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IT – a means to realizing political targets

► In 2000, the EU presented the Lisbon Strategy, whose aim is for Europe to be the most competitive and dynamically sustainable knowledge economy in the world by 2010. As a link in this process, the EU presented the action plan, eEurope 2002.

This work has later been extended to include the applicant countries by means of the plans called eEurope+ and the Baltic Sea area through Northern eDimension.

The EU is planning to present a new initiative, eEurope 2005, at the EU summit in Seville in June 2002.

Our world today is coloured by a multitude of rapid changes. People all over the world are interconnected more closely than ever before because of the internationalization of economy, technology and culture. This globalization is enhancing many people's opportunities to realize their own capabilities. It will be easier and cheaper to transfer and share knowledge, regardless of the time or location. Knowledge will become more important for the individual and also as a contributory factor within the new economy. Decisions can be decentralized, granting the public easier insight into public state of affairs. Advances within modern media and communication can make taking part in the social debate easier for individuals and groups.

The Sem Declaration, 08.10.2001, page 5

The IT¹ revolution entails innate social and economic changes; social and cultural patterns are being altered, national legislation and regulations are being contested and new products are being taken into use. The burgeoning growth of the digital society – eNorway – heralds tremendous opportunities, which command targeted work for realization. A pro-active policy is crucial here.

Once a niche subject, predominantly for those particularly interested in IT, information technology has now become a key element in an increasing number of political spheres, for example:

Education: There is a need for IT skills at all levels within a field that is constantly growing in scope and significance. At the same time, IT is also becoming a more important medium for teaching and learning.

R&D: IT research and development have become a key condition for innovation, creativity and the internationalization of industry.

Culture: Positive action is called for in the quest to preserve and further develop languages and cultures in a world with universal access to information. More efficient dissemination of information, however, will also make illegal and offensive content more easily accessible.

Security: As an increasing number of social tasks are supported by IT, society on the whole will be more dependent on secure information systems and boost user confidence in communications networks.

Health: Immense potential can be exploited from using IT in the health and social sector, such as better organization of information exchange and cooperation, improved work distribution between the various disciplines and the use of telemedicine.

People with special needs: Skilful modification of IT can reveal new opportunities for playing a more active role in society and at work.

Media: The new media image creates new openings in terms of manifestation. As well as yielding great opportunities, this also presents challenges in the regulation and selection of transferral technologies.

Communication: New solutions and technology present significant challenges in terms of regulation and competition within the telecommunications market and broadcasting.

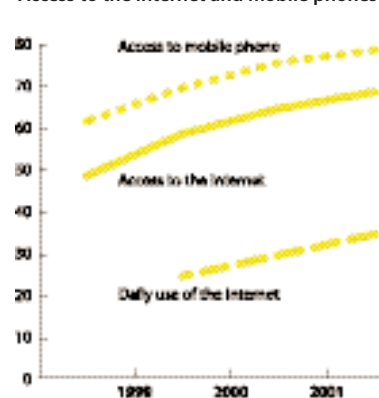
Environmental protection: IT can significantly benefit the environment, e.g. more efficient goods transport and less need to travel due to increased use of telemedicine and video conferencing. However, a downside here is the ensuing increase in electronic waste which adds to the burden on the environment.

Norway is at the forefront in terms of the number of households with a PC, Internet access and mobile phones. This fact, along with the high general level of education, signifies that we have a good point of departure to exploit new opportunities. The challenge here will be to apply IT so as to support political targets.

The Government has set three primary targets for its IT policy:

- **Creating value in industry**
- **Efficiency and quality in the public sector**
- **Involvement and identity**

Access to the Internet and mobile phones



As of March 2002, 80% of the Norwegian population over the age of 13 have access to a mobile phone. Almost 70% of the population have access to the Internet at home, school or at work. 36% of the population use the Internet daily. Source: Norsk Gallup

CREATING VALUE IN INDUSTRY

The expansion and use of information technology shall pave the way for creating value through enhanced innovation and competitiveness in Norwegian industry.

Through the Lisbon Strategy, the EU has set a target of being the most dynamic, competitive and sustainable knowledge economy in the world. One of the key means for achieving this target is through the development and application of information technology. Norway aims to keep abreast of developments in this field.

Analyses from the OECD and the EU show that the application of IT, combined with a good general framework, are key motive forces in stimulating economic growth². In addition, innovations within the IT industry will result in sizeable value creation through the availability of better products at lower prices.

By using IT, businesses are able to compete on a far wider scale, regardless of the distance to the market. It can also be a factor leading to increased efficiency in production processes, more specialization, changes in established value chains, development of electronic commerce and more environmentally-sound value creation. The greatest opportunities lie in the new business models, in which IT is integrated in production, financing, development, marketing and sales. This provides better coordination between purchasing, production and customer relations. Considerable investment in knowledge within businesses and the creation of an infrastructure for electronic commerce are necessary in order to truly realize the benefits from IT. Norway has a good point of departure with a high general level of education and a population that is at the forefront in deploying new technology. This also bestows us with major opportunities within the development and application of "white goods"³, knowledge products based on e-learning and new didactic methods.

Norway has a differentiated industrial structure, in which most value is created in SMEs. This can be an advantage because small enterprises often find adapting and working in a network easier. The OECD⁴, however, has pointed out that Norwegian industry is not capable of adequately exploiting the technology to single out productivity gains. Neither are Norwegian enterprises skilful enough at implementing electronic commerce solutions in comparison with the other Nordic countries⁵. We are also low on the scale when it comes to technology-related education⁶. This could be a drawback, particularly in view of the digital society's marked challenge: jobs and prosperity are created through continuous renewal and innovation.

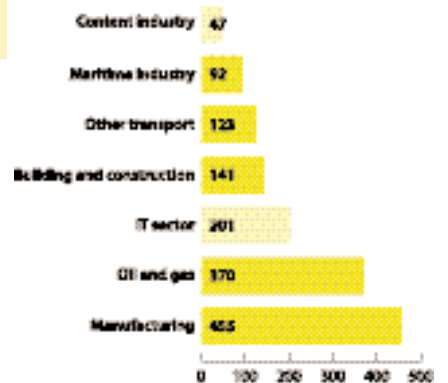
EFFICIENCY AND QUALITY IN THE PUBLIC SECTOR

Information technology shall be used to make the public sector more efficient and at the same time offer new and improved services to users.

Developing new services, improving the quality of existing services and increasing efficiency all constitute a challenge for the Government. Norway has a large public sector, which employs one third of the Norwegian work force. Much value is created in this sector, although the use of resources is financed by taxes and public charges, which normally has a negative impact on the economy. This is why boosting efficiency in the public sector is crucial. Industry and the majority of the general public both have extremely good grounds for using IT and will also expect good electronic services from the public sector as well.

IT can help improve the flow of case handling and also grant employees more flexible working conditions. Resources must be transferred from administration to service production. However, IT investment alone does not necessarily result in making Government more effective. A number of Government agencies are far ahead in terms of IT, but developments have generally progressed too slowly. Progression from the project stage is essential for obtaining large-scale rewards.

Revenue within the information sector and other selected areas of industry in 2000



The information sector consists of the IT and content industries. The IT industry includes IT industry, IT product sales, telecommunications and data processing. Because of a lack of universal international definitions, the content industry is defined here based on a Finnish demarcation, which comprises; publishing houses including newspapers, market research, corporate consultancy, advertising enterprises, films and videos as well as radio and television. Source: SSB

► Smart Norway, which operates 90% of the travel industry's booking systems, has estimated that an enterprise with travelling expenses of NOK 20 million will accumulate 5,000 travel receipts and spend 17,500 hours on dealing with these. Up to two hours' work are saved on each trip by using electronic systems. With an hourly rate of NOK 300, the annual savings in this instance would amount to NOK 3 million.

► In 2002, 888,000 taxpayers submitted their self-assessment forms electronically, i.e. online (524,000) or by telephone (364,000), which is an increase of 172,000 compared to the previous year.

Source: Norwegian Directorate of Taxes

¹ The terms "information technology" (IT), "information and communication technology" (ICT) and "information socio-technology" (IST) are regarded as synonymous. The term "information technology" is used in this document.

² The new economy: Beyond the hype. The final report on the OECD Growth Project. OECD 2001, OECD IT Outlook 2002, The impact of the e-Economy on European enterprises: economic analysis and policy implication, The EU Commission COM (2001) 711.

³ Course tutor, Arild Haraldsen, BI, first introduced the term "white goods".

⁴ The OECD's national report for Norway 2001.

⁵ The use of ICT in Nordic Enterprises 2000/2001 by Statistics Norway [Statistisk Sentralbyrå], published in cooperation with its Nordic counterparts.

⁶ Digital skills, challenges and strategies, Ivar Frones 2002, Fagbokforlaget.

