

ConnectingPortugal

MOBILIZING

THE INFORMATION AND KNOWLEDGE SOCIETY



UMIC
Knowledge Society
Agency

MINISTRY OF SCIENCE, TECHNOLOGY AND HIGHER EDUCATION

MOBILIZING

THE INFORMATION AND KNOWLEDGE SOCIETY



CONNECTING PORTUGAL



“MOBILIZING THE INFORMATION AND KNOWLEDGE SOCIETY”

Connecting Portugal is an initiative of the Portuguese Government launched in July 2005. It defines the orientation of public policies for the Information Society with the temporal horizon of 2010, in response to the challenges of the European Commission initiative **i2010 – A European Information Society for Growth and Employment**. Its main objectives are: to promote a modern citizenship, to enhance the national telecommunications market competitiveness, to assure the public administration transparency, to promote an increasing use of Information and Communication Technologies (ICT) by enterprises, to stimulate the development of new technology based enterprises, to foster scientific and technological development.

Connecting Portugal underlines the opportunities offered by the ICT for the qualification of the Portuguese organizations, in order to attain high levels of exigency, efficiency, competence and productivity, leading to a society where:

- Knowledge and information are fundamental cultural, social and economic values.
- Social inclusion of all citizens is promoted, fostering collaboration between people and institutions, and cooperative work in social networks.
- Technological development becomes a powerful instrument for wealth creation, economic growth and employment, and a crucial element of enterprise competitiveness.
- The social appropriation of information and communication technologies is associated with a culture of truth and transparency, of lucid and objective evaluation, of freedom of expression and access to information, of organizational efficiency and international openness.

Knowledge Society Agency, November 2007

The Knowledge Society Agency (UMIC) is the Portuguese public agency with the mission of coordinating the policies for the Information Society and mobilizing it through dissemination, qualification and research activities. It operates within the Ministry of Science, Technology and Higher Education.

EDUCATION AND TRAINING



“TRANSFORMING THE EDUCATION AND DEVELOPING COMPETENCES”

All schools connected to the Internet since 2001 – and in broadband since January 2006

In January 2006, all 1st to 12th grade public schools in Portugal were connected in broadband to the Internet. It was then possible to assure in broadband the pioneering position assumed by Portugal in 2001 when it was one of the first countries to connect all the 1st to 12th grade schools to the Internet (through ISDN), after achieving the connection of all the 5th to the 12th grade schools in 1997. In this same year, Portugal become one of the first countries to integrate all schools in the research and higher education computational network, creating the **Science Technology and Society Network** by extending the previously existing university network to assure a **fully integrated research and education network**.

Special tax deduction to facilitate computer purchases by families with students

In November 2005, a special Law approved a tax deduction scheme to facilitate the purchase of computers, up to half their commercial cost or 250 euros, by families with students in any education level, except those in the highest income tax bracket. The system is applicable to purchases done from the 1st December 2005 to the end of 2008.

Supporting the introduction of computers and the Internet in primary schools in cooperation with higher education institutions

In 2002, a special program was approved to promote and facilitate the use of computers and the Internet in the primary schools scattered throughout the country with the direct and regular support of higher education institutions through joint work done by teams of education specialists from these institutions with primary school teachers and students in their own schools. Hundreds of thousands of students and tenths of thousands of teachers were involved in diverse activities, like the granting of Basic ICT Competences Diplomas, school Internet pages development, electronic personal portfolios development, use of collaborative platforms, eTwinning programs with other schools.

Basic ICT Competences Diploma

A national training and recognition system of basic ICT competences was created in 2001 and is maintained through a network of more than 800 registered centers, involving higher education institutions, basic and secondary schools, *Ciência Viva* Centers, Internet Spaces and centers for the Diffusion of Information Technologies.



Virtual Campus – the higher education wireless network

The **Virtual Campus (e-U)** initiative of the Knowledge Society Agency is targeted at higher education students and professors and includes the extensive wireless networking of campuses, involving more than 5,000 access points, as well as higher education electronic services, contents and applications. It covers more than 85% of all Portuguese higher education and allows complete national mobility (roaming) among institutions, integrating the whole higher education system in a unique Virtual Campus. This pioneering initiative received widespread international recognition and was considered the world's largest academic wireless network in operation and replicated in a few larger European countries.

“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

SOCIETY AND CITIZENSHIP

“MOBILIZING THE SOCIETY AND STIMULATING COLLABORATIVE NETWORKS”

Digital Cities and Digital Regions

A total of 32 projects for the development of Digital Cities and Digital Regions have been publicly supported, with a total investment over 200 million euros and covering 96% of the country. The projects involve electronic government solutions for local public administrations, reinforcement of conditions for the competitiveness of small and medium enterprises, and a wide variety of citizen centered services (e.g, information, health, education, safety, social support, culture, etc.). These projects have been an effective instrument to mobilize local actors and enhance their qualifications for managing joint local and regional development programs based on ICT, countering the attractive force to the more developed centers always felt when new communication technologies are deployed without a simultaneous local development based on the same technologies and on the activities they render possible.

Community Networks

In April 2007, 4 Community Networks projects were approved and are now under way. They will install public fiber networks in deprived areas, fulfilling technological neutrality, openness and multi-operator criteria. The total length of fiber to be installed is more than 1,000 Km.



