

Information Society Germany 2006

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"Information Society Germany 2006" Action Programme

A Master Plan for Germany's Road to the Information Society

Summary

I. Information society Germany today

December 2003 will see the first UN summit to discuss issues pertaining to the global information society. That the international community should stage such a summit is a powerful testimony to the importance of knowledge and innovation for global development and prosperity. Modern information and communication technologies (ICT) are crucial to harnessing knowledge and innovation in order to raise growth, competitiveness and employment in today's networked world - especially in such a highly developed country as Germany.

Key indicators of the "maturity" of the global information society show that Germany has made significant progress in the last few years. According to the World Economic Forum's "Global Information Technology Report 2002-2003", for instance, Germany has considerably improved its IT ranking compared to other countries, jumping from number 17 last year to number 10 this year. Our businesses are leading the way, particularly when it comes to innovation, on-line marketing and Internet/intranet use. No other country has as many web sites per capita as Germany. At around 85 per 1,000 inhabitants (compared to the US figure of 60), the web-site rate in Germany is an impressive indication of the country's Internet users' desire to play an active role in shaping the world's most important data network.

In Germany, the information society has been reality for some time. Since 2001 we have had more mobile telephone lines than fixed-network lines. At almost 80%, the country's mobile-phone density is already high and is set to carry on rising. Innovative applications (e.g. MMS) and the move to UMTS are opening up potential for further growth in mobile communication services. Demand for fixed-line and mobile broadband applications continues to grow and a boom can be expected in the next few years. Almost all German companies are now on-line. Computers and the Internet are now part of everyday life for the lion's share of the population. Most administrations are on-line - local and Länder governments and Federal agencies provide information and services around the clock via more than 700 administration portals.

II. New "Information Society Germany 2006" master plan developed

Germany must continue to improve its good ranking for ICT penetration and use in the next few years. It is imperative that we are among the frontrunners in the global information society if we want to strengthen growth, bolster the employment market and further the Federal Government's main projects aimed at modernising the job market and the social welfare systems.

The "Innovation and Jobs in the Information Society of the 21st Century" programme adopted by the current government in 1999 was the first strategic master plan for Germany's road to the information society. The new master plan continues the policy of cooperation with all of the major players in industry and society as well as setting new, ambitious targets. The Federal Government will create an environment that nurtures competition in order to step up development and use of innovative services in the public and private spheres and to shape the transition to a mobile information society.

Along with most experts from companies and business associations, the Federal Government sees the major challenges for the next few years in the following areas:

- a digital economy aimed at growth and competitiveness,
- education, research and equal opportunities,
- e-government, security and confidence in the Internet and
- e-health.

III. A digital economy aimed at growth and competitiveness

2003 is expected to be the first year in which German business tops the 100 billion euro mark in e-commerce takings. This figure proves how important the Internet is for the economy and makes Germany by far the most important e-commerce market in Europe.

With a turnover of around 130 billion euros and some 750,000 employees, ICT is now one of the largest sectors in Germany's economy. Following the bursting of the Internet bubble and falls in turnover and jobs in 2002, the sector has now bottomed out and is set to start growing again in 2004.

The liberalisation of the telecommunication market, the sharp rise in the number of broadband Internet lines and the rapid increase in digital broadcasting have paved the way for further progress in all fields of digital communication. Cooperation between industry and government is continuing and being intensified in activities such as the "D21 Initiative", the "German Broadband Initiative" and the "Digital Broadcasting Initiative".

With nearly 5 million broadband Internet lines already installed, our aim, in line with the EU's "eEurope 2005" information society programme, is to make broadband the dominant access technology by 2005 and ensure that more than half of German homes have a broadband Internet line by 2010. Mobile, broadband applications open up new market opportunities and generate demand. In addition, the process of public-infrastructure modernisation will be given an extra boost in the run-up to Germany's hosting of the 2006 World Cup football championship.

Increasing digitisation is providing small and medium-sized enterprises (SMEs) and craft-based firms with new ways to rationalise and optimise their business processes. The Federal Government is lending a helping hand with numerous advisory activities and assistance for companies seeking to implement standardised business processes. Our aim is for 40% of enterprises to be using integrated e-business solutions for the entire value chain by 2008.

A modern information society needs appropriate legislation. Important laws, such as the Act on Electronic Commerce and the Signatures Act, have already been put into force. They will be followed by the revision of the Telecommunications Act in spring 2004 and the second stage in the reform of the copyright law, a process which will continue until 2006. Other chief areas of legislative activity in the next few years will be the EU's directive on the patentability of computer-implemented inventions, the Federal and Länder governments' drafting of simplified media regulations and measures to harmonise data protection.

The Federal Government's sponsorship of technology is intended to help German business make its mark on the global market, to assist in maintaining and expanding economic strengths and to take on board new developments in technology, business and society. Funding of ICT research is focussed on developments and processes that can give real leverage to Germany's economy by way of creating jobs (especially in the SME sector), securing existing and expanded technology leadership and supporting Germany "system-leader" companies on the global market. Media convergence is changing the face of the entire economy and opening up potential for new products and services, e.g. multimedia in mechanical engineering or telematics in the automotive sector. Future innovation will primarily take place in the areas of mobile Internet/ambient intelligence, IT-system reliability and security, nanoelectronics (including displays) and knowledge management.

IV. Education, research and equal opportunities

Education and training lay the foundation for innovative and competitive business. The "New Media in Education" programme established the basis for Germany to become a global leader

in the field of educational software. All of Germany's schools have been on-line since 2001 and now we need to make the new media part of everyday school life too. We have also set up a new system of further IT training - a modern professional-development approach that gives IT workers the possibility to train at their workplace and offers them a vast array of prospects.

Education is also about equal opportunities. That means guaranteeing all groups in society unrestricted, barrier-free access to the Internet. In particular, disabled persons, socially disadvantaged young people and unemployed persons can increase their chances in society and on the job market by acquiring Internet skills. The Federal Employment Agency's "Virtual Employment Market" project, in which it will completely revamp its web site to make it more customer-oriented, aims to bump up the figure for Internet usage by unemployed persons, which already stands at 50%.

The proportion of Internet users in the over-14 population is planned to increase to 75% by 2005. In order to put men and women on a more equal footing, the Federal Government is looking to ensure an even male/female share of Internet use on an equality basis. In addition to this short-term goal, its medium-term target is to bring the proportion of women in IT training and computer studies courses up to 40%.

The findings of the ICT research supported by the Federal Government act as economic catalysts and a basis for innovation in the sectors where ICT is used, e.g. automotive or mechanical engineering. Last year the Federal Government presented its "IT Research 2006" support programme, which will run until 2006 and invest three billion euros in research development in the field of ICT.

V. Modernising administration and reducing bureaucracy by means of e-government

On-line public-administration services are a significant cornerstone of the information society. The Federal Government launched an initiative entitled "Federal Government On-Line 2005" back in September 2000 in a systematic move to modernise government services and reduce red tape with the help of IT. 232 of the more than 440 services suitable for on-line use can now be accessed via the Internet.

On its road to e-government, the Federal Government has already passed the milestones of electronic tax declarations, the virtual employment market, a statistics portal and a payment platform. 2002 saw the beginning of the era of Internet-based public procurement when the "E-Tendering" platform was completed and the Government awarded contracts electronically for the first time. By the end of 2005, the Federal Government's contract-awarding procedure will

be run exclusively via a secure Internet-based e-tendering system that meets the legal requirements.

Now that the "E-Government" and "Reduction of Bureaucracy" initiatives have been combined, the next task is to systematically optimise the key public-administration business processes in line with the concept of "service". Collaboration between the federal, Länder and local levels will be crucial to this work.

In June 2003, Federal Chancellor Gerhard Schröder and the heads of the Länder governments adopted the "Germany On-Line" initiative, a joint strategy for integrated e-government in Germany. Through this initiative, the Federal, Länder and local governments will provide joint on-line administration services, network their portals and develop common infrastructures and standards. Pilot projects and partnerships will make e-government part of everyday public life. The experience gained in the "MEDIA@Komm" programme will play a major role as will the 300+ e-government solutions developed in the programme, which cover almost the entire range of services provided by local government.