INVOLVEMENT AND IDENTITY

Everyone shall be able to exploit opportunities within information technology, and IT shall play a role in the preservation and further development of our heritage, identity and our languages.

► The National Library is the primary organization for the collection, storage and dissemination of media content in Norway, and shall be the country's primary source of information about Norway, Norwegians and Norwegian conditions. The library's activities include building up, storing and providing access to collections which contrast vastly in kind. The National Library has made a wide range of databases available for searches on its website: www.nb.no

Deployment of IT has often had its foundation in technology. The needs of the users – the customers – in the development of digital democratic processes, work places and in learning situations must receive more focus. The Internet is an important channel for dialogue between local inhabitants and the authorities. IT can provide local inhabitants with better access to public information and insight into political processes.

Modern working life places more stringent demands on skills than previously. At the same time, the consequences of being left behind are greater⁷, and people who do not know how to use the technology can easily be left behind professionally and in terms of skills. Children and young people without access to a PC at home do not have the same conditions as their counterparts who do. Providing this opportunity and thus enabling all groups of people throughout Norway to use electronic services safely is a key IT political challenge. Libraries and schools have a central role to play in this work, both in granting physical right of entry and providing access to important content resources.

Our ambition must not be merely to counter the formation of new social divides, but to ensure that technology shall be a factor in diminishing traditional "analogue" disparity. For example, IT has helped provide new opportunities for people who have previously been deprived of an education and a job. In fact, many senior citizens have increased their social lives and have kept more in touch with family and friends through using the Internet. Senior citizens constitute a large group with significant purchasing potential, who can be frequent IT users, but many are still excluded. The elderly and people with impaired functionality often need better adjustment of products and services. Comparatively simple adjustments can be made to ensure that both the private and public sectors are able to reach larger customer groups and at the same time improve deployment of human resources.

IT and the Internet are largely based on Anglo-American culture and language. There is a need to safeguard and further develop the "pure Norwegian" character within the digital world. The English language can also be a problem for the elderly and people with low levels of education. This is one reason why developing and making available a diverse Norwegian digital content is essential. But the Internet also contains illegal and offensive content, ranging from material protected by copyright, where the rights have not been cleared, to illegal pornography.

The Government – orchestrator and motivator

The evolution of eNorway is propelled by the creative use of IT by individuals and enterprises. At the same time, the Government playing an active role will be a key factor in the plan's development.

The involvement required to achieve the primary goals (centre of the figure below) is divided into five main areas:



The Government is predominantly accountable for creating a **good framework for eNorway** through streamlined regulations, good funding schemes and cultivated conditions to boost innovation and research in the IT domain. The framework shall be unbiased in terms of technology and the Government is specifically responsible for cultivating conditions to promote effectual competition.

Another critical precondition is **accessibility to and security** in information systems, services and Internet use. The Government shall be a motivating force in the roll-out of broadband and establishment of electronic signatures. The responsibility also includes access to telecom services throughout Norway and securing information systems. In time, when the bulk of society is supported by electronic systems, the security requirements will be more extensive and the need for access more important.

Skills constitute a fundamental prerequisite for deploying the technology, for industry, the public sector and private individuals alike. This applies to technical expertise and user skills. The Government must contribute by securing access to skilled human resources.

The Government will facilitate increased access to **attractive content** tailored to Norwegian conditions. Public electronic content shall be more user-friendly and be easier to access. The Government also has a responsibility in preserving our common heritage by means of digitization and making this content accessible, as well as helping in the fight against illegal and harmful content.

► Historically, there is a clear connection between IT development and public involvement. The groundwork for the early development of the Internet received funding in the United States' state budget. The Nordic countries' Internet connections across the Atlantic Ocean were partly funded by the American Research Institute's budgets throughout the 1990s, and even today 35% of the research traffic over the Atlantic Ocean for Nordic universities and research institutions is funded by the American NSF, National Science Foundation. Source: NORUnet, Copenhagen

A good framework for eNorway

1

The use of IT is a key asset in the creation of a modern public sector which is both cost-efficient and offers new and improved services. The Government is also a significant market player, which can encourage both development and demand for IT-related products and services.

For each area of commitment, the Government has created sub goals and defined flagship projects, with details of deadlines and responsible bodies. Rolling work is also underway on a number of schemes and actions at the ministries. An outline of these actions is found on www.enorge.dep.no.

The Government will be following up eNorway 2005 with status reports, weighing results against the IT policy objectives. International analyses shall be performed on Norway's situation within the key areas of the IT policy. Traditional statistics and analyses have mainly focused on counting equipment. In the future, emphasis will be placed on analyzing deployment of information in order to evaluate the policy's impact and subsequently use this as a basis for comparison with other countries.

Many countries are jostling for the lead position in the race to exploit potential opportunities presented by the deployment of information technology. Developments are currently epitomized by restraint, although enterprises are drawing on electronic commerce solutions to an increasing extent in spite of this. A good framework has a large impact on industry's and the Government's use of information technology⁸.

High priority is given to information technology by the EU, OECD and WTO. The reason for the level of attention is the expected increase in value generation. Norwegians have been at the forefront in terms of deploying new technology, but this lead has not been well enough exploited. Use of IT in industry is at a lower level than in the other Nordic countries⁹, and we are midway in a European context. This is partly due to a lack of systematic investment by Norwegian enterprises in the changeover to employing electronic business models.

Electronic communication is taking place more and more across national borders, putting our rules and principles to the test, and prompting calls for flexible and up-to-date regulations. Norway is an active participant in the work on international IT policy¹⁰. This cooperation must be continued in order for Norway to compete well on the international scene. Through the EEA Agreement, Norway is constrained to follow EU regulations, i.a. those relating to electronic signatures, electronic commerce, protection of privacy and copyright protection of material.

Research and development are crucial in the promotion of innovation, creation and internationalization of industry. The OECD has uncovered a clear link between research and high-tech export. Industry's IT research constitutes a significant proportion of privately-funded research in Norway, but this is modest compared with international figures.

From 2003, in connection with the start of the Sixth Framework Programme for RTD¹¹, the EU is launching "The European Research Area"¹² which will presuppose the integration of research policies. Norway is able to take part thanks to the EEA Agreement. Vast changes will occur in the European countries' research policies. The EU is intensifying ambitions regarding IT research, and placing more emphasis on basic research, as well as achieving the long-term objective and realization of the vision of so-called "ambient intelligence"¹³.

1.1 A MODIFIED AND UPDATED SET OF REGULATIONS

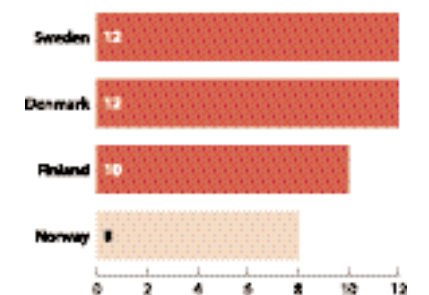
Target: Online government and traditional services shall be of equal standing, and the regulations shall not obstruct electronic communication unnecessarily.

The Government initiated a national project three years ago, called the "eRegelprosjektet". The objective is for electronic communication to be equal in terms of acceptance, inspiring confidence and having the same legal validity as traditional written communication. Norwegian legislation was reviewed in connection with the project to chart existing obstacles to electronic communication. 39 laws and several regulations have now been amended. The project will be continued to assess the need for further regulatory amendment and thus facilitate boosted efficiency and new value creation in society.

Norway is far ahead in terms of securing personal data, with clear rules to counter the dissemination or undesired correlation of information. Such a restrictive approach might in some contexts impede the development of new services. The Government will not undermine

The percentage of enterprises showing annual online sales from electronic trade in 2000.

Source: SSB 2002.



► Requirements for writing are contained in various places in Norwegian legislation. Traditionally, the term "written" presumes a communication written on paper. One result of the eRegelprosjektet [eRule project] is that the term "Written" is now being interpreted as the non-biased technical term to remove obstacles hindering electronic communication. If a communication is not to be sent electronically, further requirements will from now on be necessary; for example "in writing on paper".

⁸ The New Economy: Beyond the Hype, OECD, 2001.

⁹ Use of ICT in Nordic Enterprises 2000/2001, Statistics Norway Statistisk Sentralbyrå 2002, Eurostat 2002.

¹⁰ Including the EEA/EU, the Nordic Council of Ministers [Nordisk Ministerråd], the OECD, WTO and the Baltic Sea Council [Östersjörådet]. In 2002, Norway holds the presidency of the Nordic Council of Ministers and leads several Norwegian groups of players, which are active contributors to cooperation and exchange of knowledge regarding IT policy in the Nordic countries.

