A renewing, human-centric and competitive Finland

The National Knowledge Society Strategy 2007–2015

September 2006

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FOREWORD

During 2006, a National Knowledge Society Strategy for 2007-2015 has been drafted as part of the implementation of Finnish Government's Information Society Programme. The Strategy outlines a national vision and strategic intent concerning the kind of information society we want in Finland. In addition to the current state of the Finnish information society, the strategy describes changes in the national and international operating environment. The Strategy includes a concrete implementation programme extending to the next Government's term of office and several proposals for measures, including possible responsible parties.

The Strategy has been drafted to support the emergence of a Finland phenomenon, in other words, the transformation of Finland into an internationally attractive, human-centric and competitive knowledge and service society. Development of skills and creativity, bold renewal of structures and operating models, and efficient utilisation of technology will make this possible, even under conditions of increasing global competition.

Two previous national information society strategies have been published: *Finland – Towards an Information Society, A National Outline* (Ministry of Finance, 1995) and *Quality of Life, Knowledge and Competitiveness* (Finnish National Fund for Research and Development SITRA, 1998). The people in charge of these earlier strategies, Tauno Heikkilä, Henry Haglund and Antti Raunio, have provided valuable assistance in drafting the new strategy.

The strategy was drawn up in cooperation with actors and decision-makers from various sectors of society, and with other strategy processes already in progress. Preparation of the Knowledge Society Strategy required stakeholders to exchange opinions concerning the kind of future desired for Finland, the strategic priority areas for information society development, and how the viewpoints presented during strategy preparation can be developed into a common national vision and strategic intent.

The Ministerial Group on the Information Society Programme was responsible for initiating the strategy process and for its general guidelines. The Information Society Council and its subcommittees monitored the progress of the work and commented on the different versions of the strategy. A steering group comprising members of the Information Society Council and experts was assigned the task of directing practical preparation work and deciding on the key guidelines for the strategy. A project group comprising representatives of various ministries handled the preparation and organisational work in cooperation with the Office of the Information Society Programme.

The strategy was prepared in a series of future panels and workshops involving more than 150 experts from different sectors. The future panels were used to outline what Finland will be like in 2015 from the perspective of various actors in society. The workshops focused on the strategic intent and proposals for measures related to the priority areas of the strategy. During the strategy process period, a number of separate workshop events were arranged for specific target groups, such as the trade union organisations and audiovisual content production organisations. A total of about 400 experts took part in the strategy process.

We would like to extend our sincere thanks to all participants in the strategy preparation for their valuable work in the name of the Finland's future. Working together and cooperating is the only way to put the strategy targets into practice and create a Finland phenomenon.

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1 NATIONAL KNOWLEDGE SOCIETY STRATEGY: FROM THE CHINA PHENOMENON TO A FINLAND PHENOMENON

> *"In the information society, knowledge is the basis of education and culture and constitutes the most important production factor. Information and communications technology (ICT) promotes interaction and exchange of information between individuals, business enterprises, and other organisations, as well as the provision of services and access to them."*

This is how information society was defined in the National Information Society Strategy published in 1998. Since then, technology has matured as a facilitator of broad societal changes, the realisation of which requires the reform of structures and operating models in conjunction with the implementation of technology.

Knowledge is an even more important resource in our society, which, with the help of technology, can be utilised more effectively than ever before. The strategic priority has shifted from being a society that utilises ICT to one that generates knowledge-based growth. The broad utilisation of information provides Finland with the opportunity to function as a global reformer and develop new skills and business. This will require seamless cooperation between different stakeholders and the development of ideas into products and services.

The vision of the National Knowledge Society Strategy is:

GOOD LIFE IN INFORMATION SOCIETY

The new strategy has been drafted to support the emergence of a Finland phenomenon, in other words, the transformation of Finland into an internationally attractive, human-centric and competitive knowledge and service society.

If the China phenomenon refers to a structural change in the global economy in which enterprises move functions to an advantageous operating environment, we need a new Finland phenomenon to counteract that development. It centres on understanding that developing knowledge, structures and business environments will make a good life possible for individuals and enterprises, even under conditions of increasing competition. The competitive factors of a transformed Finland are an open society, a good and safe living environment, the opportunity to flexibly combine work, family and leisure time, as well as the continuous development of knowledge.

Guidelines and measures aimed at reforming the service sector, improving quality of life and developing sustainable competitiveness in enterprises occupy a prominent position in the National Knowledge Society Strategy. These themes will be approached from various angles: development of knowledge, application of existing and new information, creativity and innovation, structural and functional reforms, networking and the utilisation and development of technology.

Implementation of the Strategy will require that society take responsibility on all levels. A Finland phenomenon can only emerge through the joint efforts of political actors, public sector organisations, business and industry, financing bodies, associations and citizens.

Several strategy and foresight processes have been in progress alongside the preparation of the National Knowledge Society Strategy. Interaction between these processes has been bi-directional: the national strategy work has influenced the content of the other processes and they have provided important elements for the national level work. The National Knowledge Society Strategy provides a general strategic framework, which can be refined and expanded upon in strategies specific to certain administrative sectors and industries.

The Strategy was drawn up in close cooperation with actors in many areas of society, including about 400 expert participants from the central and local government, business and industry and various organisations. The organisation for the strategic process and other strategy and foresight projects in progress is presented in Appendix 1.

Strategic guidelines – main projects for 2007–2011

In order to achieve the set targets, the strategic work defined the main projects for 2007–2011, through which the Finland phenomenon will be created.

- Initiation of a policy programme for reforming public sector service structures

- Increasing connection speeds for information networks and ensuring the interoperability of the information society infrastructure

- Ensuring the prerequisites for lifelong learning

- Reforming the rules for working life and developing leadership and supervisory work

- Reforming the innovation system

- Further development of the copyright system

- Promotion of digitalisation of business in SME's

- Influencing internationally, especially at the EU level, and close cooperation with Asian countries and neighbouring regions

In addition to the main projects, the Strategy includes 72 proposals for measures intended to ensure Finland's transformation from an industrial society to an internationally attractive, human-centric and competitive knowledge and service society. The Strategy also includes a concrete implementation programme.

2 BUILDING THE INFORMATION SOCIETY

2.1 National Information Society Strategies as a time continuum

In international terms, the first Finnish information society strategy was written early, in 1994. The fact that the next strategy was published in 1998 illustrates the fast pace of information society development. Prime Minister Matti Vanhanen's Government made information society development one of the main priorities of its Government programme and launched an intersectoral information society policy programme.

The national strategies and programmes form a continuum: the new strategy also includes parts of earlier strategies. Information society development should be seen as a continuous process in which regular situational analyses are required along with new viewpoints and strategic guidelines.

This strategic continuum is a national strength that is worth maintaining also in the future. Appendix 2 evaluates the implementation of earlier national strategies and policy programme.

2.2 The Finnish information society in 2006

National strengths

Finland is globally acknowledged as an information society and an information society development pioneer in many fields as well as an active international player. Finland's social transformation into a knowledge-based society that extensively utilises information and communication technologies has been quick.

In international terms, Finland's strengths include a high level of education, regional and social equality, a good administration culture, national databases and registers, the public nature of information, and citizens' strong trust in electronic services. The same applies to the information society skills of enterprises and citizens, Internet utilisation and use of electronic services. Our library institution, which offers traditional library services, free customer terminals and instruction for citizens in using electronic services, can be considered a particular national strength.

Internation comparisons

In recent years, Finland has performed very well in various international comparisons of competitiveness: in autumn 2006 we were second in the World Economic Forum's (WEF) Growth Competitiveness Index for the second year running. WEF also conducts an annual survey of the readiness of different countries to utilise ICT using the Networked Readiness Index (NRI) that it has developed. Finland placed fifth in the comparison of 115 countries in spring 2006.

Social and health care

During the 2000s, healthcare has comprehensively switched to an electronic patient record system: it was being used for production purposes in nearly all hospital districts and health centres in 2005. The electronic referral and feedback system used between primary and specialised health care has also progressed rapidly: in 2005, nearly half of all health centres and 76% of hospital districts were using it. A national project to implement an electronic customer record system has been launched in social welfare services.

Education

According to the results of the OECD's PISA 2003 survey (Programme for International Student Assessment), Finnish students rank at the top of OECD countries in terms of mathematics, natural sciences, reading skills and problem solving skills. The PISA survey assesses how well 15-year olds have acquired the knowledge and skills needed for full

participation in society, working life development, and a life of good quality rather than how well they understand the content of the compulsory education curriculum.

Electronic government and digitalisation of business

The public administration offers a broad range of electronic services for enterprises and citizens, but development, particularly in the area of interactive online services, is still in its infancy. On the other hand, Finland has consciously selected a policy that is based on comprehensive, structural and operating model reform rather than development of individual online services. The aim is to improve public sector efficiency by reforming structures and operating models as well as utilising information management and technology.

In the 2000s, an international consulting company has published an annual survey of the development of electronic government in various countries. Finland has placed in the top ten in every assessment. According to the spring 2006 report, Finland is still one of the pioneers of reform. In particular, progressive national-level IT steering and active information society strategy and programme work have a positive impact on the ranking. Finland is also recognised as the global leader in the use of public electronic services (73% of Finns have used some public online service) and in positive attitude towards such services.

For the most part, enterprises also have sound basic prerequisites and infrastructure for digitalisation of business and utilising ICT. However, utilisation of this potential is still in the early stages in most enterprises. Achieving benefits requires simultaneous action, process, structural and leadership innovations.

The banking sector has been a pioneer in developing electronic services and promoting the information society skills of citizens. ICT is also extensively utilised in industrial sectors and, for example, the wholesale and tourism fields, but overall use in the service sector is still at a fairly low level.

ICT sector

In 2005, turnover for enterprises in the information and communication sector totalled about EUR 50 billion, or roughly 15% of all enterprise activity, and they employed around 160,000 people. In the same year, turnover for the 250 largest enterprises in the ICT sector increased by 13.3% and they employed about 9,000 people more than one year earlier. In Europe, growth in the ICT markets is expected to be about four percent in 2006, while the same figure is expected to be closer to five percent in Finland. In 2005, one-fifth of all Finnish export was ICT-related.

Research and development

Finland's investments in research and development activities totalled more than EUR 5.5 billion in 2005, equivalent to 3.5% of GDP. The relative investment is top class by world standards. The research and development expenditures by enterprises in the ICT sector were about EUR 2.5 billion, more than 60% of private sector investment. The 2006 state budget allocated nearly EUR 1.7 billion for research and development activities.

