Education and the
Second Generation Digital Divide

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4th IT STAR WS on ICT Skills, Education and Certification: the Multistakeholder Partnership

Summary

Digital Divide

Bridging Digital Divide

Broadband Divide

Technology Divide

Applications Divide

Role of Education

Digital Divide

- Gap between people with effective access to digital and information technology and those with very limited or no access at all
    - See Wikipedia http://en.wikipedia.org/wiki/Digital_divide
- Many aspects of Digital Divide
    - Continents, regions, countries, intra-country: old vs. young, urban vs. rural, rich vs. poor, etc.
- Policies and approaches to bridge Digital Divide
    - Google Search for DD: 5,050,000 returns only in English
- Many times oversimplified approaches to the topic
    - Access to Internet as the main indicator for DD
    - Quality of access ignored

Bridging DD: The Four Pillars

- [Appropriate ICT Infrastructure](#)

- [Accessible and Affordable Internet Access](#)

- [Generalized Ability to Use ICT](#)

- [Availability of Useful Content](#)

Picture: Sunshineskyway Bridge, Florida

Access

- Is DD really being bridged by infrastructure investments?
  - technology helps availability by price reduction (Moore's Law and Open Source Software)
  - huge investments with limited impact
- Wealthy nations command 90% of Internet hosts
  - while only 16% of world population
- Developed countries
  - enter the generalized *broadband*
  - most applications developed for broadband
- Less developed countries
  - have still poor infrastructure
  - new chances related to the new cheaper technologies: mobile telephony, Wi-Fi, WiMAX, ADSL et al.
- Access data are not fully relevant for DD evaluation
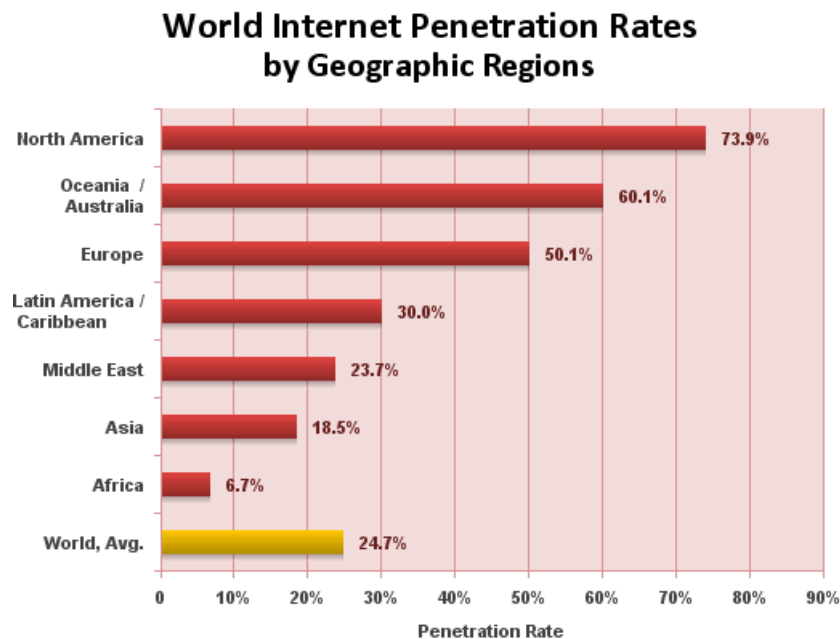
Ability to Use ICT: Digital Literacy

- World common Illiteracy 23%
  - Source World FactBook (age 15 and over cannot read and write)
- World Digital Illiteracy 80-85% (estimation)
  - Very basic literacy range from 0,0..%(few countries) to 80-90%(developed countries)
- Catalysts: projects like ECDL
  - Encourage certifications
  - Promote awareness
- Need for a second step: from basic skills to superior skills
  - From grammar school to high school

DD is more than Access

- What kind of access
  - Broadband generalizes: presence or/and quality of access
  - Cost of broadband: affordability problems
  - Real full and useful access w/o broadband?
  - Most applications developed for broadband
- New Digital Technologies
  - Web 2.0 (3.0)
- Access and use of broadband and new technologies add new aspects to Digital Divide
- New skills requirements
- A Second Generation Digital Divide spreads in all areas of DD
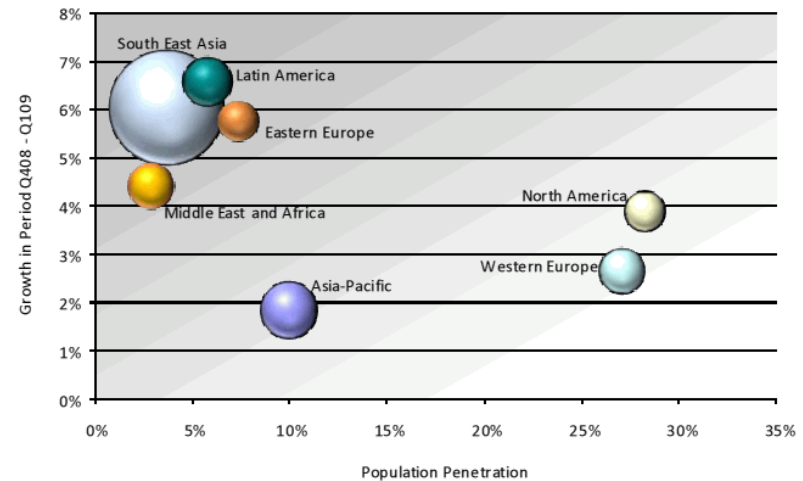 - A person writing emails, browsing the net and chatting is completely on the right side of DD?