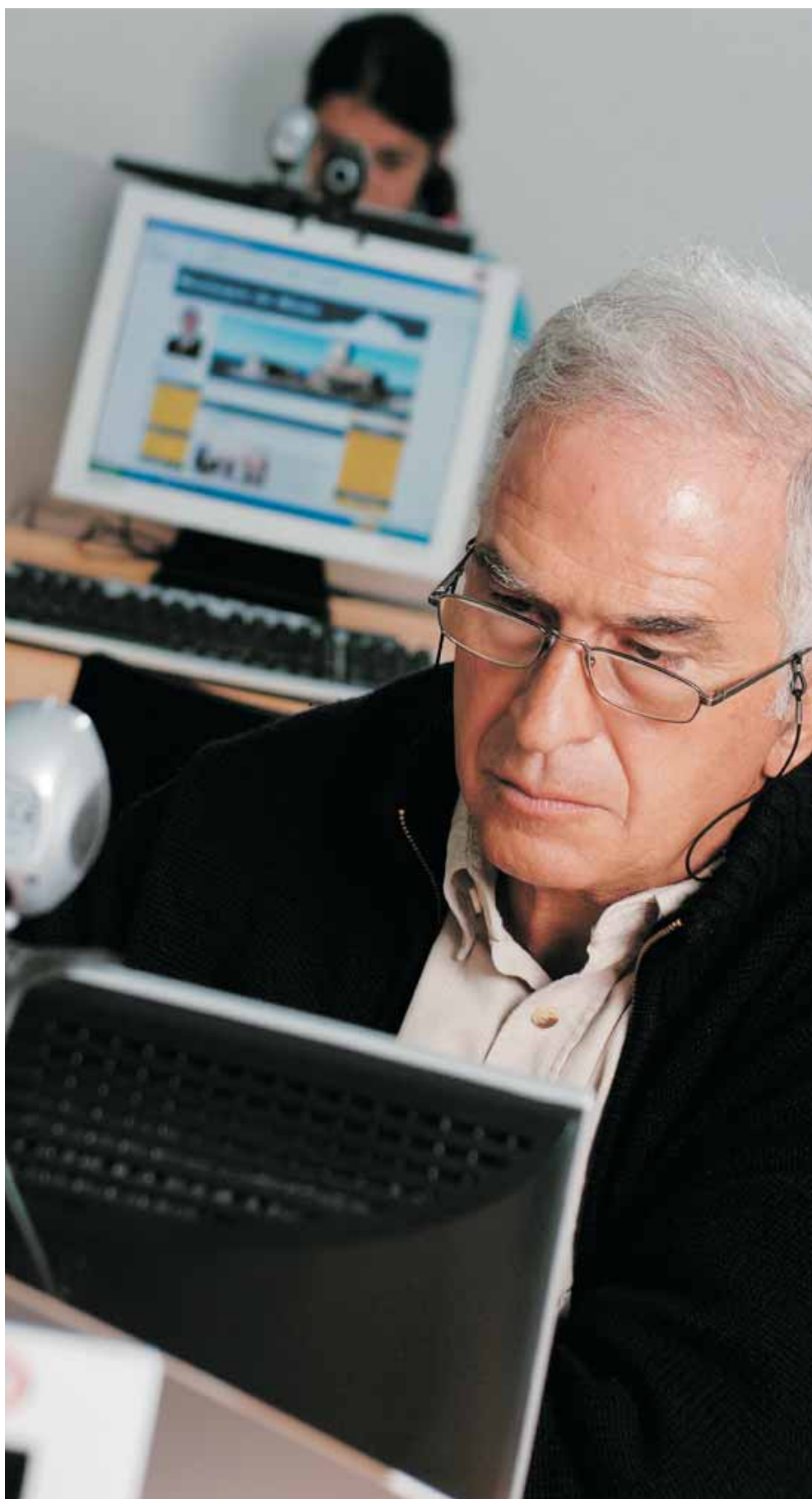
Public Participation

The first condition for public participation is the availability of public and transparent information. The Citizen Portal provides more than 680 services from 120 public bodies and the Enterprise Portal provides about 460 services to enterprises. 97% of the central administration bodies and 78% of the municipalities assure electronic mail boxes for regular communication with citizens and enterprises, requests of information or claims. About 14% of the municipalities Internet sites maintain discussion *fora* between elected officials and citizens. The formal public participation processes, like those for legislative projects, regularly accept electronic contributions, and about 36% of the municipalities regularly conduct their public consultation processes through the Internet.

Electronic Voting

The main goal of the Portuguese electronic voting project is to allow citizens who are far away from their normal polling stations to be able to vote from wherever they are in the election day, the so called “mobility voting”. A first pilot project of electronic voting was held in the 2004 European Elections, testing three different technologies with 150,000 voters in 9 municipalities. The second pilot project, in the 2005 Legislative Elections, tested improved voting platforms with technology for citizens with special needs and paper trail, and Internet voting for Portuguese citizens living abroad (with 4,500 participants from 38 countries). These pilot projects were non binding. The high costs involved in full deployment of voting machines and the very demanding associated logistics made it clear that fully electronic voting could not be generalized and the attention should be concentrated in allowing “mobility voting” at reasonable costs.





INCLUSION AND ACCESSIBILITY



“PROMOTING SOCIAL INCLUSION”

One of the highest Internet penetration rates in the educated population

According to EUROSTAT, in 2006 the Internet penetration rates in the population with secondary but not higher education was 80%, the 5th highest in the EU25 well above the 61% average and just below that of the Netherlands, Sweden, Denmark and Luxembourg; in the population with higher education it was 87%, the 8th highest in the EU25 and just below the preceding countries, Finland, United Kingdom and Slovenia. However, the overall Internet penetration rate is only 36%, one of the lowest of the EU25, equal to that of Italy and just above Cyprus and Greece. The digital divide in Portugal is mostly an educational divide.