Infrastructure

The majority of households and enterprises have a broadband connection or the opportunity to obtain one, but there are still deficiencies in geographic coverage. Speeds have to be significantly increased and copper access connections replaced with optical fibre to make IPTV and other multimedia services possible. The same applies to service production in the public sector. According to the latest statistics, only 28% of broadband connections have a speed of 2 Mb/s or higher.

Finland has a well functioning and nationally comprehensive mobile network. The fixed-line phone network still covers the majority of the country, but the technology is becoming IP-based. First generation mobile data services are already in use, but faster services that enable mobile working are still under development.

However, the functionality of information networks weakens fundamentally in abnormal situations, especially during extensive power outages, which increases the vulnerability of the society.

Statistics on the Finnish situation

Information society development is primarily measured by means of indicators that describe ICT tools and the prevalence of their use. An ongoing national and international challenge is to develop new information society indicators that describe development from the perspective of quality and, for example, productivity, innovativeness, information refinement, and knowledge. The table below presents statistics on Finnish information society development in the 2000s.

	Start of the 2000s	2006
Number of broadband connections	315,000 (06/03)	1,309,800
Broadband availability	75,7% (06/03)	95.8%
Households with a broadband connection	15% (spring/03/broadband) 29% (spring/00/Internet)	56.5%
Internet use, 15-74-year olds	50%	79%
Internet use, 60-74-year olds	*	31% of women and 42% of men
Internet use, over the age of 74	*	4% of women and 10% of men
Made an online purchase	10%	49%
Participated in a computer course in the last three years	*	32%
Uses an online bank	*	63% of Finns 81% of Internet users
Feels capable of using an online bank	38%	77%
Citizens' trust in online banking	*	92%
Enterprises employing more than 5 people that have a broadband connection	39% (02)	77%
Enterprises employing more than 10 people that have a broadband connection	50% (02)	88%
Wage-earners using IT in their work	66%	75%
Authenthicated customer transactions in the Social Insurance Institute's electronic services	8,165 (08/04)	125,484 (08/06)
Number of the Tax Administration's TYVI users (automatic data flows between enterprises and the public sector)	50,000 (02)	180,000 (forecast)

*) information unavailable

2.3 Opportunities and challenges

The Finnish information society's strengths and weaknesses as well as opportunities and threats have been assessed as part of the strategy process. The table below presents a summary of the results of the SWOT analysis.

Strengths	Weaknesses (in the following areas)
- Ethos and morale of work - Good, free-of-charge education system - Trust in electronic services and societal actors - Citizens' readiness and desire to utilise electronic services - Positive attitude towards ICT - Technology expertise - Good foundation for the national innovation system - Open and safe society	- Fragmented research and development financing and development projects - Commercialisation and exploitation of innovations - Sectoral and silo thinking, lack of intersectoral cooperation - Understanding of the strategic nature of IT administration and ICT - Lack of user and customer perspective in product and service development - Utilisation and application of existing information and knowledge - Digital content copyright questions (including employment copyright and multi-channel issues)
Opportunities	Threats
- Successful reform and continuous development of effectiveness - The creation of new business opportunities - Structural reforms of the public and private sector and the innovation system - National and international cooperation and networking - Global markets, customers and export - Social media and civil activity - Sustainable development, energy and environmental sectors - Finland's good international reputation	- Slow reaction to global changes - Inability to reform structures and operating models, continuation of fragmented activities - Growing regional and social inequality - Deficiencies in skills and lifelong learning - Vulnerability of the information society infrastructure - Difficulty in reconciling work and family life - Transfer of decision-making, production, ownership and expertise to other countries - Reduction in external and internal entrepreneurship

The Knowledge Society Strategy preparation was based on the SWOT analysis. The threats presented must be taken seriously and their realisation blocked. Correspondingly, the opportunities should be seized in a bold and open-minded manner.

2.4   The world is changing – Finland also has to change

We live in the midst of major national and international change forces, and anticipating and responding to these changes is the prerequisite for continued positive development. Such factors include globalisation, the growing importance of the service sector and liberalised competition, climate change, energy policy questions, and the development of competitiveness in Finland and the European Union. At the national level, important factors include the change in demography, rapid pace of retirement, increasing multiculturalism, growth in demand for social and health care services, need to prevent major chronic diseases, and ensuring the availability, quality and financing of public services.

Glocalisation, in other words the emphasis of localism, communities and social capital alongside globalisation, is a sign that people are looking for a meaningful, safe and good life to balance the increasing amount of change and uncertainty.

Change in population age structure – a challenge and an opportunity

Finland's population growth is slow and the size of the working-age population started dropping in 2003. In combination with increasing retirement, this development has already led to a shortage of labour. In future years, labour sufficiency problems will be particularly evident in the local authorities. The change in age structure will affect the availability of labour in the service sector in growing urban regions and in all industries in regions with difficult population loss. The development described above may threaten the availability of basic services throughout the country.

Raising the employment rate and productivity as well as extending careers will play a decisive role as Finland tries to respond to the challenges presented by the change in population structure. As the population ages, the average age of work communities will rise, thus requiring investments to maintain the workforce's working capacity and work motivation as well as develop knowledge.

As the age structure changes, the population's consumption habits and service needs will also change. An ageing population needs more healthcare and care services. On the other hand, people will retire in relatively good condition, both physically and income-wise, which can be assumed to increase demand for services in the private sector. The needs and consumption habits of the younger age groups have also changed, which is especially evident in the media culture: games, music, movies and social media.

The quantitative and qualitative changes in demand and challenges facing public sector financing will require major structural and operating model reforms. On the other hand, the development of retirement will make it possible to carry out these essential structural reforms. It is essential to effectively utilise technology and new service production methods to increase efficiency in activities and thus free up people for the tasks that require human interaction. At the same time, Finland has a unique opportunity to develop services and service concepts with export potential.

The reconciliation of work and family life represents a completely separate challenge: in addition to families, the middle-aged population will have to take an increasing amount of responsibility for their parents, which will require flexibility in working life.

Changing service production

The information society of the future will be a developed service society. The broad exploitation of ICT will make service production more efficient. It will also enable the structural reform of physical and electronic services, in other words, the development of completely new production models, services and service combinations. Simultaneously, the border between product and service will become less clear: services will be productised and the customer will be offered combinations of physical products and services. This convergence of service production made possible by ICT represents a development direction that is parallel to the technical and business convergence now in progress.

In a converging environment, the same services are produced by public, private and third sector organisations. Cooperation between different actors will increase, simultaneously leading to the creation of new service combinations. Both electronic and physical services and combinations of them will be produced and tendered regionally, nationally and internationally (for example, a remote x-ray diagnosis from Asia). Service production will also cross traditional industrial borders. Proactiveness and self-service will increase in electronic services. Other services will emphasise personal interaction and customisation.

The convergence development of service production will require a switch from industrial society structures and operating models to knowledge and service society structures and operating models. It will also require the development of a strong customer and process orientation in place of organisation orientation. Services have to be productised, cost accounting and quality criteria developed, and the interoperability of information structures and systems improved. In order for the changes to be successfully carried out, we also need major investment in developing personnel and management expertise.

The successful trinity of education, research and product development

Finland's challenge in a globalising world and increasingly tough international competition is to develop new types of solutions for science, technology and innovation policy. This will require structural assessment and reform of the research and innovation systems and balanced combination of technology- and market-oriented innovation activities. Internationalisation, networking, new cooperation models, diversification and scientific multidisciplinarity will become increasingly important success factors in the future. The ability to increase the impact of research, innovation and foresight systems will also be important.

Education is respected in Finland and considered to be a significant reformer of society and safeguard of civilisation. The education level of teachers is high and they have comprehensive information society expertise, which has been utilised when introducing new teaching methods. Students are being offered increasingly diverse studies that take individual differences into consideration. However, despite national guidelines, ensuring information society skills has primarily remained the responsibility of private organisations and teachers, which has placed students in an unequal situation. This situation threatens to become worse if expertise and experiences are not utilised more extensively. The target should be to expand the existing knowledge and thus strengthen competitiveness and equality in the future.

The interaction of services and structures that support education, research and product development should also be made more effective. Simultaneously, a culture of learning and working together has to be created along with close cooperation networks that include decision-makers, developers, implementers and users.

An expertise, working life and leadership revolution

In an information society, individuals are expected to possess more new strengths and skills, such as the ability to quickly learn new things, complicated problem-solving skills, the ability to independently find and produce information, innovativeness, and critical media skills. This in turn will require changes in teaching content right from the preschool stage. Correspondingly, the operating environment for work communities is more networked than ever. These value networks occur at the personal and community level. On the other hand, this networking, which is closely linked to the information society, enables a new distribution of work and knowledge, in which case a lack of skill or knowledge can be compensated by the skills or knowledge of another member of the network.

The increasingly global operations and operating environment of enterprises have raised the flexibility demands of working life and led to a reduction in industrial activity in Finland. Simultaneously, the share of information work is increasing in all professions. As a small country, we have selected knowledge development as our international success factor. Finland's success and competitiveness in the future can only be based on the continued and purposeful growth of productivity, quality and innovation in working life. This will require certain measures in the work communities: organisations, work cultures, leadership and supervisory work must be reformed, external and internal entrepreneurship developed, and knowledge and skills emphasised at all levels of the organisations.

The key factors in knowledge-based growth are flexible and networked work communities and their knowledge capital. As the nature of work becomes more information-intensive, well-being at work will assume greater importance. Global 24/7 project work and the increase in mobile working also set completely new requirements for work organisation, supervisory work and leadership as well as the knowledge areas and time use of individuals. On the other hand, reform and innovation also require time for creativity. The productivity of an information society cannot be measured only by presence at the workplace.

Without ignoring the individual's responsibility, the government and enterprises have to take joint responsibility for the competence and well-being of the workforce under these changing conditions. This will require changes and investments in the adult, further and upgrading education systems.

A vulnerable and harmful information society

The national economy, various organisations and households are increasingly dependent on information and communication technology and information networks. This dependency increases the vulnerability of society. Ensuring data protection and data security, preventing cybercrime and management of various risks are also a major part of the activity of organisations and individuals and national security. Information networks are dependent upon other basic infrastructure, such as electricity supply. Security of supply in the information society is especially important in crisis situations.

