be local by nature and may require technologies and applications specific to CEECs' markets.

Players

It seems to be advisable also to make a clear distinction among major Information Society players in CEECs:

- Group I. entrepreneurs (I.a. : big companies, I.b.: SMEs both in industry and also in agriculture)
- Group II. government institutions (central and local public administration)
- Group III. educational and research establishments
- Group IV. users

The list is by no means exhaustive, it could not have been elaborated as such due to the obvious fact that the CEE governments concerned follow different IS development policies.

3. INFORMATION SOCIETY DEVELOPMENT STRATEGY

3.1. Strategic goals

Proposed list of priority strategic goals to be achieved in CEECs in developing Information Society:

1. To promote higher economic growth and increased competitiveness of different sectors of the economy, to upgrade telecom infrastructure.

(The IS may become a driving force in growth of the economy as a whole, through its value added contribution to the productivity in all branches of the economy.)

2. To create "investor-friendly" legislative conditions in facilitating wide spread of ICTs, new advanced services in the whole society.

(In developing a set of uniform regulatory principles special attention should be paid to: implementation of effective competitive safeguards to avoid discrimination in services, the quality and authenticity of databases, proper and law-abiding operation, proper management of national data wealth, appropriate specifications and standards etc.)

3. To address the question of and to reduce/eliminate disparities between regions of different level of economic development in the country concerned.

(The CEECs should target to elaborate a uniform approach to offer solutions, give responses to all questions stemming from the very evolution of IS.

4. To increase efficiency of work organisations.

(New ICTs will — at a later stage — definitely create more jobs. It is in the interest of companies to implement the necessary structural and organisational changes at work places and thus becoming more effective.)

5. To promote the development of ICTs in rural sector.

(The uniform national IS-approach would be a significant contribution to maintain and further develop IS-related public and private initiatives, projects as far as agriculture is concerned.

6. To improve the efficiency and quality of basic public services thus creating more openness, transparency, deepening of democracy.

(The trend towards decentralisation offers opportunities to deepening participative democracy. Government informatics development must be at the forefront in introducing IS services at all levels of the administration.)

7. To encourage SMEs to acknowledge full economic and social benefits if Information Society development.

(The globalisation of economic activities through the instruments offered by ICTs offers much more wider opportunities to companies, including SMEs. Business contacts will no longer be determined by physical proximity or by the size of the company, rather by their common interest.

CEEC governments should create favourable internal economic, financial, legislative etc. conditions for future investors through securing foreign investments from re-nationalisation, radical alterations in tax legislation or in duties, etc.)

8. To introduce a gradual shift from labour-intensive knowledge-intensive work.

(Earlier acquired skills become eventually obsolete as the IS develops, lifelong learning will mean obtaining new up-to-date professional knowledge at workplaces with the help of instruments offered by new ICT applications, telematics and other IS services.)

9. To improve the efficiency of public health-care.

3.2. Policy planning

Suggestions to formulate priority policy guidelines in achieving the above strategic targets:

1. Higher economic growth and increased competitiveness
 - to ensure that competition for new products and services remain active,
 - to implement effective competitive safeguards to avoid

