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« Promoting the building of a people-centred, development-oriented and inclusive information society, with a view to enhancing digital opportunities for all people »

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INFORMATION SOCIETY IN ROMANIA
Brief overview on recent developments –

by

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Summary

I. ICTs promotion environment

II. ICTs market development

III. Development and better exploitation of ICT infrastructures and e-facilities

IV. R&D supporting ICTs development
I. ICTs promotion environment (1)

- **Institutional Framework/ICT sector**

- **Ministry of Communications and Information Technology (MCTI)**
  www.mcti.ro

- **The Interministerial Group for IT Promotion** in Romania:
  - led by the prime minister
  - includes ministers of communications & information technology, finance, research and education, public administration
  - Decisions on large ICTs projects (government guarantees)

- **The National Regulatory Authority for Communications (ANRC)**
  www.anrc.ro
I. ICTs promotion environment (2)

- Institutional Framework/ R&D

- Ministry of Education and Research/

- National Authority for Scientific Research

- specialized national R&D Institutes:
  - The National R&D Institute for Informatics (ICI)
    www.ici.ro
  - The National R&D Institute for Communications (CNSCC)
    www.cnscc.ro
I. ICTs promotion environment (2)

- Strategic approaches
- The National Strategy for the promotion of the new Economy and the implementation of the Information Society (2002)
  - Coordination: the Ministry of Comms & Information Technology (MCTI)
  - Key objectives in the areas of: ICTs industry, extensive development of ICTs used in enterprises, development of highly specialized human resources
- The Strategy for IT export branding during 2006 – 2009
  - Sept 2006: the Ministry of Comms & Information Technology, the Dpt. for Foreign Trade in the Ministry of Economy and Trade
- The National Broadband Strategy – to be adopted this year
  - Measures to ensure the broadband infrastructure development and its accessibility

(see www.mcti.ro)
I. ICTs promotion environment (3)

- Planning and implementation instruments:
  - the National Development Plan (NDP) for 2007-2013
    (main instrument for planning investments for sectoral and regional development, based on both national and EU structural funds)
  - National Coordinator: the Ministry of Public Finances
  - 6 priority development areas (Sectoral Oper. Progs – SOPs):
    - Economic Competitiveness and the Development of the Knowledge-based Economy
    - Development of transport infrastructures
    - Protection and improvement of environment quality
    - Development of human resources
    - Development of rural economy
    - Diminish development disparities among the country’s regions
I. ICTs promotion environment (4)

- **SOP Economic Competitiveness and the Development of the Knowledge-based Economy**
  - Managing Authority: the Ministry of Economy and Commerce
  - **Priority axis no. II: Competitiveness through research and innovation**
  - Coordinator for the research axis: National Authority for Scientific Research
  - **Priority axis no. III – ICT for private and public sectors**
  - Coordinator for the ICT Axis: MCTI

**Key Areas of Intervention**
- **ICTs**: development of broadband network, efficiency of modern electronic public services, sustaining the digital Economy
- **R&D**: research-industry partnerships, R&D infrastructures, including in enterprises
I. ICTs promotion environment (5)

- R&D Programmes supporting ICTs development
  Coordinator: National Authority for Scientific Research

- The National Plan for R&D and Innovation (NPRDI)
  - main instrument for R&D policies implementation
  - 15 national R&D programmes in various S&T fields, including ICTs

- The Programme “Research of excellence”, launched in 2005
  - Facilitating European integration of Romanian S&T community
  - Correlation with ERA specific S&T priorities/ future EU FP7

- The Nucleus research programmes
  - programmes of the national R&D institutes
  - research strategy of institutes, in relation to sectoral strategies

- The Programme Infratech
  - development of technology transfer infrastructures
I. ICTs promotion environment (5)

- **Legal perspective - EU compatible legislation** for:
  - free access to universal telecommunication and postal services
  - optimal management regime for limited resources of public interest
  - E-procurement, IPRs, access to public information,
  - Electronic signature, E-tax, protection of personal data