¹¹ EU's framework programme for research is the main instrument in European collaboration on research. The Sixth Framework Programme, which applies from 2003 until 2006, is expected to be significantly more effective than the former, and will be a main instrument in achieving the targets set out in the European Research Area <http://www.cordis.lu/rt2002/fp-debate/fp.htm>

¹² European Research Area, ERA proposed by the EU Commission in January 2000 with the primary target of contributing to the creation for a better framework for research in Europe <http://www.cordis.lu/rt2002/era-debate/era.htm>

¹³ Ambient intelligence (AmI) means that IT will, to an increasing extent, become part of our everyday surroundings, by lightening our daily loads without our even noticing and through enhanced operational security, by linking several users capable of using the technology without having to have start-up or error rectification knowledge. <http://www.cordis.lu/ist/istag.htm>

►► The EU adopted in 2000 regulations relating to certain legal aspects concerning information society services, in particular electronic commerce ("Regulations relating to electronic commerce"). These regulations contain rules on the duty to provide information about the activity in general and in connection with electronic marketing, on electronic entry of contracts and on the freedom of responsibility for service users who transfer or save other people's data. Work is currently in progress to implement these regulations in Norwegian legislation.

►► The "Nettnemnda" [Internet regulatory body] is one example of a self-regulation initiative from industry. The regulatory body is an independent complaints body which upholds ethical rules for the Internet, set by ICT-Norway and Internettforum. (www.nettnemda.no).

protection of privacy, but neither does it want regulations to hinder the development of improved public and private services. The Government will therefore open for personal services based on consumers' informed consent regarding the use of personal information. This means that data can be stored and balanced with a view to providing new services.

The process of making amendments to legislation is time-consuming. Self-regulatory mechanisms outlined by industry might therefore be necessary in addition to legislation. The Government is encouraging industry to take the initiative to self-regulate, as this could prove an indispensable supplement for establishing seamless systems and boosting confidence in information technology.

The use of information technology heralds new opportunities for working at home, working when on a business trip and working through new styles of cooperation and networks. Remote working can help reduce the need for an individual to travel and lead to better utilization of time. The use of remote working prompts a need for reviewing legislation and regulations to remove obstacles and secure the individual's and employer's opportunities and rights in new work situations. Experience gained from public sector employees working from home shows overall positive experiences, including opportunities for employees to advance in their positions and extend their working lives. All relative legislation and regulations shall be appraised in order to remove any obstacles.

Flagship project: Removal of obstacles to information exchange
Obstacles to electronic reporting and exchange of personal information between Government agencies shall be recorded. Legislation shall be reviewed where appropriate. Businesses will have the opportunity to offer personal services based on the consumer's informed consent regarding the use of personal information.
Responsible: The Ministry of Labour and Government Administration, the Ministry of Justice and the Police and the Ministry of Trade and Industry.
Deadline: 2003.

1.2 A CLIMATE OF VALUE CREATION

Target: A framework shall exist to promote realization of our full potential for value creation.

Several amendments have been made to the Norwegian tax and public charges system from and including 2002, which have also improved the general framework conditions for industry. These included substantial reductions in employer's contribution, a range of depreciation rates were removed and double taxation on dividends cancelled. A tax deduction scheme for research costs in SMEs was also introduced. Furthermore, tax on investment will be abolished from 1 October 2002. The Government intends to cut tax rates further during the coming years. The Government will also carry on working towards improving tax on employee options and will return to this issue in the work on evaluating the tax system.

The Government has appointed an official committee¹⁴ whose primary task is to assess the structure of taxes on income and wealth with regard to efficient use of resources, distribution and simplicity. An investigation will be made into whether the tax and public charges system is flexible enough to accommodate the increase in international mobility of capital and labour force. The Committee shall consider actions capable of reducing the difference between the highest total marginal tax respectively on working and investment income, changes in wealth tax and changes which could facilitate enhanced stability and predictability within the tax and public charges system. The Committee shall submit its findings by year-end 2002.

Moreover, it is vital for the Government administrative services to cultivate conditions for value creation. The Government will assess the manner in which existing and new Government-funded instruments can increase aid to industry.

Flagship project: Review of Government administrative services

The Government is appraising Government administrative services in order to ensure that these are tailored to accommodate the needs of industry. Directing the services' focus more towards areas in which private markets do not function as well is vital. This could be within research and raising skills, as well as during the conceptual, development and commercialization phases. Both new and existing instruments will be evaluated and Government-run activities put out to tender.

Responsible: The Ministry of Trade and Industry.

Deadline: Summer 2002.

1.3 AN ATTRACTIVE ENVIRONMENT FOR ELECTRONIC COMMERCE

Target: A good framework shall encourage a rise in the use of electronic commerce in and between enterprises.

A host of different actions has been implemented in the past to encourage increased use of electronic commerce. Industry is itself answerable for implementing and instigating electronic commerce within its organizations.

The Government has three key tasks in the development of electronic commerce:

- Inclusive modification of framework conditions by linking up legal, technological and commercial challenges
- Playing an active role in the EU/EEA, WTO and OECD in matters relating to the development and implementation of international framework conditions
- Taking the initiative for the public sector to break new ground in exploiting opportunities presented by electronic commerce

Norway shall set a trend in the use of electronic signatures (cf. section 2.3), corporate electronic commerce skills development (cf. section 3.3) and simplification of reports to the authorities (cf. section 5.3). The public sector, as Norway's primary corporate player, shall also pave the way in deploying electronic commerce solutions (cf. section 5.4). This action will convey positive signals to the markets and will promote user confidence. A clarified framework must be established to enable Norwegian mechanisms. Solutions, such as efaktura [e-invoice], should be easily accessible for consumers and enterprises.

International agreements will regulate key aspects of electronic commerce. Norway will actively motivate the development and implementation of regulations within the framework of the EEA Agreement. Through participation in the OECD and WTO, Norway is involved in the search for solutions to problems triggered by electronic trade with reference to taxes, public charges, customs and other international regulatory zones. The OECD has essentially clarified the tax on income on permanent establishments and royalties. All parties were unanimous in their view that value-added tax should be charged on sales in the country of use, and that delivery of digital products shall not be regarded as supply of goods. The Government will strive to relieve administrative burdens and costs by deploying electronic commerce, for example payment of customs charges.

Flagship project: Framework for electronic commerce

Work on the modification and expansion of framework conditions and preconditions for electronic commerce shall be continued by means of targeted investment in standardized data reporting, the exchange of skills and information, simplification and harmonization with Norwegian legislation and regulations.

Responsible: The Ministry of Trade and Industry.

Deadline: 2003.

►► Electronic commerce

Differentiating between actual commercial transactions and other business transactions can be difficult when the systems are becoming increasingly integrated. Because of this, the term electronic commerce will be used in preference to electronic trade. Electronic commerce is defined as:

"Electronic commerce implies business processes carried out via digital networks – within an enterprise or integrated within the value chain of several enterprises"

►► *Fellesforum for e-handel, a joint forum for e-commerce, under the auspices of the Ministry of Trade and Industry, shall be a driving force in the promotion of electronic commerce in the public and private sectors. The forum acts as a Government advisor and shall cultivate better coordination between players in the area.*

This common forum [Fellesforum] has set up Handel.no to act as a portal providing information and news on electronic commerce. The website features tools from the Verdi program, which guides companies through an e-strategy process. www.handel.no

1.4 RESEARCH FOR INNOVATION AND VALUE CREATION

Target: IT shall be a high priority in underpinning Norwegian research, with maximum commercialization of subsequent results.

Norwegian IT research shall be intensified with IT a top priority at the Norwegian Research Council. More knowledge about IT deployment in society is required, as well as the opportunities and constraints represented by the technology. There is also a need to look at IT research in the context of maritime research, environmental research and research within logistics and transport, as well as in a broader perspective within biotechnology, education etc.

Enterprises will be instrumental in stepping up Norwegian research, which is the reason for the Government's introduction of a tax incentive for R&D costs in small enterprises. Enterprises not in a tax position will receive a subsidy equivalent to the tax incentive. This incentive applies to costs associated with research under an enterprise's own direction, as well as a tax incentive for research services purchased from a research institution approved by the Norwegian Research Council. Foreign research institutions are presumed able to gain the same approval as well.

Basic IT skills will be crucial to development prospects within industry. There is therefore a critical need to invest in long-term, industry-oriented R&D and in the cultivation of first-rate e-incubators fostering strategic expertise. The establishment of a major centre of excellence for micro-technology, the setting up of the SIMULA centre at Fornebu and the new initiative for the Norwegian Centres of Excellence (CoE) Scheme are examples of this kind of investment. These e-incubators or centres of excellence must be accorded stable and favourable framework conditions.

Rapid integration of IT research results must be ensured through close ties between industry in Norway and abroad, as the majority of IT research is epitomized by the exceptionally short period of time elapsing from the research results' completion to their commercialization. Commercialization of research results from universities and technical colleges will be encouraged. Amendments to the Norwegian Act relating to inventions by employees, proposed by the Government in April 2002, will help lead to more efficient commercialization of research results, and particularly those within IT research.

