ConnectingPortugal

**A program of action
in the Portuguese Government
TECHNOLOGICAL PLAN:**
Mobilizing the Information
and Knowledge Society

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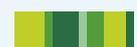
The preparation of this text was
coordinated by the Ministry of Science,
Technology and Higher Education,
in collaboration with the Prime Minister's
Office and all other governmental
departments. Many other
non-governmental institutions, public
and private, also contributed, as well
as the analysis of other European and
international experiences. The full text,
with the respective technical attachments,
will be regularly updated at
www.ligarportugal.pt.
Nevertheless, it is a guiding document
whose development and specialization
calls for the general participation
of all relevant social agents.
The challenge of the development
of a networked society, of information
and knowledge, requires such structured
and motivated participation and a new
social engagement, based on clear political
guidelines and on demanding and realistic
orientations, which the government
proposes to the Portuguese society
and to which the government, itself,
is committed.

July 2005

1. Introduction

The mobilization of the information society, as explicitly expressed in the government's program, strongly depends on the increase of general access to the Information and Communication Technologies (ICT), particularly the Internet, with direct impact on the citizens quality of life, safety and work. Along with the encouragement to innovation, and the priority given to the development of human capital, the emphasis put on social and economic appropriation of the ICT is a critical element on the government's Technological Plan for the development of the Portuguese society.

It is clear today that the levels of well-being, progress and collective wealth and productivity, that characterize more developed countries, are based on social and economic structures of great scientific and technological sophistication, strongly upheld by the most modern Information and Communication Technologies. The adequate use of these technologies, which turned out to be particularly demanding as a consequence of their constant and active evolution, is today as crucial on the social sphere as on the entrepreneurial sector. On education, but also in other domains like health, environment, justice and defense, issues regarding the gathering, processing and analysis of large quantities of data, and the rapid diffusion of the information it contains, should be dealt with the entire arsenal made available by the ICT.

Only in such a way it is possible to detect, in due time, eventual difficulties and to make effective decisions, because such decisions are thus based on correct information.

To provide the right information, where and when it is necessary, is one of the most powerful ways to improve and optimize human work, at any level.

No less important is the role of the Information and Communication Technologies, given the present ease and ubiquity in the access to the telecommunication infrastructures, as the foundation for a culture of truth and transparency, of lucid and objective evaluation and of international opening and comparison. These technologies can be and must be instruments of social cohesion, to combat social exclusion, to stimulate the cooperation between public and private institutions and also between citizens, helping to spread knowledge as an ethical, social and economic value. The importance of this development, as a mean to support the free and critical thinking of democratic life, cannot be ignored by societies, like the Portuguese, which seek to reach the highest levels of human accomplishment.

It is this set of values and concerns that justifies and asks for an urgent new political action of intense social mobilization, aimed at the general appropriation of the ICT, and the consequent development of more demanding social and economic networks and of the Information Society in Portugal. The impact of the ICT on the citizen's quality of life, and on the competitiveness and productivity of national firms seem to demand it.

The initiative *ConnectingPortugal* is the Government's proposal to face these challenges. It will give life to a new cycle in the mobilization of the Information Society in Portugal, redirecting the scope of State intervention in order to mobilize a social basis of support extended to all citizens.

All schools connected to the Internet since 2000

In 1997, all the 5 to 12 grade schools in Portugal were connected through ISDN to the Science Technology and Society Network which was enlarged from the previously existing university network to include all the education system, the private and public research institutions, all the public libraries in the country and solidarity institutions. By the end of 2000 the process of connecting all the 1 to 12 grade schools to this network through ISDN was concluded. The process of providing all the schools with a broadband DSL connection to the Science Technology and Society Network is presently under way and it is scheduled to be completed up to the end of 2005.

This initiative is the realization of the plans in the Government's Program to mobilize the Information Society, and it is directed by a strategy of social mobilization for employment, growth and the economic value of knowledge.

In this context, the modernization of the school environment, providing virtual work environments for students, study texts in digital formats, systems of tutoring by parents and teachers and an organized opening of the schools to the public, namely in the development of national and international projects, is an opportunity that is important to promote and to emphasize, thus assuring the qualification of the Portuguese citizens along the best international practices, and encouraging the involvement of every family in the modernization of Portugal.