Broadband Divide

1,7 billion Internet Users

Mid 2009

Broadband Divide by Regions

World Internet Penetration Rates by Geographic Regions

North America — 73.9%
Oceania / Australia — 60.1%
Europe — 50.1%
Latin America / Caribbean — 30.0%
Middle East — 23.7%
Asia — 18.5%
Africa — 6.7%
World, Avg. — 24.7%

Penetration Rate

Source: Internet World Stats - www.internetworldststs.com/stats.htm
Penetration Rates are based on a world population of 6,767,805,208
and 1,668,870,408 estimated Internet users for June 30, 2009.
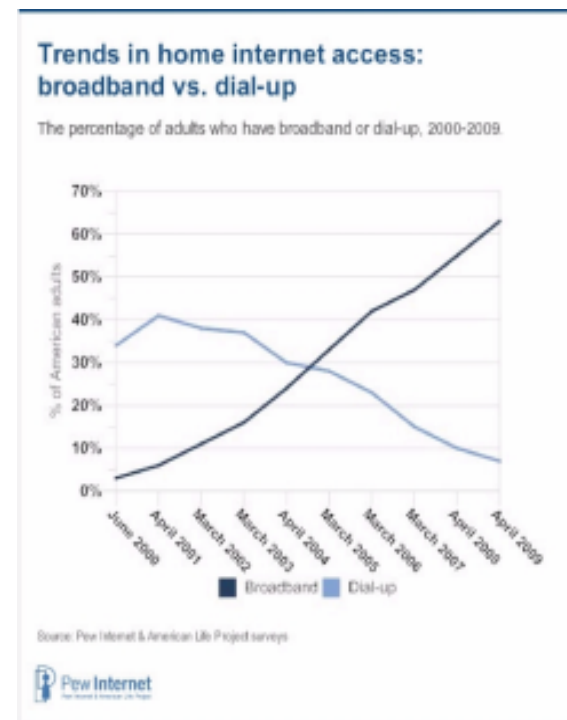Copyright © 2009, Miniwatts Marketing Group

Source: Fiona Vanier, Point Topic,
London, 2009

- Worst affected
  - South East Asia, Middle East, Eastern Europe

Enablers & Barriers to Broadband adoption

- Broadband adoption increases
  - Monthly prices do too
  - US Study +13% 2009/2008
    - Trendwatch, June 2009
- Broadband cheaper (European trend)
  - High speed broadband vs. broadband
    - 256 kbps vs. 1 mbps
- Enablers
  - Income per family
  - College education
  - Child/children in family
- Barriers
  - Low Income
  - Unemployment
  - Age (+45 vs. +65)
  - Living in rural areas
  - Not having at least a high school degree
  - Ethnic or disabilities group

Trends in home internet access: broadband vs. dial-up

The percentage of adults who have broadband or dial-up, 2000-2009.