Flagship project: Participation in the European Research Area (ERA) within the information society technologies (IST)

Norway was involved in the EU's previous framework programmes for research and technical development. The Government will now actively consider Norwegian participation in the EU's sixth framework programme and help raise awareness within Norwegian IT research environments of the challenges prompted by the transfer to the European Research Area and the IST programme's vision of ambient intelligence. A high level of Norwegian participation in joint European research on the information society technologies (IST) will be ensured.

Responsible: The Ministry of Trade and Industry, the Ministry of Education and Research and the Norwegian Research Council.

Deadline: Start of preparations during 2002.

Accessibility and security

Immense social benefits are linked to the infrastructure of electronic communication. At the same time, efficient electronic services lend a decisive competitive edge¹⁵.

The Norwegian telecommunications market was freed up in 1998, which has strengthened competition, contributed to new services, improved current services and lowered prices. Norwegian regulations shall endorse competition within the telecommunications market and are to a large extent concurrent with EU regulations. Thus far, experience has shown that these regulations have been generally successful in Norway and the EU member states as well. Competition has grown, although it is not at a satisfactory level yet¹⁶. The telecommunications authorities have many challenges ahead of them in areas where there is still no sign of active competition. Legislation must be changed to be certain of covering the entire field of electronic communication.

Broadband is a vital prerequisite for encouraging competition and innovation within industry, and for providing a well-organized and accessible public sector. Broadband can help reduce the disadvantages from the vast geographical distances in Norway and thus help cultivate better conditions for sustainable local communities.

Roll-out of the broadband network has not proceeded as quickly as expected. Some reasons are listed below:

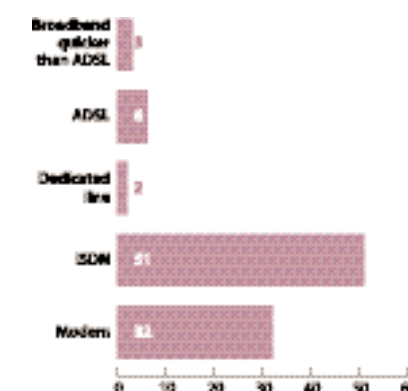
- The readiness and ability to invest in the telecommunications sector has dropped significantly during the course of the past two years
- There is no satisfactory competition in the Norwegian broadband market
- Few developed broadband services really fully exploit the possibilities
- Users are not always aware of the value of broadband
- Poor coordination of the work on constructing relay routes for telecommunications networks

Effective deployment of electronic communication often requires the handwritten signature to be replaced by an electronic signature. It is vital that third parties are unable to modify the contents or gain access to the information. Secure, easily accessible and user-friendly electronic signatures are necessary to boost deployed volumes as well as instilling confidence in electronic transactions.

However, if these solutions are to be employed, they must be standardized, as well as made easily accessible and simple to deploy. They must also interoperate with as many online services as possible and interact with as many communications partners as possible. The introduction of electronic signatures requires users and suppliers to have appropriate skills.

Increased dependency on information technology across open networks leaves us more vulnerable. This could have an impact on vital community functions such as local power supplies, search and rescue services and telecommunications. Many potential dangers could be looming ahead – downtime, hacking and organized attacks. White-collar, computer crime is showing marked signs of being on the increase, and Norwegian legislation must be modified in order to meet these challenges. Vital infrastructures must be secured in a joint venture involving public and private sectors across national borders. In 2001, Norway signed the Council of Europe's [Europarådet] convention on IT crime, as did 42 other countries.

Internet per household



Connection to the Internet per household. Status of the type of Internet connection, March 2002. Source: Norsk Gallup

► Broadband is a collective term for telecom infrastructures with high transfer capacity. The transfer capacity, or bandwidth, is measured in bits per second (bit/s). There is no agreed definition of what broadband actually is. The term satisfactory broadband capacity means a transfer capacity within the transport network and an access network that does not limit an individual user's opportunity to exploit modern and future-oriented multimedia services. An abundance of transfer technologies exist which can technically be classified as broadband, for example fiberoptic cables, xDSL which uses existing telephone lines, cable TV networks, radio access and satellite.

2.1 ACCESS TO AN ELECTRONIC COMMUNICATION INFRASTRUCTURE

Target: Norway shall establish a robust, efficient and publicly-accessible infrastructure for electronic communication, firmly embedded in pro-active competition.

Market players shall be in charge of building an infrastructure for electronic communication and responsible for the selection of technology. The authorities' tasks are to put conditions in place for building the infrastructure and to promote active competition. This will secure both end-users and suppliers access to a nationwide, modern infrastructure. The authorities will endorse a non-biased technology policy to safeguard active competition within and between various technological platforms.

In May 2002, the Government will put forward a White Paper on the current situation in the Norwegian mobile phone market. The White Paper will be concerned with the current competitive situation in the mobile phone market and will boost UMTS roll-out in Norway. The goal is for Norway to have low prices and be at the forefront in terms of development and the deployment of new services.

Flagship project: Act on electronic communication

The Government will present a new law relating to electronic communication to replace the existing Act on telecommunications. A vast amount of modifications will be proposed, such as on issues surrounding licensing and complaints schemes. The Post and Telecommunications Authorities' [Post- and teletilsynet] role will be augmented and the complaints process improved. The reason for the Government's proposal for a new law is based on the desire to harvest more of the gain generated by the telecommunications market. The Government would like a framework at least as good as that of the EU, in which a new framework for electronic communication was adopted during February 2002.

Responsible: The Ministry of Transport and Communications.

Deadline: The law shall be implemented by July 2003.

2.2 WIDESPREAD BROADBAND ROLL-OUT

Target: Good offers for broadband shall be available on the market in all regions of Norway. Primary schools, public libraries and local authority administrative services shall be given the option of broadband connection at a competitive price during the course of 2005. By the end of 2003, all colleges of secondary education shall also be offered an equivalent scheme. A further aim during 2002 is to make broadband connection available to hospitals for interoperable health networks.

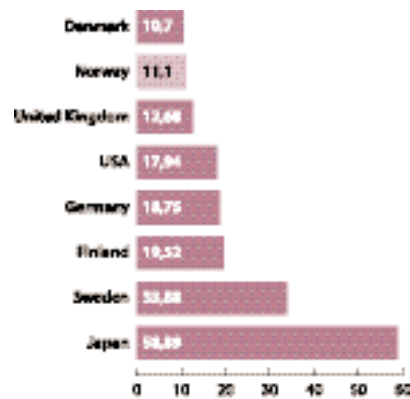
The Government shall cultivate conditions for active competition and thus boost broadband demand. The Government will assess the need to implement special action targeted at areas where there is no commercial foundation for broadband development. However, the market must be given the opportunity to become effective before any such action can be taken.

The Government will maintain the scheme regarding tax-free usage of employers' computer equipment and tax-free coverage of costs associated to home PCs and broadband for PC usage (cf. section 3.4). The Government will also put conditions in place for the roll-out of a digital terrestrial broadcasting network, which will also be able to offer broadband. This kind of wireless broadband link is particularly suited for sparsely populated areas. The Government will also lay emphasis on competitive conditions, i.a., when awarding licences.

Flagship project: Broadband in the municipalities

The Government will stimulate development of broadband by means of the HØYKOM scheme¹⁷. Resources will in addition be earmarked for communicating past experience and revealing opportunities gained through the use of broadband in local authorities. Selective

Capacity in relation to price



The figure above provides an overview of DSL prices in different countries by comparing how large an upstream and downstream capacity (Kbps) is available per USD in the various countries, calculated by the monthly cost of different DSL subscriptions.

The OECD: The Development of Broadband Access in OECD Countries 2001.

action to stimulate demand will be assessed. There is also a need for systematic systems to collate information on local demand for broadband. This need shall be met by testing collaboration models between public and private enterprises. The Government has issued a guide to broadband roll-out in municipalities.

Responsible: The Ministry of Trade and Industry.

Deadline: 2003.

2.3 USE OF ELECTRONIC SIGNATURES BY THE GENERAL PUBLIC

Target: Conditions shall be established by the end of 2005 ensuring the general public access to standard-based electronic signatures.

The Government will work towards ensuring private enterprises and individuals easy access to electronic signatures. A common infrastructure for e-signatures will be developed through efficient utilization of market forces and competition mechanisms. Government agencies and private enterprises should work together to ensure users of electronic signatures avoid paying to use the signature each time a new electronic service becomes available.

The Government will also work towards raising awareness of the significance of electronic signatures and how they can be used. Standardized e-signatures will be incorporated into relevant public electronic services where this is financially sustainable. The public sector will encourage suppliers to coordinate their requirements and communicate them to the market. The Government will encourage the implementation of pilot projects, in particular 'cluster' projects in which several service providers work together to create a standardized commercially available eID/signature system in order to share the costs of introducing the system. In addition, suppliers of eID/signature services and other associated services (notes, validation services) should enter into partnerships to produce joint agreements and technological standards which will pave the way for optimal intercommunication.