Internet Spaces Network

A network of more than 1,130 Internet Spaces all over the country provides free access to multimedia computers and the Internet to all citizens, with the help of trained personnel and equipped for accessibility to the handicapped. This is the most extensive network of this kind in Europe and assumes a very important role as a social mediator to computer and Internet technology in local, and frequently remote, communities. The network involves Internet Spaces installed in varied locations, such as public facilities in central places of municipalities, public libraries, social solidarity institutions, digital inclusion centers for immigrants, employment and training centers, culture, recreational and sports clubs, *Ciência Viva* Centers.

Accessibility to the impaired

A special unit within the Knowledge Society Agency promotes, since 1999, the adoption of good practices for accessibility of the Internet and ICT to citizens with special needs. This unit also promotes the availability of digital libraries and audiobooks in high schools, the adoption of assistive technologies in hospitals, and the infrastructuring of (re)habilitation centers. In October 2007, the Government approved a resolution requiring all central administration Internet sites to be compliant with W3C accessibility levels A, and AA if they are transactional, within 6 months.

Solidarity Network

In 2001, the Solidarity Network, supported by the Knowledge Society Agency, connected NGOs concerned with people with special needs (elderly and impaired) to the Internet. Presently, this network involves 240 broadband access points, maintains Email boxes for use of the target groups, as well as specific contents of interest, and includes videoconference connections between schools and hospitals allowing bed-ridden students to remotely attend classes and to keep in touch with family and friends.



ENTERPRISE



“ENHANCING GROWTH, EMPLOYMENT, COMPETITIVENESS AND PRODUCTIVITY”

Most ambitious fiscal incentives to enterprise R&D

Through a law approved in June 2005, the Portuguese System of Fiscal Incentives to Enterprise R&D was reformulated to become one of the most ambitious fiscal incentive systems in the world for enterprise R&D performed in Portugal by national or foreign companies. Under the new rules, 20% of the total R&D expenses are deductible for fiscal purposes and, in addition, 50% of the increase in R&D expenses relative to the average of the two preceding years is also deductible.

High penetration of broadband in large and medium enterprises

According to EUROSTAT, 98% of large enterprises and 90% of medium enterprises had in 2006 a broadband connection to the Internet, with Portugal occupying respectively the 2nd (with four other countries) and the 9th (with another country) positions in the UE25 ranking.

High growth innovative ICT companies with international impact

Some illustrative examples of innovative high growth ICT companies with high international impact, among many others, are:

- **Chipidea** is the world's number one provider of analog/mixed-signal silicon intellectual property (IP) targeting fast-growing market segments in wireless and wireline communications, digital media and digital consumer electronics. According to figures for 2005, it leads the world ranking in both analog/mixed-signal and data conversion IP and it is second in the world in both USB and Audio/Power/RF IP, with world market shares of 20%, 22%, 19% and 19%, respectively, and annual growths of 41%, 53%, 105% and 102%, respectively. It has more than 310 employees worldwide. Chipidea was founded in February 1997 by 3 Professors of the Electronics and Computer Engineering Department of Instituto Superior Técnico, Technical University of Lisbon with a strong scientific background in analog integrated circuit design. With a compound annual growth of 38% in 2000-2006, Chipidea is financed by leading-edge investors. Headquartered in Portugal, the company has engineering centers in Portugal, Poland, Belgium, France, Norway, Macao and China, and has been able to continuously attract and retain talented engineering resources strategically important to design world-class analog/mixed signal circuits and systems that meet the needs of today's demanding consumer products. Professional, fast growing sales, marketing and support organizations in the US, Europe, Israel, China, Japan, and Singapore ensure the company stays abreast of the current trends designers require to complete world-class products. In August 2007 Chipidea entered the USA based MIPS Technologies group.

- **yDreams** is a Portuguese technology solutions provider founded in June 2000 by 5 internationally renowned specialists in information technology, telecommunications, image processing, geographic information systems and environmental engineering, who outgrew from the Faculty of Sciences and Technology of the New University of Lisbon. The company, now with more than 150 employees, develops pioneering, patent-pending technology in a variety of fields, namely spatial data mining, interactive media, augmented reality and pervasive gaming. It develops products, customized solutions and services for four major markets, through independent divisions: Advertising, Entertainment, Education, Culture and Environment. yDreams has built an unsurpassed reputation for creative use of technology, both in Portugal and in all other markets where the company operates, which include the Netherlands, France, Spain, United Kingdom, Germany, China, Brazil and USA. In 2005, yDreams was distinguished as one of Europe's emerging companies in the field of telecommunications and selected to be profiled and broadcast on CNBC Europe. The company business profile was segmented into four blocks and aired from the 23rd to the 28th of February 2006.
- **ALERT Life Sciences Computing, SA** is dedicated to the development, distribution and implementation of integrated clinical software applications in a fully paperless environment with simple usability requirements for the healthcare industry. Created



in 1999 by an entrepreneur who had just obtained a PhD from San Francisco Medical School, it now counts with more than 260 employees. It has offices in Portugal (in Porto, where it originated), Spain, Netherlands and USA (in Virginia, California, Florida, Georgia, Pennsylvania). Its products were adopted by 64 hospitals and 105 first care centers, and already allowed fully paperless services in 16 hospitals. The company had a three digits annual growth in the last three years.