- discrimination in service supply, to facilitate entry by new market players,
- strengthening existing networks and speeding up the creation of new advanced networks, new basic services/applications (electronic commerce),
 - investment activities must rely mainly on the private sector.
2. To create "investor-friendly" legislative conditions
 - to develop a set of uniform and coherent regulatory principles on general public's access to new services,
 - to make sure that different participating networks are able to communicate and exchange data/information (interoperability) through encouragement of reaching consensus on basic standards among all major ICT/IS market players,
 - to align tariffs with costs i.e. important to harmonise conditions of universal access to public services,
 - to make clear distinction and at the same time interrelation between regulatory framework related to licensing, numbering, frequency allocation, pricing etc. of telecom → broadcasting → content,
 - to maintain adequate proportion between direct interference in determining illegal or legal content in the networks and the "laissez-faire" principle/self regulation of the content producers/providers. In other words: to allow free flow of information,
 - to ensure certain degree of pluralism in providing content i.e. to allow some foreign media ownership of large national media companies, and at the same time to protect national cultural heritage and language i.e. to encourage and promote local national content producers/providers,
 - to create regulatory framework which encourages public/private sectors to invest in Information Society.
 3. To reduce/eliminate disparities between regions
 - to allow the emergence of alternative infrastructures,
 - to allow open infrastructure development competition,
 - develop a plethora of multimedia channels thus ensuring open access to different Information Society services resulted in increased opportunities for ethnic minorities,
 4. To increase efficiency of work organisations
 - need to invest in appropriate technologies i.e. in those which are in the pipeline of world technological development (e.g. shift to broadband digital transmission, or to HDTV),
 - main criteria for CEECs in introducing new methods of work organisation: economic efficiency, flexibility, competition,
 - to help restructuring companies to make best use of ICT services.
 5. To promote the development of ICTs in rural sector
 - to identify the measures required to create a real national regulatory framework covering industry as well as agriculture,
 - to allow and regularly provide incentives for the interconnection of industrial/agricultural networks and to ensure up-to-date conditions of access to these networks and also to new services,
 6. To improve the efficiency and quality of basic public services
 - to stimulate the participation of government-financed institutions in IS-related R&D activities, in pilot projects and programmes,
 - provide access to public sector information, try to commercially exploit it,
 - create new informatics culture in public administration,
 - publicly available specifications and standards may be drawn by major market players, government should avoid giving chance for monopolistic intentions through guaranteeing public standards in public procurement,
 - to remove existing obstacles, prevent creating new ones (avoid over-regulation),
 - to secure competitive tendering and transparent contracts.
 7. To encourage SMEs
 - to facilitate private sector Information Society activities,
 - to develop an access licensing regime which ensures that all service suppliers can reach their users (users can access a wide range of channels),
 - market protection for (fix term) exclusive rights to re-balance (set-off) of strict concession regulations related to infrastructure development,
 - liberalisation to be speeded up,
 - to follow clear, legally based and inflation-compensating tariff-policy (during the time frame of monopoly for providing services).
 8. Gradual shift from labour-intensive to knowledge-intensive work
 - need to use knowledge-based skills/human capital in developing new multimedia applications instead of relying on capital expansion/resource-based development,
 - to start with market research,
 - to stimulate demand for advanced information products.
 9. To improve the efficiency of public health-care
 - to sponsor and co-ordinate Information Society financing frameworks, support concerted actions in public health-care, public education, culture (virtual libraries), creating intelligent cities, villages.

Criteria

In IS policy planning it is important to make sure that the following criteria are observed:

- concreteness (clear and verifiable objective),
- justification of methodological approach (setting the preferences, priorities, defining the ways of how to achieve them),
- well-defined programme (project, campaign) management (clear allocation of responsibilities, time-schedule, expenditure),
- ensuring the innovative character and economic feasibility of any new initiative.

3.3. Proposed actions

Proposed actions in implementing the above strategy and policy guidelines:

1. Higher economic growth and increased competitiveness
 - gradually withdrawing the operation of telecom sector from state supervision,
 - to create advisory fora (structural, administrative and social panels),
 - to adopt a "rolling vade mecum" (data-base) of Information Society for CEECs.

2. To create "investor-friendly" legislative conditions
 - mandate team of experts to analyse the economics of Information Society, its implications on political-economic-legal developments of the given country, its potentials and drawbacks.
3. To reduce/eliminate disparities between regions
 - to give financial support to the installation of computers in community centres, schools, libraries.
4. To increase efficiency of work organisations
 - to identify how structural changes can be managed at workplaces.
5. To promote the development of ICTs in rural sector
 - to reserve power to control prices in regional development plans of different networks and services related to rural population.
6. To improve the efficiency and quality of basic public services
 - upgrading hardware of government's information networks,
 - build up uniform restricted data processing/transmitting (intranet),
 - market-oriented public procurement through open tendering and transparent contracting,
 - improving the quality of software supply,
 - stimulate the use of ICTs in public education and training,
 - to facilitate the launching of international co-operation actions.
7. To encourage SMEs
 - sponsoring the creation of co-ordinative bodies among SMEs aiming to provide them with adequate professional information on the use of ICT services and applications,
 - organising awareness-raising campaigns among SMEs.
8. Gradual shift from labour-intensive to knowledge-intensive work
 - to offer new applications to companies through government-sponsored trial projects (best practice).
9. To improve the efficiency of public health-care
 - to create a trial network of leading hospitals using basic telematic applications in patients' data file processing.