Flagship project: Infrastructure for the use of electronic signatures by the general public

The Government will work towards establishing a social infrastructure for electronic signatures in Norway. This work will be based on a common national strategy for establishing a social infrastructure for electronic ID/signatures being drawn up by the National PKI¹⁸ Forum¹⁹. The infrastructure will be created in partnership with public and private service providers and users. The Government will ensure that the necessary coordination initiatives are in place for standards, communication and coordinated demand.

Responsible: The Ministry of Trade and Industry in collaboration with the Ministry of Labour and Government Administration.

Deadline: The strategy will be submitted in May 2002.

2.4 A CULTURE OF SECURITY

Target: A culture of security will be established, linked to the deployment and development of information systems and electronic communication.

Security is critical at all levels. The Government maintains that security of information is a managerial responsibility within individual enterprises.

In collaboration with the private sector, the Government will work towards developing a culture of security around such issues as threats, accountability, consideration of the interests of others and the performance of risk and vulnerability analyses. Security procedures and protective measures must be drawn up and in place to ensure preparedness for issuing warnings and initiating immediate countermeasures in the event of a security breach. Awareness-raising will be prioritized. The IT industry will be encouraged to implement security software and systems, which will in turn promote the use of IT security certification systems. The Government will review the statutory and regulatory framework for IT security with a view to coordinated enforcement enabling both government and private enterprises to abide effectively by the framework.

¹⁸ Public Key Infrastructure, infrastructure for the large-scale use of digital signatures.

¹⁹ The PKI Forum is a dialogue arena for players interested in the expansion of digital signatures and PKI in Norway.

► **Født med bredbånd [Born with broadband]** is a project which will help provide a safe and comprehensive service for expectant mothers and for births in rural districts. The project is based on the use of telemedicine with synchronized and asynchronous transfer of ultrasound pictures and the establishment of a video-conferencing link between Lofoten Hospital and the county hospital, Nordland Sentralsykehus (NSS). The project will also ensure that midwives and gynaecologists at Lofoten Hospital receive optimal support from the women's clinic at the NSS. The project is partly funded by Høykom and is based on deployment of a broadband network.

► **Electronic signatures** is a collective term for a raft of technologies which enable users to perform electronic transactions with the same level of reliability as paper-based transactions.

A **digital signature** is the most common technology which, as well as providing a signature, also protects electronic documents from being accessed or falsified during transfer. Digital signatures require their own infrastructure (Public Key Infrastructure, PKI) in order to be used on a large scale.

Electronic ID (eID) means the use of PKI for access to electronic services and replaces pin codes, passwords and other forms of access control.

Flagship project: Raising IT security awareness

The Government will reinforce the work by raising IT security awareness in all participating members of the information society. Guidance and reference material will be compiled and made available to consumers, enterprises, and government agencies. The establishment of a long-term research and development programme centred on IT security will be worked towards.

Responsible: The Ministry of Trade and Industry, the Ministry of Justice and the Police, the Ministry of Defence, the Ministry of Transport and Communications, the Ministry of Education and Research and the Ministry of Children and Family Affairs.

Deadline: Start-up 2003.

2.5 ROBUST INFRASTRUCTURE AND INFORMATION SYSTEMS

Target: Important infrastructure for electronic communication shall be robust and secure, and critical information systems shall be secured to minimize the consequences of downtime.

The Government will present a national strategy for information security. The objective here is to reduce vulnerability and instil confidence in electronic communication and IT in general. A strategy such as this must balance the issues of protecting personal information and combating crime, as well as weighing up whether there is a need for ensuring efficiency in relation to securing information.

Targeted military/civilian collaboration can lead to the State as a major user contributing to the development of a security industry in Norway, as well as showing the way to others in terms of procurement and the deployment of advanced IT security tools.

Legislation on computer crime and regulations for investigating such cases shall be reviewed to provide harmonization with the European Convention on combating computer crime and the use of IT in criminal activities. This will strengthen the police force's ability to combat crime and help underpin IT security in society.

Flagship project: Centre for Information Security

The Government has established a Centre for Information Security. Initiatives shall be introduced to map the scenario of threats towards Norwegian IT systems. Collaboration on exchanging information about threats and vulnerability factors shall be underpinned. The initiative "Warning systems for digital infrastructure"²⁰(VDI) shall be expanded and past experience shall be accessible for relevant collaborative partners.

Responsible: The Ministry of Trade and Industry and the Ministry of Justice and the Police.

Deadline: By the end of 2002.



Skills for change

Skills are society's most important resource and one of the most important factors for value creation and financial growth. The level of demand for skills we face today is higher than in the past and skill shortages can easily impede participation in the digital community.

A large part of the population builds up IT skills in the workplace. Those without Internet access at home or work are not, in the first instance, granted this opportunity. This is a growing disadvantage at a time when more and more essential tasks involving bank and post office services, obtaining information and submitting tax self-assessment returns are performed electronically.

We must become better at updating and reinforcing our skills. Companies should redefine their business concepts and adapt to new environments. Here is a need for skills with an emphasis on organization, technology and new business strategies. Similarly, it is important to ensure that all trade and industry – regardless of industry sector, size or location – is allowed adequate opportunity to upgrade their skills. E-learning can be an important aid in this context.

Even though we have seen a downturn in the "dot com" sector, the demand for robust and flexible IT skills remains. Recruiting people to technological subjects is an important prerequisite and Norway is lagging behind in this in relation to those other countries with which natural comparisons are made.

IT use can raise the quality of education and create a learning environment better suited to the individual. Employing multimedia through a combination of text, sound, pictures and video contributes to enhanced dissemination of knowledge, better motivation, increased effort and a greater impact on learning. However, this requires a sound technological infrastructure.

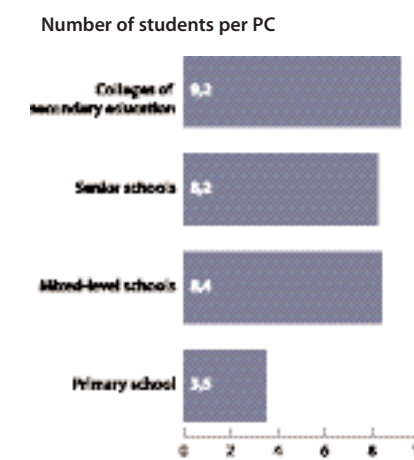
The implementation of IT in education requires an all-inclusive approach and identifying any obstacles is vital. The successful use of IT is not dependent on quantity, but rather on the establishment of new learning environments, access to digital teaching aids and the maintenance of quality. This involves teaching agendas and frameworks functioning together to enable IT to give teachers and students a better learning environment.

The digital community can create differences in new areas, thereby increasing the significance of basic skills and cultural identity. Schools and libraries are central to the work on counteracting adverse developments. We must increase and focus commitment within schools to reinforce society's IT skills in order to counteract new skill divisions and ensure that students are given the necessary foundation to acquire new knowledge in new ways.

3.1 IT IN EDUCATION AND LEARNING

Target: IT will contribute to reinforcing the learning environment, tailoring learning to the individual and improving the quality of education.

There has been a great deal of investment in schools over time and now the Government wants to make a national commitment to recouping full remuneration on these investments. Indications suggest that there is an unacceptable disparity of IT commitment in schools. PC provision varies and only half of Norwegian municipalities have declared investments in IT equipment and infrastructure in schools. Very few municipalities have concrete goals for the



The number of PCs per student is highest at upper secondary school level where it maintains an average of 3.5 students per PC. Provision is at its lowest at primary school level, with 9.2 students per PC. Source: UFD/Norsk Gallup 2002.

▶▶ Fronter is a Norwegian e-learning software company supplying solutions for web-based learning with a focus on teaching and project management. Fronter has sold 150,000 licences for its Classfronter program, which is now being used in 28 of the country's universities and colleges, over 100 upper secondary schools, several primary schools and within a range of businesses and associations. Fronter's technology is being introduced in every school in the Dutch city of The Hague, where 65,000 Dutch schoolchildren are given the "digital classroom". www.fronter.no

▶▶ On 1 January 2002, amendments to the Immigration Regulations governing work permit applications came into force:

- Specialists (people with professional/vocational training at least equivalent to upper secondary school level) from countries with a visa requirement can obtain a visa to travel to Norway and find employment ("job-seeker visa").
- Greater freedom to apply for a work permit from Norway.
- Greater freedom to grant temporary work permits to people who have submitted an application.
- Certain Norwegian foreign stations granted the freedom to grant applications for specialist work permits where there is no doubt that the conditions are satisfied.

number of students per PC. Until now it has been possible for municipalities not to implement the use of IT at primary and lower secondary school levels. The Government will remove this option.

