A Look from Portugal

i2010 HLG, 24th Feb 2009

- ICT in the Economic Recovery Plan
- The Role of ICT in the National Policy Agenda
- 6 Practical Rules for Success in the Knowledge Society
- 10 Points for a Post-i2010 Strategy

Luis Magalhães
President of the Knowledge Society Agency
Ministry of Science, Technology and Higher Education

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ICT in the Economic Recovery Plan

- **Invest in NGNs.** Fiscal credits to investment of operators (50 M€), funds from Community Support Framework, EIB credit line.
  Build on the experience of the 4 Community Networks built in 2nd semester 2008: 1,200 Km of optical fiber network, up to 10 Gbps, open, multi-operator, 34 M€

- **Modernize 5th to 12th grade schools (300 M€).** Computer networks, interactive boards, video projectors, educational information systems, high speed broadband connectivity.

- **Promote massive ownership and use by students of low cost lap tops with mobile broadband connectivity**

- **Promote investment in and uptake of green technologies to foster energy-efficiency:**

  - Installation in 2009 of solar panels (300,000 m2) and micro-generation units (12,500 units), 140 M€ of state budget.

  - Improved energy efficiency of public buildings (hospitals, universities, law courts, public offices),100 M€ of state budget.

  - Energy metering networks in order to endow 10% of domestic consumers with intelligent metering systems and allowing optimization of energy use, 10 M€ of state budget.

ICT in the Economic Recovery Plan

- **Enhance fiscal credits to enterprise R&D.**
  Increase maximum to 82.5% (highest rate in Europe)
- **Foster public investment and employment in R&D.**
  Increased funding for PhD and Post-Doc fellowships, and for employing more than 1.000 PhDs
- **Promote private investment in R&D in association with public procurement.**
  In contracts over 25 M€ require 0.5% to 1% investment in R&D
- **Establish thematic R&D Consortia (call opened 3 weeks ago)**, with State Labs, university research centers/institutes, enterprises, foreign institutions. Several with ICT components: public risks, ocean, sustainable energy and energy systems, public health, nuclear physics and advanced computing, space technology, security

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ICT in the Economic Recovery Plan

Strengthen the Partnerships for the Future Initiative

Building Ambitious International Knowledge Networks

MIT – Portugal Programme (11 Oct 2006)
Engineering Design and Advanced Manufacturing,
Energy Systems, Transportation Systems, Bioengineering Systems.
Involves 6 universities, 6 Associate Labs, 1 National Lab, VW-Autoeuropa, EADS-CASA and 10 Portuguese companies mostly SMEs

CMU – Portugal Programme (27 Oct 2006)
Sensor Based Networks, Critical Infrastructures and Risk Assessment,
Information Security, Language Technology,
Software Engineering, Technical Change and Innovation, Mathematics.
Includes the creation of an international virtual institute: the *Information and Communication Technologies Institute (ICTI)* operating first with two nodes, *ICTI@Portugal* and *ICTI@CMU*.
Involves 11 universities, 4 Associate Labs, Portugal Telecom, Siemens Networks Portugal, Novabase SA and 16 SMEs

ICT in the Economic Recovery Plan

Strengthen the Partnerships for the Future Initiative

Building Ambitious International Knowledge Networks

UT Austin – Portugal Programme (2 Mar 2007)
Advanced Digital Media, Advanced Computing, Mathematics.
Includes the creation of an international virtual institute: the *International Collaboratory for Emerging Technologies (CoLab)* operating first with two nodes, *CoLab@Portugal* and *CLab@UTAustin*.
Involves 15 universities, 3 Associate Labs, 4 Science and Technology Parks, 9 SMEs.

Harvard – Portugal Programme (16 Apr 2007)
Biomedicine and Health Care Content for the public, students and practitioners.
Will involve Universities, Associate Labs, large and SMEs.