- **Enabler** is an international IT and business services company that delivers measurable value to the world's best-known retailers. The company works with retailers on their business and IT transformation programmes to achieve competitive advantage. With an increasing worldwide presence, the company has over 300 employees and a turnover exceeding 30 million euros in 2005. Enabler's approach is based on a strong retail heritage together with a balance of innovation and pragmatism. Founded in 1997, the company has grown rapidly and has offices in Portugal, United Kingdom, Germany, Italy, Spain, France and Brazil, and customers in many countries throughout Europe and increasingly in North America, Latin America and Asia Pacific. Enabler serves leading international retailers and wholesalers including Tesco, Nisa-Today's, Sonae, AVA, Esprit and Despar. In 2006, Enabler entered in the India based WIPRO Technology group.



- **WeDo Consulting** is an information systems consultancy firm that initiated its commercial activity in February 2001. Today, it draws on the expertise of 240 consultants and has offices in Portugal, Spain, Brazil, United Kingdom, France, Germany, Egypt and Malaysia. It was chosen by the Yankee Group, a North American consulting company active in the telecommunications for 30 years, as one of the leading revenue assurance providers worldwide. It counts among its customers with Brisa, Via Verde, Açoreana, Vodafone, Polska Telefonía Cyfrowa, Vimpelcom, Amena, Auna, TeliaSonera, Oi, Telemar, Telefonica, Brasil Telecom, Optimus, Novis, AIS.
- **Altitude Software** is a leading independent contact center vendor, founded in 1995 and counting now with 220 employees. It has offices in 14 countries, in Austin, Brussels, Beijing, Cape Town, Chicago, Dubai, Lisbon, London, Madrid, Manila, Mexico City, New Delhi, Paris, São Paulo, Tel Aviv and Toronto, and 700 live installations in 15 countries with around 170,000 paid licensed users. It partners with leading System Integrators like Accenture, Cap Gemini, Siemens Business Services, Atos Origin and Soluziona. In addition, it has a number of Business Partners, such as Avaya, British Telecom, Crane Telecommunications, Dimension Data, Devoteam, Cofratel, and NextiraOne. It has established Development Partnerships with several companies, such as Alcatel, Avaya, Cisco, Microsoft, Nortel, Oracle, Philips, SAP, Siebel and Siemens. Customers include: Transcom, Spanish Red Cross, Otis Zardoya, Vodafone, Credit Agricole, Credit Mutuel, SNBrussels Airlines, Renfe, Telefónica, Repsol, Amena, Teleperformance, Santander Central Hispano, BRE Bank, Portugal Telecom, Flemish Regional Government, Saudi British Bank, HSBC, Dun & Bradstreet, Sitel, Franklin Templeton, Provident Bank, Coopervision, TeleTech, Unibanco, Vivo, Banco Itaú, Telemar, among others.
- **SISCOG** supplies decision support systems software for resources planning and management in transport companies, specially through railway but also airlight. It was created in 1986 by two professors of artificial intelligence of Instituto Superior Técnico, Technical University of Lisbon. Its products of crew management are installed in a diversified group of customers: NS Reizigers (Dutch Railways), CP (Portuguese Railways), NSB (Norwegian State Railways), WAGN-West Anglia Great Northern Railway, Metropolitano Lisboa (Lisbon Underground, Portugal) DSB S-tog (Copenhagen Suburban Trains), DSB (Danish State Railways), VR (Finish Railways), Deutsche Bahn AG (Germany Railways), London Underground. Other clients are: BRISA (National Lease for Motorway Concession in Portugal), IBERIA (Spanish Airlines).
- **ISA – Remote Management Systems** operates in the telemetry industry and supplies innovative remote management systems of wide application: gas, oil, chemicals, water and sewage networks, manufacturing, environment and domotics. It was created in 1990 from the Faculty of Sciences and Technology of Coimbra University. Its clients include: Shell Global LPG, BUTAGAZ, BP, Repsol YPF, SHVGas/PrimaGaz. It has 15,000 remote monitoring systems in more than 20 countries of the five continents, from Finland to Australia, passing through the Middle Orient, Africa and

Brazil. 70% of its revenues are realized in exports out of Portugal. It has offices in Portugal, Spain, France, Germany, Poland, Israel, South Africa and Brazil.