The Government has four key focus areas for IT in education:

- Digital content
- Skills development for teachers and principals
- Infrastructure
- Research and development work

The Government will intensify the work on developing easily updated digital teaching aids capable of meeting the student's needs. Digital teaching aids must supplement traditional methods; and the challenge will lie in developing all-inclusive concepts involving several teaching aids.

All students will have access to a PC with an Internet connection. Commitment to broadband in schools is an essential prerequisite for developing new teaching methods and reinforcing the overall widespread use of broadband (see section 2.2). The Government will ensure that schools receive good deals on broadband and effective business solutions, not least through the Ministry of Education and Research's project of establishing a national learning network [Nasjonalt læringsnett]. The learning network will form the framework of broadband development in Norwegian schools and additional commitment to digital teaching aids. Entry into the learning network will be facilitated through a new common national education portal. Furthermore, the Norwegian State Housing Bank [Husbanken] has established a loan scheme for developing school buildings compatible with broadband installation.

Flagship project: IT training for teachers

The Government will offer refresher courses in IT to 40,000 teachers. The training will focus on the pedagogic use of IT, including the ethical dilemmas and legal challenges posed by Internet use and source validation. Additionally, a larger project has been implemented to ensure that all newly qualified teachers have basic skills in the pedagogic use of IT in teaching and learning.

Responsible: The Ministry of Education and Research.

Deadline: The close of the academic year 2003/2004.

3.2 ACCESS TO A SKILLED WORKFORCE

Target: There will be sufficient access to a workforce with both expertise and basic skills within IT.

The teaching of technological subjects is vital for further research and study in IT. The Government will increase the proportion of technology students at Norwegian colleges and universities. A common council consisting of industrial and educational authorities will be established in order to discuss the demand for skills with a 4-6 year perspective. More teaching resources will be made available and recruitment campaigns launched – campaigns aimed at recruiting women in particular.

International competition for qualified employees is growing. Norway needs codes and systems to be in place if we are to attract such a workforce. The code was amended on 1 January 2002, making it easier for industries to recruit expertise from countries outside the EEA. These amendments will reduce the time spent on the application and administration processes centred around work and residence permits.

Flagship project: Capacity and quality review of IT

The Government will – in cooperation with industry – review the educational capacity and quality of IT learning in Norwegian colleges and universities. Annual skills reports will be compiled to map development in a range of areas and to compare results with other countries.

Responsible: The Ministry of Education and Research.

Deadline: Review by close of 2002. Annual skills report compiled thereafter.

3.3 BUSINESS SKILLS

Target: Norwegian businesses will have the necessary skills to exploit every opportunity through the use of IT.

The skills development initiative that forms a part of the Competence Reform will, by subsidising projects, contribute to reinforcing skills in both the private and public sectors. A work in progress report on the initiative indicates that the quality of the training on offer is improved through the use of IT, but also that IT should be combined with other training forms in order to function effectively within adult education. The aim is to collate and disseminate experiences from successful projects in order to benefit all economic activity, including projects centred on the use of IT in adult education.

Confidence and skills are essential for enterprises to be able to exploit electronic commerce to its fullest potential. In order to motivate more enterprises, it is necessary to disseminate experience and best practices. The authorities will, in cooperation with industry, evaluate how the companies' need for practical and theoretical skills within electronic commerce can best be met. The public sector will, through the use of the electronic marketplace for public procurement²¹, contribute to raising the level of skills and e-commerce on the part of public sector procurers and suppliers within the marketplace.

Flagship project: Follow-up of the electronic marketplace for public procurement

The development of the electronic marketplace will be closely monitored. A series of regional information meetings are arranged May/June 2002. Further follow-up action to promote motivation, skills and cooperation will be continuously assessed. Suppliers will form an important target group.

Responsible: The Ministry of Labour and Government Administration and the Ministry of Trade and Industry.

Deadline: 2003.

3.4 SKILLS THROUGH PARTICIPATION

Target: The population will have adequate knowledge and skills to exploit the opportunities presented by technology.

The Government will work towards the Norwegian population's achievement of basic IT skills. We have to safeguard participation through counteracting new digital obstacles to inclusion. Libraries and schools have a vital role to play in offering both access and training.

General basic skills are vital in order to obtain IT skills. The student contribution will therefore be reduced for courses leading to either examination at upper secondary level or vocational qualifications. Training and guidance will be offered in order to motivate greater numbers of adults to use IT, not least through the efforts of the Ministry of Research and Development's project "ICT for everyone"²². Immigrants form an important target group; they will be offered flexible training in integration and Norwegian. Teaching aids are undergoing development, with IT forming an integral part of training. The programme will be adopted in educational institutions, workplaces and homes.

Flagship project: Tax incentives for home PCs and broadband

The Government will maintain the scheme through tax-free use of the employer's computer equipment and will cover home PCs and related broadband expenses (tax-free). The Government has resolved to continue the initiative with tax-free wage deductions in order to subsidise employees' home PCs. This scheme will establish official rules through changes in laws or regulations.

Responsible: The Ministry of Finance.

Deadline: The initiative will come into force 2002/2003.

²¹ www.ehandel.dep.no
²² <http://www.vox.no>

▶▶ **Datakortet [Computer Driving Licence]** – by the end of 2002, over 100,000 people in Norway will have taken one or more Datakort tests, either as part of a course of study or for personal documentation of practical skills. The Datakort concept is part of the international cooperation initiative European Computer Driving Licence. There are branches in over 30 countries where over 1.2 million people have taken the tests.

www.datakortet.no

▶▶ The enterprise Seniornett Norge has, for the second year running, arranged SeniorSurf days to encourage the elderly to use IT. In 2001, they set up around 400 Internet meeting points across the whole country offering elderly people guidance and courses. In total, they motivated 20,000 elderly people to give IT and the Internet a try. www.seniornett.no

▶▶ The municipality of Oslo and the Ministry of Education and Research are coordinating the project, ICT in multicultural schools. The project, which covers three schools located in districts in the east of the capital, will research the opportunities IT provides in the running of schools with a large proportion of pupils from minority cultural and language backgrounds. The reinforcement of reading and writing instruction in Norwegian and native languages as well as the development of home-school cooperation are key issues.

►► **Electronic content** encompasses the entire value chain from raw data to secondary services for private and professional users based on digital technology. The content can be publicly or privately owned. The term does not include technical infrastructure.

►► **eContent** was established as part of the eEurope initiative. The initiative focuses on the European content industry's opportunity to exploit Europe's cultural diversity. eContent is a market programme running from January 2001 to January 2005. Norway's participation in the programme is on the basis of the EEA agreement. Throughout the duration of the programme, NOK 100 million will be distributed between commercial initiatives that are able to contribute to the following goals:

- To improve access to and utilization of public information
- To promote content production within a multilingual, multicultural environment
- To encourage market conditions that benefit digital content.

►► **In Japan**, all three network service providers on the market have already adapted for 2.5G mobile Internet content providers by taking only a 9% royalty on their revenue. Payment to content providers is through the mobile phone bill and is guaranteed by the network service providers. Payment for mobile content from the 73 million current users in Japan amounts to USD 300 million a year. However, users pay USD 3 billion a year in addition to the associated services. Network service providers therefore make substantial profits, even though their share of the content payment is only 9%.

The Internet has become the most significant meeting place in the world in terms of culture, entertainment, finance and science. The development of content presents a great many challenges for Government:

- Ensuring financial frameworks that do not differentiate between electronic and other media
- Promoting market competition and diversity
- Delivering access to cultural resources and maintaining public access to electronic material
- Safeguarding the use and development of the Norwegian (Bokmål and Nynorsk) and Sámi languages in a world increasingly defined by Anglo-American culture
- Ensuring standards and opportunities for open information interchange and retrieval
- Developing initiatives to "tame" the Internet, in order to create an arena that respects issues of freedom of expression, copyright, privacy and consumer rights and counteracts illegal and unsolicited content

Globalization is a result of an amalgamation of technology, cultures and financial systems. The Internet has produced new places to meet and trade and new forms of human interaction – an innovative global and virtual public room, the Internet puts our culture, our lifestyles and our whole way of being to the test.

The Government's Strategy for Electronic Content, put forward 9 April 2002, directs attention to these challenges. The Strategy's pilot projects centre on key issues relating to pricing policy, copy right, metadata from various sources and security/privacy. The pilot projects are restricted to 5 areas: Electronic mapping, language technology, knowledge sources in Norwegian, Management of electronic information within the health service and Sámi IT. The aim is to gain experience in order to develop optimal solutions.

4.1 ACCESS TO DIVERSE CONTENT

Target: The achievement of widespread access to diverse electronic quality content either organized for Norwegian consumption or potentially exportable.