4. CHALLENGES FACED BY EUROPE AS A WHOLE IN BUILDING THE INFORMATION SOCIETY

4.1. Similarities and differences between the EU and the CEECs

The Union, in order to strengthen its competitiveness in world market, is apparently striving for exploiting all available resources and opportunities possibly being derived from wide international co-operation.

It is, however, in the interest of the Union (and of Europe as a whole) to build up appropriate technological and — if circumstances allow — market barriers on the road to occupying EU and also non-EU ICT/Information Society markets by "outsiders".

An initial step to be taken would mean at least to reduce the overall dominance and further expansion of ICT giants in other regions of Europe.

Main weaknesses of most of the CEECs in developing Information Society:

- fragmented national markets,
- low demand for advanced ICTs, for Information Society services, inertia of traditional entrepreneurs,
- expensive telecommunications services,
- inadequate information and telecommunication infrastructure,
- inadequate, not yet up-dated regulatory framework,
- lack of appropriate funding available for (central and local) governments,
- difficulties in privatisation procedures,
- low economic growth rates, inadequate to gear up higher demand for advanced ICTs.

Comparative advantages of CEECs:

- rich cultural heritage (for content base),
- dynamic development of telecommunication services in recent years,
- positive trends in developing software industry,
- large and well-established traditional publishing industry,
- large amount of available public sector information,
- high level of educational standards.

Challenges faced by both the Union and CEECs:

- the information and communication sectors are the fastest growing in world GDP, Europe- as a whole — is still lagging behind USA and Japan in some key areas,
- the unprecedentedly rapid progress in ICT development leaves space for significant consumer price reductions in nearly all segments of Information Society industry, especially in telecommunications leading to possible US dominance in this domain,
- content producing and developing is coming predominantly from outside of Europe,
- increased international competition is putting additional pressure on European industry,
- a need for wider policy-co-ordination between individual European states and also between relevant instruments and funding mechanisms,
- the economic growth rates in Europe are showing less dynamism if compared with those in previous years,
- the unemployment ratio does not show any significant improvement, job creation is one of top priorities in Europe,
- the lead in momentum of the USA in result-oriented ICT developments is still growing, comparative benefits of Europe are still vague,
- disturbing tendency of creating huge Information Society/ICT companies with participation of American ICT giants may lead willingly-involuntarily to the oppression of European SMEs, which are supposed to become the motors of Information Society in Europe,
- risk to melt-down in the all-American cultural invasion, growing tendency of "Americanisation" of the European cultural aspects.
- the question to involve in the Information Society the elderly and the disabled.

4.2. Enhancing EU-CEEC Information Society co-operation and co-ordination of activities

The main objective of further deepening EU-CEECs Information Society co-ordination is involving all possible players in order to give impetus to enhancement of Information Society-related co-operation.

Sub-task in this regard: to elaborate the best possible ways and find the means of establishing viable business contacts, institutional background between the parties interested in a project, initiatives in getting financial support from different (public/private, government/ Community) through involving parties from member states in these joint activities. We should find the best methods of utilising the results, experience gained after finishing the given activity through dissemination and spreading best practice among relevant (CEE) national users and among public at large. The objective should be to encourage more players to be involved in future endeavours.

Initial steps to be made in enhancing EU-CEEC IS co-operation:

Task No. 1. to establish and maintain constant and purposeful flow of information between:

- European Commission (CEC)-CEEC governments (relevant government offices, institutions),
- CEC/ISPO (Information Society Project Office) – CEECs entrepreneurs' organisations,
- EU-CEECs universities, research institutions.

