

National Policy Shaping and the Information Society

Aija Janbicka, Director of Scientific Library
Riga Technical University
Riga, Latvia

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The rapid development of information and communications technologies, symbiosis in social and technical information processing systems – these all have supported an extensive diffusion of information in all spheres of political, economical and social life of the 21st century. The importance of information and knowledge has been raised to a new and higher level, and humanity has begun to transform into a new and more highly organised type of society – an Information Society with highly skilled individuals who are inclined to knowledge and know-how. In the year 2000, in Feira, the European Union's heads of state came forth with two bold announcements. First, they announced their determination to make Europe's economy the most competitive and dynamic in the world. Secondly, they set the goal of rapidly turning Europe into an Information Society [1]. The European Union has declared the development of Information Society as the political priority of its conception. It is the significant part of European political and economic integration strategy. Information society's advantages should be available for every member of society and everybody should be able to make use of it for his or her benefit. The sequence: data – information – knowledge becomes a strategic national resource and a basis for the national economy.

The successful development of an Information is possible only if the government has defined strategic goals, and has set up the strict plans for implementation.

1. LATVIA'S STRATEGIC DOCUMENTS

Latvia as an accession country has declared that the development of the Information Society is one of its main strategic goals. This is a process that must involve every individual, every company, and every part of the country if Latvia's economy is to become more competitive, if the level of welfare in society is to be increased more rapidly, if economic and social cohesion is to be encouraged, and if sustainable development of the country is to be promoted.

In 2000, the main conceptual document "*Latvia: From Vision to Action*" [2] was elaborated. The purpose of this concept is to set forth the tasks necessary for the sustainable development of the country, to promote internal and external stability, to build in society a sense of confidence in future growth, to foster civic harmony and to promote cooperation in achieving common goals. In accordance with these goals this document sets out forth an integrated economic, political and social strategy for sustainable development of Latvia during next 20 to 30 years. Its realisation will create preconditions for achieving the living standards of highly developed countries. The following documents that are elaborated according to the concept define the goals and tasks for the realisation of each part of this concept.

In 2001, *Long Term Economic Strategy for Latvia* [3] has been elaborated under leadership of the Ministry of Economy. After regaining independence during 10 years Latvia's economy and society has undergone irreversible transformation processes. The socialist planned economy model is replaced with the market economy model where short term and medium term tasks are dominating. The *Strategy* defines long-term economic policy goals, describes Latvia's economic development trends, strengths and weaknesses, analyses development opportunities and risks, and formulates policy priorities and tasks.

The strategic model presented in these documents is based on a sustainable process that is addressed not only to the needs of the current generation, but for generations to come.

To achieve these goals, a number of priorities have been identified. First, to guarantee the social, economic and political security of the country, Latvia must be integrated into NATO and EU in the nearest future. Another important precondition for economic and social development is a high level of education. Knowledge becomes the main moving force for the development in all spheres of life in the 21st century. The significance of raw materials and energy resources as well as other components of physical capital are not decreasing, however; thanks to knowledge their exploitation is more rational. The amount of information and the level of its processing as well as the accumulated knowledge potential have reached high enough levels to bring society into the next phase of development – the Information Society.

Such a global development to Information Society is particularly advantageous to Latvia. The orientation of the state development toward wide information and knowledge usage provides Latvia with an opportunity to compensate the lack of raw materials and energy resources with a skilled labour force and allows for the development of economic activities in all regions of the country. Taking into account Latvia's limited natural resources, small capacity of the national economy, and small size of the market, the most realistic way to achieve highlighted goals is through intensive usage of knowledge and highly developed technologies. Emphasis should be redirected from a labour-intensive economy to the knowledge-intensive economy.

Through successful implementation of this policy, annual growth of GPD will run to 6-8%. In year 2001, it was 7.4%. Gradually, the model of an innovative economy and Information Society will be developed in Latvia.

For the development of Latvia in the 21st century the crucial factor is training of a highly educated, competitive labour force. Society must be motivated to acquire knowledge. The availability of education for everyone and feasibility of lifelong education is an important precondition for the cohesion of society.

Innovation is an important precondition for the emergence of a state and society that are based on knowledge. The Cabinet of Ministers has approved a *National Innovation Conception* [4] that will support the strengthening of links between the research potential of university laboratories on the one hand and enterprises on the other. The aim is also to promote the emergence of an economy that is open to innovation. Innovation and the development of new, knowledge-based products and technologies will become the main task for research in Latvia.