The economic importance of the Information Society within the European Union (EU) is equally evident, representing a sector responsible for about 8% of the GDP (gross domestic product) of the EU, which has contributed with 40% to the growth of European productivity and which presently employs 6% of the working population. Reflecting this relevance, the European Commission has launched, recently, the "i2010 – European Information Society for growth and employment" initiative, in order to:

• Enhance the flexibility of the media and telecommunications market,

• Promote investment in research and development necessary to the creation of new knowledge,

• Assure its social appropriation, mobilizing the Information Society in every sector of society.

The initiative *ConnectingPortugal* also comes as a response to these new challenges presented by the European Commission. It is essential to stimulate the perception of the Portuguese citizens regarding the relevance of the ICT, making easier for them to use computers and the Internet, namely by promoting, wherever necessary, mediators to combat info-exclusion. Furthermore, any future action will have to make the national telecommunications market much more competitive, stimulating competition, leading to a reduction of prices in the telecommunication services and promoting a more sustainable and faster development.

It should be noted that the social appropriation of the information technologies can make the bureaucratic procedures much simpler and lead to administrative simplification, as it facilitates the access to information, the free expression and communication between people and organizations, cooperative networking and the sharing of tasks and knowledge. It can also stimulate, in a decisive manner, professional and educational training and qualification, cultural, scientific and technological development, and the renewal of businesses, innovating and creating new jobs. Its appropriate utilization allows a

radical reduction of repetitive and distressing tasks, improving the quality of life. The development of the Information Society is still a very powerful encouragement to the inclusion of ostracized or less favoured social groups and to the cohesion of regions.

ConnectingPortugal is an initiative for the mobilization of a social basis of support extended to all regions, to all citizens, schools, businesses, research centers, associations, in order to develop the Information Society and the knowledge strategies in Portugal. We seek to diversify the public investment, directing it at the consolidation or reinforcement of ongoing initiatives that have a good chance of success, also to fill gaps whenever they are detected, and to promote the innovation and the creation of new businesses in specific areas of strategic development. This process will increase the availability and the use of new services and contents on the internet, crossing all sectors of society, with a strong impact on people, on their quality of life and work, contributing to the development of Portugal.

Public Internet Spaces

More than 260 Internet Spaces were opened, since 2001, all over the country. These spaces provide free access to multimedia computers and the Internet to all citizens. All of them have at least one working station specially equipped for accessibility to citizens with special needs. In all the Internet Spaces, trained personal assure permanent support to users, and assume a very important role of social mediators to computer and Internet technology in local, and frequently remote, communities. The number of Internet Spaces will be doubled before 2010, in particular by opening new ones in more densely populated areas and by preparing some of them for the needs of specific groups, such as the elderly and immigrants.

In this hard period of financial and economic adjustments in our country, the mobilization of the Information Society is, without a doubt, a great challenge to Portugal and calls for the contribution of us all. We need learned and persistent political measures of investment, sustained by demanding evaluation processes, by internationalization and qualification, and by a constant effort to promote the scientific and technological culture.

The priorities of the initiative *ConnectingPortugal* are the wide-spread of the progresses accomplished in the area of the social use of the ICT in Portugal, namely in the scope of the international comparisons required by the Lisbon strategy, and the independent, regular and transparent evaluation of the information systems of public services and administration.

2. National and European initiatives for the mobilization of the Information Society

The EU has adopted the *eEurope* initiative in May 2000, during the Portuguese Presidency. Its first Action Plan sought:

- To make the Internet cheaper, faster and safer,
- To invest in people and their qualifications,
- To stimulate the use of the Internet.

These ideas were effectively implemented as a central component of the European Commission policy action. In 2002, and also in the *eEurope Action Plan 2005*, broadband was also adopted as an explicit goal of the EU policies for the Information Society, now based on a strategy of *mobilization of the demand* for new services, namely in the public administration, health, learning and e-business, and of *expansion of the supply* of infrastructures and access equipment, including mobile phones, televisions and personal computers.

The penetration of means of enabling the Information Society in Europe is still very small. Less than 20% of the households in the 15 EU states had access to broadband in 2004 and the availability of 3G mobile services has faced varied difficulties. There is, therefore, a very significant potential of growth in these domains, for the next coming years.