Task No. 2. Raising awareness in CEECs.

By putting people at the centre of Information Society it is of utmost importance to raise awareness among today's and future potential users through highlighting opportunities as well as possible dangers (need for campaigns with mass involvement, proactive and information dissemination activities) among:

- entrepreneurs (SMEs!),
- state administration, local governments at all levels,
- universities, research institutions,
- rural entrepreneurs, rural population,
- media proprietors.

5. PRIORITY PROPOSALS FOR CEE GOVERNMENTS

Following the recommendations of the 2nd EU-CEE Information Society Forum, held in Prague in 1996, four experts' panels have been organised in different countries. One of them, the panel titled "Policy and strategy formulation" was held in June 1997 in Budapest.

The panel's recommendations are to be forwarded and discussed at the 3. EU-CEEC IS Forum being held in

Brussels in October 1997. It was recommended (inter alia):

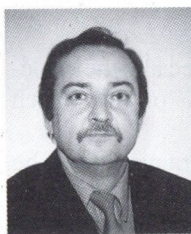
- progress of CEEC towards the Information Society be a political priority and vital component of their pre-adhesion strategy,
- co-operative actions initiated by the EU/CEEC Ministerial IS Forum should be merged,
- the EU permits the creation of a PHARE multi-country programme devoted to the Information Society, for specific purpose of supporting the participation of individuals from the CEECs in co-operative actions initiated by the IS Forums of the EU,
- there is a need to develop new forms of public/private partnership for launching applications contributing to creating critical mass of users.

6. CONCLUSIONS

This article did not intend to offer turnkey solutions for every CEEC or even for Hungary. Its only objective was to put forward ideas for CEE governments in formulating their own Information Society strategy and policy on the one hand, and bringing about proposals for EU and CEECs with the aim of enhancing Information Society policy co-ordination among them, on the other hand. This article deals mainly with questions and tasks standing before governments i.e. I was talking about responsibilities shared by administrations leaving open, however, the door for any other non-governmental (private, foreign, joint-venture) initiative keeping abreast with generally accepted Information Society development trends.

The CEE governments should be devoted to achieve the targets formulated at different EU-CEEC IS fora, they must dedicate themselves to actively participate in building the Information Society at home, to elaborate a long-term IS strategy adhered to pre-accession strategy.

Governments must be prepared to respond to new challenges never ever encountered by them before. At this stage of Information Society implementation in CEECs it is the government that could be in a position to give the necessary starting impetus to ICT developments through generating initial interest in spreading ICT tools, establishing brand new information infrastructures, providing incentives for local and foreign private sector investments.



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CO-OPERATION BETWEEN COMPANIES AND GOVERNMENT: EXPERIENCE FROM THE NETHERLANDS

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The following article will give an overview of the efforts being made in the Netherlands in order to achieve a leading position in the field of information highways. The article will especially deal with the way in which the Dutch government has co-operated with the private sector to realise the set goals. First a short outline will be given of the history of the Dutch Action Programme on Information Highways. Then an explanation of the premises for this Action Programme will be given, followed by a more extensive explanation of the government's efforts to influence the investment decisions of important private players.

1. HISTORY

Following the attention raised in the USA, the European Union put the Information Society high on the agenda in 1994. Commissioner Bangemann put forward his Action Plan to stimulate the information society. Many member states in the European Union were inspired by its initiative and launched their own Action Programmes*.

The Dutch government also considered it very important for the national economy. The Netherlands has a few good general premises to benefit from the opportunities that Information and Communications Technology (ICT) offers: the Netherlands have a small-scale and, open economic structure which is internationally oriented. Trade, transport and distribution are some of the main economic activities. More specific the Cabinet considered the following points a strong base for the development of the Information Society:

- the presence of large ICT companies with major research facilities (Philips, Lucent Technologies, IBM, Ericsson),
- a strong publishing sector,
- an active audio-visual sector,
- a skilled labour force,
- a well developed telecoms network (especially the cable-tv-network, which covers about 96 % of the Dutch households).