If data security and data protection are not handled well, a central element of the information society, trust, is threatened, which can have far-reaching consequences throughout society. Key threats include violations of privacy, attacks on information systems, computer viruses, harmful programs, various swindling attempts (for example, stealing network IDs), industrial espionage, piratism and, in extreme cases, online terrorism and electronic war. On the other hand, ensuring data security increases individuals' operating freedom and opens up new business opportunities for enterprises.

As technology develops, it will be possible to determine the location of an individual and what he/she does by means of various identifiers. Legislation and the responsibilities related to data protection and security must be clear in order to promote trust in the security of this data.

As globalisation progresses, the transfer of decision-making, production, ownership and expertise to other countries may constitute a nationally significant vulnerability factor. In terms of society, this applies to key information networks, IT systems and databases as well as to Finnish enterprise activity. Both phenomena can have significant impacts on the Finnish society and national economy.

The information society opens up positive opportunities for children and young people to utilise various content and services, create contacts and express themselves. On the other hand, the content and services of an information society can also be harmful to children and young people in various stages of development. Actors in society have to ensure the safety of information networks and sufficient media education in order to prevent these problems.

Towards a sustainable information society

Ensuring a viable and clean environment and reducing energy consumption are national and international challenges. The possible structural and functional reforms of an information society will play a more important role in affecting the living environment. Sustainable development is becoming one of the focuses of information society development. In an information society, a growing share of the economy no longer consists of physical products or services.

The aim of sustainable information society development is to replace or supplement physical products with intangible products and services. Another key target is to reduce the environmental burden per produced unit, especially in traditional sectors. For example, this can be influenced by means of solutions that reduce energy consumption and logistics solutions as well as by utilising nanotechnology and biomaterials.

The creation of opportunities to implement measures or satisfy needs without the physical movement that stresses the environment can also help reduce environmental burden and energy consumption. Examples of this include teleworking, videoconferences and electronic self-service. Only about 5% of wage earners currently do contract-based teleworking, but the potential in this area is significantly larger.

The new information society products and services are not dependent on physical space or geography; in theory their production and use can be expanded in an unlimited manner. A product or service can also have several simultaneous users, and they can be duplicated, distributed and used in new ways. This development clearly reduces the environmental burden.

The digitisation and automation of information-intensive services has notable potential in terms of implementing a sustainable information society. This development can also be seen as a significant improvement factor in terms of labour sufficiency. Sustainable information society development also has a social dimension: it can help promote availability and equality.

Information society development is also being encouraged internationally

Countries that are emerging economically, scientifically and technologically include Korea, China and India. The strong economic growth of Asian countries is challenging traditional industrial countries to make changes in which the key success factors are innovativeness and cost-effectiveness.

A key success factor for Finland is the reform capacity of the European Union. Strong policy decisions are also required at the EU level, concerning, for example, the development of Europe's competitiveness and innovation system. The road to a more innovative Europe was outlined by the Independent Expert Group chaired by Esko Aho, whose proposals concerning Union-wide reforms of innovation policy were published in January 2006 (the Hampton Court Report). The Barcelona target of raising EU research and development investment to three percent of GDP will not be enough to make European innovation activities the best in the world. Furthermore, competition for competent labour is one of the key future challenges in Europe.

The Lisbon Strategy written in 2000 set a target of making the European Union the most competitive and dynamic knowledge-based economic area in the world by 2010. In spite of this target, growth in productivity has slowed. The EU's information society strategy that also extends to 2010 (i2010 programme) is a key part of the new Lisbon Strategy and directed at the information and communication sector that is strongly driving the EU economy.

The three most important aims of the i2010 strategy are:

- **a common European information space** that promotes open and competitive internal markets in the information society and communications field

- **increased innovation and investments in the ICT field** in order to promote growth and create new and better jobs

- **a European information society that promotes inclusion** as well as growth and employment in accordance with sustainable development, and in which public services and improving the quality of life are of primary importance

The United Nations has made information society development the target of all nations. The UN's World Summit on the Information Society 2003 and 2005 created an international information society vision, which emphasises the importance of applying ICT as a facilitator of economic growth, equality, sustainable development, quality of life, and development policy. The rights and opportunity for all people to utilise information society services has become one of the cornerstones of implementing human rights. The Lisbon Strategy also emphasises equality and sustainable development alongside competitiveness.
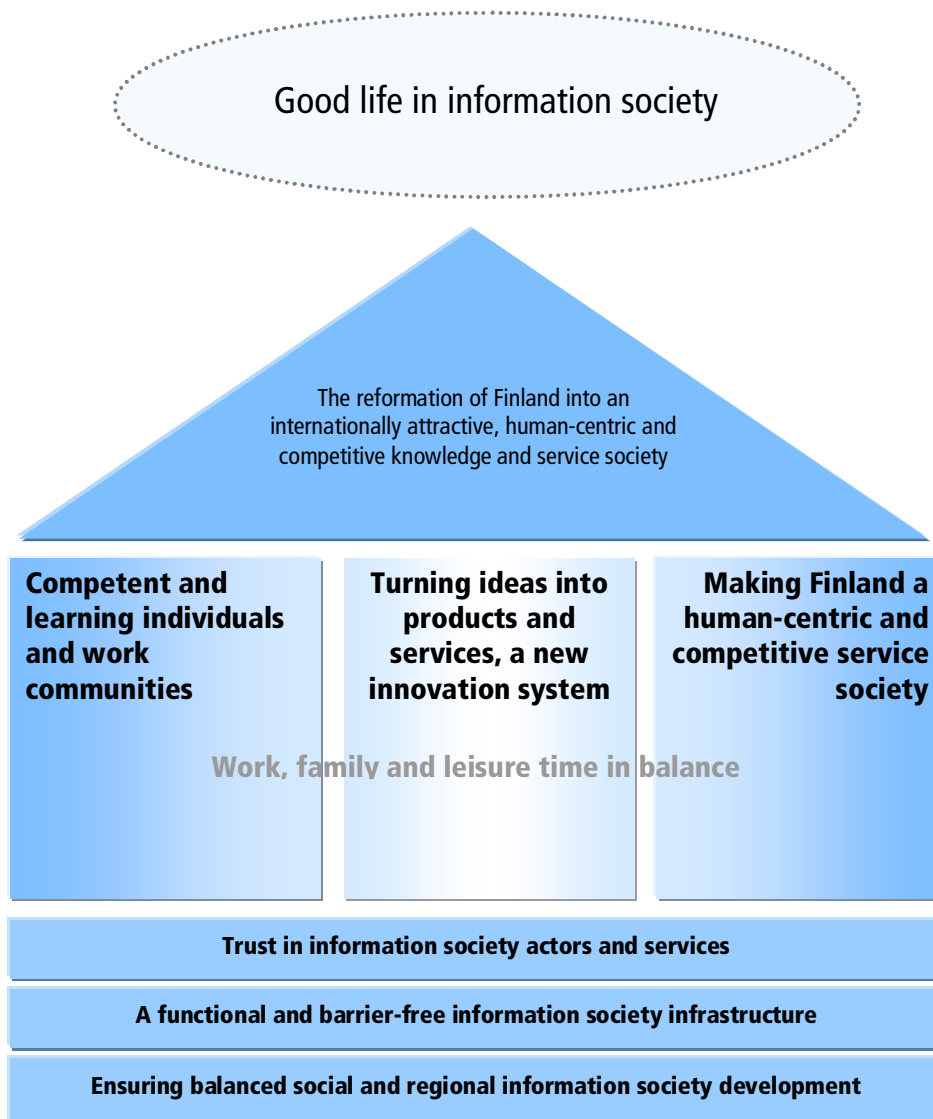
Part of the strategy process involved assessing and comparing the state of information society development and national information society strategies in six countries (Australia, South Africa, Japan, Republic of Korea, Denmark and the United States). An information society or information society development model as such cannot be exported or imported; instead it must be built on the foundation of each country's history, values, societal model and strengths and weaknesses. However, we can summarise international cooperation and learn from best practices and mistakes from around the world.

3   TOWARDS A RENEWING, HUMAN-CENTRIC AND COMPETITIVE FINLAND 2015

3.1   A vision for 2015

The development of information and communication technology, particularly the Internet and mobility, and the globalisation development and network economy they make possible, have changed people's daily lives, social and organisational structures as well as the development of countries and entire continents as profoundly as the industrial revolution did in its time. Information society development has changed our way of understanding the world, formulated the concept of community and opened up new opportunities for increasing productivity and growth. It has also reinforced equal opportunities and equality for people and regions as well as created a framework for global responsibility and sustainable development.

The figure below present the vision and focus areas of the National Knowledge Society Strategy.

Good life in information society

The reformation of Finland into an internationally attractive, human-centric and competitive knowledge and service society

| Competent and learning individuals and work communities | Turning ideas into products and services, a new innovation system | Making Finland a human-centric and competitive service society |

Work, family and leisure time in balance

Trust in information society actors and services

A functional and barrier-free information society infrastructure

Ensuring balanced social and regional information society development

Finland is an internationally attractive, human-centric and competitive knowledge and service society. Development of competence and creativity, bold renewal of structures and operating models and efficient utilisation of technology has made a good life possible for individuals and enterprises, even under conditions of increasing global competition.

A strong national vision and strategic intent combined with investment in information society development have led to a positive spiral, in which Finland has gone from being a producer and user of ICT to a generator and global pioneer in the area of knowledge-based growth. Finnish enterprises and the public sector are international leaders in the use of the new global business opportunities created by ICT and information society development.

The foundation of the Finland phenomenon consists of balanced social and regional information society development, a compatible and barrier-free information society infrastructure, and a strong trust in societal actors and services. The information society appears flexible and service-oriented in all daily situations.

Finland has implemented its transformation into a knowledge and service society in a manner that reinforces the competitiveness of enterprises, produces quality public and private services and promotes the well-being of the nation and individuals. This has required major changes in service production, the innovation system and working life.