The first considerations of the European Commission in the new initiative **i2010**, for the period following 2005, stress the importance of multimedia contents, which can be commissioned by the EU, through the sponsorship of firms that offer innovating services and contents. This initiative follows the decisions of the Spring European Council 2005, which established knowledge and innovation as the engines of sustained growth and looked at the development of the Information Society in an inclusive way, based on the broad use of ICT in public services, in businesses and in households.

In the meantime, in conformity with the European Commission policy guidelines, the member states have been adopting strategies for the expansion of broadband. Typically, the members state government action has focused on:

- Promoting Internet access to the wide public,
- Stimulating the use of broadband services, with emphasis in deprived areas,
- Sustaining the use of ICT to increase businesses productivity and national economic growth.

In many member states, government action had a demonstration role, through policies of broadband implementation in public administration, hospitals and schools. The deployment of infrastructures, from the share of accesses from households and the respective aggregation of demand, to the implementation of public access points to the Internet, has been complemented by a training of wide sectors of the population on Information and Communication Technologies.

In Portugal, the need of an integrated strategy for the Information and Knowledge Society, acknowledged as a priority by the government, was clearly recognized already in 1996, when the *Mission for the Information Society* was created to promote a broad discussion on this theme and to prepare the *Green Paper for the Information Society*, with proposals for short, medium and long range policies. The proposed strategies led to the *National Initiative for the Information Society*, organized in four main

intervention axes – the *Open State*, the *Available Knowledge*, the *Informed School*, and the *Flexible Company*. On the period 1996-1999 a set of important initiatives followed:

- The creation of the Science Technology and Society Network,
- The launching of the Digital Cities program,
- The approval of a fiscal incentives scheme for the purchase of computers, software and home Internet access,
- The launching of the Digital Initiative for Electronic Commerce,
- The approval of legislation on the Digital Signature and the Electronic Invoice,
- The National Initiative for Citizens with Special Needs in the Information Society.

The White Paper of the Scientific and Technological Development in Portugal (1999-2006), conceived in 1998-1999, consisted on a survey of opportunities and needs for the technological and scientific development in Portugal, including those regarding the Information Society. It was prepared as a result of a vast process of open participation, involving the scientific community, science and technology experts, local and regional authorities, and also contributions from the *Permanent Forum on Scientific and Technological Policy*, created on the Internet in 1998.

The *Operational Program for the Information Society*, approved in July 2000, was prepared with basis on the *White Paper* to benefit from the Community Support Framework III (2000-2006). Also in the year 2000, the Government created the *Interministrial Commission for the Information Society* and launched the *Internet Initiative*, which stimulated public and private initiative to contribute to social inclusion and to foster international cooperation. In parallel, a Statistics Information System was created for monitoring the Information Society developments.

Digital Cities and Digital Regions
More than 25 projects for the development of Digital Cities and Digital Regions are being publicly supported, with a total investment over 200 million euros. The projects involve electronic government solutions for local public administrations, conditions for reinforcing the competitiveness of small and medium enterprises, and a wide variety of citizen centered services (e.g, information, health, education, safety).

In 2001, within the *Operational Program for the Information Society*, a call for proposals was opened for *Digital Cities* projects. The first *Internet Spaces* were also created at this time and, since then, they have proved to be one of the most important means of access to the Internet in Portugal. Also in 2001, the government approved legislation to create the *Diploma of Basic Competences in Information Technologies* and the *Interministerial Commission for the Information Society* promoted the opening of a call for proposals to evaluate the Internet sites of the central administration institutions. And most importantly, *every school in the country was connected to the Internet, by the end of 2000*.

Science Alive ("Ciencia Viva"): a program for the promotion of science and technology within the society

Created in 1997, the Science Alive ("Ciencia Viva") program (www.cienciaviva.pt) has been a highly successful initiative for promoting science and technology within the society through a variety of schemes that involve a wide network of research centers and institutes, special education projects in schools for the experimental teaching of sciences, a network of Ciencia Viva Centers throughout the country which operate as hands on science museums for all ages. Many activities are based upon electronic communications and include educational projects using collaborative computational tools and the Internet, including projects performed in partnership with schools in other countries.