On the other hand some serious constraints had to be overcome: high rates for telecoms services due to a lack of competition, a small domestic market and uncertainties about the commercial potential of the development of new services and the upgrading of the telecoms infrastructure.

Mid 1994 a new Cabinet was formed; the subject was

put high on the political agenda. A national Action Programme was launched by the end of 1994, based on the mentioned opportunities and weaknesses. There was also the necessary political support in parliament. The annual budget for the programme is over 30 MECU.

2. FOCUS OF THE PROGRAMME

Main focuses of the programme are:

1. the information society is essential for the economy, especially for the open Netherlands economy;
2. the investment should be done by the industry;
3. government should create the right conditions;
4. it's necessary to create a free market for telecom and media;
5. close co-operation within government is necessary.

Five departments (Education, Culture and Science, Home Affairs, Telecommunications, Justice and Economic Affairs) work together in executing the programme. An extraordinary close cooperation was and still is considered to be essential: the ministers meet every week on the operational level and every month on the level of directors-general. What's more, the right of free intervention was introduced. For example the Ministry of Economic Affairs participated in the realisation of the new Telecoms Act, a subject that historically was the exclusive domain of our telecommunications-colleagues. This act is necessary in order to enable new players to enter this market.

During this process we discovered that the government should play different roles in realising good conditions for high quality information highways. The government:

- creates the right conditions for the development of the information society
- checks, when the market is set free, if there is fair competition
- has a responsibility for important sectors where ICT can play an important role like education, healthcare, culture etc.
- is also a large organisation, this means that we are a large-scale provider and customer of information;
- can stimulate people and organisations to develop important projects (sometimes there is some government money for that purpose too).

Each role requires a different instrument, it's very important to make the right choice of instruments. Sometimes these are conflicting roles: a free media market could mean that there is more attention for soap opera's and house music than for Shakespeare and Mozart.

* The Action Programme and other documents on our ICT-policy are to be found on the Internetsite of the Ministry of Economic Affairs (<http://www.minez.nl>).

3. CO-OPERATION WITH MARKET PLAYERS

My ministry put a lot of effort in the co-operation with the industry. Because we expected the industry to be actively involved as an investor and developer of new services and products, this was very important.

First of all the draft Action Programme was extensively discussed with the industry before it was put forward. We asked them if this programme would create the right conditions for them to invest. Industry gave the highest priority to the liberalisation of the telecoms- and mediamarket.

After the programme was published, we discussed our policy in more detail with a lot of companies, on the highest level. We asked them how we could stimulate the developments in the Netherlands in addition to creating the right conditions. Two points came out:

- there was no need of small demonstration projects, the Netherlands as a whole should be the test site for the introduction of new services,
- companies were uncertain about the way the market would develop: telecoms companies didn't know when new services would be available which would stimulate the upgrading of networks. On the other hand, service providers were waiting for an excellent infrastructure.

Minister Wijers asked those companies to work together on the solution of these problems. He only invited companies that were prepared to invest heavily in the Information Society. They agreed, so 18 companies like the Dutch telecoms operator KPN, Lucent, Philips, IBM, banks and retail joined. The platform was responsible for its own progress and results. Government was not to be held responsible.

In two stages they worked out their future activities, which were announced in December 1996. At this time more than 30 companies were involved and reached agreements on the following issues:

- upgrading cable-tv-networks (broadband-Internet, video-on demand),
- chipcard-systems for payment services,
- agreement on standards (of course in international context),
- upgrading backbones,
- introducing new services and investing in R&D,
- as a result major investments were announced.

The industry also made recommendations through which the government could support them. Some of them were taken up:

- an R&D-scheme for the development of new interactive services (like reliable and secure electronic payment systems); an annual budget of 12 MECU is available;
- a information campaign to involve SME's;
- a demonstration centre was opened in May 1997. In

three years 100.000 industry delegates should visit the centre (which is called Media Plaza) and join the programmes and courses.

4. FUTURE

Looking back, we feel the co-operation between government and industry has been fruitful:

- awareness was raised on the importance of ICT for industry and for the Dutch society,
- the industry created a common vision on how the Information Society should be worked out in the Netherlands,
- the industry became involved and committed themselves to our policy.