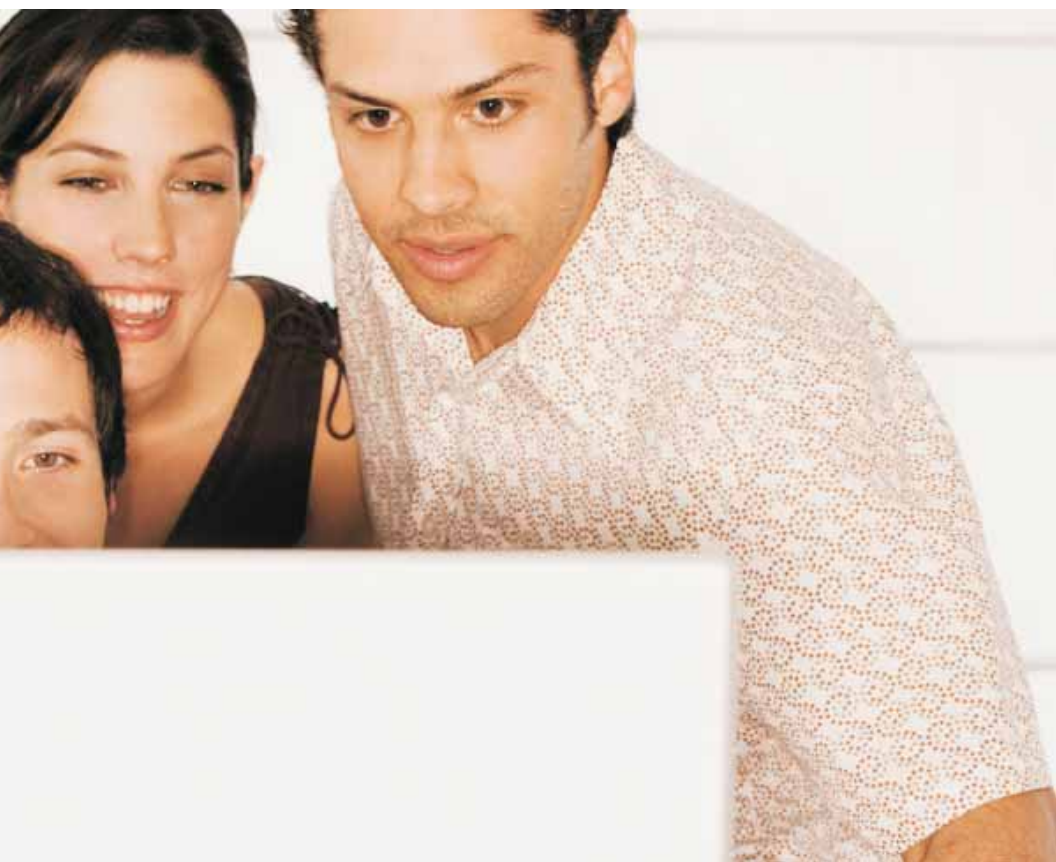
- **Critical Software** provides solutions, services, and technologies for mission and business critical information systems. It supports customers across diverse markets including telecom, public sector, industry, aerospace, and defense. The company was founded in 1998 by a research group of the Faculty of Sciences and Technology of University of Coimbra and employs around 180 people. It has offices in Coimbra, Lisbon, and Oporto (Portugal), in San Jose (California, USA) and in Southampton (UK) and grew 80% per year from 1999 to 2001, and 50% per year in the period 2002-2004. It counts among its many customers with Alcatel Space Industries, ChevronTexaco, Delphi Delco Electronics Sys., Det Norske Veritas, Deutsche Telekom A.G., ESA – European Space Agency, Eumetsat, FOI-Swedish Defense Research, Honeywell Space Systems, IBM, Infineon Technologies, NASA, SAAB Technologies, Siemens SA, VCS GmbH, Vodafone SA, VTT Finland and Westland Helicopters.





**New technology based enterprises,
knowledge and technology transfer offices, and networks of competence**

Initiatives conceived by the Knowledge Society Agency and implemented by the Innovation Agency provided support to several stages of the creation of 108 technology based enterprises arising from university and research communities, to the installation of 22 Knowledge and Technology Transfer Offices operating in higher education institutions (in particular, covering all public universities), and to the operation of 9 Networks of Competence, namely in the following areas: Bio-Energy, Health and Medical Care, Dematerialization of Transactions, Fashion, Mould Micro-Machining, Mobility, Polymers, Agro-Forestry and Food, Telecommunications and Information Technologies. All together, these Networks of Competence involve 158 entities, including 87 enterprises.



Electronic Commerce

According to EUROSTAT, the electronic commerce in Portugal is low, but in 2005 the enterprises using electronic commerce grew 22% in acquisitions and 42% in sales, even without counting the financial sector. The percentage of enterprises with more than 250 employees using electronic commerce to receive or order purchases reached 26% and 39%, respectively. These figures convey a gross underevaluation of the effective electronic commerce in Portugal, as they do not include the transactions done through the fully integrated MULTIBANCO ATM Network which in Portugal, and differently from other countries, is a particularly advanced platform for electronic commerce, besides the usual electronic banking transactions of a very modern financial sector, and also because they do not include the electronic transactions done through *Via Verde*, an advanced electronic recognition system for cars on highways, parking lots and gas stations. This system allows fully dematerialized transactions through the use of sensors at a distance in an application led by Portugal with a number of users per capita 2.5 times higher than the second European country (Italy) and 11 times higher than the 3rd country (France).

Electronic Invoice

The Government decreed the obligation of all the public administration to accept and be prepared to issue e-invoices by 2007, as a stimulus to the adoption of e-invoicing by public and private enterprises, enabling in this way a higher efficiency of the accounting and financial management systems, and extending the possibilities of e-commerce and global commerce.