The Federal, Länder and local governments will make use of electronic signatures for their "Federal Government On-Line" and "Germany On-Line" services. The Federal Government will base its e-signature procedure on the standards being drawn up by the public-private "signature alliance" founded in April 2003. The Signatures Act will be amended to make it easier to roll out signature cards through the usual market channels. The Federal Government will promote the use of signature cards by means of an e-card initiative to synchronise card projects and appropriate applications, e.g. bank cards, "job cards", identity cards for members of the healing occupations and health cards (the latter with optional signature) as well as electronic certification of wage-tax deductions. The next generation of ID cards will also be digital.

VI. E-health for better provision of healthcare

Healthcare is one of the areas of infrastructure and service which are being restructured with the help of IT. As well as facilitating better services for the public, telematics is also opening up huge potential for rationalisation in the healthcare sector since 20 to 40% of healthcare services involve communication and data management.

The aim is to bring about a permanent improvement in German healthcare services, compared to the current level and the international situation, by stepping up implementation of ICT and quality management. The electronic health card will be introduced by 01.01.2006. It will act as an electronic bridge between all institutions involved in the healthcare system and will play a leading role in the development of a telematics infrastructure. Further objectives are the

realisation of electronic trade in medicines as of 2004 and the introduction of electronic prescriptions from 2006.

VII. IT security

If IT and the Internet are to be used intensively, it is essential to build confidence in the security and reliability offered by modern ICT. Promotion of open-source software, use of biometrics and measures to raise public awareness of the security risks involved with the Internet are fundamental elements of the Federal Government's IT security strategy.

The Federal IT Security Agency (BSI, see www.bsi.bund.de) has become firmly established as the Federal Government's service provider for IT security. The BSI's extensive expertise on all aspects of IT security makes it unique in Europe, which is why it is serving as the model for the European Network and Information Security Agency (ENISA).

A pivotal area of IT security is protection of IT-dependent critical infrastructure. Consequently, a national plan for the protection of critical infrastructure will be drafted in 2004, following analyses of critical infrastructure in Germany and its IT dependency. A priority activity in the field of IT security is the development and expansion of the national CERT (**C**omputer **E**mergency **R**esponse **T**eam) system. This work entails establishing joint periodical assessments of the current IT security situation (statistics and reporting) as well as developing early-warning and advance-warning capacity.

In addition to efforts to prevent damage, provisions are also necessary to deal with damage if it does occur. The residual financial risk in such cases can be minimised by an insurance policy. Special policies for SMEs and domestic users are being devised in collaboration with our partners as part of the "D21 Initiative" and will be made available by the beginning of 2005.

Widespread spamming is also increasingly posing a problem. The Federal Government is planning various public-private partnership projects to stem the flow of spam mail effectively and permanently by the end of 2005. The BSI will join forces with industry and business partners to develop better protective measures in order to reduce the volume of spam. In addition, the BSI will produce special information on IT security for young people by the end of 2004.

VIII. Specific objectives of the "Information Society Germany 2006" programme

Objective	When?
Digital economy	
Internet use: Increase to 75% of population plus further increase of proportion of female users	By 2005
Broadband Approx. 7 million broadband lines Dominant form of Internet access, in line with EU eEurope 2005 programme > 20 million broadband lines (> 50% all homes)	By 2004 By 2005 By 2010
Mobile telecommunication GSM/GPRS: 65 million subscribers (> 80% of population) UMTS : Launch of services Expansion of network provision to 50%	By 2004 By spring 2004 By end 2005
Total digitisation of broadcasting services via aerial, cable and satellite: TV Radio	By 2010 By 2015
E-business and SMEs: Extensive use of e-business by 40% of SMEs	By 2008
Legal environment, revision of key legislation Telecommunications Act Simplification of media regulations Modernisation of copyright law	Spring 2004 2004 By 2006
Research and development of technology	
Further expansion of leading role in field of mobile information and communication systems	As of 2004
Germany leading the way in development of reliable software and IT systems	By 2006
Increased networking of research establishments and companies to ensure that research findings are quickly translated into marketable products	As of 2004
Development of worldwide standards for the networks of the future	As of 2004
Education and training	
Increased penetration of new media in schools, vocational training institutions and universities	By 2006
Development of strategies for use of computers in full-time schools ¹	By 2006
Establishment of a network of excellence and a technical grid infrastructure for German research and business	As of 2004
Development and enhancement of e-science applications	As of 2004
Further increase of proportion of women in IT training and computer studies courses to 40%	By 2006
E-government	
"Germany On-Line": Launch of 15 implementation projects	End 2003

¹ Up until now, "full-time schools" have not been the norm in Germany. Pupils began classes early and school was out by early afternoon.

Implementation of 50% of the "Germany On-Line" projects by the Federal, Länder and local governments	By end 2005
"Federal Government On-Line" – On-line provision of all 440 Internet-capable services	By 2005
Establishment of 20 model local e-governments ("transfer governments") as part of the transfer of MEDIA@Komm experience	As of spring 2004
Federal Government's contract-awarding procedure exclusively via a secure e-tendering system in line with legal requirements	By 2005
Launch of the virtual employment market	End 2003
Provision of a virtual post room for all Federal agencies	Beginning 2004
Phased installation of a form-management system for "Federal Government On-Line"	2004 to 2005
Expansion of IVBB to create the Federal Administration Information Association, which any Federal agency may join	Beginning 2004
E-card initiative/digital signatures	
40 million "job cards"	Creation of necessary legislation in 2004, implementation by end 2005
80 million health cards	Launch in 2004, completion end 2005
Bank cards with digital-signature function	As of 2004
Backed up by amendment to Signatures Act	Beginning 2004
Electronic certification of wage-tax deductions	By 2005
Digital identity card	Legislative process in 2004
E-health	
In conjunction with the health card (see above), issue of approx. 300,000 identity cards for members of the healing occupations plus establishment of a telematics infrastructure and medical documentation which can be accessed by all institutions involved in healthcare	By 2006 As of 2004
Electronic trade in medicines	As of 2004
Electronic prescriptions	As of 2006
IT security	
Launch of operations at the IT Security Centre M-Cert for SMEs	Launch end 2003
National plan for protection of IT-dependent, critical infrastructure	2004
Internet insurance policy : insurance for Internet users	Beginning 2005
Special IT security information for young people	End 2004

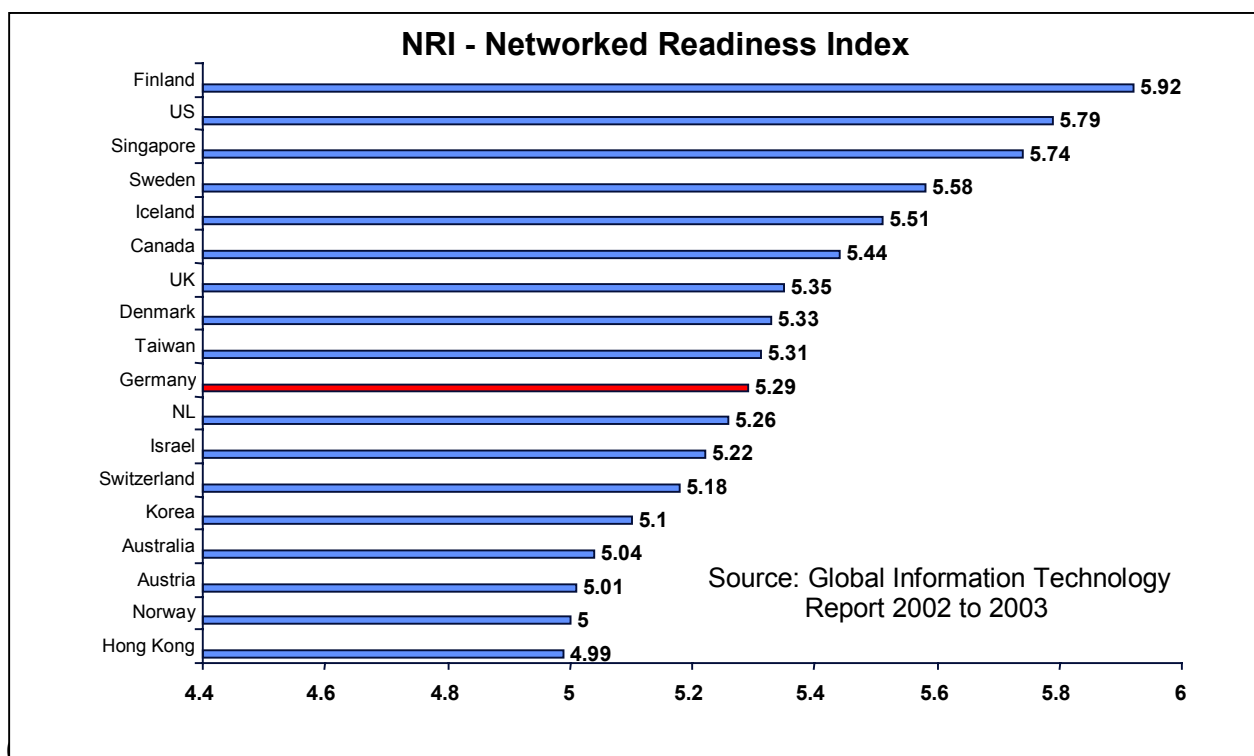
Section A: Current Situation and Future Prospects in the German Information Society