- **Reference legal framework for communications:**
  - Law 527/2002 on access to electronic communication networks and associated infrastructures
  - Law 304/2003 on universal service and the rights of users concerning electronic communication networks and services

- **Prevention of fraude:** intensified actions to ensure the protection of ICT systems, personal data and their processing, reduction of pirat activities
II. ICTs market development (1)

- IT Market Alerts (IDC), October 2006
- IDC Study: SE Europe mobile comms 2006-2010
  - Hot IT services sales markets in CEE region:
    - Romania, Slovakia and Ukraine
  - “IT services” include:
    - Software & hardware support
    - Enterprise applications suites (EAS)
- RO IT services: internal market sales
- 2005:
  - Expansion: 19%
  - Volume: USD 200 mil
- 2006:
  - Expansion: ~ 18.8%
  - Volume to reach: ~ Euro 190 mil
- 2010:
  ~ USD 450 mil
II. ICTs market development (2)

- **ICT production** (Statistical Yearbook of Romania, 2005)
  - volume: ~ 4 bil Euro (with approx. 14% exports)
  - share: 0.8% of total industrial production
  - structure: ~70%: comms(+R&TV)/~30%: IT products

- **ICT exports** (Statistical Yearbook of Romania, 2005)
  - volume: 560 mil Euro
  - share: ~2.9% of total exports
  - structure: ~90%: comms (+R&TV)/~10%: IT products

- **trends analysis** (National Association of Software Enterprises)
  - IT products:
    - internal sales grow much faster than exports,
    - software sales more accelerated than hardware sales
  - **IT exports**: software and services up to 97% of total
II. ICTs market development (3)

- **IT companies:**
  - **Total number:**
  - total turnover: 70 - 75% concentrated in Bucharest
  - stable trend: hardware producers/ vendors
  - growing trend: integrators, software developers

- **IT companies**/Large Corporations
  - MNC brands: ~ 80% of the market
  - IBM, Hewlett-Packard, Dell, Compaq, Cisco
    (+ local distributors/ assemblers)
  - Microsoft, Oracle, Novell, SCO Unix (+ services by local firms)
II. ICTs market development (4)

- **IT companies/ Local firms**
  - dense presence of system & services integrators
  - small number of major local software developers
    - Siveco (WSIS prize winner/ e-learning product),
    - Softwin (RO antivirus)

- **IT companies/ Hardware production**
  - Local manufacturing of PCs:
    - about 50% of the local market (~50,000 PCs annually)
    - major companies for PC manufacturing: Solectron, Intrarom, Flamingo, Siemens, Ericsson
II. ICTs market development (5)

- Telecommunications industry/ Equipment producers
  - major companies: Siemens, Alcatel, Ericsson, Intrarom
  - recent comer (microelectronics): Infineon
  - transmission equipment, including wireless/ radio relays, data collection systems
  - telephony equipment: public telephony systems, wireline networks, digital exchanges, telephone terminals, public card phones, ISDN network terminals, intelligent terminals
  - many small companies manufacture telephone instruments and accessories to meet the needs of the local market
II. ICTs market development (6)

- **Telecommunications industry/ Services providers**
  - **fix telephony:**
    - 2004: 4, 4 mil. subscribers (~20%);
    - digitization rate 77.15% in 2004
    - Major provider: Romtelecom
  - **mobile telephony:**
    - 2006: 15 mil subscribers (~ 75%)
    - providers: Vodafone, Orange, Cosmote, Telemobil (Zapp)
    - 2 public data transmission operators: GlobalOne, Logic
  - **radio services** (2004)
    - 163 public broadcasting stations
    - 324 private broadcasting stations
  - **TV services** (2004)
    - 113 public TV broadcasting stations
    - 119 private TV broadcasting stations
II. ICTs market development (7)