KNOWLEDGE



“FOSTERING THE CREATION AND SOCIAL BENEFIT OF NEW KNOWLEDGE”

R&D in Information and Communication Technologies

Since 1996, the Portuguese research institutes and centers of all areas of knowledge, based on higher education or private nonprofit institutions, are subjected to **periodic assessments by top level international evaluation panels**. These evaluation exercises are organized under the responsibility of the national research council, namely the Science and Technology Foundation (FCT). By a law of 1999, the State can award the statute of “Associate Laboratory” to institutions of high scientific-technological merit recognized as important actors to the national scientific and technological policy. The Associate Laboratories sign special contracts with FCT committing them to pursue a midterm strategy along a small number of strategic lines of thrust, to adopt appropriate organizational and management structures, and to follow special human resources policies for recruitment and training of researchers, for which they receive a reinforcement of programmatic funding from FCT. Presently, **4 of the research institutes in ICT are Associate Laboratories**, counting altogether with about 1,000 researchers among whom more than 400 with PhD degrees: *INESC Porto – Institute of Systems and Computers of Oporto*, *ISR Lisboa – Institute of Systems and Robotics of Lisbon*, *IT – Institute of Telecommunications*, *INESC ID – Institute of Systems and Computers: Research and Development in Lisbon*. Additionally, **13 other research units in ICT of varied institutions were classified Excellent or Very Good** in the last international evaluation (held in 2002), which altogether have about another 1,000 researchers and 400 with PhD degrees.

International Partnerships for the Future

Beginning in 2006, the Portuguese Government launched a special initiative for building ambitious international knowledge networks with leading universities and research institutions worldwide. The following programmes are already underway:

- **MIT – Portugal Programme**, launched in October 2006, is concentrated in the areas of Engineering Design and Advanced Manufacturing, Energy Systems, Transportation Systems, Bioengineering Systems. The programme also involves a cooperation with the Sloan School of Management. In Portugal, it involves 6 Universities, 6 Associate Laboratories, 1 National Laboratory, and industries such as VW-Autoeuropa, EADS-CASA, and 18 Portuguese companies.
- **CMU – Portugal Programme**, launched in October 2006, is concentrated in the areas of Software Engineering, Information Networking, Information Security, Critical Infrastructures and Risk Assessment, Language Technology, Technical Change and Innovation, Mathematics. It includes the creation of an international virtual institute:

The Information and Communication Technologies Institute (ICTI) operating with nodes in Portugal and at CMU. In Portugal it involves 11 Universities, 4 Associate Laboratories, and companies such as Portugal Telecom, Siemens Networks Portugal, Novabase SA and 16 SME's.

- **UT Austin – Portugal Programme**, launched in March 2007, is concentrated in the areas of Digital Media, Advanced Computing, Mathematics. It includes the creation of an international virtual institute: The International Collaboratory for Emerging Technologies (CoLab) operating with nodes in Portugal and at UT Austin. In Portugal it involves 15 Universities, 3 Associate Laboratories, 4 Science and Technology Parks and 9 SME's.
- **Harvard – Portugal Programme**, being prepared since April 2007, is concentrated in the following areas of collaboration with Harvard Medical School: Healthcare and Biomedical Sciences Public Content, PhD programmes in biomedical, clinical and translational research, and Healthcare Public Policy. In Portugal it will involve all the medical schools, which belong to 7 Universities, the 5 Associate Laboratories working in Biomedical Sciences, the National Laboratory of Health, and several companies.
- **Fraunhofer – Portugal Programme**, being prepared since April 2007, is concentrated in the areas of ICT, biotechnology, nanotechnology, advanced manufacturing, logistics. It will involve the creation in Portugal of the first Fraunhofer Institute outside Germany, dedicated to Technology, Applications and Services for Ambient Assisted Living. In Portugal, this Programme counts with the participation of several Universities, Associate Laboratories and companies.

- **International Iberian Nanotechnology Laboratory**

In the Portugal-Spain Summit of November 2005 the Governments of the two countries decided to create a new international research organization to be located at Braga, Portugal, and to aim at a total of 200 researchers to be chosen in Portugal, Spain and other countries on the basis of excellence. The main concentration areas will start to be Nanomedicine (drug delivery, nanotechnology for diagnostics), Environmental Applications, Food Quality Applications, Electronic Devices. The convention for its constitution was signed in the Portugal-Spain Summit of November 2006 and the installation phase started in the first semester of 2007 with the operation of a public interest not for profit association created for this purpose and owned by the Ministry of Science, Technology and Higher Education of Portugal and the Ministry of Education and Science of Spain.

Online Knowledge Library

Through the **Online Knowledge Library (b-on)**, full texts of the main academic and scientific journals published internationally are accessible to individuals in all research and higher education institutions in Portugal. Conceived in 1999, prepared from 2000 to 2003, it was 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 began extensively using this service when it was launched. So far, downloads of full text scientific papers through b-on account for more than 3.7 million a year.

National GRID Initiative

The National GRID Initiative, prepared by the Knowledge Society Agency and implemented by the Science and Technology Foundation, was launched in April 2006 aiming at research R&D on GRID computing and on the application of this high performance distributed



computing technology in large scale computer simulation of systems in areas such as meteorology, oceanography, genomics, proteomics, high energy physics, particle physics experiments, etc., as well as at creating the conditions for economic benefit of opportunities opened by GRID computing.

IBERGRID Initiative

In the Portugal-Spain Summit of 2006 the two Governments approved the IBERGRID Initiative pulling together the GRID computing infrastructures of the two countries and aiming to attain an important critical mass on GRID computing at European scale.

National research and education network

The Science, Technology and Society Network (RCTS), operated by the Foundation for National Scientific Computing (FCCN) and financed by the Knowledge Society Agency, provides connectivity to research and higher education institutions and to schools. It assures the connection to the European research and education network GEANTZ. Since 2005, this network has a dark fiber backbone from Lisbon to Braga connecting at 10 Gps the 7 largest universities and some polytechnics, thus providing this connectivity to 60% of the higher education system, measured by the number of students enrolled. This dark fiber network is being extended as a redundant ring through Spain with connections as to all District Capitals in the country, where almost all higher education schools are located.