One could say our ministry played the role of catalyst in this process.

After almost three years a large part of the proposed actions are fulfilled. Several programmes are in operation now. The last period of the year 1997 is being used to evaluate the programme and its results.

A part of this evaluation is benchmarking the Dutch situation compared to France, the United Kingdom, Germany, Sweden and the USA. There are four benchmark-studies:

- on-line services;
- knowledge;
- use of ICT in government;
- telecommunication infrastructure.

These studies will show how the situation in the Netherlands is compared to the other countries and what weak and strong points can be pointed out. Based on these analysis elements for a new policy will be identified. In the mean time a few new items have been introduced already. The first one is a specific programme on electronic commerce. The second one is an initiative to support starting companies financially and provide them with advice by experienced entrepreneurs. This can be arranged for instance in so called incubators. These companies should be internationally oriented right from the start.

Similar to preparing the current Action Programme, its second stage will also be developed in close co-operation with the industry. The situation, however, has changed since 1994. Instead of one telecoms operator, there are now various options to choose from. In addition numerous new companies have started up. Over a hundred Internet providers are active, about one third of the households has a computer, often with a modem. More than one PC for every white collar worker is available. These new circumstances require new visions on the government's role in the Information Society.

The outline of these visions will be available in the first half of 1998.

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EUROPEAN ELECTRONIC COMMERCE POLICY AND INDUSTRIAL INVOLVEMENT

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The definition of electronic commerce policy by the European Commission is strongly influenced by the ongoing dialogue with industry. The main characteristics of electronic commerce and the involvement of industry in the context of recent policy-making at European level are presented in this article.

1. ELECTRONIC COMMERCE – MAIN CHARACTERISTICS

The recent Commission Communication on A European Initiative in Electronic Commerce¹ provides a comprehensive description of electronic commerce. Electronic commerce is loosely defined as being about 'doing business electronically'. It is 'the Information Society at work in business'. Electronic commerce is about using information and communication technology for business-to-business, business-to-consumers, and business-to-administrations relationships. Its application includes virtual shopping malls on the Internet, electronic procurement integrating the Internet and Electronic Data Interchange (EDI), collaborative design and engineering, and as well as the new enterprise structures of the networked economy such as the 'virtual enterprise'.

Electronic commerce exists already for over 20 years. However, currently its diffusion is tremendously accelerated because of the explosive growth of the Internet and the World Wide Web (which are growing at some 60–100% per year). The first reason for companies to use electronic commerce is to reduce cost and increase efficiency. Cost of electronic ordering can be ten times less than doing the same by paper. Furthermore, many companies aim to use electronic commerce to enter new global markets. This can be an advantage especially for SMEs, whose size and location matter far less once they do business over the Internet. Books, CDs and other commodity consumer goods are such products, marketed by new SMEs with a global reach (e.g. CD-NOW, Internet Bookshop, Amazon.com). Finally, electronic commerce is seen as an opportunity to offer new information-based services and products. On-line games, business consultancy, intelligent shopping agents exemplify this. Ultimately electronic commerce is expected to increase consumer choice and value-for-money, and thereby enhance industrial competitiveness and create new jobs. Public administrations can benefit too, being enabled through the application of

electronic commerce technologies and organisational approaches to perform their public tasks more efficiently and effectively.

Electronic commerce often goes hand in hand with new ways of organising business and work². Where companies are able to sell directly to customers or where production capacity world-wide can be coupled flexibly to design and marketing, there may be disintermediation as well as new intermediating — information brokerage — opportunities. Electronic commerce can lead to profound changes in the value chain, and eliminate barriers to entry such that industry sectors undergo structural changes. For example, banks are re-assessing their core business and re-valuing their retail banking operation, in view of the rise of home- and Internet banking. Similarly, large and small retail as well as specialist stores need to devise a strategy to integrate or compete with virtual shopping combined with home delivery.