The security of countries today is guaranteed not only by military means, but also by economic potential, by the level of education within the society, by economic and political activity, and by solidarity among various social groups. Equal opportunities must be guaranteed for all individuals in society – the possibility to participate in political, economic and social processes must be provided to everyone [5]. The availability of education for everyone throughout the course of one's life is an important prerequisite for cohesion in society, provided that people wish to take

advantages of these opportunities. If a development strategy is successful, everyone in society must be able to understand and accept it. Awareness must be created which leads everyone to see that the strategy will be beneficial. It is even more important, as the aforementioned ideals show, to provide everyone with a chance to participate in the process, to use the knowledge at work and in everyday life, thus ensuring an increase in people's welfare. The "digital divide" which splits society into the knowledge-rich and the knowledge-poor groups can be avoided if the level of skills that are necessary for participation is decreased, if the price of services is minimized, and if older people and those with special needs are involved in the process. It is also necessary to increase the level of responsibility of every individual in terms of everyone being a member of the society that is being created.

Complete, fast and easy access to information, the ability to transform information into knowledge, the development of information services and their global interoperability – these are necessary preconditions for the accomplishment of the aforementioned economic and social tasks.

Latvia's policy of Information Society and information technologies is presently based on the *National Program "Informatics"* [6, 7] which was adopted by the Cabinet of Ministers in 1999. The program is a complex target program for the time period between 1999 and 2005. In 2000 the program was updated. This has allowed Latvia to move forward in a very significant way in terms of defining its approach toward the development of the country. The program consists of 13 subprograms, the implementation of which involves more than 120 appointed projects.

Implementation of the program is proceeding through intensive and coordinated work that is being done in several areas. A number of normative acts have been adopted. The creation of the *National Integrated Information System (Megasystem)* [8] and its various components is going on. The number of information and telecommunications services that are available to everyone and the quality of these services are consistently increasing. Various kinds of training courses have been made available for young people and those who are already in the labour market so that individuals can improve their information literacy. Latvian information resources are now interconnected with international information systems.

All the activities envisaged in the national program are vitally important. As a result of their accomplishment the information infrastructure as the normative, technological, informative base of the Information Society will be created.

One mechanism in achieving this goal is the implementation of a universal information services conception in the country, ensuring that each member of society can have high-quality access to all types of information in compliance with the rights that are set out in relevant legislation.

The critical mass of applications and services in Latvia has been already created. The level of awareness and willingness to use them has increased in society. If these developments are accelerated, however, it will be critically necessary to involve not only IT specialists and the elite of society in this process. Every individual and every company in every part of the country must also take part.

eLatvia [9] is a *socio-economic program*, which aims to intensify the performance of the primary tasks for creation of the national information infrastructure: to increase the effectiveness and the competitiveness of Latvia's national economy in the global market, and to accelerate the improvement of society's welfare and thus to encourage a sustainable development of Latvia.

In the 21st century knowledge is becoming the main driving force for the development in every field of human activity. Humanity as holder and source of information and knowledge is becoming the principal factor for the growth of economy and creation of values. In line with stabilisation of the principles and the processes of the new economy, society's ability to create knowledge, to use it for any process and activity including the traditional ones, is becoming the base for development of Latvia. Consequently, general access (complete, fast, easy) to information, the ability to transform information into knowledge, the development of information services and their global interoperability become necessary preconditions for the accomplishment of economic and social tasks.

In the *socio-economic program eLatvia* focus is on coordination, prioritisation and increased implementation of the activities and the projects that are aimed at involving everyone in the developmental process. The aims are following:

- To encourage the formation, spread and introduction in Latvia the basic conditions, principles, and processes of the Information Society and the new economy;
- To create opportunities for every citizen and business to participate fully in the processes of the Information Society and the new economy of Latvia;
- To promote the increase of everyone's level of welfare, thus facilitating sustainable development, civil harmony, economic and social cohesion in the country.

It should be mentioned that the European Union's [10, 11] programmatic documents in this area have the same goals and tasks, but the time schedule and applied tools are different because initial conditions aren't same in Latvia and EU countries.