In November 2002, the *Knowledge and Innovation Mission Unit (UMIC)* was established to define and coordinate the policies on the Information Society and the e-Government in Portugal. Its action plan, approved by the Council of Ministers in June 26 of 2003, was based on seven points: (i) an Information Society for all; (ii) new abilities; (iii) quality and efficiency in public services; (iv) better citizenship; (v) health at everybody's reach; (vi) new ways of economic value creation; (vii) attractive contents.

The UMIC presented the *Broadband National Initiative* in August 2003. This initiative was approved by the government with the purpose of intensifying the use and access to broadband in Portugal, contributing, in one hand, to "the increase of the productivity levels and the competitiveness of the national economy" and, on the other, to "a greater social cohesion".

The activities of the *Knowledge and Innovation Mission Unit* since 2002 developed along legislative initiatives and specific projects, in order to achieve the purposes of the *Broadband National Initiative*. Legislative measures covered areas such as electronic government, citizens with special needs in the Information Society, electronic signatures and invoices, copyright, personal records and privacy, e-commerce, electronic public purchases, online access to the Parliament Official Journal, reutilization of public information, and the right of passage of broadband infrastructures.

Other programmatic measures included the introduction of the *virtual campus* in higher education institutions and the access through the Internet to full text scientific papers and other scientific texts. Regarding the electronic public administration, several projects were launched, specifically through the *Citizen's Portal* and the *Electronic Public Procurement Program*.

In 2005, the Government's Program for 2005-2009 identified the need to redirect public effort, for a much wider mobilization of the social basis of support, so as to allow for a much faster social and economic appropriation of the ICT by people. The present initiative responds to this challenge, giving way to a new political cycle in the mobilization of the Information Society in Portugal.

3. Strategic Guidelines

ConnectingPortugal aims at a wide mobilization of people and organizations for the use of the Information and Communication Technologies and for the development of the Information Society and a knowledge based economy in Portugal. Its final purposes are the improvement of the citizen's quality of life and the development of favorable conditions for the creation of wealth, in a world that is every day getting more competitive in the areas of knowledge and technology.

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b-on: Online Knowledge Library

Through **b-on** (www.b-on.pt) full texts of the main academic and scientific journals published internationally are accessible to individuals in all research and higher education institutions in Portugal.

Launched in April 2004 with 3,500 titles from six publishers, **b-on** now allows online access to more than 12,500 electronic publications from 16 top international publishers in all areas of academic and scientific research. It also provides access to the convenient *Web of Knowledge* bibliographic reference and citation tools. More than 40,000 professors and researchers and 340,000 students from 66 research and higher education institutions currently have unlimited access to the **b-on** contents and search engine. The Portuguese scientific community started using extensively this service when it was launched. So far, the downloads of full text scientific papers done through **b-on** account for more than 3.7 million. The contents will be substantially enlarged as the **b-on** portal will also provide full text search of Master and PhD theses presented in Portuguese institutions as well as other national academic and scientific content.

The initiative *ConnectingPortugal* is one of the strategic components of the Government's Technology Plan, widening the scope of the State intervention in the social mobilization for the Information Society. Public and private efforts will develop to reinforce or to strengthen ongoing initiatives, to fulfill gaps, and to promote new and innovative services and products with the following objectives:

- **To promote a modern citizenship**, informed, conscious and active, for which the use of Communication and Information Technologies is a natural tool for the access to information, education, cooperative work and public debate;

- **To guarantee a competitive national market of telecommunications**, especially regarding costs of services to both citizens and companies, and the wide availability of high quality advanced services, assuring competitiveness at the level of the best European practices;

- **To assure the transparency of the Public Administration** in all its actions, and the simplicity and efficiency of its relationship with citizens and companies;

- **To promote the increasing use of Information and Communication Technologies by companies**, supporting them in their modernization, as a key condition for their competitiveness in the international market, and to **assure the development of new technology based companies**, namely those producing software.

- **To foster technological and scientific development**, launching research and development activities in international cooperation.

For these objectives to be fulfilled, the initiative *Connecting Portugal* adopts the following strategic lines:

To mobilize the society and to foster cooperative networks

To promote public action fostering the diffusion of the Information and Communication Technologies, aiming at diversified groups and enhancing the social appropriation of these technologies, to broaden the usage basis of the Information and Communication Technologies, to foster communication between people and organizations, to promote collaborative networks and the sharing of tasks and knowledge.