A renewing, human-centric and competitive Finland will:

- successfully reform its structures, operating models, services and product offering
- utilise throughout society the product, process and service innovations made possible by digitalisation, the resulting changes of which will be reflected in society as competitiveness, success, high service quality and well-being
- encourage creativity and innovativeness as well as personal growth throughout society
- promote social and regional equality
- cooperate with the private and public sector and boldly cross over traditional sector borders
- do interactive and target-oriented international cooperation
- implement a strategy-oriented operating model in innovation activities, in which education, research and product development and the utilisation of their results form a balanced approach
- support innovative and market-oriented research and development activities
- invest in everyday innovations and content and services that make daily life easier for people and organisations
- export successfully technology, product, service and process innovations to global markets
- effectively apply international technology, product, service and process innovations in the private and public sectors
- create opportunities for all members of society to utilise their own potential as fully as possible and appreciate various types of expertise
- offer citizens opportunities to influence the development of society and express themselves
- promote tolerance and interaction between cultures

3.2　Strategic intents, strategic aims and proposals for measures

Strategic intent 2015

ICT will be inseparably linked to citizens' and organisations' daily life in 2015. Knowledge, expertise and technology will be seen as strategic resources. They will be broadly utilised in business and public administration with the target of continuous reform, improving services, increasing success, and maintaining and developing competitiveness.

Knowledge is a key production factor for the national economy, and production of intangible capital is one of the foundations of Finland's economy. With the development of productivity and competitiveness, individuals' well-being has improved and exclusion decreased.

Strategic aims

A move from industrial society structures to information society structures has occurred. Processes and operating models have been reformed and made more effective through the creative and productive utilisation of the opportunities provided by new, more efficient technology. The majority of routine work has been automated. Finland will be home to internationally competitive business that promotes digitalisation and the business based on it.

Finland is a strong society of trust: people trust one another, the public administration, other actors in society and electronic services.

The easy availability of information has led to a situation in which citizens trust their own expertise but are also able to utilise experts if necessary. This has promoted responsible citizenship: initiative and creativity in everyday activities and problem solving.

Finland and Finnish actors are the most desirable partners for other countries and actors in selected sectors, which contributes to retaining knowledge-intensive, high value-added work in Finland. The ICT sector is still an important employer and one of the cornerstones of the Finnish national economy. Traditional sectors, such as forestry and metal, have changed and remained internationally competitive by effectively utilising information and communication technology.

New growth opportunities are being utilised in the service sector, especially in healthcare, education, logistics, tourism, industry of experience, and the environmental and energy fields. Our major new export products include cultural content, games, entertainment, intelligent materials, telematic solutions for traffic, public service process knowledge, well-being services, and environmental and nanotechnology.

Finland will be one of the countries that determines information society development and policy in the European Union. Finns will participate extensively in the preparation and implementation of the EU's information society, innovation and competitiveness policy, and in joint opinion formation in the EU. Finland's strengths continue to be a strong national strategic intent and broadly-based cooperation in opinion formation. Finland will also cooperate closely with Asia and neighbouring regions concerning information society matters.

Finland will implement the targets set in the UN World Summit on the Information Society in its information society policy. Global promotion of the information society will be closely linked to Finland's development cooperation policy.

The following presents the priority-specific strategic intents, strategic aims and proposals for measures with possible responsible parties.

3.2.1 Making Finland a human-centric and competitive service society

Strategic intent 2015

Utilisation of ICT has improved the productivity of companies in the service and production sector and significantly enhanced their competitiveness. International digitalisation development has opened up global digital service markets to Finns.

Services organised by the public administration will be produced in a customer-oriented and economical manner as processes that cross the organisational lines within the public administration and in cooperation with other parties. As much as possible, electronic services will be produced in a manner that forecasts the needs of citizens and organisations and utilises existing information.

Strategic aims

Multi-channel electronic services and content to ease the everyday life of citizens, the public sector and enterprises have been the object of extensive and prioritised investment, with the focus being on proactive and interactive services. The acquisitions function of enterprises and the public administration has been made electronic throughout the order-supply chain.

Knowledge-intensive products and services have mainly been digitalised, and citizens and organisations have received coaching in the use of electronic services. Service and information transfer occurring by means of data networks has made a new international work distribution possible in service production as well. Finland is successful as a result of its innovation and change capacity in the private and public sectors. This has been furthered by incentives for growth and reform created in the public and private sectors. The speed and depth of the change in relation to other national economies has been a decisive factor for Finland.

Digital content produced by memory organisations and other parts of public administration has been gathered into a digital library, which serves citizens, enterprises and research institutions. This foundation has led to the development of new chargeable and free-of-charge content production. A significant amount of the information gathered in publicly funded national databases and registers is available to citizens free of charge.

There is a comprehensive offering of commercial digital content, and services and functional business models have been created for them. The copyright system has been reformed in a manner that benefits all actors. In particular, the requirements for information society development and making business electronic, such as multi-channel distribution, have been taken into consideration. Finland has a strong content production and copyright industry, the development of which is ensured through close cooperation between content producers and service providers, and which is a significant employer. The operating prerequisites for small and medium-sized content production enterprises have been reinforced. Finland is also home to several new internationally important content formats, some of which have been successfully exported.

Implementation of ICT and its successful utilisation in the daily life of citizens and enterprises in the SME sector has been made easier by creating efficiently operating markets for the new ICT support personnel. This has led to the establishment of many new enterprises in Finland.

The library institution is a respected actor in society and libraries serve as social gathering places. In addition to a diverse content offering, libraries offer free customer computer terminals and a trained staff with good knowledge of information society content and services.

The public administration has switched to a multi-channel, customer- and process-oriented service concept, which includes a comprehensive network of joint service points, high quality electronic services, and phone service centres. Joint services bring together various actors in the public administration and do not recognise organisational or service borders. Customer service experts work in joint services. Citizens will see services as seamless concepts that correspond to their situation in life.

New services (smart cards, electronic identification of goods, route navigation, mobile weather reports, electronic timetable information, and car safety systems) that facilitate movement and transport will be part of the daily life of people and organisations. They have also become a significant factor in the export business.

All citizens will have access to information society services regardless of residence or social or economic position. New electronic services, such as virtual interpreters, will improve the position and inclusion of special groups. Citizens will also be able to authorise joint service point employees to use electronic services on their behalf.

Finland will have a working online democracy. The openness of public administration and process transparency have increased through active utilisation of online services. A citizen or organisation may initiate an issue and then follow its progress electronically. Citizens will also have a personal view of information the public administration has gathered on him/her and of any issues being processed.

Proposals for measures in the priority area and possible responsible parties:

Measure: Initiation of a policy programme to reform service structures in the public administration. Services and service production methods are assessed throughout the public administration in a customer- and process-oriented way, from the perspective of utilising information and communication technology and existing databases and registers, as well as reforming structures and operating models. (Government)

Measure: Implementation of a multi-channel, customer-, process- and regionally-oriented joint services reform in the public administration. (Service Structure Policy Programme, Ministry of the Interior, Ministry of Finance)

Measure: Implementation of a national development project related to the combining local logistics services and making them electronic with the aim of combining the local service-related logistics of various service producers. (Ministry of Social Affairs and Health, Ministry of the Environment, Prime Minister's Office, Association of Finnish Local and Regional Authorities, local authorities, shops, banks, Finland Post)

Measure: Preparing of a roadmap for public administration service architecture and its implementation. The project will involve reviewing the services produced by the public administration from the customer and process viewpoint. Development work must be particularly aimed at producing interactive, proactive services that utilise mobile technology. (Service Structure Policy Programme, Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Ministry of Social Affairs and Health, Social Insurance Institution of Finland, Ministry of Education)

Measure: An innovation platform to improve implementation of technology innovations and standards as well as open interfaces in the public sector, and the realisation of a related portal. (Ministry of Finance, Ministry of the Interior, Ministry of Social Affairs and Health, Ministry of Education, Ministry of Trade and Industry, Finnish Funding Agency for Technology and Innovation, Association of Finnish Local and Regional Authorities, the local authorities)

Measure: Establishment of a cooperation forum for electronic service developers and reformers in order to support putting administration on an electronic basis. The forum will provide actors that utilise ICT with the chance to exchange experiences and receive expert help in the design of service and structural reforms as well as in the implementation of major ICT investments. (Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Ministry of Social Affairs and Health, Ministry of Trade and Industry, Ministry of Labour, Ministry of Education, Social Insurance Institution of Finland)

Measure: Establishment of a national digital library (including digitisation of cultural heritage) and the reinforcement and expansion of activities at the National Library of Finland's digitisation unit. Reform the Legal Deposit Act in accordance with the proposal of the Ministry of Education's working group and arrangement of long-term storage of electronic materials. Arranging permanent storage of radio and television material in conjunction with the Finnish Film Archive. (Ministry of Education, National Library of Finland, Finnish Film Archive, memory organizations, officials)

Measure: Implementation of a joint national information portal for all library types. (Ministry of Education)

Measure: Initiation of an innovation programme aimed at developing social and healthcare services (Ministry of Social Affairs and Health, Ministry of Trade and Industry, National Fund for Research and Development Sitra, Finnish Funding Agency for Technology and Innovation, actors in the field)

Measure: Initiation of a 65+ innovation programme aimed at developing well-being services for the ageing and elderly population. (National Research and Development Centre for Health and Welfare, Finnish Funding Agency for Technology and Innovation, National Fund for Research and Development Sitra, Academy of Finland)

Measure: Implementation of a citizen's Health Information Portal (Tervesuomi.fi) focused on health promotion. Various authorities, such as healthcare professionals and teaching personnel, can also utilise the same service. (Ministry of Social Affairs and Health, National Public Health Institute, actors in the field)

Measure: Extending the tax deduction for household services to cover support services for ICT. (Ministry of Finance)

Measure: Reforming the operating and contract models related to copyright and the applicable parts of legislation to correspond to the requirements of information society development and supporting the domestic content production industry. Special attention will be paid to matters related to employment copyright and multi-channel distribution of materials. The ministries will utilise the necessary methods to support the cooperation between content producers and service providers needed for reforming the rules. (Ministry of Education, Ministry of Trade and Industry, service providers)

Measure: Arranging the centralised availability of public administration electronic services aimed at citizens and enterprises. This will be partially implemented as further development work of the Finland.fi and EnterpriseFinland.fi portals. Improved marketing and user support for use of the centralised electronic services. (Service Structure Policy Programme, Ministry of Trade and Industry, Ministry of Finance, Ministry of the Interior, all authorities that produce services)

Measure: Development of the EnterpriseFinland.fi services in accordance with the EnterpriseFinland service system reform. (Ministry of Trade and Industry)

Measure: Development of electronic customs clearance and declaration methods to increase the efficiency of freight transport and the implementation of a joint freight traffic information service for professional use. (Ministry of Transport and Communications, National Board of Customs, business and industry)