I. The German information society today

Germany is well on the way to becoming a fully fledged information society. ICT, especially the Internet, has become much more widespread both in domestic and business use. As well as serving as an information and advertising tool, the Internet is increasingly being used for communication and transactions.

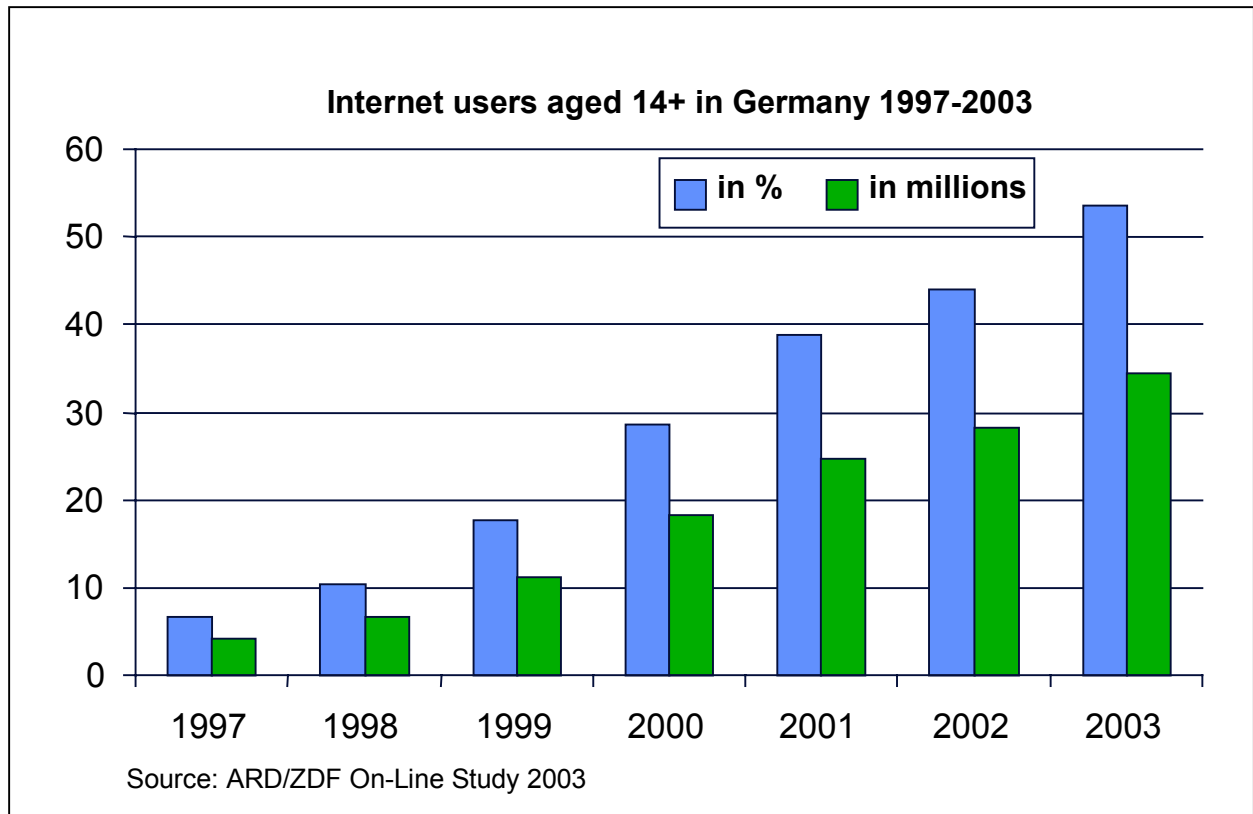
Many of the new services are currently in a state of metamorphosis, moving from being considered of no benefit to being seen as an economic asset - a transition which is not always plain sailing. In the medium and long term, the main challenge is to make the Internet even more economically valuable and transform Germany into a predominantly digitised service society. Despite striking progress in recent years, there is still considerable development potential, especially in the major areas of administration, education/training and health, and it is up to the government to help harness it.

All the same, of a good 80 countries examined in the Global Information Technology Report 2002-2003, Germany managed to come in tenth (as opposed to seventeenth last year) in the "networked readiness" index. This ranking shows clearly that Germany has the potential to become one of the world's leading ICT locations - a goal which business, politicians and society must work hand in hand to achieve.



ICT usage and penetration

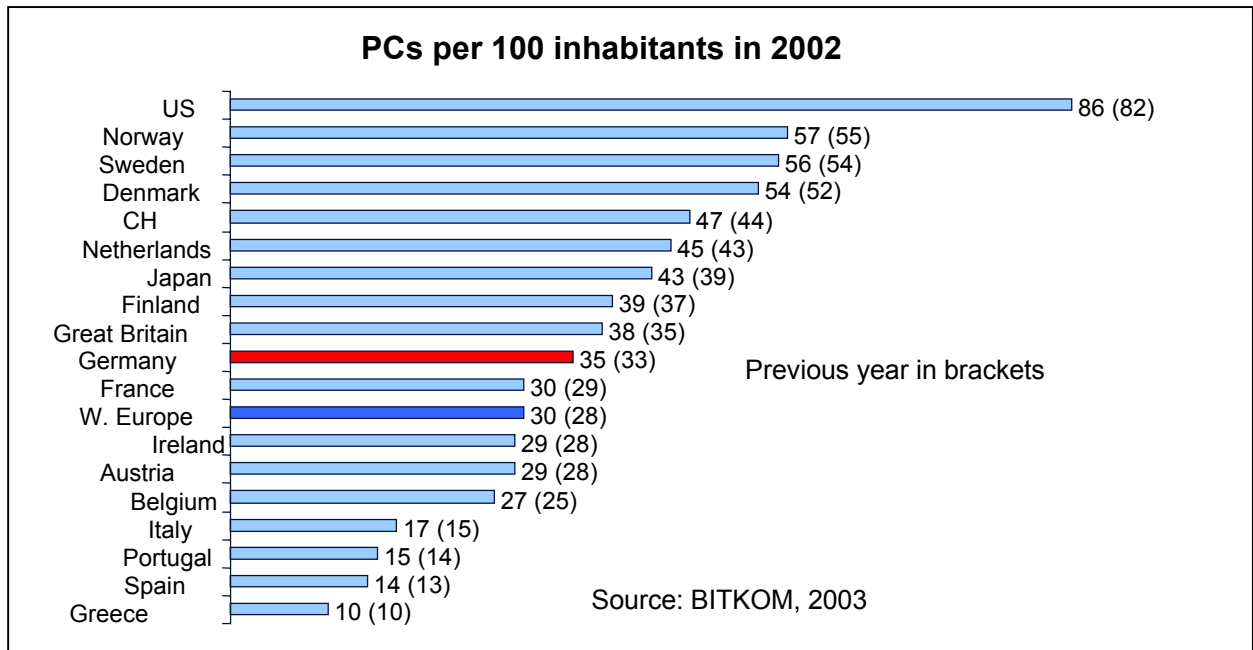
2003 was the first time that more than half of over-14s in Germany were on-line (according to the "On-Line Study" by the German ARD/ZDF television stations, the figure was 34.4 million or 53.5% of over-14s).