The accelerated development of Latvia's national economy requires not only specialists in information technologies, but also each member of the society, and each enterprise in every region. Therefore the content of the *eLatvia program* is concentrated on the accelerated and the prior accomplishments of the activities and the arrangements necessary for that purpose. To achieve this aim the *eLatvia program* envisages:

- To improve radically the insufficient possibilities for qualitative Internet access;
- To ensure that each citizen could use the opportunities provided by the advanced information technologies; to increase for that purpose the general level of the information literacy in the country and to improve methodology and possibilities for the training;
- To ensure availability of local and global information of any content for every citizen;

- To accelerate development of the necessary environment for applications and transactions for E-commerce and E-government.

All activities and projects are focused on the three main substantial directions.

2. GENERAL INTERNET ACCESS

An advanced technological infrastructure (high-quality connections to information and telecommunications network for each individual and business on the whole territory of Latvia at affordable prices) is the basic precondition for the development of the Information Society.

The prices of PCs in comparison with salaries are high in our country. Therefore tax and credit incentives should be offered to make PCs more affordable. The present level of digitalisation of the telecommunications network in Latvia is not sufficient. The existing price for Internet connections is too high for individual users and even for municipalities, as well as small and medium enterprises. Therefore access to the Internet resources is still unsatisfactory used. As a result the Internet penetration in Latvia is approximately 10% of population. Especially small is the Internet connection to home computers (Table 1).

Table 1. Indicators per 100 Latvian Inhabitants, End 2001

Infrastructure	Percentage
Digital lines as % of main lines	68.6
Personal computers	10.9
Internet hosts	2.7
Internet users	10.2

The present unacceptable low level of Internet availability is being improved. In order to ensure an opportunity for everyone in the society to use the Internet possibilities focus on the public access has been emphasised – connection of all libraries, schools, municipalities to Internet and installation of public terminals.

In the time schedule of the *eLatvia* program the installation of public Internet terminals in each library, school and municipality is planned to year 2004.

3. INFORMATION LITERACY

For the development of Latvia in the 21st century, the crucial factor will be training of a highly educated, competitive labour force. The principal role will play the information literate knowledge-rich people, who are motivated to acquire knowledge and to create new knowledge. Information literate people are those who have learned

how to learn [12]. *They know how knowledge is organised, how to find information and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning because they can always find the information needed for any task or decision at hand.*

Information literacy is based on the systemised knowledge and strategies for effective use of information and information systems. It is very important to learn how to make right choice among all alternative types of information and tools for information handling. This can be regarded as core competence that will be developed throughout life—from primary school through higher education and into workplaces and lifelong education. For the development of our economy every school and library, every enterprise and citizen must actively participate into knowledge management process.

There is a need to offer students an opportunity to begin learning skills of information literacy and information technologies already in education process while they are in the school. Information literacy and general education is closely linked. The Latvian State Standard of primary education and the state Standard of general secondary education includes description of students achievements in educational development of individual and determines the definite information literacy skills in each educational stage. At present these skills are not elaborated in prescribed sequential order in study programs and this process is going more periodically than systematically and goal-directly.

Latvia successfully continues a process of informatisation of its schools, and this process must be accelerated. Already in 1997 in accordance with the basic principles of draft of the National program “*Informatics*,” the project “*The Latvian Education’ Informatisation System (LIIS)*” [13] had started. The LIIS serves to improve the activities of Latvia’s educational system by promoting the implementation of the socio-economic *eLatvia* program. The implementation of the LIIS touches upon the infrastructure and functions of Latvia’s educational system. The *eLatvia* program emphasises general information-related skills, as well as the availability of information. The LIIS is in compliance with this requirement, because it involves the establishment of computerised learning and methodological materials, training of teachers and facilitation of Internet use. The LIIS covers several aspects of the educational system—creating educational content, organising the teacher training, providing support to school administrators, supplying computers, installing local school networks and hooking them up to the Internet, and maintaining information services for the educational community [14].

Design of computerised methodological materials and textbooks (on-line, on CD, etc.) and training of teachers to use them are emphasised as the key factors, together with the development of infrastructure and connections to the Internet. Wide usage of advanced information technologies for learning natural sciences (physics, chemistry, mathematics etc.), humanities and the social sciences, informatics, languages and others subjects for primary and secondary education is one of the priorities of the national strategy. A large number of electronic textbooks and methodological materials have been prepared in the scope of the project (Table 2). The Web site [13] containing educational resources has been set up, including opportunities for online discussions, a searchable database for teaching aids, and recommendations for the creation of new resources.