To promote social inclusion

To assure the possibility of use of the Information and Communication Technologies by the social deprived groups, to promote social inclusion of the immigrants and of excluded groups, or those in the brink of exclusion, to ensure the access to technology to people with special needs, to extend the national network of community centers with Internet access and specialized support to the users in up-to-date and efficient conditions.

To minimize the digital barriers created in the conception of contents, giving particular attention to the contents of the Public Administration, and using the Internet as a key instrument for the inclusion of people with special needs in the Information Society.

To foster growth of employment, competitiveness and productivity

To enhance economic development and the creation of new jobs by the enlargement and diversification of the markets associated with the social mobilization for a wide use of the Information and Communication Technologies, by the demand for new digital services and contents for the Public Administration, by competitive regulation of the digital communication market, and by encouraging companies to use the Information and Communication Technologies increasingly, as they are essential elements for their competitiveness.

To transform education, to train and to develop new skills

To assure the integration of Information and Communication Technologies within the education system, in order to improve its quality, to motivate young students for the adventure of learning and to improve the technological skills which are essential in the modern labor market of today, to use the motivating potential of the Information and Communication Technologies to bring school drop outs back to learning activities, to certify acquired competences, to broaden the training of new social groups ensuring that all citizens acquire skills to use the Information and Communication Technologies.

e-U: Electronic University/Virtual Campus

The **e-U** initiative (www.e-u.pt) is targeted at students and professors of higher education institutions and includes the extensive wireless networking of campuses with more than 5,000 access points, as well as higher education electronic services, contents and applications. It is the world's largest academic wireless network presently in operation. The **e-U** access will be available in every higher education institution across the country, and will allow complete national mobility (roaming) among institutions. The initiative also accounts for content and service sharing between universities. Presently, more than 40 **e-U** projects are in the final implementation stage, within a total of 76 projects for the entire Portuguese academic population (approx. 340,000 students and 40,000 professors and researchers). All installation projects are expected to be ready by the beginning of 2006.

"e-U has been one of the most innovative initiatives, on a worldwide level, that has been driven by a government, to promote the use of technology into academia and is improving the flexibility and quality of learning among Portuguese universities."
Christian Morales, Vice President Intel

"UMIC focused on creating sufficient genuine demand for the virtual campus network to ensure its immediate viability – and to create a broader impact over the long term."
Economist Intelligence Unit: "Accessing EU funds: best practice from around the EU", Jan. 2005

To simplify and improve public services provided to citizens and companies

To promote the efficiency and simplicity of access to services provided to citizens by the Public Administration using the Information and Communication Technologies, to ensure transparency in the relationships of the Public Administration with citizens, to implement one-stop attendance in the affairs of citizens and companies with the State, to promote cost reductions, optimizing the use of resources and the public procurement processes, to simplify the relationships between public services and citizens or companies developing modern services.

To supply information of public interest

To promote the supply of medical information on the Internet, as well as information on the weather, the environment and public risks, such as food safety, epidemics, pollution and others.

To assure safety and privacy in the use of the Internet

To ensure that all, especially families, have means of protection against the risks that may arise when using the Internet, making widely available information on how to use such means to promote trust in electronic transactions through qualified authentication services and safe data communication, to improve anti-virus systems and other ways of combat to electronic intrusion.

To improve accesses and infrastructures, opening the telecommunications market and promoting territorial cohesion and the consumer's rights

To guarantee that all citizens have access to the Information and Communication Technologies, reducing communication costs, providing better means of access, promoting public information on the characteristics and quality of the services provided in the market, and expanding the mechanisms of protection of consumers' rights of telecommunication services.

To foster the creation of new knowledge and to facilitate its social appropriation

To develop new knowledge through systematic research and development actions, to promote thematic networks of collaboration in science and technology, and the diffusion of distributed computation schemes, to foster the creation of innovative contents requiring broadband, to promote partnerships between the scientific and the entrepreneurial sector, to mobilize the scientific community for participation in the European Research Area, in the teaching of science and technology and in the activities promoting the scientific and technological culture.

To promote a culture of rigor and evaluation

To ensure the follow up of the activities, promoting open, rigorous and independent evaluations and guaranteeing the transparency in processes and results.