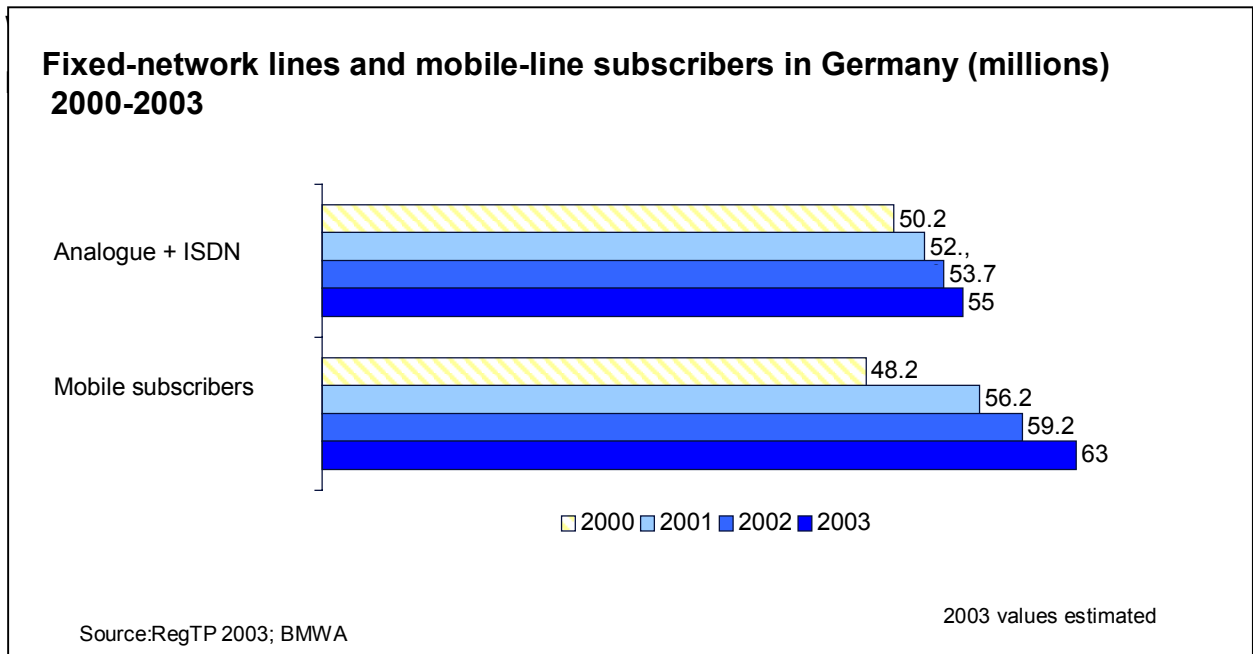
In times past, the typical Internet user was a "high-income, young male". Now, the Internet is in widespread use in almost all sections of the population. In a number of sections, particularly pupils and students, only a small minority are off-line. Despite this extremely high level of penetration, the number of users can be expected to carry on growing in the future.

The past few years have witnessed a sharp rise not only in the number of users but also in frequency and duration of use. Whereas the average Internet user surfed on 3.3 days per week back in 1997, by 2002 the figure had already jumped to 5 and the average time spent on the Internet per month was just under 16 hours. This trend has also been bolstered by the explosive growth in broadband Internet lines in the last two years. Today there are already almost 5 million Internet lines using broadband access.

Overall, ICT infrastructure has developed positively. This year there are 30 million PCs installed in Germany, that means (not quite) 4 computers per 10 inhabitants. Having said that, the US and the Scandinavian countries have a much higher PC density rate.

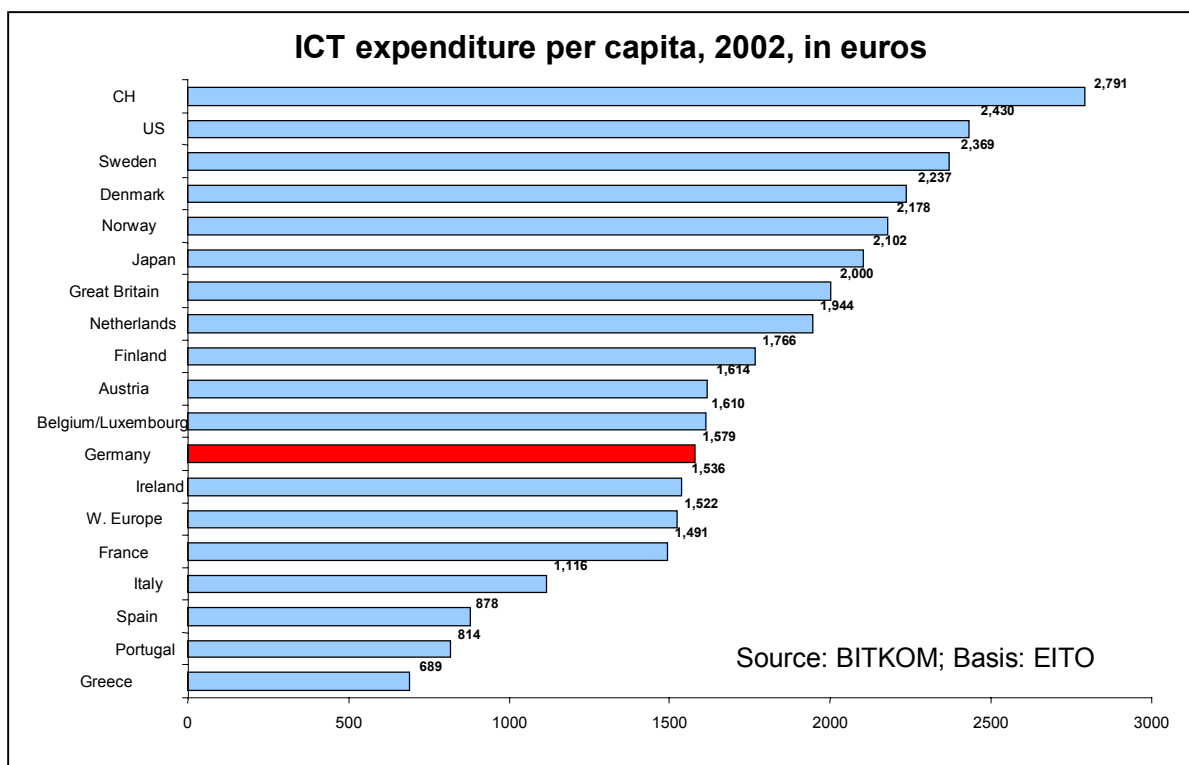


Since 2001 Germany has had more mobile telephone lines than fixed-network lines. At just under 80%, mobile-phone density in Germany has reached a level where only a negligible rise in the number of subscribers can be expected. Nonetheless, demand for mobile-telephone services *could* be boosted on the basis of innovative applications - such as MMS - and UMTS.



Significance of ICT for growth and employment

International studies show that investment in ICT has a positive impact on economic growth. An OECD study concludes, for example, that ICT investment contributed more than 0.8% to growth in the US in the period 1995-2001 - the figure for Germany was just under 0.4%. The exact amount of growth attributable to ICT depends greatly on the methods and assessment criteria used in the study concerned as well as the period it covers. However, one thing is clear - Germany does not number amongst the international vanguard. We still have some catching up to do as can be seen in the following chart for ICT expenditure per capita in 2002.