Measure: Implementation of electronic invoicing in the public administration organisations during 2008 at the latest. This applies to purchasing and sales invoices as well as consumer invoicing. (Ministry of Finance, Ministry of the Interior, local authorities, banking sector)

Measure: Promoting the introduction of electronic invoicing in the SME sector. Concrete communications will be aimed at the SME enterprises to promote the introduction of electronic invoicing and data transfer. Financial administration software suppliers will be encouraged to integrate electronic invoicing into the software. (TIEKE Finnish Information Society Development Centre, software enterprises, banking sector, business associations, Ministry of Trade and Industry)

Measure: Making information flows between enterprises and authorities electronic, and the elimination of overlapping data collection. (Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Ministry of Trade and Industry, other authorities)

Measure: Encouraging SME sector enterprises to make more extensive use of the public administration's electronic services. Public administration must develop its services in a more user-friendly direction to facilitate this development. (Ministry of Finance, Ministry of the Interior, Ministry of Trade and Industry, other authorities)

Measure: Comprehensive digitalisation of the real estate trading processes. (Ministry of Justice, Ministry of Agriculture and Forestry)

Measure: Development of intelligent services to improve traffic safety and promote sustainable development. It will be possible to get information on weather and driving conditions, traffic disturbances and public transport timetables and routes during all phases of travel. Observation of traffic regulations will be promoted by means of intelligent support systems directed at all travellers. (Ministry of Transport and Communications, business and industry)

Measure: Improving the productivity and efficiency of the transport infrastructure. Use of the current transport infrastructure will be made more efficient by applying ICT to the management of transport pricing, real-time driving and weather information, and traffic disturbances. Technology will be used to make activities and cooperation in various transport modes more efficient. (Ministry of Transport and Communications, Ministry of Finance, Ministry of the Environment, local authorities, authorities and institutions in the transport sector)

Measure: Utilisation of mobile and Internet technology to arrange opinion polls for citizens/local people that will be used to support decision-making. Utilise mobile and Internet technology to take the customer viewpoint into consideration when developing services. (Authorities)

3.2.2 Turning ideas into products and services, a reformed innovation system

Strategic intent 2015

Research and development work is multidisciplinary. Innovations arise in networks as the result of multidisciplinary cooperation that utilises widely the opportunities provided by ICT. Finnish enterprises, public sector and research institutions actively participate in international cooperation and utilise knowledge developed elsewhere while also creating new innovations. Internationally speaking, the Finnish innovation system utilises state-of-the-art tools and operating methods.

Strategic aims

Networked cooperation between education, research and product development functions in a seamless, strategy-oriented and successful manner. Universities, research institutions, public administration organisations and enterprises carry on an active dialogue and cooperate closely, both nationally and internationally. The research results of universities can be utilised electronically.

Finland develops new technology and knowledge and creates new product, service and social innovations. Simultaneously, we utilise and further develop international innovations and turn them into commercial success stories. Working models have been created to support the spread, productisation and introduction of knowledge and good practices.

The significance of design and user orientation as critical success factors has increased and they have been integrated as an important part of other research and development activities.

The productisation of Finnish service production has been a success and a successful international business based on modelling services and service processes has been created in Finland.

The ageing of the population was seen as a challenge but also as an opportunity early on: well-being services for the ageing population have been built on this foundation, and they have been successfully exported around the world.

In order to help exploit the information produced by the public sector, rules and pricing models that increase joint activity, innovativeness and competitiveness have been developed both inside the public sector and between the public and private sectors.

National databases, registers, and statistics materials provide an excellent foundation for proactive service production and diverse research. The supply of materials, the infrastructure related to its use, and service production have all been developed with consideration to the needs of research activities and service production as well as data protection issues.

Multidisciplinary and international clusters of strategic competence in science, technology and innovation activity have been established in Finland in areas that are important in terms of the future of business and industry and society. The activity in these clusters is based on close cooperation and a strong commitment between enterprises, universities, research institutions, and financing organisations. ICT services are a key area of expertise in the operations of these units.

A network of Living Labs actors, which produces customer- and user-oriented information society services, has developed in Finland, and it is networked nationally, on the EU level and internationally. A culture of joint learning and doing is evident throughout the Living Labs network and all of society. These cooperation networks include decision-makers, financing organisations, developers, implementing parties, and users.

Proposals for measures in the priority area and possible responsible parties:

Measure: Creation of public financing models, strategies and operating methods for the private and public sectors in order to promote the development, productisation and spread of service innovations. Another target is international service markets. (Ministry of Finance, Ministry of the Interior, Finnish Funding Agency for Technology and Innovation, National Fund for Research and Development Sitra)

Measure: A survey and implementation plan concerning the opportunities of public acquisitions as a promoting factor in product development activities. (Ministry of Trade and Industry, Ministry of Finance, European Commission)

Measure: Implementation of the LUMOUS programme (creative multi-faceted learning in a renewing Finland): development of strategic thinking and leadership to promote education, research and product development as a whole as well as cooperation; selecting and initiating main projects; reinforcing basic activities, and utilising the results of the main projects. (Ministry of Education, Ministry of Trade and Industry, Ministry of Labour, Finnish Funding Agency for Technology and Innovation, business and industry)

Measure: Growth in the relative share of public R&D financing directed at the reinforcement of business expertise and the productisation, spread, commercialisation and internationalisation of technology and service innovations. (Ministry of Trade and Industry, Finnish Funding Agency for Technology and Innovation)

Measure: Investment in research, assessment and development activities related to information society operating models, services and products (electronic administration and business, electronic services, customer-oriented operating models, leadership, service productisation, beneficial impacts). (Academy of Finland, Finnish Funding Agency for Technology and Innovation, universities, research institutions, business and industry)

Measure: Directing financial support at small and innovative information society development projects in the micro-enterprise and third sectors. (Financing bodies)

Measure: Establishment of network-like competence clusters in areas outlined by the Science and Technology Policy Council (energy and the environment; metal products and engineering; the forest

cluster; health and well-being; information and communication industry and services) (Science and Technology Policy Council, Ministry of Trade and Industry, Ministry of Education, Ministry of Agriculture and Forestry, Academy of Finland, Finnish Funding Agency for Technology and Innovation, business and industry)

Measure: The centre of expertise programme supports the formation of cutting edge competence clusters defined by the Science and Technology Policy Council. The Centres of Expertise programme for 2007-2013 will concentrate on the development of nationally significant competence clusters and internationally competitive competence clusters. (Ministry of the Interior, Ministry of Trade and Industry, Ministry of Education, Ministry of Labour, Ministry of Agriculture and Forestry, Ministry of Social Affairs and Health, universities, Academy of Finland, Finnish Funding Agency for Technology and Innovation, business and industry)

Measure: Active participation in the European Network of Living Labs. (Public administration, business and industry, universities)

Measure: Developing the guidance system at institutes of higher education and increasing cooperation. (higher education institutes)

Measure: Establishment of an innovation university in the metropolitan area. (Ministry of Education, Helsinki School of Economics, University of Art and Design Helsinki, Helsinki University of Technology)

Measure: Creation of cooperation and innovation networks in secondary and vocational education and linking them to activities at centres of innovation and expertise. (actors responsible for education)

Measure: Creation of national and EU-level test platforms. (Finnish Funding Agency for Technology and Innovation, DIMES association, European Commission)

Measure: Development of innovation services, particularly innovation environments and networks, in accordance with the Government Resolution concerning the Enterprise Finland service system. Promotion of innovative solutions that utilise ICT and cooperation between innovation actors will play a key role in this process. (Ministry of Trade and Industry)

Measure: Productisation and export of Finnish knowledge in education. (Ministry of Education, Finnish National Board of Education, business and industry, Ministry for Foreign Affairs)

Measure: A report and implementation report on the reuse and commercial exploitation of information produced by the public sector. (Ministry of Finance, Ministry of Trade and Industry, Ministry of Education, Statistics Finland)

Measure: Electronic publication of research material produced by universities (including graduate theses, doctoral dissertations), development of related operating models and an open portal. (Ministry of Education, universities)

Measure: Development of the infrastructure for society research in order to increase the usability of research materials. (Ministry of Education, Academy of Finland, Statistics Finland, Ministry of Finance)

Measure: A continuous benchmarking process in relation to the best international innovation practices as well as initiation of the required measures on the basis of the comparison. Production of internationally comparable statistics to support the development. (Science and Technology Policy Council, Statistics Finland)

3.2.3 Competent and learning individuals and work communities

Strategic intent 2015

The ability of individuals and work communities to renew and continuous development of knowledge and learning are the foundation of Finland's competitiveness and well-being and a facilitator of innovations. Our society respects theoretical, technical, social, and administrative competence as well as manual skills. Education emphasises diversity, and broad general education is a particular strength of the Finnish information society.

Strategic aims

The development of digitalisation, convergence of service production and globalisation of business have led to a situation in which individual competitiveness is emphasised alongside national and organisational competitiveness. This development means that public and private organisations need the ability to identify their own core activities and network. The public and private sectors cooperate closely.

All people living in Finland have acquired competence at home, at work and at educational institutions, which is then utilised to ensure social and mental success. Learning that occurs outside the education system is recognised as part of the qualification process. Existing competence and resources are fully utilised and focused as effectively as possible on sectors that are important in terms of competitiveness and well-being.

Depending on the task and field, the information society skills of employees are at a high level. The availability and quality of the educated workforce required by information society development has been guaranteed through educational policy measures. The amount of knowledge work and the competence and requirement level have also risen in manual work.

Teachers have outstanding information society skills, and ICT is a part of multiform teaching at all levels of education. Basic education provides the entire youth age group with good skills to utilise and apply the opportunities offered by ICT. Finnish comprehensive school is open and networked and world-famous for its learning outcomes.

Lifelong learning is part of everyday life. Work communities cooperate with other actors to ensure the professional skills of their employees and maintain competence, with individuals also taking responsibility for this issue. The available reward and incentive systems support independent learning and professional skill development. Information networks are a convenient way of offering open learning environments and materials. Adult and employee education provide diverse educational opportunities.

Finnish work communities are characterised by an open and trusting atmosphere, which makes it possible to carry out reforms, change old operating models and create new innovations. Personnel resources at all levels of organisations are utilised during reform. Strategic guidance and utilisation of ICT are professional skills for managers.

Working time has been redefined in Finland, a process in which national rules have been developed for mobile working, teleworking and other flexible work. The culture of working life favours diverse forms of work. Flexible, adaptable models have been developed for the reconciliation of work, family life and leisure time.