Creative Commons Licenses

The Creative Commons Licenses were adapted to Portugal in November 2006, by a consortium involving the Knowledge Society Agency, the Faculty of Enterprise and Economic Sciences of the Portuguese Catholic University and the nonprofit private association Inteli – Intelligence and Innovation. These licenses allow authors to openly share knowledge and their works in a simple, efficient and very flexible manner, making available to the creative community standard licenses that assure protection and liberty in sharing works with some rights reserved. They are a facilitation instrument for the sharing and the legal reutilization of cultural, educational and scientific works, under the full control of their authors.

Open source software

According to an IDC study published in January 2007, *LINUX* is used in 22% of the Portuguese organizations, with the highest incidence in the sector of telecommunications, transports, utilities and media (81%) followed by the public administration (42%), the financial sector (32%) and retail (28%). The use of other open source software in Portuguese organizations is about 13%. It should be noted that the operating system of most of Internet servers is the open source *Apache*, and the open source software *Sendmail* forwards 80% of electronic mail, while the open source *Bind* assures the use of alphabetic URL instead of numeric addresses, and *Perl* is widely used for supporting in Internet sites answers to requests by users, in particular for electronic commerce forms. The adoption of open source software has recently increased in several public administration areas, in particular in higher education and research institutions, in schools and services of the ministry of education, in services of the ministries of justice and of culture.



PUBLIC SERVICES



“SIMPLIFYING AND IMPROVING THE PUBLIC SERVICES”

One of highest improvements in the online availability of public services

According to the last survey of the online availability of the basic public services in Europe, published by the European Commission in September 2007, Portugal had from October 2004 to April-May 2007 one of the highest improvements in the ranking of full availability online of the basic public services: (i) from 15th to 3rd in the 30 countries of EU27 plus Norway, Iceland and Switzerland; (ii) from 13th to 3rd in the UE27; (iii) from 11th to 2nd in the UE15. In online sophistication the improvements were of the same order of magnitude, leading to ranks just one position below those mentioned above for full availability online except within EU15 where the 2nd position was reached. The values of the two indicators for Portugal are now 90%, and they are 100% for the basic services rendered to enterprises. Fiscal services online are particularly advanced, with more than 60% of all individuals income tax declarations having been filed in the Internet.

Electronic public identification

The **Citizen Card** is an electronic identification card that replaces five traditional identification cards – identity, tax payer, social security, voter and national health service – and carries biometric data and electronic signature certificates allowing for strong authentication of electronic identity. In a record time, from mid 2005 to February 2007, the project was designed and implemented under the operational guidance of the Knowledge Society Agency and the overall coordination of the Mission Unit for the Administrative Modernization, with the first cards being issued to citizens from the 14th of February 2007. Portugal entered in this way the group of the four European countries leading the development of electronic identification national cards, with the distinctive characteristic of **providing at the outset five different public services** available with the use of the Citizen Card, thus overcoming a difficult interoperability problem of public administration services and linking use to supply of modern services. Other recent developments in electronic identification were the deployment of the **Portuguese Electronic Passport** in August 2006, just about one year after the project started from scratch, and the creation of the government **PKI – Public Key Infrastructure** which operates since June 2006, opening the way to the imminent full dematerialization of the legislative process.

Full dematerialization of the official journal

Since June 2006 the Portuguese official journal – *Diário da República* – started being fully provided through the Internet at zero cost to users, paving the way to the full preparation of the announcements to be published at the public services of origin with their complete electronic handling, and allowing savings of 27 tons a day in paper, as the paper edition was discontinued.

Citizen Portal

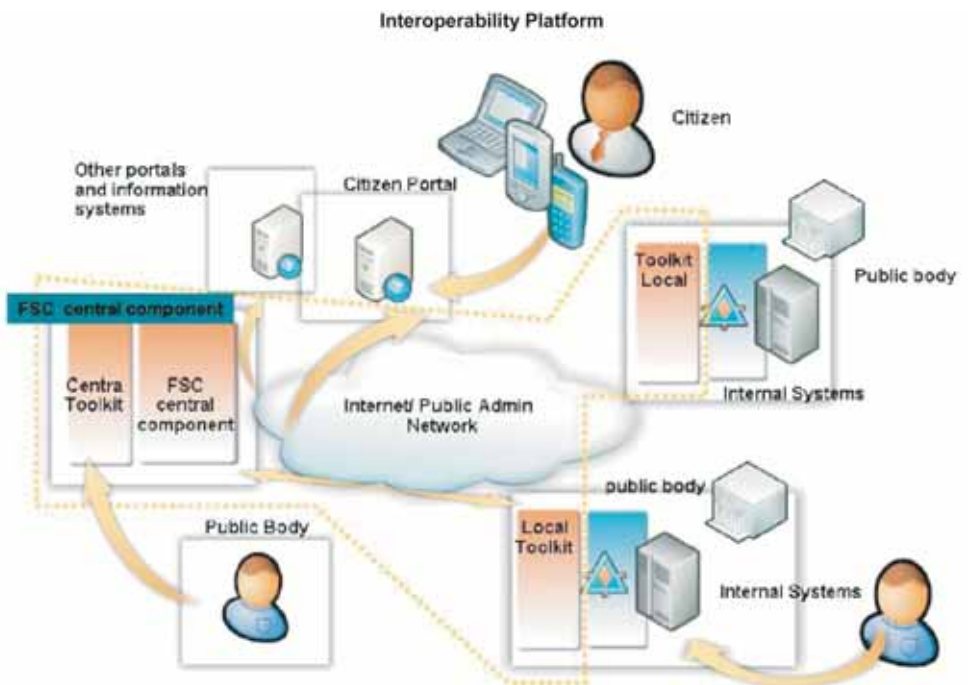
The **Citizen Portal** is the central digital channel for public services, complementing with total convenience and availability the physical **Citizen Shops**. Since it was released, in the first quarter of 2004, the Citizen Portal grew to offer more than 680 citizen-oriented 24/7 services (1/2 informative, 1/4 interactive, 1/6 transactional), provided by 120 public administration bodies. It 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 about 3 million page views per month, originating in 33 countries of the five continents, mainly for such services as information on the public administration, income tax declaration, change of address notifications to public services, official certifications requests from public bodies, employment offers. The Citizen Portal, up to May 2007 of the responsibility of the Knowledge Society Agency, has been regularly classified among the ten best Portuguese sites (KPBI₃₀, Internet performance Portuguese index). The development of the Citizen Portal has been continuous. Besides improvements on the user interface, since February 2005 it offers services supported by *sms*, and access through *wap* protocol by mobile phones and *PDA*s. Since January 2006 it integrates an **Electronic Payments Platform** that, among other possibilities, allows the emission of payment references to be used on the unified *MULTIBANCO ATM System* widely available in Portugal, or even at home or the office through home banking. The services provided to citizens will be further enhanced with the adoption of the electronic Citizen Card launched in February 2007.