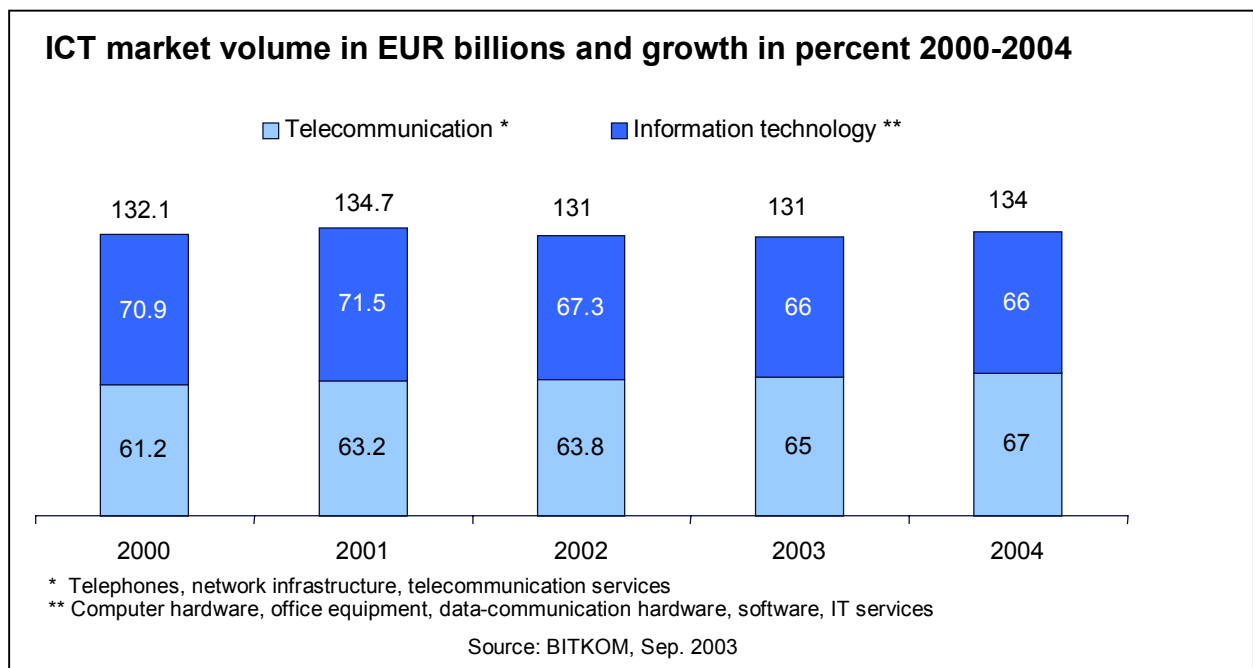
How much ICT helps to raise labour productivity, competitiveness and growth does not only depend on ICT expenditure or investment. Integrating the possibilities resulting from ICT into value chains is of equal if not greater importance but it requires experience and therefore takes several years.

That may also be one of the reasons why labour productivity keeps on growing in some countries, especially the US, irrespective of what is happening in the economy. Essentially, that's good news for German business. As we finish off catching up in ICT use, we can learn from the pioneers and raise productivity even higher in the future.

In most areas of business, life without ICT is unthinkable. Almost all German companies are on-line and over half of the workforce uses a PC on a regular basis. This very advanced diffusion of ICT in companies means that they can rationalise and improve value chains and create innovative new products and processes.

The Internet is already a significant economic factor today. With 2003 expected to be the first year in which German business tops the 100 billion euro mark in e-commerce takings, Germany is by far the most important e-commerce market in Europe.

With domestic sales of around 130 billion euros and some 750,000 employees, ICT is now one of the largest sectors in Germany's economy. However, 2002 was an extremely tough year for the ICT sector worldwide. In Germany there was even a fall in turnover and employment. But both the sector and the overall economy have now bottomed out and the majority of market players and experts believe that the ICT sector will be back on course for growth from 2004. The trend visible in the ICT sector - and the whole economy - points to services continuing to gain in significance.



Education/training and research

All of Germany's schools have been on-line since 2001, which means that a chief objective of the "Innovation and Jobs in the Information Society of the 21st Century" programme has been met. The "New Media in Education" programme established the basis for Germany to become a global leader in the field of educational software. The Federal Government has also set up a new system of further IT training in collaboration with the "social partners". The system provides a modern professional-development approach that gives IT workers the possibility to train at their workplace and offers them a vast array of prospects. As a result, those who have

completed one of the new programmes of IT vocational training and the numerous people who move to IT from other branches of industry can gain further qualifications which are now, for the first time, recognised, meet the needs of business and are accepted by industry as proof of acquired skills. This system of further IT training will enhance employment and growth opportunities in companies.

As a result of the "Immediate Action Programme of the Federal Government and the ICT Sector to Meet the Demand for IT Specialists in Germany" coupled with the bleak economy, the lack of ICT specialists has become less acute. However, in view of the requirements expected in the medium and long term and in light of demographic development, effort is still needed in education and training. Controlled immigration is also being used to meet the need. The Federal Government has renewed the green cards up to the end of 2004 in order to prevent a legal loophole from forming in the period up to the final introduction of the Immigration Act.

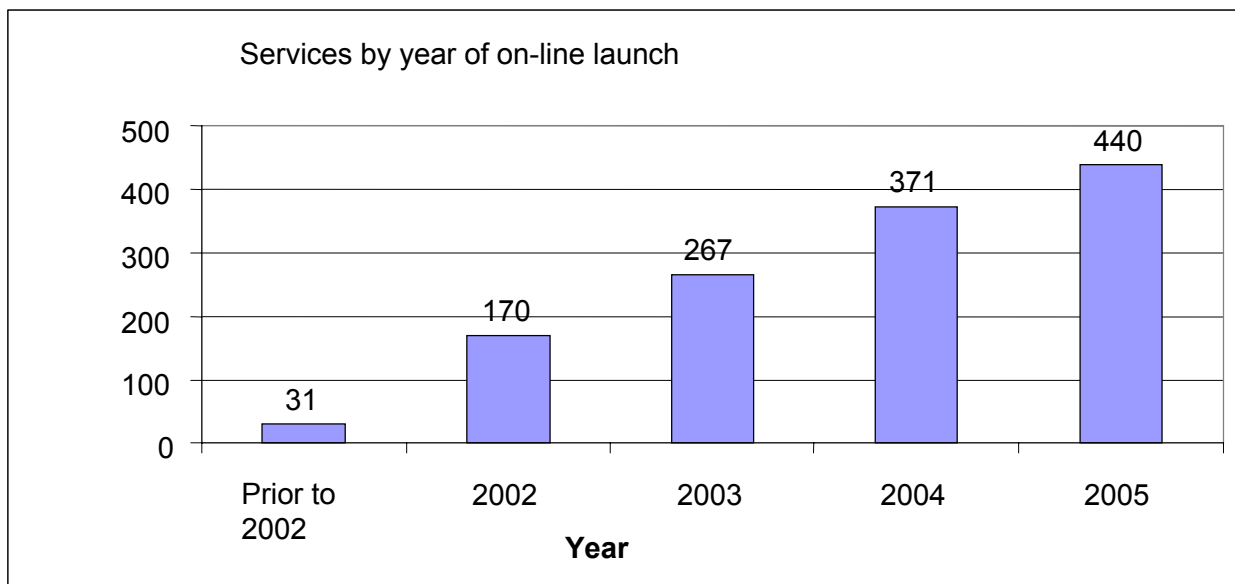
Our research policy must be geared to helping German business make its mark on the global market and to assisting in maintaining and expanding economic strengths. The 300 mm project, for example, has established the basis for the chip factory of the future in Germany. Thanks to government support in the field of semi-conductor development, 16,000 excellent jobs have been created in Germany, with 11,000 of them in the Dresden region alone. Over the past few years, Dresden has become one of Europe's most state-of-the-art microelectronics regions.

The findings of ICT research continue to act as economic catalysts. Last year the Federal Government presented its "IT Research 2006" support programme, which will run until 2006 and invest three billion euros in research development in the field of ICT.

ICT in public administration

Ours is a largely networked, mobile society and its citizens expect government services to reflect that. With its long-term e-government strategy, "Federal Government On-Line 2005", Germany has acquired an international reputation of having built a robust infrastructure for the provision of on-line services - despite a slow start. A clear schedule, central coordination for the entire Federal Government and a focus on secure Internet use are ensuring widespread acceptance of and confidence in the new technologies.

Now, three years on from the launch of the initiative, more than half of the Federal Government's 440 Internet-capable services are now offered on-line.