In conclusion, above all, it is our priority to ensure that the potential benefits made possible by the modern Information and Communication Technologies are fully exploited to **raise the Portuguese social and entrepreneurial structures to the levels of efficiency, competency, competitiveness and productivity** of the most developed countries, assuring a society where:

- Knowledge is an essential ethical, cultural, social and economic value;
- The social inclusion of all citizens and the cooperation between people and institutions are promoted;
- The technological development becomes a powerful instrument for the creation of wealth, for the economic and employment growth, and is a crucial element in the competitiveness of the entrepreneurial sector;
- The social appropriation of the Information and Communication Technologies is associated with a culture of truth and transparency, of lucid and objective judgment, of freedom of expression and access to information, of organizational efficiency and international openness.

The Citizen's Portal

The **Citizen's Portal** (www.portaldocidadao.pt) is the central digital channel for public services, complementing with total convenience and availability the physical Citizen's Shops. Since it was released in the first quarter of 2004, the **Citizen's Portal** offers more than 700 citizen-oriented 24/7 services (56% informational, 26% interactive, 18% transactional), provided by 118 public administration bodies. It already is a well known brand, recognised by 30% of the Portuguese population. More than half a million users access it on a regular basis, with 2,5 million page views per month, mainly for services such as information on the public administration, income tax declaration, change of address notifications to public services, official certifications requests from public bodies. **The Citizen's Portal** is regularly classified among the ten best Portuguese sites (KPBI30, Internet performance Portuguese index, January 2005). The development of the **Citizen's Portal** has been continuous. Besides improves on the user interface, since February 2005 it offers services supported by sms, and access through wap protocol by mobile phones and PDAs.

4. Goals: Digital Portugal 2010

The initiative *ConnectingPortugal* is part of a broad strategy for the wide mobilization of people and organizations for knowledge-based growth and employment through the general use of Information and Communication Technologies. Its main targets for 2010 are as follows :

a) Accessibility and infrastructures:

- **To double the number of regular Internet users**, to more than 60% of the Portuguese population;
- **To triple the number of families with broadband Internet access**, to more than 50%;
- **To multiply the number of computers in schools**, so as to reach an average of 5 students per computer;
- To ensure that the **price of permanent broadband Internet access is among the three lowest in the EU**, including unlimited traffic and the cost of the associated landline, as available to the majority of the Portuguese population.

b) Creation of new jobs, economic development and social appropriation:

- **To increase employment** in the Information and Communication Technologies sector to 3% of the total employment, representing 44,000 new jobs.
- **To increase the percentage of workers who use computers with Internet connections in their jobs** to at least 40%.
- **To extend regular usage of e-commerce** to at least 25% of the population.
- **To ensure that all basic public services are available online**.

In addition to these targets, there will be a set of very clear guidelines for the modernization of the Public Administration, enabling:

- General use of **voice services on the Internet**, and the acquisition of the full range of telecommunication services by all public institutions on a competitive basis, open to all available operators;
- **The training of all civil servants**, especially those in the lowest ranks, certifying their acquired competences, reinforcing training in Information Technologies and **promoting the use of non-proprietary operating systems in all public services**;
- **Availability of public information about all ongoing Public Administration procurement processes and personnel recruitment**, **on a single specific Internet site,** including timely information regarding their calendarization and all relevant decisions of the corresponding decision boards;
- **Interactive access to public services**, allowing the remote completion of common administrative procedures with the available telecommunications technologies (e.g., Internet, phone, mail, automatic teller machines, etc.);
- General **electronic invoicing** in most commercial transactions, and full adoption of electronic invoices in the Public Administration by the end of 2006;
- The conditions for the development of **telework and telemedicine**;
- The integration of **citizens with special needs** in the Information Society.

Public e-Procurement

The main objectives of the National e-Procurement Program (www.compras.gov.pt) are to: increase efficiency and transparency, generate savings, and promote the adoption of e-commerce. During the last year, the focus was on the characterization of the expense and the reformulation of procedures, whereby new processes were adopted, such as sourcing, aggregation and negotiation. In the pilot phase the project involved eight ministries and a few public bodies and product categories. Still, only in the first year, the achieved savings largely surpassed the investment. Presently, the process is at a generalization and enlargement phase to all public bodies/ministries, and other product categories. The program involved directly 8 ministries, 132 public bodies, 907 users, 27 aggregation and negotiation processes, with 12 million euros negotiated and 30% estimated savings. Total savings expected from the ongoing expansion of this initiative to all ministries amount to 250 million euros/year (source: AT Kearney).