- **Significant ICT industry associations**
  - **ARIES** – Romanian Association for Electronic & Software Industries (www.aries.ro)
  - **ANIS** – National Association of Software Enterprises (www.anis.ro)
  - **AITR** – Romanian Association of Telecommunications Engineers (www.aitr.ro)
  - **ANISP** – National Association of Internet Providers (www.anisp.ro)
  - **CABLU** – Cable Communications Association (www.cablu.org)
III. Development and better exploitation of ICT infrastructures and e-facilities (1)

- **Computer and Internet**/ *Internet access* (2004)
- PC: annual sales growth > 50%
- Internet services providers: ~ 1100

Yet,

- **Internet rate**: 11%
- broadband Internet rate: 1.7%
  /EU 15: 7.6%; EU 25: 6.5%/ 
- enterprises with Internet access: 52%
  (90% of large enterprises, 50% of SMEs)
  /EU 25: 89%/ 
- enterprises with broadband Internet: 7%
  /EU 25: 52%/
III. Development and better exploitation of ICT infrastructures and e-facilities (2)

- **Telephony**/ *Infrastructures*

- **3G broadband solutions:**
  - 2005/2006: 5 licenses, including Vodafone, Orange
  - similar ascending trend to GSM mobile telephony

- **NetCity Project – Bucharest Metropolitan Network**
  - Full coverage optical fiber network in Bucharest (City Mayor Decision 86/ April 2006)
  - Project duration: 2007-2014
  - Project implementation – 3 phases:
    - 2007-2008: central Bucharest (~1200 streets), ~100 mil Euro
    - 2009-2010: whole Bucharest area, ~100 mil Euro
    - 2011-2014: whole future metropolitan area (30-40km around Bucharest)
III. Development and better exploitation of ICT infrastructures and e-facilities (3)

- **e-facilities** /Public services/ E-government

- **e-procurement** – mandatory for all public acquisitions

- **Citizen support: 19.8% of population** access public authorities sites
  (90% of the 22% of population who uses Internet with reduced frequency) /EU: 42%/ 
  - 5.8% for downloading forms 
  - 8.9% for sending filled forms /EU: 9.8%/ 

- **Enterprises support: 29% of enterprises** are using Internet for interacting with public authorities (more than half of the enterprises which have Internet access – 52%)
  - 22% for downloading forms / EU: 41%/ 
  - 12% for returning filled forms / EU: 29%/'
III. Development and better exploitation of ICT infrastructures and e-facilities (4)

- e-facilities \(\textit{Public services/ E-Learning}\)

- The Information Educational System Project
  2001-2004
  - 10.8 PCs /100 students in primary and secondary schools,
  - 14.3 PCs / 100 students in high schools
  - 610 high schools connected to Internet
    - using the Educational Assistant for Schools and High schools (530 digital lessons; \(\sim40\%\) of the curricula)
  - Internet use for courses and training sessions related to employment opportunities: 9.4% / EU 25:17.7%/
III. Development and better exploitation of ICT infrastructures and e-facilities (5)

- e-facilities /Public services/ E-health

- Internet access:
  - 43% of hospitals
  - 33% of clinics
  - 16% of general medicine offices

- use of electronic records of patients:
  - 49.2% of general medicine practitioners
    / EU 10 NMS: 59%/
III. Development and better exploitation of ICT infrastructures and e-facilities (6)

- **e-facilities** /

  - Public services

- **The Knowledge Economy Project**
  - initiated by the Romanian Government in collaboration with the World Bank
  - coordinator: Ministry of Communication and Information Technology (implementing agency)

- **Local Communities Electronic Networks (LCEN) in approx. 400 communities:**
  - Points of Public Access to Information (PPAI):
    - broadband Internet access in school, mayoralty, public library and for the general public
  - Nine pilot projects: communities situated in various mountain areas, as well as in the Danube Delta:
    - Albestii de Muscel, Aninoasa, Corund, Jurilovca, Lapusnicu Mare, Ostra, Pilu, Sinca, Targu Lapus