Statistics correct as of: 7.11.2003

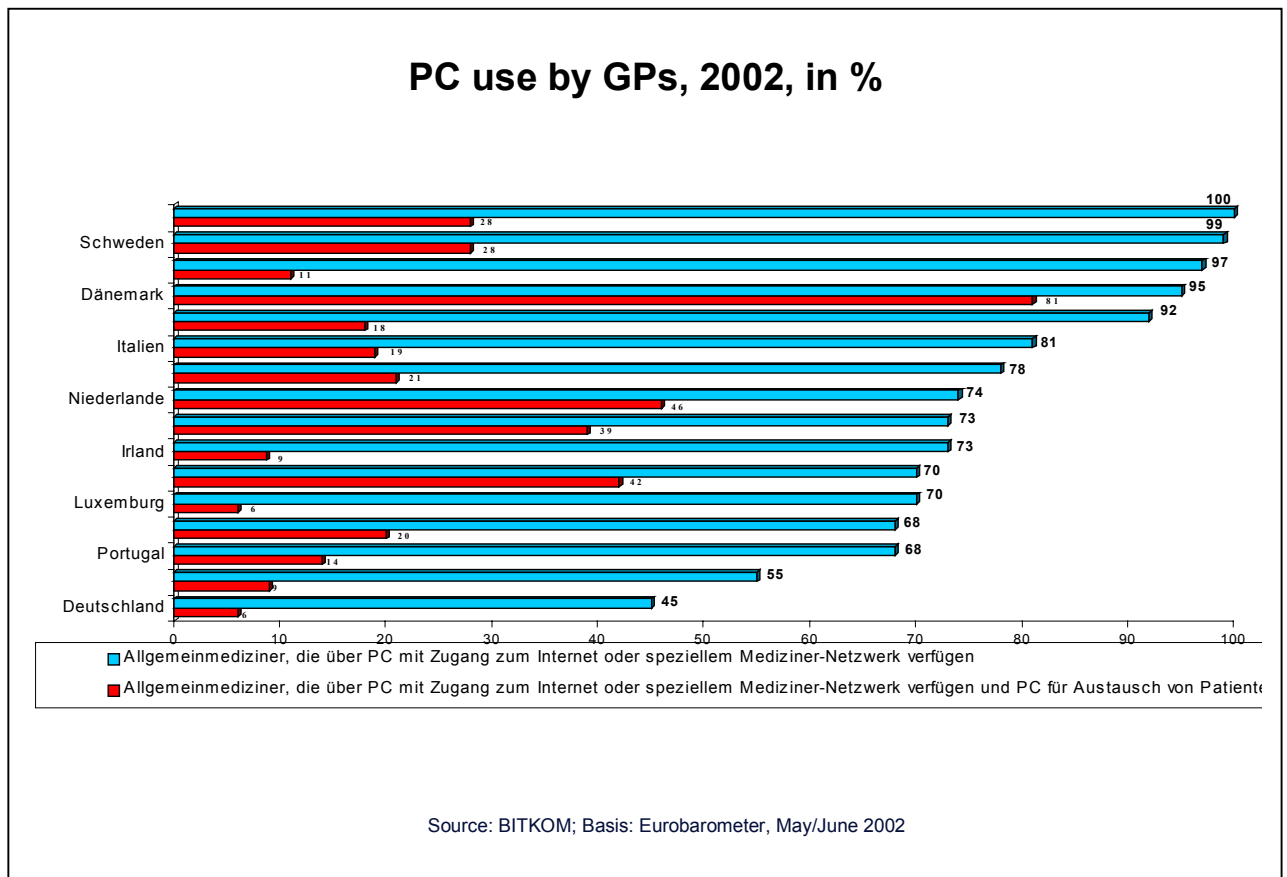
Promising Länder-level projects are bringing e-government to the masses. At the local-government level, the solutions developed during the "MEDIA@Komm" project will be of particular benefit. In June 2003, the Federal, Länder and local governments combined their projects in a joint e-government strategy, entitled "Germany On-Line".

The modernisation of the Signatures Act in the previous legislative period already opened up a range of fields of application for electronic transactions and communication. We now need an offensive strategy to bring together the plethora of signature projects in the business and administration sectors to promote widespread use of electronic signatures. To do this, the Federal Government formed an Alliance for Electronic Signatures, with partners from both sectors, on 3rd April 2003. Comprising members from a wide variety of institutions and industries, the alliance is intended to generate a climate that encourages investment in electronic-signature applications.

Health

Healthcare is also one of the sectors in which comprehensive ICT deployment is driving the necessary process of modernisation. As well as facilitating better services for the public, telematics is also opening up huge potential for rationalisation in the healthcare sector since 20 to 40% of healthcare services involve communication and data management. This high figure demonstrates the extent of the rationalisation potential which is currently going to waste.

In some areas of the healthcare sector, especially general practitioners' (GPs) use of the Internet, Germany still has a lot of catching up to do².



- GPs who have a PC with Internet access or access to a special doctors' network
- GPs who have a PC with Internet access or access to a special doctors' network and use PC for exchanging patient data

Although Germany's healthcare system is highly advanced in terms of technology, this sector, which looks after human beings' most important asset - their health - is prone to overlapping activity, media incompatibility and non-compatible types of documentation.

The sectoral structure of our care system is reflected in its IT too. In the German system, each institution, though it may have a totally state-of-the-art solution, stands alone. At the moment, the "IT boundary" often begins where the institution's boundaries end.

The Federal Government is concentrating on setting up an suitable infrastructure, establishing reliable patient information systems and evolving the health-insurance card into the health card.

² Note: The National Association of Statutory Health Insurance Physicians has banned general practitioners in Germany from exchanging patient data via the Internet because the infrastructure is not totally secure.

II. Future prospects and challenges for policy-makers

Information and communication technologies drastically alter business and society. They make new structures possible and drive improvement in our education and health systems. They render scientific work more effective, enable innovative products and services to be developed and help make public administration more efficient and transparent.

The possibilities offered by digital technology have by no means been fully exploited yet. So Germany has a great opportunity to expand its expertise and tap into new markets. As well as giving birth to new markets, ICT innovations stimulate conventional industrial sectors such as automotive or mechanical engineering.

Evolving the information society in Germany thus remains an important policy-making task. The aim is to maintain and augment our good ranking for ICT penetration and use in the next few years. Placing Germany among the frontrunners in the global information society will go a long way to strengthening growth, bolstering the employment market and thus furthering the Federal Government's main projects aimed at modernising the job market and the social welfare systems.

Whilst the focus in the previous legislative period was on access to the new media (in the "Internet for All" programme, for example), the Federal Government's policy is now aimed at ensuring refined use of the new technologies - as well as continued promotion of equal rights to participation by all groups in society.

Enhancement of infrastructure and service is primarily a market process. The government's tasks are:

- to provide a legal and regulatory environment in line with market requirements,
- to generate stimuli in selected areas by means of partnership with business and strategic promotion of technology,
- to create security for and confidence in information and communication networks and
- to increase the digitisation of its own value chain, particularly in the following areas: e-government, use of ICT in and for education/training/equal opportunities and e-health.

As in the past, the Federal Government sets verifiable targets for its ICT policy. On top of that, it has already successfully employed benchmarking to assess policy, in the "Monitoring the Information Economy" programme, and will continue to use it in the future. It also participates in the pan-Europe benchmarking process within the EU's eEurope programme.

The Federal Government is eager to form its policy for the information society in consultation and, if possible, synchronisation with all major economic and social players. In addition to representatives of civil society and the trade unions, companies and business associations will play a central role. One example of this, apart from the cooperation with the umbrella associations, is the collaboration with the associations that cover specific areas of business, especially BITKOM (German Association for Information Technology, Telecommunications and New Media).

The Government believes that cooperation within inter-sector public-private partnerships (PPPs) is a particularly promising approach. The D21 Initiative is an excellent example of a PPP concerned with the information society. The initiative is a non-competitive platform encompassing all parties and sectors. The Länder are represented in its working groups and on its advisory council. At the beginning of 2003, the initiative was restructured so that it can concentrate better on the main challenges coming our way in the next few years. In the new structure, D21 now consists of the following four areas:

- growth and competitiveness,
- IT in the healthcare system,
- education, training and equal opportunities and
- e-government, security and confidence in the Internet.