The Enterprise Portal

The **Enterprise Portal**, conceived by the Knowledge Society Agency, is the central digital channel for public services available to enterprises through the Internet. It was made available at the end of June 2006 and now provides more than 460 services. A very innovative service provided is the **full creation of an enterprise through the Internet – Enterprise Online** – corresponding to the dematerialization of an innovative service launched in July 2005 allowing the creation of an enterprise in less than one hour which became the preferred system of enterprise creation in Portugal. Another innovative service is the **Enterprise Electronic Portfolio** where all the processes of each enterprise with the public administration are assembled and made available for convenient access, assuring complete transparency on each process status.

Other recent developments for business facilitation were the availability of **online commercial registry** and the **online trade mark registration**, services that allow the dematerialization of hundreds of thousands of processes that previously had to be performed in paper at commercial and industrial property registry counters.



The Interoperability Platform

The Interoperability Platform for the public administration, conceived by the Knowledge Society Agency, is an innovative simple concept enabling the electronic interoperability within the public administration. It manages one-point users identity authentication and access to different public administration services while assuring complete independence

of data bases and the impossibility of one public service to access to other services data bases, fully fulfilling privacy and security concerns. It integrates the **Electronic Payments Platform** that was developed for the Citizen Portal and the Enterprise Portal, making it available for all electronic public services, and allows exchanges with different data bases and information systems through interface Tool Kits that can be flexibly added to the platform as need arises. The Interoperability Platform is a central ingredient for providing different electronic services to citizens and enterprises, namely those available through identity authentication by the electronic Citizen Card.

Public Electronic Procurement

The main objectives of the National e-Procurement Program, approved in June 2003 and coordinated since then and up to May 2007 by the Knowledge Society Agency, are to increase efficiency and transparency, to generate savings and to promote the adoption of e-commerce. It led to deep changes in the public procurement processes, with the introduction of sourcing, aggregation and negotiation, electronic bidding, electronic catalogues, a **Public e-Procurement Portal** operating since April 2005 with an English version available since September 2006,



etc. In the pilot phase that took place up to the end of 2005, the project involved 8 ministries, 370 public bodies, 12 product categories and 52 aggregation and negotiation processes. In the second phase, from January 2006 to January 2007, the program was enlarged to all 14 ministries, involving about 920 public bodies and 103 aggregation and negotiation processes. From an organizational point of view, the system stands on **Ministerial Purchasing Units** created in each ministry and in the council of ministers presidency, and operating on a basis of shared services, which are to be coordinated by the recently created **National Public Procurement Agency**. From beginning to end of 2005 the total value negotiated in the National e-Procurement Program increased 33% and in 2006 the value negotiated was more than the double of the sum of the values negotiated in the three preceding years, thus illustrating the program acceleration, achieving close to 20% savings in a total of 41 million euros negotiated. The program is now prepared for high growth, with a recent study commissioned by the Knowledge Society Agency estimating the possibility of a 50-fold increase in transversal purchases that can be handled by e-procurement each year and possible 190 million euros yearly savings.



OBSERVATION, BENCHMARKING AND INTERNATIONALIZATION

“PROMOTING AN OPEN CULTURE OF EVALUATION AND RIGOR”

The planning and coordination of information society policies requires systematic studies, statistical analyses and benchmarking at national and international levels. Within the Knowledge Society Agency operates the Information and Knowledge Society Observatory which, among other activities, collaborates with the National Statistical Institute in large statistical operations, namely regarding the use of ICT by households and individuals, enterprises, hotel industry, central public administration, regional public administration, municipalities, hospitals. It also promotes periodic evaluations of the Internet sites of public administration bodies. Another line of activity is the specialization and the deepening of data and analyses on ICT use obtained in sectorial statistics, namely for the economy, employment, education and communication sectors.

The Knowledge Society Agency assures international representations on matters of Information Society in several international instances, namely in the European Union, OECD, United Nations, and Ibero-American organizations.



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