III. Development and better exploitation of ICT infrastructures and e-facilities (7)

**e-facilities / E-business (2004)**

- **e-commerce** in total turnover (2004): *1.3%*  / EU 25: 2.1%/ 
- **on-line purchasing** (2004): *3%* of Internet users / EU 25: 33%/ 
- 2005 Security Space Report  
  - servers secured (2004): 0.5% (172 from 34.026) 
- **distance payment instruments** (2005):  
  - 35 instruments in 25 banks  
  - 66,000 registered users  
  - transaction value: 15 billion euro
IV. R&D supporting ICTs development (1)

- **R&D capacity dedicated to the ICT field**
  - about 40 important research organisations, including RTD institutes as well as research centres in universities
  - around 1400 researchers
  - ICT-profile faculties and specializations in all major universities (including polytechnichs), both public and private, from the main cities: Bucharest, Cluj, Timisoara, Iasi, Brasov, Craiova, Pitesti
  - of the total number of graduates (approx. 110000 in 2003/2004): approx. 10% are highly trained for the IT field
IV. R&D supporting ICTs development (2)

- R&D Programmes supporting ICTs development
- alignment to EU “e-Europe” documents and Action Plans - i2010

- The National Plan for R&D and Innovation (NPRDI)
  - NPRDI programmes in support of ICTs and the KB economy
  - ~ 60 Meuro (~ 10% of total budget)
    - Information Society Technologies – INFOSOC
    - New materials, micro- and nanotechnologies – MATNANTECH
    - Technologies for the space and aeronautics fields – AEROSPATIAL
    - Biotechnology - BIOTECH
    - basic and socio-economic research - CERES
    - international S&T cooperation and partnership - CORINT
IV. R&D supporting ICTs development (3)

- R&D Programmes supporting ICTs development

  The Programme “Research of excellence”/ correlation to EU FP7
  Module I: Complex R&D projects/ 2005
  ICTs : 68 of 539 projects (~ 12,6%)

  **ICT Technologies**
  - integrated micro/nano-systems
  - Embedded systems, computing and control
  - communication networks
  - Software, Grids, security and dependability
  - Knowledge, learning and cognitive systems

  **ICT meeting societal and economic challenges**
  - education, health, personal development and inclusion
  - transportation, environment and sustainable development
  - public administrations, links governments/citizens/ businesses
  - ICT supporting businesses and industry

  **Integration of ICT technologies**
  - Personal/ home communication and computing environments
  - Robotic systems, Intelligent infrastructures
  - New media paradigms and new forms of content
IV. R&D supporting ICTs development (4)

- R&D Programmes supporting ICTs development
- RO-GRID Integrated Project
  - project for the national GRID infrastructure for research
  - RO-GRID Consortium:
    - National Institute for R&D in Informatics, Bucharest
    - The National Network for Education and Research
    - University “Politehnica” Bucharest
    - University of Bucharest
    - National Institute for R&D in Physics and Nuclear Engineering, Bucharest
    - National Institute for Aerospace Research, Bucharest
    - Romanian Space Agency
    - Institute for Nuclear Research, Pitești
    - Software Company SIVECO, Bucharest
  - Strategy and action plan (2006)
IV. R&D supporting ICTs development (5)

- The INFRATECH Programme for the development of the technology transfer infrastructure
- 4 ICTs oriented S&T Parks
  (out of 7 projects currently under development)
  - 3 Software Parks: Brasov, Galati, Slobozia
  - MINATECH Park (micro&nanotechnologies)- Bucharest, by the National R&D Institute for Microelectronics (IMT)
IV. R&D supporting ICTs development (6)

- Romania’s participation in EU R&D FP6
  - 380 projects accepted for financing
  - total value: around 40 MEuro
  - contracts concluded in ITCs-related fields: 68
    - Information society technologies: 32 contracts
    - Nanotechnologies and nanosciences, knowledge-based multifunctional materials: 27 contracts
    - Aeronautics and space: 9 contracts