All citizens have the chance to acquire basic ICT skills, media skills and the skills needed to use electronic and other information society services. Those who, because of age, disability, illness or some other reason, cannot or do not want to use network-based services have been guaranteed the opportunity to use such services through the development of multi-channel services and personal assistant training and activities. Special groups have been taken into consideration in the development work for equipment and services.

Proposals for measures in the area and possible responsible parties

Measure: Establishment of a high-level future forum on working life. (Government, business and industry, trade union movement)

Measure: An implementation plan on the needs and opportunities to further lifelong learning. (Ministry of Labour, Ministry of Education, Ministry or Social Affairs and Health, Association of Finnish Local and Regional Authorities, unions and professional organisations, adult education organisations, business and industry)

Measure: Directing more university research and knowledge at developing work processes at workplaces. Implementation of cooperation projects between work communities and education institutions to create new knowledge at the interfaces of different sectors. (Ministry of Education, Ministry of Labour, Ministry of Trade and Industry, universities, business and industry)

Measure: Preparing a programme for sustainable development in working life and make it part of the Finnish Workplace Development Programme TYKES. Development of work community processes and operating models will be made a special focus of financing in the area of working life development. (Ministry of Labour, business and industry, unions and professional organisations)

Measure: Developing leadership and interactive supervisor work that focuses on knowledge-based growth. (Ministry of Labour, labour market organisations, individual organisations)

Measure: Developing the competence level of employees in SMEs. Training should be particularly aimed at new entrepreneurs but also at the personnel of existing enterprises. It is important to emphasise the use of ICT to promote business activities. (Ministry of Trade and Industry, Ministry of Labour, universities, business and industry)

Measure: Close integration of the use of ICT in teaching with basic and further education for teachers. (Finnish National Board of Education, universities, decision-makers in education, Association of Local and Regional Authorities)

Measure: Encouraging institutions and other work communities to implement new, innovative learning styles and methods. (Ministry of Education, Ministry of Labour, Ministry of Trade and Industry, Finnish National Board of Education)

Measure: Making professional development for working people a key focus of the contribution to society made by institutes of higher education. (higher education institutes)

Measure: Developing and promoting the implementation of competence-based qualification and academic apprenticeship activities intended for information workers. (Ministry of Education, universities, local authorities, TIEKE Finnish Information Society Development Centre)

Measure: Increasing the opportunities for people outside working life, particularly those at risk of becoming socially excluded, to complete studies and degrees related to ICT management. (Ministry of Labour, Ministry of Education)

Measure: Creation of the prerequisites needed to develop the personal motivation and knowledge required for content production, self-expression and participation for example by means of media education. (Ministry of Education, Finnish National Board of Education, Ministry of Justice/democracy unit, Ministry of Trade and Industry, Finnish Broadcasting Company)

Measure: Defining and agreeing on the rules and operating models for online education and study. (Ministry of Education, labour market organisations)

Measure: Promotion of mobile working and other mobile use by offering public transport passengers wireless broadband connections in various modes of transport, terminals and at stops. This will require a new definition of working time and new contract models. (Ministry of Transport and Communications, Ministry of Labour, labour market organisations, local authorities, VR, business and industry)

Measure: Arranging an information society Olympics for schoolchildren. (actors in the field)

3.2.4 An interoperable information society infrastructure, the foundation of an information society

Strategic intent 2015

Finland has an information and communications infrastructure that functions according to the 24/7 principle. Information networks have become an established part of the basic infrastructure along with the transportation and electricity networks. Reliable, high-speed connections make it possible to develop new and innovative business. The risks related to information society vulnerability have been assessed and prepared for in all activities. The critical infrastructure has been defined and ensured at the national level and in all organisations. Special attention has been paid to availability and the data infrastructure as well as its semantic compatibility.

Strategic aims

The communications network has comprehensive regional coverage and is fast, reliable and reasonably priced in international terms. Households and enterprises generally use connections with a speed of 100 Mb/s. New and renovated buildings have been equipped with fibre optic connections that make speeds of up to 1 Gb/s possible. Finland also has a wireless communications network that covers the entire country.

Rising broadband speeds have facilitated the quick spread of IPTV. The advantage of IPTV is the combination of television transmissions, Internet and video-on-demand with VoIP services.

A functional communications infrastructure has made balanced regional development and teleworking possible in Finland. Information networks can be used to distribute and transmit work around the country. Digital services are produced and marketed close to the customer regardless of physical distance. This makes it possible to locate business more flexibly.

The importance of practices and services related to information security and information protection has noticeably increased. They are also a key part of the information society infrastructure. Information security has been integrated into products and services and is included in their prices. The producer of the product or service is entitled to use information security products from the subcontractor of their choice.

Solutions for electronic identification have been developed that enable movement between different information networks and the flexible use of various electronic services, by means of single sign on when possible. Mobile terminals can be seamlessly used in different networks, making it possible to implement completely new models of mobile working.

Embedded systems and ambient intelligence are a part of daily life in households and organisations. For example, they help support independent living for the ageing population and people with disabilities and facilitate a good life at home for as long as possible. The public administration and enterprises utilise embedded systems in logistics, micropayment, remote and access monitoring, automation of functions, and by offering customers proactive services.

The basic starting points for the design of ICT equipment, software and electronic services are ease of use and availability. The Living Labs concept has become established as a way of designing and implementing civil- and customer-oriented services. The equipment and services are mainly barrier-free and have taken the needs of the ageing population into consideration. They are also easy to introduce with inexperienced users.

Finland is an active participant in the international standardisation of ICT, and Finnish actors have a good knowledge of the standards. The standardisation work has led to even better compatibility between services, equipment, networks and systems, reduced risks, and cost-effectiveness in development and maintenance. It has also had a direct and indirect impact on the competitiveness of business and industry, internationalisation, public sector functionality, and IT-related investments in organisations. Standardisation has opened up markets for innovative SMEs. As a result of the common standards, these enterprises can compete for equipment and system deliveries more extensively and internationally.

Public administration IT management is steered on the basis of a consolidated structure (JulkIT). Public administration IT systems and data structures are structurally independent and compatible, thus making structural reforms and various service production models possible. Data transfer between IT systems is mainly based on open standards and interfaces. National level solutions have been developed for the electronic service interface. Information produced by the public sector is easy to utilise within the public sector.

Social and health care has access to a national electronic archive service, which is responsible for archiving patient information in the public and private sectors and for distributing information. Citizens are able to check their own information in the archive service at any time. The service is extensively utilised in guiding activities and implementing seamless service chains.

Proposals for measures in the priority area and possible responsible parties:

Measure: Setting a national target, according to which all households, enterprises and public sector organisations will have convenient access to broadband Internet connections of 100 Mb/s. A national implementation plan will be drawn up to ensure implementation. Use of optical fibre will be increased in new and renovated buildings, thus providing connection speeds of up to 1 Gb/s. (Government)

Measure: Surveying the risks related to information society vulnerability and drawing up an action plan based on this information. This includes defining and ensuring information network availability and other critical infrastructure. (Ministry of Transport and Communications, Ministry of Finance, Ministry of the Interior, Ministry of Defence, Ministry of Social Affairs and Health, all organisations)

Measure: Developing the communications and information systems of the authorities responsible for security. (Ministry of Transport and Communications, Ministry of Defence, Ministry of the Interior, Ministry of Social Affairs and Health, Ministry of Finance)

Measure: Making assessment of information society impacts an established part of the legislative preparation process. (Government)

Measure: Arranging national coordination of information technology standardisation. (Ministry of Trade and Industry, Finnish Standards Association SFS)

Measure: Expanding the activities of the compatibility competence centre, with the target of promoting the switch to electronic business in the SME sector (National Funding Agency for Technology and Innovation, TIEKE Finnish Information Society Development Centre, Ministry of Trade and Industry)

Measure: Designating the ministry responsible for developing public sector administration and information management, and appointing a ministerial working group to coordinate the issue. (Government)

Measure: Full and scheduled reform of public administration information management according to the guidelines of the TIME, KuntaTIME, KuntaIT and OpetusTIME working groups and the Government Resolution on development of the Government's IT activities. (The Advisory Committee on Information Management in Public Administration JUHTA, JulkIT network, Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Ministry of Trade and Industry, Social Insurance Institution of Finland, Ministry of Education, local authorities)

Measure: Establishment of a national electronic archive service for social and health care and its use as the basis for implementing the individual citizen's viewpoint. (Ministry of Trade and Industry, Social Insurance Institution of Finland)

Measure: Improving and expanding joint use of basic register information in public administration service production by reforming operating models and legislation. (Ministry of the Interior, Ministry of Finance)

Measure: Reform of the grounds for determining fees related to the release of information within public administration. This work will take into account the development needs of successful and customer-oriented service production and regulations of the EU directive (2003/98/EC) concerning the issue. (Ministry of Finance)

Measure: Implementing national services for the electronic identification of citizens, organisations and employees and online transactions in the public and private sectors. (Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Ministry of Social Affairs and Health, National Authority for Medicolegal Affiars, Ministry of Trade and Industry)

Measure: Promotion of electronic services for citizens so that in 2008 a citizen acquiring an citizen certificate or a body that obtains a certificate for that person on its own platform will not be charged for producing or registering the first certificate. This will require transfer of the certificate at no charge and clarification of the costs of the certificate system and the financing possibilities. The possible need to separate functions related to the production and maintenance of the citizen certificate from actual public authority activities must also be determined. (Ministry of the Interior, Ministry of Finance, Population Register Centre)

Measure: Development of national geographic information infrastructure and implementation of a geographic information portal according to the guidelines prepared by the EU. (Ministry of Agriculture and Forestry, Ministry of the Environment, Ministry of Transport and Communications, Ministry of Trade and Industry, Ministry of Education, Ministry of Finance, local authorities)

4 IMPLEMENTATION PROGRAMME

4.1 A road map for the near future 2007–2011

The previous chapter presented many proposals for measures intended to ensure Finland's transformation from an industrial society to an internationally attractive, human-centric and competitive knowledge and service society.

These have been used as the basis for defining projects for 2007–2011, through which the Finland phenomenon will be created.