The activities of the LIIS are carried out at several levels – schools, educational boards, the Ministry of Education and Science and the public at large.

Table 2. General Information Literacy

Information Literacy Factor	Statistic
Adult literacy rate as percentage age 15 and above, 1999	99.8%
Primary, secondary and tertiary gross enrolment ratio, 2001	84%
Electronic textbooks as printed equivalent of A4 pages, end 2001	80,000 pages
Number of primary and secondary level students per PC, 2001	21.7
Internet connectivity of schools, 2001	97%
Teachers trained in IT usage, as percentage of total teachers, end 2001	68%

In an Information Society both computer skills and information literacy are closely connected. Therefore Latvia has started the implementation of the European Computer Driving License (ECDL) [15], because it provides quantitative confirmation of the ability of employees to use advanced technologies in their work and to participate in the European labour market.

The “eEurope – 2002” action plan [1] concluded that “a European framework should define new basic skills with decentralised certification procedures, to be provided through lifelong learning, and a European diploma for basic IT skills should be established.” This means that ECDL is now the officially recognised standard for IT literacy skills in the EU. ECDL is mentioned in the program “*eLatvia*.” Preparing pupils for ECDL is being introduced into school curricula as an objective confirmation on the ability of every school graduate to use advanced technologies in his or her work.

The University of Latvia administers the ECDL project. The opportunity for all interested in the country to prepare for obtaining ECDL must be set up. Last year already saw the first 190 volunteers from Latvian universities, schools, and training centres who took the test and received the ECDL. Work must be continued to prepare training materials, automated testing procedures, and to establish examination centres in all region of Latvia.

Information literacy studies must be a part of high school curricula. All students must learn to find information and transform it into knowledge. This will help to encourage interest in future in lifelong learning. Introduction of information literacy studies into high school establishments have been started by upgrading the curricula of universities and developing information literacy courses and distance learning tools are few of the upcoming target projects mentioned in *National program Informatics*.

In the universities and high education establishments of Latvia the practise to introduce information literacy as a separate course is less popular. Often the skills of information literacy are taught within the scope of specialised subjects.

The introduction of separate information literacy courses must be a compulsory part of curricula (Table 3), because teaching to find the necessary information and to transform it into knowledge is very significant, thus awakening the interest of a person in lifelong learning.

Teaching information competency must be a responsibility for academic libraries and librarians, too [16]. As the library focus is on customers and the learning environment, not only to local collections, then librarians need wide knowledge of basic traditional and networked information. They must be specialists with thorough professional background and knowledge to find, understand, analyse, and offer information. They must be the persons who integrate technology, information and learning into a new model.

Many academic libraries in the world offer different information literacy courses for a long time. In Latvian higher educational establishments previously librarians offered the brief courses in bibliography and information for traditional types of information and search methods. Today, most academic libraries provide short introductory courses for first-year students on how to use the library, its catalogues (including electronic), and databases—all on an individual basis. Only some years ago Latvian libraries have begun to develop user education programs of information literacy for students and other groups of customers. Only a few of them offer the short courses for undergraduates.

Three academic libraries of the Baltic States (Technological University libraries in Riga, Tallinn, Kaunas) were involved in the EU funded project DEDICATE (Distance EDucation Information Courses with Access Through nEtworks) to develop a flexible model of networked professional development in information literacy and user education [17]. Nine libraries were partners in the project, all members of International Association of Technological University Libraries (IATUL) (Chalmers University of Technology, Sweden led the project, in partnership with the University of Sheffield, UK, and the Universities of Technology at Linköping, Sweden and Helsinki, Finland).

The distance education courses were tested at four Technological University libraries in Riga, Tallinn, Kaunas, Veszprém (Hungary) and at the International Centre of Information Management, Systems, and Services in Torun. Initially these distance education programs were directed to training library staff in the access and use of networked information resources. It was the part of a project for training the trainers (with extensions to academic staff and scientists) about information literacy courses for library users in higher education. The project started in May 1998 and ran to November 1999. As a result, information literacy courses were developed in all participants' universities. The production of new courses continues. After the completing the project, guidelines and details how to design and use such courses are available in these libraries.