Employment is expected to change due to electronic commerce. New skills are required and jobs will change in nature, with new jobs being created as well as work that will disappear. Electronic commerce is widely expected to become a pervasive phenomenon, critical to competitiveness and employment. However, there is a need for further study into the scale and scope of impact on industry structure and on employment.

Electronic commerce is 'born global' — the opportunities as well as the competition are in the emerging global marketplace. The rules of doing business electronically have to be devised such that they are globally compatible (as much as realistically possible), respecting cultural differences in norms and values regarding public interests and regarding the way business is being done. They also have to stimulate innovation and not be unduly constrained by the history of regulatory traditions (e.g. telecommunications, broadcasting) that are now converging in electronic commerce. This poses a particular challenge to industry, to national governments, as well as to supranational consensus building and decision-making. Commissioner Bangemann has proposed an 'International Charter' as a new working method of inclusive, global consensus building to define such a light global framework of principles and basic rules for global communications.

Close collaboration between industry and public authorities is essential to formulate the key issues and the way

*Opinions expressed are those of the author and do not necessarily reflect views of the European Commission.

¹ COM(97)157 of 16 April 1997, A European Initiative in Electronic Commerce, <http://www.ispo.cec.be/ecommerce>

² See also the Commission proposal for the Fifth Framework Programme of Community R&D, which contains a main area of work on "New Methods of Work and Electronic Commerce", as part of the Information Society Technologies Programme, <http://www.cordis.lu/fifth/home.html>.

forward in electronic commerce. In European policy-making consultation with industry is an integral element of policy making in key areas of interest for electronic commerce, such as telecommunications liberalization, protection of intellectual property, data protection, or copyright protection. Industry is playing a very active role in the policy debate. Internationally, fora like the Trans-Atlantic Business Dialogue, the OECD Business Industrial Advisory Committee, and the G7 Global Marketplace Project have brought together many industrial actors, including SME representatives. In the latter case, for example, workshops have been held over a period of two years and special working groups have been created that deal with issues like business information and awareness, trust, legal framework, interoperability, pilots, etc. In Europe, many business pilot and technology development projects, which are formulated and driven by industry, have provided insight into business organization, technological, legal, SMEs, and other issues. Altogether this collaboration with industry has provided the basis for a fairly complete overview of the key issues and the formulation of principles for global electronic commerce. It has also made clear that there is a need to deal with those issues as a matter of urgency and in a coherent and focused way.

The recent Communication on A European Initiative in Electronic Commerce provides such a coherent approach to the advancement of electronic commerce in Europe, within the global context. The target is to implement the Initiative by the year 2000. The key areas addressed by the Initiative, which is an action-oriented policy framework, are:

- access (cost and availability of information technology and telecommunications, easily usable technologies, standardization, international electronic commerce business solutions);
- legal and regulatory framework (removing barriers for all steps of electronic commerce, while safeguarding and maximising the benefits of the Single Market, creating trust and confidence through legislation, clarifying taxation rules, etc. again all in the global context);
- favourable business environment (consumer and business awareness, business training, pro-active role of public administration as 'leading user', public dialogue in Europe).

2. INTERPLAY OF POLICIES

The European Initiative is — by design — strongly linked to other policy areas of European interest. Linkages exist in particular, to the Information Society policy³, R&D policy (technology development and business pilot programmes, like ESPRIT, ACTS and Telematics Applications); standardization; SME programmes; cohesion and regional development initiatives; the Internal Market legislative programme, which is especially relevant to electronic commerce with a view to preventing re-fragmentation of the Single Market; and, of course, international trade negotiations and international industrial cooperation.

In fact, progress in electronic commerce is critically dependent upon the proper interplay between these policies and of their associated programmes. Electronic commerce challenges the way policy is made, to become more integrative and coherent.

The primary reasons for this is that electronic commerce is driven by:

- Fast technology development, which is challenging assumptions in the legal and regulatory framework / education & training / standardization, etc. For example, the issue of feasibility of levying taxes on transactions of intangibles (services, content, software, rights) is being investigated with a view to verifying whether taxation rules can actually be implemented with the support of technology.
- Convergence of information and communications technologies, which forces legal and regulatory traditions together from telecommunications, broadcasting and media, and computer industries. This is the theme of a forthcoming Green Paper of the Commission.
- Globalization, requiring that local solutions (for legal issues, interoperability, business practice, etc.) are put to the test and validated in the global context.