The mobilization of the Information Society also requires a concentrated effort in the education and training of all Portuguese citizens, including:

- The **transformation of the school environment**, creating virtual work environments for students and providing all necessary study materials in electronic format, simplifying the follow-up of students by parents and teachers, and the active participation in national and international learning projects;
- The **generalization of individual electronic portfolios** for students who complete compulsory education, with a registry of their most relevant work and demonstration of acquired competences in the various domains of practice (arts, sciences, technology, sports and others) and the effective use of ICT in the different subjects.

This mobilization for an Information and Knowledge Society is also intended to take into account a set of objectives, defined at European level and/or included in the Program of the Portuguese Government, for the **development of scientific and technological capabilities and competences of the Portuguese citizens**:

- **To increase the number of people regularly engaging in educational and training programs** to at least 13% of the population aged between 25 and 64 by 2010;
- **To increase the number of new higher education graduates in scientific and technological areas**, to at least 12 per 1000 of the population aged between 20 and 29 by 2010;
- **To increase the number of new PhD theses in scientific and technological areas** to 0.45 per 1000 of the population aged between 25 and 34 by 2010;
- **To triple private R&D expenditures**, by creating all necessary incentives;
- **To double public R&D expenses**, so as to reach 1% of GDP.

5. Actions

The beginning of a new cycle for the mobilization of the Information and Knowledge Society in Portugal requires a concentrated public effort on a limited set of well-defined main actions, supported by several other more diversified actions, but all within the context of the strategic guidelines already outlined in this document. The following measures are especially noteworthy, due to their social relevance:

(i) **To facilitate the use of computers by students at their homes**, particularly through:

- Reducing to one half the acquisition costs of personal computers by families with students, through a specific tax deduction of up to 250 euros, applicable except to families at the highest income levels;

- Making computers increasingly more available to students with poor financial resources, through the national system of financial aid to students;

(ii) **To support the wide availability of integrated commercial offers for computers and broadband Internet connection**, especially to students;

(iii) **To promote the development of a market for used computers**, with appropriate warranties and computer reconditioning;

(iv) **To provide broadband Internet connections to every school in the country** by the end of 2005;

(v) **To double the network of Internet Spaces**, public locations for free broadband Internet access with specialized support by trained personnel, reinforcing the role of these spaces as community centers, and offering appropriate access conditions for citizens with special needs;

(vi) **To create a public offer of Citizenship Internet**, for free access to public or public interest services available on the Internet, including all basic public services before the end of the current Government mandate;

(vii) **To implement and operate, as a public network with its own infrastructure, the backbone of the Science Technology and Society Network**, extending its connections to international networks (Geant2) through Spain and ensuring circuit redundancy. To create, together with this initiative, the **Public Administration National Security Network;**

(viii) **To promote professional training at all levels and the R&D in Information and Communication Technologies**, in companies, teaching institutions, and research laboratories, encouraging competition, the creation of showcase markets and international cooperation;

(ix) **To launch the National GRID Initiative**, as in other European countries, for research and development and the exploitation of economic opportunities provided by distributed computation;

(x) To develop a policy for **electronic security** with all appropriate instruments.

The success of the *ConnectingPortugal* initiative will largely depend on the creation and the use of new services and contents on the Internet, across multiple sectors of society, with a direct impact on the quality of life and work of our citizens. Among the multiple areas to be explored, as very likely to benefit from a more intense use of Information and Communication Technologies, we name here:

- The **transformation of the school environment**, as it applies to students, their teachers and families, improving the learning process and documenting the skills and capabilities acquired by the students;
- The **modernization of the Public Administration**, especially simplifying the access to public services, and reducing the duration and cost of administrative procedures;
- The **distribution of information of general public interest**, namely that regarding public risks, environment, food safety, health and national security;
- The **systematization of monitoring and follow-up routines**, so as to allow the revision of policies and the updating of actions.

The **Forum for the Information Society** will be created, as a consultation and arbitration body for the development of public policies regarding the Information Society, including the relevant social agents, both public and private, and being open, interactively, to the whole of society.