Along with this new structure, in which the subjects largely correspond to the fields of activity in this programme, Federal Chancellor Schröder agreed to act as chairman of the initiative's advisory council for another three years. www.initiatives21.de

At the international level, the Federal Government is actively involved in the implementation of the eEurope 2005 action plan. With eEurope 2005, the EU states are endeavouring to create an environment which fosters private investment and job creation, leads to more modern public administration and healthcare and gives everyone the possibility to participate in the global information society. One of the action plan's goals is to promote more secure services, applications and content on the basis of a widely accessible broadband infrastructure. The progress made with eEurope 2005 is regularly checked - partly by means of the above-mentioned benchmarking procedure.

Beyond the realms of the EU, the Federal Government plays an active part in the entire range of relevant international forums, both conventional and new. The former include international mechanisms such as the United Nations, including the International Telecommunication Union

(ITU) - a government organisation - and the Information and Communication Technologies Task Force (ICTTF) set up within the framework of the Economic and Social Council (ECOSOC), and, outside of the UN, the Organisation for Economic Cooperation and Development (OECD). The new forums, most of which take in a range of sectors, have evolved partly by virtue of the innovative character of ICT. Examples are the Internet Corporation for Assigned Names and Numbers (ICANN), the Development Gateway Foundation (DGF) and the Organization for the Advancement of Structured Information (OASIS).

In the period 2003 to 2005, the two-phase World Summit on the Information Society (WSIS) will play a key role, starting in December 2003 when the international community will adopt a political declaration and an action plan for political activity. For the Federal Government, it is important that such activities pursue an inclusive approach since the transition to the information society will only be successful and accepted by the public if all groups in society are involved.

The government's policy on the information society will focus on the following fields of activity over the next few years:

A digital economy aimed at growth and competitiveness

Next generation of networks and services

The boom in broadband Internet access will continue over the next few years. New Internet lines and upgrades will bring the proportion of domestic Internet users with broadband access up to around 70% by 2015. The present dominance of the ADSL service offered by Deutsche Telekom will give way to other suppliers and access technologies.

Mobile data services (e.g. messaging, information services, chatting and mobile-office solutions) will also gain in significance – a trend that will be considerably accelerated by the introduction of UMTS and further expansion of the WLAN infrastructure.

The establishment of the next generation of networks in the ICT sector must go hand in hand with development of high-quality services. The task of the government is to install, where necessary, market regulations that promote competition, and to ensure that they are adhered to. Priority must be given to implementing the EU's package of telecommunication directives. Equally important are the government's measures to bolster demand for broadband Internet

lines and digital broadcasting within its partnerships with companies and associations, especially the D21 Initiative and the IDR initiative (Digital Broadcasting Initiative).

E-business and SMEs

E-business applications provide SMEs with a great opportunity to improve their market position and competitiveness. Often, small and medium-sized suppliers to industry have no other choice than to respond to the demands of the large production companies and move over to e-business.

We need to help SMEs and craft-based firms make that move to new business applications. They have to be given the possibility to maintain their important economic role even when the economy has gone digital. E-business solutions in line with the specific requirements and situation of each company are needed so that they can stay competitive and gain even more competitive edge. To do this, they also need to provide their workers with ongoing training and organise the "archiving", use and expansion of the company's knowledge.

The aim for the next five years is to significantly lift the quality of e-business in the SME and crafts & trades sector and work towards integrated value chains and comprehensive e-commerce applications.

Legal environment

The widespread use of ICT and, in particular, the growth in the number of broadband Internet lines are posing copious challenges for legislators. In recent years there has been a sharp increase in economic damage resulting from the use and distribution of illegal copies, especially software and audio/video products. The legislature responded to this situation with the Act Governing Copyright Law in the Information Society of 10 September 2003. A further stage of the reform, to be concluded by the end of this legislative period, is especially intended to redraw the lines of the copyright-fee system and the scope of the right to private copies and to assess the pros and cons of digital rights management. Clear legal provisions are also required to deal with the patentability of "computer-implemented inventions".

Users are increasingly being confronted with annoying, and sometimes criminal, phenomena such as dialler programs or spamming. In addition to national legislation, international rules and cooperation are needed – especially to cope with spamming. The media and data-protection regulations will also have to be harmonised in the next few years.

Innovation driven by research policy

The Federal Government's sponsorship of technology is intended to help German business make its mark on the global market, to assist in maintaining and expanding economic strengths and to take on board new developments in technology, business and society. It follows, then, that our funding of ICT research is focussed on developments and processes that can give real leverage to Germany's economy by way of creating jobs (especially in the SME sector), securing existing and expanded technology leadership and supporting Germany "system-leader" companies on the global market. It is to this end that the government is identifying key areas of innovation, i.e. projects in which it works with the spheres of research and business to combine and integrate technologies. The projects are accompanied by pooled research capacity and funding and trigger value chains with a large potential benefit for the overall economy. Future innovation will primarily take place in the areas of

- mobile Internet,
- IT-system reliability and
- nanoelectronics.

As a result of broadband, growing mobility, continued networking and digitisation of audio-visual media, media convergence is moving into a new phase of development that will be felt by the masses. The boundaries between many applications (e.g. television, radio and the Internet) are blurring as new technologies provide quicker means of transmitting images and sound, be it wire-bound or wireless, powerful terminals enable multimedia content to be presented and edited and as it becomes possible to integrate these systems in all-encompassing networks.

In the future, it will be possible to use one and the same system for an array of purposes. For the first time, domestic users will have access to special applications which previously involved such effort and cost that they were the exclusive domain of a select few experts. Totally new electronic services can also be expected.

The new developments we might be seeing include smart homes/buildings, telematics applications in healthcare and transport as well as knowledge and education management. To be successful, these new or modernised products will not only have to offer good value for money but also be mobile and easy-to-use and, above all, the applications and devices will have to be compatible.

Cooperation projects aimed at developing binding standards will play a dominant strategic role, especially for software and Internet development. Only companies which are successful in their R&D will be able to influence and define standards on the rapidly changing ICT market.

Education, training and equal opportunities

Education and training lay the foundation for innovative and competitive business and employing state-of-the-art ICT is key to achieving that. Only countries which champion the development and use of powerful ICT and invest in individuals' knowledge will successfully make the move to the information and knowledge society.

As globalisation increases, knowledge-based innovations will determine where the economy goes. With knowledge being an economic factor, how society handles it in the future will be a central question. The need to generate, pass on, impart and acquire knowledge and translate it into practice is confronting education and research with completely new challenges. As well as determining how an individual's personality develops and to what extent he or she participates in society, access to education will provide the basis for a modern, democratically constituted society with a bright future. All this will require innovative infrastructure for distributed, cooperative work in networks plus use and diffusion of digital teaching and learning software in schools, vocational training and higher education.

Participation based on equal opportunities

All in all, the rate of Internet use in Germany is already well advanced. Nonetheless, there are still differences between the various groups in society. The Federal Government needs to provide support to overcome these differences, especially since the social and professional disadvantages for "off-liners" are escalating all the time. In particular, socially disadvantaged young people and unemployed persons can increase their chances in society, as job-seekers and at work by acquiring Internet skills.

The Federal Government is pursuing the goal of implementing the gender mainstreaming strategy, as laid down in the Amsterdam Treaty of the European Union, by seeking to ensure gender equality in all areas of policy, programmes and measures. The proportion of women who use the Internet has been increased from approximately 30% in 1998 to 45% today. Despite this significant rise and the exceptional increases in the number of female students commencing IT training programmes and engineering courses, the figures achieved so far are not satisfactory. To remedy the situation, the Federal Government is looking to ensure even male/female

proportions and equal rights in Internet use as quickly as possible and to bring the share of women in IT training and computer studies courses up to 40% in the medium term. In order to provide equal opportunities for participation, it is particularly important that computer and Internet applications be barrier-free. With this in mind, the government has set out to ensure that public access points are barrier-free.