- Initiation of a policy programme for reforming public sector service structures

- Increasing connection speeds for information networks and ensuring the interoperability of the information society infrastructure

- Ensuring the prerequisites for lifelong learning

- Reforming the rules for working life and developing leadership and supervisory work

- Reforming the innovation system

- Further development of the copyright system

- Promotion of digitalisation of business in SME's

- International influencing, especially at the EU level, and close cooperation with Asian countries and neighbouring regions

4.2 Implementation, monitoring, assessment and updating

A constantly changing environment makes it necessary to ensure strategic implementation, monitoring and assessment as well as updating. This requires the creation of structures and indicators. The following presents the preliminary measures that will be used to ensure the implementation, monitoring, assessment and updating of the National Knowledge Society Strategy.

1) Preparation of the Government Resolution on the National Knowledge Society Strategy. (Information Society Programme)

2) The creation of a communications and implementation plan as well as a risk analysis for putting the Strategy into practice and creating national strategic intent. (Information Society Programme and Information Society Council)

3) A more detailed description of the proposals for measures in the Strategy. (Information Society Programme)

4) Inclusion of the information society policy section in the Government Programme of the next government. (Government negotiators)

5) Appointment of a cooperation and negotiation body to support information society policy. Key ministers and actors in the public administration, business and industry and the third sector will be invited to join the body, which will focus on implementation and monitoring as well as concrete initiatives to promote information society policy. (Government)

6) The creation of an implementation plan on the basis of the proposals for measures. (Negotiation body, ministries, Ministry of Finance/ValtIT, Ministry of the Interior/KuntaIT, Association of Finnish Local and Regional Authorities)

7) The production and further development of information society development indicators. In addition to penetration indicators, more attention should be focused on measuring impact and productivity benefits. (Statistics Finland, research institutions, universities, ministries, international cooperation)

8) A report of the central legislative barriers and challenges to information society development. The report will be linked to the Government's legislative programme. (Government)

9) Assessment of the need to update the Strategy and evaluation of its implementation phase in the middle and at the end of the Government's term of office as well as at the beginning of the following Government term. (Negotiation body, Government)

4.3 Responsibilities of the actors in information society development

The table below illustrates the responsibilities of various actors in information society development.

ALL STAKEHOLDERS

- Implementation of the National Knowledge Society Strategy
- Switching to information society structures, processes, operating models and services
- Maintenance of citizens' and employees' competence and well-being
- Promoting competitiveness
- Cooperation between the public and private sectors
- Broad utilisation of ICT when developing operations
- Leadership development
- International influencing

POLITICAL ACTORS

- Creation of a national strategic intent
- Inclusion of information society policy in the Government programme
- Ensuring resources

CENTRAL GOVERNMENT

- Ensuring a functional operating environment (incl. legislation)
- Development and implementation of good practices in Government activities (forerunner)
- Promoting output efficiency
- Interoperability and standardisation
- Investment in research and development activities
- Maintenance of the required knowledge in cooperation with enterprises and the third sector
- Ensuring quality basic education

LOCAL GOVERNANMENT

- Development and implementation of good practices in municipal activities (forerunner)
- Promoting output efficiency
- Ensuring a functional operating environment for local enterprises
- Using basic services to ensure people's quality of life
- Ensuring quality basic education

BUSINESS AND INDUSTRY

- Development of innovative new technical solutions and services as well as rapid implementation of solutions that improve efficiency in production and services
- Investment in research and development activities
- Internationalisation
- Interoperability and standardisation

BUSINESS AND LABOUR ORGANISATIONS, ASSOCIATIONS AND THE THIRD SECTOR

- Development of knowledge in cooperation with Government and enterprises

INDIVIDUALS

- Ensuring personal expertise
- Active and responsible citizenship

INTERNATIONAL FORUMS

- Creation of global consensus and vision
- Interoperability and standardisation

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Background material

The background material and reports for the strategy are available in Finnish on the Information Society Programme website at
www.tietoyhteiskuntaohjelma.fi

APPENDICES

Appendix 1 Description of the preparation process for the National Knowledge Society Strategy

Appendix 2 Assessment of the implementation of earlier national strategies and Information Society Programme

Appendix 1 Description of the preparation process for the National Knowledge Society Strategy

Preparation organisation or the Strategy

The National Knowledge Society Strategy was drawn up in close cooperation with actors in many areas of society, including about 400 expert participants from central and local government, institutes of higher education, business and industry and various organisations.

Preparation of the Strategy was initiated at the commission of the Ministerial Group on the Information Society Programme in January 2006. Strategy preparation was preceded by an online questionnaire aimed at information society actors and a preliminary debate in the steering and monitoring group of the Information Society Programme.

The official organisation for the strategy process is presented in the diagram below.
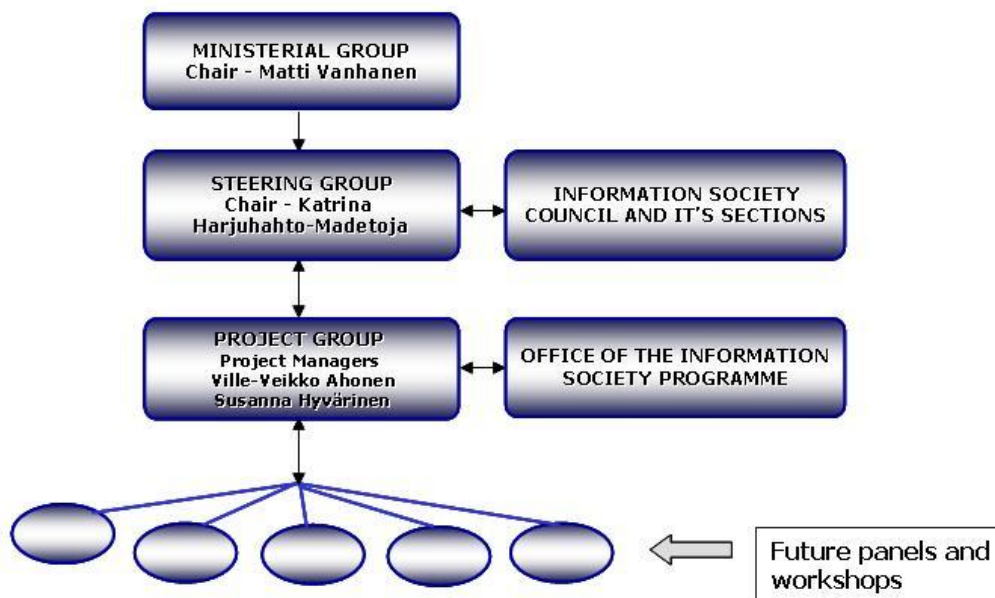
The Ministerial Group on the Information Society Programme was responsible for initiating the strategy process and for its general guidelines. The Information Society Council and its sections monitored the progress of the work and commented on the different versions of the strategy. The task of the steering group was to guide practical preparation work and decide on the key guidelines of the Strategy. A project group comprising representatives of various ministries handled the preparation and organisational work in cooperation with the Office of the Information Society Programme.

STEERING GROUP

RESTRICTED COMPOSITION

Katrina Harjuhahto-Madetoja, Programme Director, Prime Minister's Office, Office of the Information Society Programme (Chair)

Timo Kietäväinen, Deputy Managing Director, Association of Finnish Local and Regional Authorities
Veli-Matti Mattila, Managing Director, Elisa Ltd
Kerstin Rinne, Senior Vice President, SanomaWSOY
Eero Silvennoinen, Director, Finnish Funding Agency for Technology and Innovation, Tekes
Vappu Taipale, Director General, National Research and Development Centre for Welfare and Health, Stakes
Veijo Turunen, Specialist, Confederation of Finnish Industries, EK
Tarja Virmala, Executive Director, Federation of the Finnish Information Industries

Ville-Veikko Ahonen, Programme Coordinator, Prime Minister's Office, Office of the Infomration Society Programme (Secretary)

EXTENDED COMPOSITION (IN ADDITION TO THOSE LISTED ABOVE)

Reijo Aarnio, Data Protection Ombudsman, Data Protection Board
Martin Andersson, Deputy Director, Finnish Communications Regulatory Authority
Ritva Elonen, Information Society Director, TietoEnator Ltd
Jorma Huuhtanen, Director General, Social Insurance Institute of Finland, KELA
Jouni Keronen, CIO, Fortum
Matti Korkeela, Executive Vice President, OKO Bank
Markku Markkula, Vice-Chairperson, Confederation of the Unions for Academic Professionals in Finland, TEK
Aatto J. Repo, Managing Director, Finnish Information Society Development Centre, Tieke ry
Karri Salminen, Development Director, WM-data Oy
Eero Sinkkonen, Senior Vice President, TeliaSonera Finland Oyj
Risto Suominen, Director, Federation of Finnish Enterprises
Reijo Svento, Managing Director, Finnish Federation for Communication and Teleinformatics, FiCom
Jarmo Viteli, Professor, University of Tampere

EXPERTS

Antti Eskola, Commercial Counsellor, Ministry of Trade and Industry
Leena Honka, State IT Director and CIO, Ministry of Finance, valtion IT-johtamisyksikkö State IT Management Unit

PROJECT GROUP

COMPOSITION

Ville-Veikko Ahonen, Programme Coordinator, Prime Minister's Office, Office of the Information Society Programme (chair)
Susanna Hyvärinen, Programme Coordinator, Prime Minister's Office, Office of the Information Society Programme (vice chair)

Päivi Antikainen, Ministerial Adviser, Ministry of Transport and Communications
Antti Eskola, Commercial Counsellor, Ministry of Trade and Industry
Annakaisa Iivari, Project Manager, Ministry of Social Affairs and Health
Jouni Kangasniemi, Senior Counsellor, Ministry of Education
Marja Kylämä, Counsellor for Education, Ministry of Education
Jaana Lappi, Senior Adviser, Ministry of Trade and Industry
Markku Nenonen, Secretary General, Ministry of the Interior / JUHTA
Arja Terho, Counsellor, Ministry of Finance
Maija-Leena Uimonen, Project Manager, Ministry of Labour

Shirin Namiq, Secretary, Prime Minister's Office, Office of the Information Society Programme (secretary)
Mira Teppana, Secretary, Prime Minister's Office, Office of the Information Society Programme (secretary)

REPRESENTATIVES OF CONSULTANTS

Jouko Hannus, Managing Director, Talent Partners Oy
Olli Hietanen, Project Director, Turku School of Economics, Finland Futures Research Centre
Tapio Huomo, Managing Director, Talent Nova Oy
Janne Sariola, Senior Executive Consultant, Talent Partners Oy

During spring 2006, the Strategy content was prepared in a series of future panels and workshops involving about 150 experts. The future panels were used to outline what Finland will be like in 2015, and the workshops addressed the strategic intents and proposals for measures regarding development areas of the Strategy. During the strategy process separate workshops were arranged for the trade union movement and audiovisual content production organisations. In addition to the Office of the Information Society Programme, Lifelong Learning Institute Dipoli, the Information Society Council's working life section, and Tuotos ry (Copyright Association for Audiovisual Producers in Finland) participated in preparing the separate workshops. Furthermore, some of the organisations involved in the strategy process held theme-specific workshop events for their own stakeholders.