In an Information Society, the significance of knowledge and education in everyday life is increasing tremendously. Economic competitiveness and prosperity of countries will depend firstly on the developments in the field of education and training. Traditional education system will not be able to cope with the increasing demands for retraining and updating of knowledge. The introduction of distance learning (especially for post-diploma learning, ongoing education procedures, subject-intensive courses and retraining processes) provide flexible educational opportunities for everyone—irrespective of age, place of residence and social status. Distance learning as a tool of lifelong learning and new approach in education is an efficient means for human resource development. The distance learning courses are excellent tools for lifelong learning. Everyone should be able to use this opportunity for his or her job and everyday life needs.

The rise of modern distance education (DE) in Latvia started in 1993. The *Latvian Distance Education Board* at the Ministry of Education was created. With the support of the EU's Phare Program *Multi-Country Cooperation in Distance Education* four study Centres of DE have been established. At present approximately 15 institutions (state and private higher educational establishments, study centres and private companies) offer different distance education study programs and separate courses. New virtual opportunity-integration of distance education methodology with telematics leads to the delivery of education services right to the customer's home or workplace anywhere in the world. In Latvia there is an excellent basis nowadays for the further knowledge-based development of the population—there is the highest adult literacy rate in the world [18] (Table 2). These literate people can use all aforementioned possibilities to renew their knowledge.

In the *socio-economic program eLatvia*, the time schedule for achieving the tasks in general information literacy and availability is following (Table 3).

Table 3. Timeline for Information Literacy in Latvia

Information Literacy Development	Timeline
Informatisation of all Latvian educational establishments, elaboration of methodological materials, training of teachers, installation of technologies, connection to Internet	01.01.2004 (gradually)
Improvement of the high schools' curricula, information literacy training	01.09.2002
Introduction of the distance learning programmes and services	Non-stop
Opportunities for training and obtaining European Computer Driving Licence	From 01.04.2001
Development of the unified library network	01.01.2004 (Gradually)

4. INFORMATION AVAILABILITY AND SERVICES

The *eLatvia program* envisages ensuring every citizen of the country for availability of local and global information.

The number of local information sources in Latvia has been increasing rapidly, as well as the informational value of these sources. Latvia's connection through networks to international information resources provides large possibilities for information needs. After an examination of existing situation, it was decided that libraries are supposed to provide all members of society with free access to information and knowledge. This has been stressed in the national program *Informatics*, which has set out the goal of providing *universal information service* to each member of society. The universal information service provides the availability of various types of information content to which an end-user has the rights of access set in the normative and legal acts. This means that anyone, irrespective of where he lives, can receive all of the information that he needs at any time and at an acceptable price. Libraries must become the places where these information services can be received. Libraries must be the major suppliers of all types of information (scientific, technological, financial, business, educational, reference, etc.) in the country. Once all libraries are connected to a unified information network, their interoperability with national and international information resources will be enabled. The development of the electronic and virtual libraries will ensure full opportunities to search and to receive local and global information in every library, the supply of any type of information on user's demand, the availability of information services for the remote users in their workplace and at home.

Government investments have allowed launch the *State Integrated Library Information System* (SILIS) project. The concept was elaborated in 2000 [19]. The main goal of the SILIS project is to form coordinated information system of state and public libraries, to offer universal information services for patrons in information search from Latvia and abroad—as well as to provide the patrons with books, publications, references, and documents needed from Latvian and international information sources. Setting up this system will allow for every member of society the unified access to global and local information sources. The main functions of the SILIS are: access to catalogues created by different library systems, access to the information accumulated in different State registers or information systems, searching for information, ordering of information; delivery of information; provision of information services; creating information resources; training of librarians and users. At present moment four library information systems exist in Latvian libraries. Library Information Network Consortium (LINC) is currently implementing a project *Integrated Library Information Network of Latvia (LATLIBNET)*—to introduce an integrated library information system in the libraries of national significance and to establish technical basis for the national electronic union catalogue. In beginning of 2002 the union catalogue of eight main libraries is already offered for users.

5. CONCLUSIONS

The 21st century—the century of the Information society—is one in which information literate people play key role. Information literacy competence is significant factor for involving all members of society in future development of

knowledge-based economy and achieving a high standard of living. Only together with realisation of national policy goals and participation by all levels of society will it be reached.

Contact: rtusclib@acad.latnet.lv

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