Such interplay of policies can be realized in practice by bringing the many varied interests together, in a market-driven approach. Here again the involvement of industry in the private-public dialogue is critical and driving the process. This approach seems more appropriate to this fast-moving domain, than a purely regulatory approach. However, such an integrative approach — which would insist upon safeguards for public interests — is not necessarily the same as a contractual approach only (i.e. only industry-based self-regulation and codes of conduct).

Examples of practical implementation of this approach are:

- promoting R&D to deal with legal requirements (e.g. privacy-enhancing technologies);
- global consensus building collaboration around legal framework and technological solutions (e.g. copyright management);
- design-for-interoperability and early standardization testing (e.g. in electronic payments or next generation EDI);
- global electronic commerce pilots to guide international negotiations (e.g. to assess feasibility of various forms of trust infrastructure or the applicability of contract law);
- large scale awareness creation and deployment of business best practice (e.g. in sectors like travel and tourism, where also cohesion objectives may come in).

An illustration of how industry (and consumers and national public authorities!) influence policy-making and programme implementation is provided by the issue of building trust and confidence. Trust and confidence is one of the most important elements to 'unlock' the mass-market stage of the Information Society. Trust and confidence has a 'hard' dimension, like technologies that ensure that confidential information cannot be tampered with. There are also 'soft' dimensions, such as being confident that good quality will be delivered even when ordering at a distance. No single magic solution exists to

³ "Europe at the Forefront of the Global Information Society: Rolling Action Plan", COM(96)607 of 26 Nov. 1996.

install once and forever trust and confidence amongst business and consumers that electronic commerce is a viable option. Business and consumer needs and the actual business situation dictate that a variety of means is to be applied, sometimes in combination, including globally compatible legal solutions for digital signature, encryption, protection of data, protection of IPR, electronic contracts, etc.; secure technologies and services, globally interoper-

able; user-friendly technologies; advice, possibly dependent upon the industry sector, on relevant standards; best practice examples, learning from peers, business networks, education; quality labelling; business codes of conduct; trusted actors including public administrations as leading users; political commitment. Such a comprehensive and coherent approach is very much in the spirit of the European Initiative in Electronic Commerce.



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TV '98

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This three day international event enables local and other Eastern and Central European experts to overview and discuss newest achievements and formulating development trends of the extremely fast growing television and audio fields. This event of 1998 will carry on issues that were introduced two years ago and were paid very high attention to, with regard to changes taken place meanwhile, such as:

1. The present and future prospective of studio applications based on non-linear disc equipment: from disc recording of incoming programme signals, through news systems, to data formatted archiving, as well as complete video server networks built on disc equipment (ATM, fiber channel, SDI, SDDI, FDDI) in studio technology.
2. Different alternatives - satellite, cable, terrestrial - and prospective of digital programme broadcasting and distribution.
3. Displaying issues of digital programme signals: receivers, conditional access, system information (SI) and electronic program guide (EPG) systems.
4. Interactive multimedia and television, radio and television on the Internet.
5. Signal processing, organizational, regulatory and frequency management issues locally and abroad, and their influences on technical solutions.

Languages of the conference are English and Hungarian with synchronous interpretation.

A professional exhibition tightly connected and complementarily to the conference main themes will also be organized. Manufacturers and distributors are welcome to introduce newest disc systems in operation, as much as structure and operation of disc based studio systems. The exhibition offers space to most up-to-date displaying equipment, digital receivers, and also the widest choice of interactive multimedia solutions.

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Sponsoring and supporting companies are invited to help to ensure an appropriate level of the event.

Address of the Organizing Committee:

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8th Conference and Exhibition on Television and Audio Technologies
Organizing Committee**

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Békés karácsonyi ünnepeket és eredményekben gazdag, boldog új esztendőt!



Merry Christmas and Best Wishes for a Happy New Year!