The results of the spring's future panels and workshops were further defined in June by means of two online questionnaires. A separate round of interviews was conducted in August-September.

INTERVIEWS

Jouni Backman, Member of Parliament, Parliament of Finland

Suvi Eriksson, Secretary for Educational Politics, Student Union of the University of Oulu

Jyrki J. Kasvi, Member of Parliament, Parliament of Finland

Jyrki Katainen, Member of Parliament, Parliament of Finland

Marketta Kokkonen, Mayor, City of Espoo

Markku Laukkanen, Member of Parliament, Parliament of Finland

Martti Mäntylä, Research director, Professor, Helsinki Institure for Information Technology, HIIT

Seppo Niemelä, Programme Director, Citizen Participation Policy Programme

Erkki Ormala, Director for Technology Policy, Nokia Oyj

Teuvo Peltoniemi, Head of Information, A-Clinic Foundation

Harry Piela, Chair of the Uusimaa Region, Finnish Federation of the Hard of Hearing People

Consultants from Talent Partners Oy and the Finland Futures Research Centre at the Turku School of Economics provided support for the strategy preparation.

Parallel strategy and foresight processes in 2006

Many other strategy and foresight processes were in progress alongside the preparation of the National Knowledge Society Strategy, and these are listed in the table below. Preparation of the Strategy was also linked to the ongoing project to restructure local government and its services in Finland (Paras project).

EXAMPLES OF STRATEGY AND FORESIGHT PROCESSES IN PROGRESS IN 2006

- FinnSight 2015 – Science and Technology in Finland in the 2010s (Tekes and Academy of Finland)

- Future reviews of the administrative sectors 2006

- National Foresight Network (SITRA)

- National Strategy to Promote Digitalisation of Business (Ministry of Trade and Industry)

- LUMOUS Programme 2006–2015 (creative multi-faceted learning in a reinventing Finland) (Information Society Council's Education, Research and Product Development section)

- Better service, more efficient administration – Government report on the functionality and development needs of central and local administration (Ministry of the Interior)

- Service Innovation Foresight work (Dimes Association)

- Strategies for Social Protection 2015 (Ministry of Social Affairs and Health)

- Science, Technology, Innovation report (Science and Technology Policy Council)

- Government Foresight Network (Ministry of Finance)

- Government Resolution on development of the Government's IT activities (15 June 2006) (Ministry of Finance)

- Communications Markets and Technologies in 2010 (Finnish Communications Regulatory Authority)

Appendix 2 Assessment of the implementation of earlier national strategies and Information Society Programme

FINLAND - TOWARDS AN INFORMATION SOCIETY – A NATIONAL OUTLINE, 1995–2000

The *Finland – Towards an Information Society* strategy with its national guidelines was carried out during several changes in 1993-1994. The national economy was in a deep recession and solutions were looked for through long-term advice and momentum for reforming administration and business and industry, a process in which the expert and determined application of information technology played a large role. Internationalisation was developing rapidly and Finland's integration into the European Union was a current issue.

The Strategy emphasised the importance of a network economy and information society thinking in activities directed at reform, and these were aimed at reviving growth, improving competitiveness and ensuring employment.

The vision of the Strategy was: *Finland is an advanced information society based on networking and a world class performer in the implementation of information and communications technology.*

The Strategy aims were simplified in form of a vision, aims and five action lines. The guidelines were as follows:

> Action line 1 Information technology and information networks to serve as tools in private and public sector renewal
>
> Action line 2 Information industry to become an important sector of economic activity
>
> Action line 3 Professional expertise in information and communications technology to be maintained at a high overall level, with selected peaks
>
> Action line 4 Everyone to have the opportunity and basic skills for using the services of the information society
>
> Action line 5 Finland's information infrastructure to perform in all aspects as competitive and capable of providing high quality services.

This vision has been realised in many ways. In addition to the guidelines and individual measures, the strategy played an important role as a significant and important change generator. The Strategy summed up the vision, aims and simplified action lines and made various parties responsible for planning and implementing their own practical actions during the transformation of Finland into an information society.

As a result of the Strategy, many ministries prepared their own sector-specific strategies. It also opened up and increased discussion of the information society throughout society. More funds were budgeted for information technology equipment in teaching and research. Regions, joint municipal boards, municipalities, and many associations and other communities arranged information society-related events, the information society theme was included in education and coaching programmes, and regional development projects were launched.

The Strategy reflected many of the same themes that are also present in the new National Information Society Strategy 2006. These are achieving competitiveness and competitive advantage through successful utilisation of ICT, expertise as a national resource, investments in ICT research and product development, and the expectations for development of the information society infrastructure.

Authors: Henry Haglund and Tauno Heikkilä

QUALITY OF LIFE, KNOWLEDGE AND COMPETITIVENESS, 1998–2005

As discussion of the information society matured into its second wave in the latter part of the 1990s, the idea of producing a new strategy based on a more extensive information society concept was introduced. The starting point for this work was the idea that a Finnish information society is, above all, a network of people with technology in the background. At the same time the anthropocentric 'information society for all' way of thinking was getting more attention in Europe.

With state contribution, Sitra offered to write the strategy in cooperation with a broad group of actors in society. Around 80 organisations were invited to join the process. The National Advisory Committee for the Information Society convened by the Government in 1996 and the Information Society Forum initiated by the Ministry of Finance acted as expert bodies in the project. The information society development theme was diversely addressed in 1997-1998 in dozens of background reports commissioned by Sitra. The synthesis was summarised with the heading 'Quality of life, knowledge and competitiveness'.

The development of the information society as a national vision was recorded as: *Finnish society develops and utilises the opportunities inherent in the information society to improve the quality of life, knowledge, international competitiveness and interaction in an exemplary, versatile and sustainable way.* In light of international comparisons, this vision has also been realised well, even if Finland has lost its position as the absolute frontrunner.

No responsible parties were specified for the Strategy's seven strategy lines and many measures. Despite this, the key content of the Strategy was included in the Programme of Paavo Lipponen's second Government in spring 1999. Many ministries, regions and cities prepared or updated information society strategies and the Strategy was widely utilised as background material. Responsible parties to run the Strategy's spearhead programmes were drafted in and several projects were launched, although many of them never achieved the desired social impact.

The appendix that supplements the Strategy document provided descriptions of the target state for 2005 by line. This target state has been realized in many ways, but differences do exist. Electronic services have not been realised to the extent forecast ed and turning good practices and services into products for international markets has remained clearly below the target. Although our educational system is one of the best in the world, it has reformed rather slowly in view of the possibilities. Databases and registers maintained by public administration are not in full use. The impact of information society development on reducing migration was misinterpreted as growth centres continued to grow in spite of information networks, electronic services and teleworking. Digital television was anticipated to provide an alternative channel for electronic services nor have visual telephones or speech guidance become widespread.

Quality of life, learning and competitiveness are still current targets for national information society development. Despite the bursting of the IT bubble and the subsequent wariness it caused, the vision has not changed. Electronic services, developing expertise, a network economy operating model and developing public sector processes are relevant guidelines. The aims of sustainable development and balanced regional development are even more important than ever in view of the phenomena of globalisation.

Author: Antti Rainio

GOVERNMENT INFORMATION SOCIETY PROGRAMME, 2003–2007

The Government of Matti Vanhanen wanted to speed up Finland's information society development and utilisation of the existing technology. Thus it selected information society development as one of the strategic priorities of its Government Programme and initiated an intersectoral Information Society Policy Programme in 2003. The aim was to simultaneously increase emphasis on information society issues, so the Policy Programme was placed under the Prime Minister. In order to support progress of the Programme, the Information Society Council made up of ministers and various actors in society was also appointed.

In accordance with the Government Programme, the aim of the Information Society Programme has been to increase competitiveness and productivity as well as social and regional equality by utilising ICT throughout society. The Programme has also been intended to maintain Finland's position as one of the leading producers and users of ICT in the world. In addition to these, the Government's strategy document set a target of promoting citizens' well-being and quality of life.

An information society for all was selected as the Programme mission. An information society for all includes the citizen (skills to use information society services), public administration (reforming operating models and increasing efficiency through ICT), and enterprise (promoting competitiveness through ICT) perspectives.

The Government's strategy document divided implementation of the Information Society Programme into seven sub-sections:

1. Telecommunication infrastructure and digital television
2. Citizens' ability to utilise the information society and secure information society
3. Education, working life, research and development
4. Utilisation of ICT in public administration
5. Digitalisation of business and contents
6. Legislative measures
7. International dimension

Due to the wide scope of the Information Society Programme, the Ministerial Group held a prioritisation discussion and approved the following general priorities for the Programme in autumn 2004: horizontal and vertical cooperation; rationalisation of service production (by using ICT); education and information society skills; telecommunication infrastructure; and legislation and operating environment.

One of the key aims of the Information Society Programme has been to boost cooperation and reform public administration structures in order to ensure the availability and quality of public services. Willingness to cooperate and cooperation between the public and private sectors as well as the local authorities and Government has clearly increased. The most significant change of paradigm resulting from the Programme has been that Finland can be examined as a single entity from the ICT perspective and, for example, electronic services can be implemented throughout the public administration. We are moving from separate, individual projects to solutions implemented on the regional and national level. Good examples of this are electronic identification solutions, development of municipal customer relationship management, and the national electronic archive service for social and health care, to which the private sector also will join.

In the upcoming strategy period, it will be important to complete the structural reforms initiated during the Information Society Programme, especially those related to public administration's information management, with the target of public administration IT management unit (JulkIT).

The information society skills of citizens and enterprises have also developed positively and the broadband network now covers 96% of Finns. Finland has continued to be a leading country in recent international and EU-level comparisons.

Eight impact aims were set for the Information Society Programme when it was launched. Suprisingly positive progress has been seen in every target area during the Government's term of office, but the same targets are still current for the upcoming strategy period. An information society is never ready.

Authors: Katrina Harjuhahto-Madetoja and Matti Vanhanen