E-government, confidence and security in the Internet

E--government

In recognition of the fact that Germany needs a networked e-government landscape, the Federal, Länder and local governments agreed on a common e-government strategy, entitled "Germany On-Line", in summer 2003. "Germany On-Line" will link up the various projects at the individual levels of government. The Federal Government's objective is that the most important public-administration services offered by the different levels of government should be processed via the Internet without users having to approach different agencies or use different media.

By implementing the "Germany On-Line" project and thus reviewing and modernising the administration, the Federal Government is making a significant contribution to the dismantling of bureaucracy. Wage-tax handling will also benefit since the "ElsterLohn" project, to be launched in 2005, will enable the data on employees' wage-tax certificates to be transmitted to the tax office electronically. This will considerably simplify and accelerate the procedure and the final curtain will fall on the conventional, paper "wage-tax card" in a later phase.

The "E-Tendering" project, one of the most important projects in the "Federal Government On-Line 2005" initiative, will lend more transparency, quality and efficiency to the process of awarding public contracts. From the bidding stage through to the signing of the contract, the process can be conducted securely and in a legally binding manner, via one, Internet-based platform. In view of the weighty role played by public procurement in the national economy and the more transparent competitive environment, new methods for obtaining government contracts are being born - especially for SMEs. The plan is to provide this Federal-level solution to the Länder and local-government levels too.

The Federal Government's programme to optimise public procurement, announced by the Federal Chancellor, will make its procurement activities more efficient. As of the middle of 2004, all of the Federal Government's invitations to tender will be published at www.bund.de. By the end of 2005, its contract-awarding procedure will be run exclusively via a secure Internet-based

e-tendering system that meets the legal requirements. The electronic contract-awarding system developed within the federal administration ("E-Tendering" – www.evergabe-online.de) must be used for this procedure unless there are key economic or technical reasons not to do so in specific cases. Some 175 contract awards have already been electronically processed using the E-Tendering system in 2003.

Confidence and security in the Internet

As guarantor of internal security, the government must also help to establish a secure, trustworthy Internet infrastructure. Nowadays, internal security and IT/Internet security are inextricably linked. The Federal Government is conscious of its responsibility in this political sphere and has committed itself to a range of actions and programmes specifically designed to continue and intensify the measures already initiated in the past to promote Internet security. They will aim to protect IT-dependent infrastructure, raise awareness of IT-security issues and promote and deploy new security technology. The fact that a separate agency – the Federal IT Security Agency (BSI) – is responsible for Internet and IT security emphasises how important these topics are. As well as dealing with Internet security, protection against computer viruses, certification and user advice, the BSI runs the "CERT" alliance – a 24-hour "emergency service" for IT security problems.

Health

Healthcare is one of the areas of infrastructure and service which are being restructured with the help of IT but which themselves also generate impetus for technical, economic and social developments on the road to the information society. We are expecting a surge of investment in ICT in Germany with positive repercussions for export – as in the case of the Taiwanese health card designed by German industry.

In a government policy statement on 14th March 2003, Federal Chancellor Schröder made it clear that "the reserves inherent in modernisation of communication technologies in the healthcare system have by no means been exhausted."

Healthcare telematics and e-health are key to the necessary shift in paradigm in the healthcare system and to more economical, better-quality and more transparent healthcare provision in Germany. The Federal Government's goal is to make increasing use of IT in healthcare in order to achieve a standard of service that will give German healthcare the (international) standing attainable by means of quality management and pushing ahead with implementation of ICT.

Consequently, it is seeking to introduce digital communication technology throughout the healthcare system.

The electronic health card will be introduced by 1st January 2006 at the latest. It will act as an electronic bridge between all institutions involved in healthcare and will be an important "lever" in the development of a telematics infrastructure.

Objectives

Concerted efforts by the political sphere, business and society, based on the specific objectives listed below, will be undertaken in the next few years in order to expand the information society and secure Germany's ability to innovate.

Digital economy aimed at growth and competitiveness

- Broadband to be the dominant Internet-access technology by 2005 and over 20 million broadband lines in Germany by 2010.
- Continued growth in the mobile-telecommunications market: over 65 million GSM users by 2004, over 50% UMTS network provision by end of 2005.
- Rapid introduction of digital broadcasting. Swift expansion until TV broadcasting via aerial, cable and satellite is completely digitised. The target for the move from VHF to digital radio, depending on the market response, is 2015.
- Considerable boost to e-business in SMEs and the craft/trade sector in the next five years. 40% of all companies should be using totally integrated value chains and e-commerce solutions by 2008.
- Modernisation of the legal environment in a way that facilitates competition and takes account of the various interests involved; in particular, revision of the Telecommunications Act, further modernisation of copyright law and simplification of the media regulations.
- Promotion of research aimed at development of new products and methods, especially for "anytime, anywhere" networking (smart building, smart car, etc.).
- Further expansion of leading role in field of mobile information and communication systems as of 2004.
- Germany leading the way in development of reliable software and IT systems by 2006
- Increased networking of research establishments and companies to ensure that research findings are quickly translated into marketable products, as of 2004
- Development of worldwide standards for the networks of the future, as of 2004

Education, training and equal opportunities

- Use and increased availability of new media in schools, vocational training institutions and universities by 2006.
- Development of strategies for use of computers in full-time schools, by 2006.
- Establishment of a network of excellence and a technical grid infrastructure for German research and business as of 2004.
- Development and enhancement of e-science applications as of 2004
- Further, significant increase in Internet penetration and use. The Federal Government has set itself the goal of raising the proportion of Internet users amongst the over-14s to 75% by 2005.
- Launch of the virtual employment market in December 2003.
- Even male/female proportions and equal rights in Internet use as quickly as possible and further increase of proportion of women in IT training and computer studies courses to 40% in the medium term.

E-government; confidence and security in the Internet

- Creation of a totally integrated e-government landscape, taking in the Federal, Länder and local levels of government, through "Germany On-Line".
- Launch of 15 implementation projects in 2003; implementation of 50% of the "Germany On-Line" projects by the Federal, Länder and local governments by the end of 2005.
- All of the Federal Government's Internet-capable services will be on-line by the end of 2005 thanks to "Federal Government On-Line".
- Establishment of 20 model local e-governments ("transfer governments") as part of the transfer of MEDIA@Komm experience, as of spring 2004.
- Common business models to enable Federal, Länder and local governments to use each others' e-government solutions.
- The Federal Government will complete the following e-government solutions within that framework by 2005: form-management system, payment platform, content-management system and a visual post room.
- "One for all" services, e.g. for project funding, electronic legal transactions or HR recruitment/training, will also be available.
- Federal Government's contract-awarding procedure exclusively via a secure, Internet-based e-tendering system in line with legal requirements, by 2005.
- Conventional "wage-tax card" (for tax-assessment purposes) to be replaced by an electronic wage-tax certificate by 2005.
- Launch of operations at the IT Security Centre M-Cert for SMEs by December 2003.
- National plan for protection of IT-dependent, critical infrastructure, 2004.

- Insurance against risks involved in Internet use (Internet insurance policy) will be made available at beginning of 2005.
- Mass roll-out of electronic signatures in the banking industry, in labour and tax administration and in the healthcare sector using normal business processes (beginning of 2004); strategic orientation for projects provided by Federal Government's "E-Card" initiative and backed up by amendment to Signatures Act at beginning of 2004.
- Creation, with the members of the Signature Alliance, of the conditions necessary for processing all electronic legal and commercial transactions, on the basis of a common technical standard, using electronic signatures, by the end of 2005.

Health

- Testing of the electronic health card from 2004, nationwide use by 1.1.2006 at latest; issue of approx. 300,000 identity cards for members of the healing occupations, also by 2006.
- On that basis, creation of the conditions necessary for patient medical documentation which can be accessed by all institutions involved in healthcare.
- Electronic prescriptions as of 2006, thus increased efficiency; plus, medicine documentation will lead to safer use of medicines; combined, these measures will save billions of euros.
- Realisation of electronic trade in medicines in Germany and other countries in the European Economic Area as of 01.01.2004.
- Creation of the work structures for ongoing standardisation of ICT in the healthcare sector, based on an agreed framework telematics architecture, as of 2004.
- Support for networking of market players (especially doctors, hospitals and pharmacies) until 2006.