The Internet is both global and local. Even as the Internet offers a multicultural population open access to global content, the authorities have a responsibility to maintain, develop and make accessible cultural resources. Digitization improves access to public records, library and museum material, while at the same time significantly increasing the challenges to be faced in terms of selecting materials for digitization and ensuring long-term legibility.

Limited willingness to pay for general knowledge has a significant impact on smaller national cultures like Norway. In the wake of the downturn in the market for large-print encyclopaedia, work has started to ensure alternative access to Norwegian knowledge sources. We have to establish a contemporary form of net-based, quality-assured content, which may differ from the traditional encyclopaedia format. The Government has turned this initiative into a pilot project centred on securing knowledge sources in Norwegian through the development of a knowledge portal.

Flagship project: Knowledge bases in Norwegian

A net-based knowledge portal will be established in order to collate both public and private knowledge sources. The portal will contain links to selected quality-assured knowledge resources, thereby making it easier for users to find their way through a wealth of information. Pilot projects will be implemented within multimedia and other areas in order to promote knowledge resources in New Norwegian and Sámi. Knowledge sources in Norwegian will form a pilot project under the auspices of the National Library [Nasjonallbiblioteket] in conjunction with the Norwegian Board of Education [Læringssektoret].

Responsible: The Ministry of Cultural and Church Affairs in cooperation with the Ministry of Education and Research and the Ministry of Trade and Industry.

Deadline: December 2003.

4.2 A COMPETITIVE CONTENT INDUSTRY

Target: The Norwegian content industry will be competitive – competition and diversity will be integral to the production and dissemination of electronic content in Norway.

The development of new forms of content is the challenge we now face from new players and suppliers. New content producers will replace players who neither provide the latest means of dissemination (at their fingertips) nor fulfil new demands. Content producers face a new generation of users with greater demands and expectations. The Government will secure frameworks to enable development of an internationally competitive Norwegian content industry. The goal is uniformity in the treatment accorded to electronic and other types of media, if other targets/conditions do not provide grounds for differential treatment.

There are major national differences within the EU with variation on VAT rates for paper and electronic versions of books. Maximum points – 25% – on turnover on both printed and electronic books apply in Denmark. There is no VAT on newspapers but electronic news dissemination comes under the maximum points category. Sweden has a 24% VAT rate on electronic books and newspapers, and a 6% rate on books and newspapers in paper form. In England, VAT on paper and electronic media (books and newspapers) stands at 0 and 17.5% respectively. There is no VAT on printed books and newspapers, however electronic publications available for sale are subject to 24% VAT. The Norwegian press subsidy is granted only to paper-based media. Equivalent VAT treatment of printed and electronic media can be achieved in different ways. In general terms, it is not necessary to widen the scope of tax exemption. Adjustments in this area require more in-depth research.

The lack of robust business models to facilitate the distribution of profit between content disseminators and network operators is problematic. Users often feel they have "already paid" after paying network service providers, while content providers usually do not receive remuneration for dissemination. Initiatives covering limited purchase, subscription packages, micro-payment solutions, greater security in the purchase and sale of electronic content and other payment mechanisms can also create a better industrial climate for content suppliers.

Several links in the process of electronic content production and dissemination could be subject to monopoly tendencies. Requirements may demand using software from a sole, dominant supplier, conducting the sale of the content through defined payment solutions or obtaining quality-assurance and copyright recognition from defined authoritative sources.

On a technical level, there must be transparency during content production towards non-proprietary, open standards. The Government is accountable at this juncture for not excluding open standards internally or in its dealings with users.

The work on IT standardization will be followed up. The significance of this work has increased in recent years in conjunction with a decrease in Norwegian participation. The Government will assess the implementation of a national standardization project to secure reinforced Norwegian participation in international work.

Flagship project: The relationship between content providers and network service suppliers

The Government will conduct broad-based research into the challenges posed in the amalgamation of data, telephony and media technology and the competitive conditions that exist between content providers and technological enterprises. The goal is to cultivate conditions for long-term political decision-making and to encourage creativity and industrial development.

Responsible Ministry: The Ministry of Trade and Industry in cooperation with the Ministry of Culture and Church Affairs, the Ministry of Transport and Communications and the Ministry of Labour and Government Administration.

Deadline: 2003.

►► The Oxford University Press has begun the development of a reference book that in 2010 will contain 1.5 million articles in four languages, and will be the world's largest Internet dictionary. Around 200 people have already been employed, mainly in India, to digitize existing books.

Access to the Internet dictionary will be on a subscription basis with prices starting from £175 p.a. for schools to £3000 p.a. for large libraries.

www.oxfordreference.com

4.3 ACCESS AND THE ROLE OF THE GOVERNMENT

Target: Content production will contribute to the modernization of the public sector and secure democratic participation.

Content development should first and foremost take place within a market context, but the Government maintains certain areas of responsibility e.g. securing access to significant quantities of valuable Government information.

The criteria for gaining access to Government information have long been debated – without reaching a comprehensible conclusion. The authorities will ensure access, while Government institutions have to meet revenue requirements. Another important consideration concerns one of the most basic rights of all – the universal right to unrestricted access to important information. Key issues surrounding the role of the state and Governmental pricing policy will receive more in-depth investigation.

Government information on the Internet has to be disseminated in Bokmål, New Norwegian and Sámi and other significant minority languages.

Flagship project: Improved access to spatial information

The Norwegian Mapping Authority [Statens kartverk], will head a project to adapt conditions to enable spatial information to be collated and presented in an open and standardized fashion. The project will be integral to the Norwegian Mapping Authority's work on a national infrastructure for geographic information. The focus will be on obligatory cooperation between Government bodies, although other organizations – especially local Government – may also be included as required. The Project will build on the experiences of the HØYKOM-funded project "Geodata online" ["Geodata på nett"].

Responsible: The Ministry of the Environment.

Deadline: First sub report, January 2003.

4.4 COUNTERACTING ILLEGAL AND HARMFUL CONTENT

Target: Information and attitude-building work will contribute to counteracting illegal and harmful content on the Internet.

"Security" centres on the protection of technology, while "safety" relates to actions counteracting illegal and damaging content. Both are necessary to boost the public's confidence in information technology. The Government will work to combat harmful and/or illegal content, such as child pornography and racism on the Internet. Uncertainty surrounds the accuracy of classification tools and technical filters in the short term, and the Government will therefore give priority to work on raising awareness and setting up hotlines.

As much of the security work as possible should also be urged on to the market. Security applications are products with market potential, which should be permitted to play a part in market dynamics without direct Government intervention. The Government is responsible all the same for making sure that acceptable security applications exist and that these are deployed by Government administration itself.

Flagship project: Raising awareness about illegal and harmful content directed at children

In 2001, the Government put forward an action plan entitled Children, Young People and the Internet. An online resource centre will be set up to enable safer use of the Internet. In addition, awareness-raising projects geared towards children and young people will be initiated. The Norwegian Board of Film Classification [Statens filmtilsyn] plans to participate in a Nordic project through which they will conduct research into the link between new media and unacceptable behaviour in children.

Responsible: The Ministry of Culture and Church Affairs in cooperation with the Ministry of Children and Family Affairs.

Deadline: Start-up 2002.

►► NRK has estimated the cost of digitizing its sound archive at approximately NOK 40 million, and its film and video archive at approximately NOK 220 million.

There is a particular time pressure on digitization of the film and video archive as parts of it are stored on degradable media. NRK's archive comprises what could be termed a tribute to the nation in sound and pictures – a cultural treasure for Norwegian society.

A modern public sector

In January 2002, the Government published its programme for the modernisation of the public sector. Its vision is a public sector with active participation in democratic arenas, with equal, individually tailored high quality services, efficient use of resources and in which efficient public services will represent a competitive advantage for industry. IT is an important tool in achieving this goal.

Improvements in standard of living, education and skills mean that we have become more discerning customers. Industry and individuals alike have the ability to use IT at an advanced level and also expect to be able to use electronic services when dealing with the public sector. Our high level of Internet use must be reflected in modern, electronic public administrative services which will help make life easier for customers.

Every year, the public administrative services spend approximately NOK 5 billion on IT. In many cases, this has led to improved productivity and more and better services. However, there are still huge differences in how far the various Government agencies and local authorities²³ have progressed.

The public administrative services face the challenge of improving the quality and efficiency of their service provision. Investing in information technology does not in itself create a more efficient service. Restructuring, motivation and knowledge among management and staff is also needed. It is vital that the public administrative services draw on experience from their own sector and also that of the private sector. Greater standardization is required and improved coordination of initiatives, so that efforts are not spread over too many areas, leading to poor results.

5.1 BETTER ORGANIZATION AND EFFECTIVE SOLUTIONS

Target: IT shall help create more effective solutions and better structuring in the public sector.