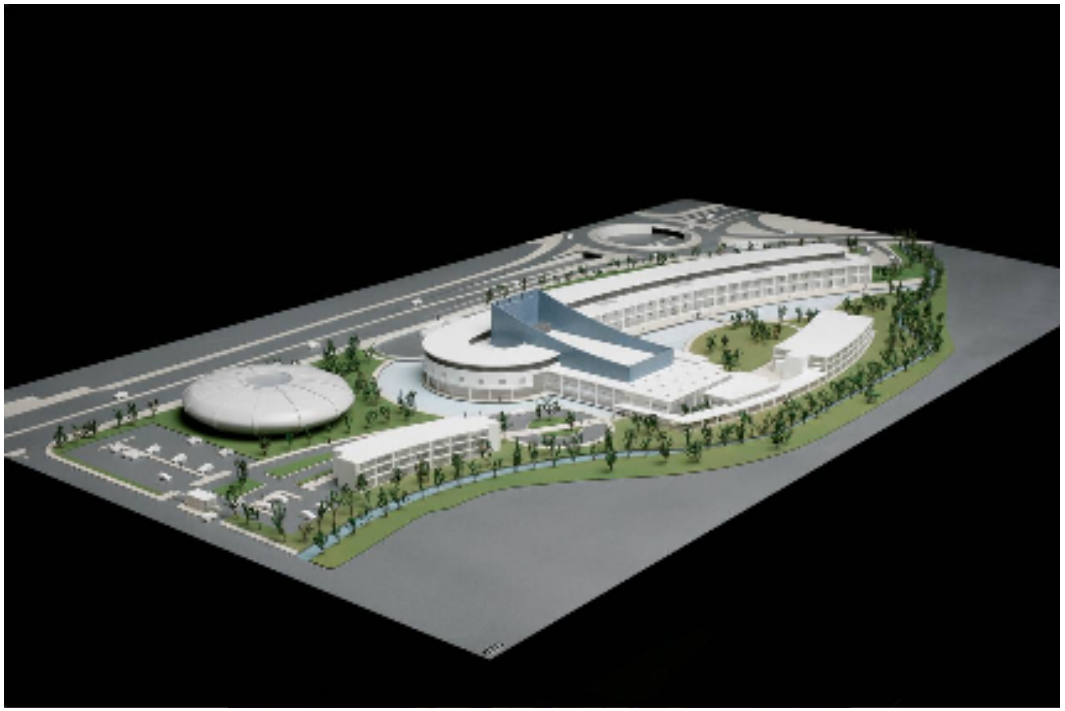
Fraunhofer – Portugal Programme (18 Apr 2007)
Creation in Portugal (Porto) of the 1st Fraunhofer Institute outside Germany (on *Technology, Applications and Services for **Ambient Assisted Living**).*
ICT, Nanotechnology, Advanced Manufacturing Engineering, Logistics.
Will involve Universities, Associate Labs, large and SMEs.

ICT in the Economic Recovery Plan

Strengthen the Partnerships for the Future Initiative

Building Ambitious International Knowledge Networks

International Iberian Nanotechnology Laboratory
Nanomedicine (drug delivery, nanotechnology for diagnostics), Environmental Applications, Food Quality Applications, Electronic Devices. 200 researchers, 400 people. International research organization created by Portugal and Spain, to be opened to the membership of other countries.



ICT in the Economic Recovery Plan

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"The ambition of both countries is to create a research site of world scale relevance, capable of attracting scientists and technicians from all points of the world"
José Mariano Gago, *Minister of Science, Technology and Higher Education, Portugal*

The Role of ICT on the National Policy Agenda

- Very high in the political agenda.
  Current Government run in the 2005 elections on a “Technological Plan”: Science, Innovation, Information Society, Education and Training
- Strong leadership of Prime Minister

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6 Practical Rules
for Success in the Knowledge Society

- Develop human capital
- Foster partnerships and knowledge networks
- Leave room for bottom up creativity
- Promote internationalization
- Assure appropriate infrastructure
- Aim at outcomes and measure them

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10 Points for a Post-i2010 Strategy

1) **Transforming education – talent development**
   - Interactivity in computer assisted learning – convergence of games and learning applications
   - ICT enhanced collaborative environments – seamless connections schools-homes-universities-research centers

2) **Transforming research – advancements in e-Science**
   - Widespread scientific data and information open repositories – advanced data mining and search interfaces
   - Transformation of quality control of scientific publications – from classical peer review to a combination of user based web 2.0 type pre-selection by users followed by peer review of a substantial part but not all submissions
   - Remotely operated scientific instruments
   - Distributed large-scale computer modelling and simulation (with Grid Computing and Supercomputing)
   - Expansion of contributions of “amateur science” – contribution of wide citizen groups with web 2.0 type tools for large scale observations and data gathering in certain fields, type “amateur astronomy”, (e.g., in health, social behaviour, energy,

10 Points for a Post-i2010 Strategy

3) **ICT and energy-environment-transportation**
   - Optimization of energy consumption at homes, offices and cities (in particular transportation and traffic optimization)
   - Advanced connection of medium or micro energy producers to the power grid
   - Energy harvesting techniques
   - ICT managed waste disposal and recycling

4) **ICT and ageing**
   - Ambient assisted living
   - Active ageing

5) **ICT and risk management**
   - Crisis and disaster prediction and monitoring
   - Crisis control
   - Disaster recovery
   - Infectious diseases spread simulation and control

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10 Points for a Post-i2010 Strategy

6) **ICT infrastructure – Future Internet**
- NGN: FTTx combined with mobile very large broadband access and advanced services over broadband, with QoS – Quality of Service
- Internet of Things – Sensor based networks
- Connected robots
- Intelligent interactive ambients
- Cloud computing
- Open access content – public sector information
- Citizen produced content

7) **Information overload management**
- New approaches to knowledge retrieval and synthesis
- Intelligent prioritization of received information and contacts

8) **Transforming business and government**
- Sensor and mobile communication based logistics, commerce, payments and trade regulation
- User driven innovation

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10 Points for a Post-i2010 Strategy

9) **Security and Trust**
- Critical infrastructures security
- Multiple identities and multiple identification interfaces (assertive, sensor tags, cell phones, biometric recognition, eID, etc.)
- Cyber-attacks and computer immunological systems
- Computer systems malware epidemiology and cure

10) **E-Inclusion**
- Fighting new forms of digital exclusion associated with no or limited access to ICT infrastructure and use of individuals, communities or regions
- Networks of collaborating not for profit and public organizations promoting e-inclusion in communities through proximity actions
- Very simple interactive screen interfaces adaptive to users (an automatically personalized digital quiosk for each user)

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