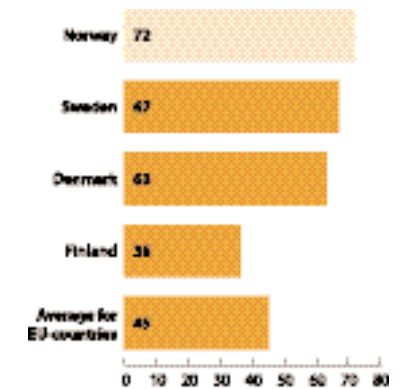
In order to benefit from improving the efficiency of operations on a large scale and to ensure the provision of simpler services for users, the Government will set out requirements for standardization and common guidelines in IT. Electronic case handling will be the standard working method for the public administrative services.

The Government will encourage greater cooperation between Government agencies and local authorities in order to establish common IT solutions which will improve efficiency and save money. A committee of reference local authorities will be set up and will receive funding to test various systems during the process of modernization.

The Government will open IT services to competition where this will save money. Administrative tasks common to the ministries will be coordinated and rationalized and several of the joint services provided by the Government Administration Service [Statens Forvaltningstjeneste] will be opened to competition.

The Government will continue with the "Si @!" initiative for electronic interaction in the social and health care sector. Priority will be given to projects and initiatives which encourage progress from pilot phase to routine, large-scale use. The main focus will be on establishing a

Use of public electronic services



The proportion of people who use public electronic services in selected countries.

Basis: regular Internet users. Source: European Commission/EOS Gallup, November 2001

►► There are significant benefits to making information available electronically in the health care and social sector. The goal is better, simpler cooperation and information exchange between the various stages of treatment and better relationships with patients. Telemedicine can reduce the need to travel for patients, relatives and health care staff while electronic medical notes and digital image diagnosis can reduce consumption of paper and chemicals.

Estimates indicate a potential saving of NOK 1 billion a year in the social and health care sector.

Source: Norwegian Agency for Health and Social Welfare [Sosial- og helsedirektoratet], 2002

►► Since 1999, the 'Local information network in Numedal/Kongsberg' [Lokale informasjon-snettverk i Numedal/Kongsberg] (LINK) has been working on projects aimed at encouraging the development of a future-oriented, appealing and visible local community through smart use of IT. IT encourages regional development by:

- Helping to preserve and develop local community spirit, a sense of belonging, interaction and local democracy.
- Facilitating network collaboration, the development of skills and commerce and the efficient use of local community resources.
- Ensuring the community/region is fully and professionally represented to the rest of the world.

www.link.itum.com

secure national health network, large-scale use of electronic interaction and data collection, routine use of telemedicine solutions and the provision of a full health information service to the public.

Flagship project: Coordination of the use of IT in the public sector

A strategy and programme of action will be drawn up to coordinate input and the use of IT in the public sector. Structure and solutions will also be central issues.

Responsible: Ministry of Labour and Government Administration in collaboration with the Ministry of Trade and Industry.

Deadline: The strategy and programme of action will be completed by the end of October 2002.

▶▶ The Norwegian Public Service Pension Fund [Statens Pensjonskasse] has developed a system which enables its members to log in at any time of day to use services such as calculation of future pension and gain direct access to their personal details on the register of members. By entering a user-specific password when requested to do so, a member can also track case progress if they have a pension issue being dealt with by The Norwegian Public Service Pension Fund.

www.spk.no

▶▶ The Sámi Parliament [Sametinget] is working on initiatives aimed at increasing the Sámi population's use of IT. On 31.5.2001, a resolution was passed to develop an **eSápmi plan** focusing on the following five areas: individuals, culture and environment, life-long learning, industry and working life and the public sector, in which 24-hour public administrative services and Government offices will form part of a larger initiative. eSápmi therefore has clear similarities to eNorway and eEurope. In addition, difficulties with the Sámi alphabet have been defined as a separate and important area of policy.

The Government views the eSápmi plan as an important aspect of its own work towards modernization, improving efficiency and simplifying the public sector and eNorway as a whole.

▶▶ The Brønnøysund Register Centre [Brønnøysundregisterene], the Directorate of Taxes [Skattedirektoratet] and Statistics Norway [Statistisk Sentralbyrå] are working together on the project **AltInn** to find solutions for electronic submission of accounting data from business enterprises which will be managing the procurement, development and operation of a common electronic data reporting system for industry. AltInn will offer solutions based on common standards and will be far simpler than current methods. It will also be possible to report via the Internet. The pilot phase will begin in autumn 2002 and the project will come into full operation in 2003.

5.2 USER-ORIENTED ELECTRONIC SERVICES

Target: All local authorities and Government agencies shall provide tailored electronic services which make life easier for users and promote democratic dialogue with the population.

Public services will be based on users' requirements to the extent possible at specific stages in their lives. In addition to providing information relevant to users and services on the Internet, Government offices will act as gateways into public life. Government websites will be user-friendly and meet international guidelines²⁴ for design and universality²⁵. This will also ensure that the needs of disabled users are taken into account.

In order to provide a better service to the public, the public sector will use customer service and relationship management systems²⁶. This will improve the flow of case handling and create more flexible working conditions for staff.

Work will be carried out to ensure businesses and individuals have easy access to secure electronic signatures. Standardized e-signatures will be incorporated into all relevant public electronic services where appropriate systems are available on the market at a reasonable price.

The Internet can be a useful tool in social debate and can promote a thriving democracy. Targeted use of the Internet as an arena for information, dialogue and knowledge development will encourage decentralization of decision making and better understanding of public affairs. Examples of this include local hearings, debate fora, suggestions schemes and direct dialogue. The Government is considering the possibility of electronic voting in local elections and local referenda.

Flagship project: Electronic signatures in the public sector

Coordination of the introduction and use of electronic signatures is vital in encouraging demand for electronic services. Common requirements will be drawn up for electronic signatures, security, user interfaces and access. Electronic signatures used in electronic services provided by the Government will meet these requirements. The aim is to provide businesses and individuals with easy access to electronic signatures. This will take place in partnership with the private sector in order to reduce the need for different signatures for different services.

Responsible: Ministry of Labour and Government Administration in collaboration with the Ministry of Trade and Industry.

Deadline: By the end of 2003.

5.3 SIMPLIFIED REPORTING

Target: By the end of 2004, all Government agencies will be able to receive electronic reports submitted by enterprises.

The submission of electronic data reports is a key means of lightening the load on industry. To ensure data is re-used as far as possible, the data reporting systems are built on the Register of the Reporting Obligations of Enterprises' [Oppgaveregisteret] metadatabase. The Government will require Government agencies to use raw data from the Central Coordinating Register for Legal Entities [Enhetsregisteret].

Work on introducing electronic reporting will focus on standardized reporting solutions which can be integrated with businesses' own IT systems.

Flagship project: Simplified reporting

Information will be submitted on the simplification potential of electronic reporting. The Government shall place specific requirements on Government agencies in terms of their ability to receive electronic reporting from industry.

Responsible: Ministry of Labour and Government Administration, the Ministry of Trade and Industry.

Deadline: By the end of 2004.

5.4 THE PUBLIC SECTOR AS A CUSTOMER

Target: The public sector shall act the part of a major customer in order to promote the development and use of IT-based products and services within society.

The Government will be able to boost suppliers' skills levels in its role as a demanding customer. The Government's requirements could have a vitalizing effect on broadband roll-out.

The introduction of electronic systems within the public sector will also be a vital incentive to boost electronic trade and commerce in the private sector as well. By starting to deploy electronic trade and commerce, the Government will be able to set a trend and be a motivating force. The establishment of an electronic marketplace is the most important action included in the "Programme for electronic trade in Government". Framework agreements will stipulate the authorities' requirements for the design and structure of IT products and services, which will facilitate enhanced user-friendliness and accessibility for groups with special needs.

Flagship project: An electronic marketplace²⁸ for public procurement

The establishment of an electronic marketplace for public procurement is in progress. The marketplace shall be a factor in lowering public procurement expenditure, boosting efficiency in administrative routines, strengthening the competition and acting as support in the work on the integration of environmental aspects in the public sector. A wealth of opportunity is on hand to the Government as well as enterprises if they wish to draw on this modern gateway of innovative business potential and consolidated skills. The preliminary work will be followed up in the long term, focusing on benefit realization and dissemination activities for new users.

Responsible: The Ministry of Labour and Government Administration in collaboration with the Ministry of Trade and Industry.

Deadline: The marketplace shall be operational from June 2002.

▶▶ Online registration in the Central Coordinating Register for Legal Entities [Enhetsregisteret] and the Register of Business Enterprises [Foretaksregisteret] (integrated notices of registration) will commence during May 2002, and all enterprises, organizations etc. will be able to register new enterprises, changes to previous registrations, deletions and liquidations over the Internet from September 2002. For users this will mean simpler registration, better accessibility and faster case handling. Electronic signatures will not be introduced.