Source: Pew Internet & American Life Project surveys

Pew Internet

Second Generation Digital Divide
WS on ICT Skills, Education and Certification
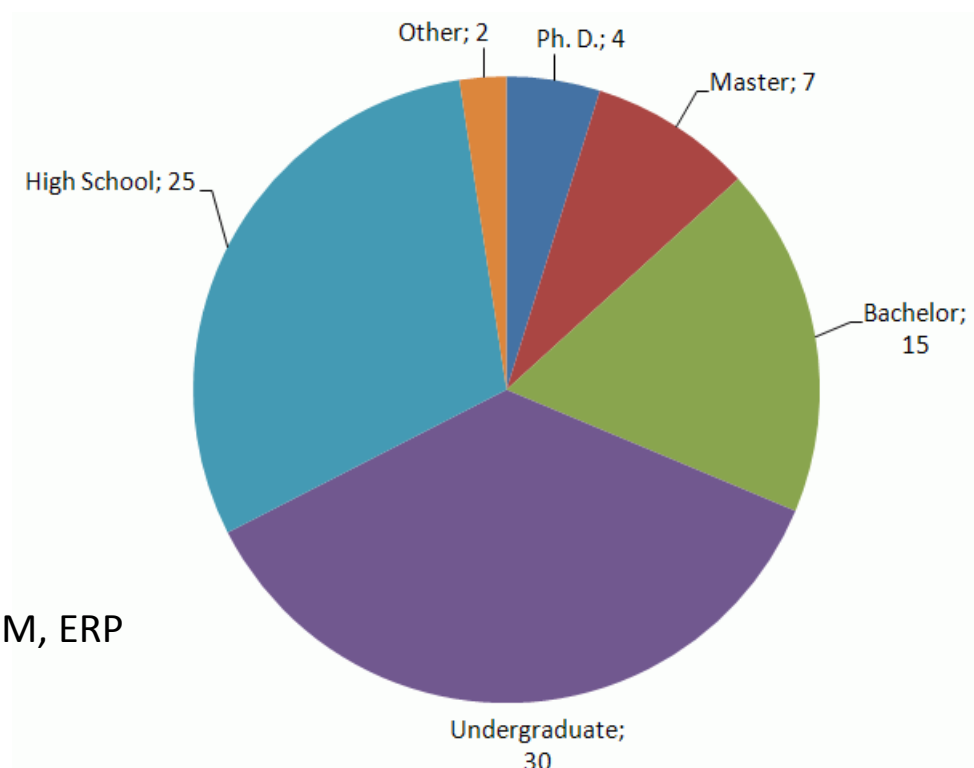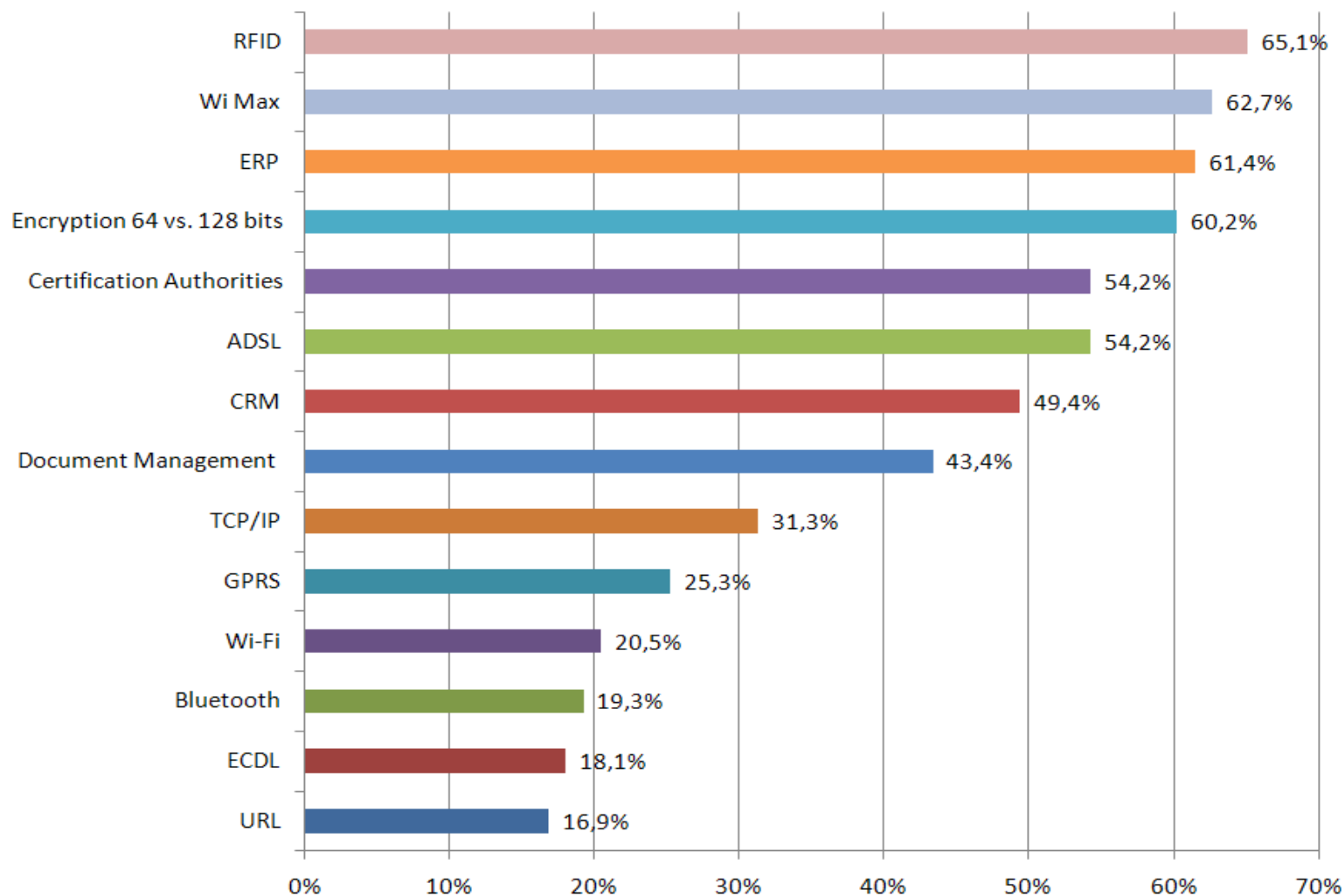
Technology Divide

- Web 2.0 in Business and Public life
  - Blogs
  - Podcasts
  - Social networks
  - Own Websites
  - Cooperation platforms
- SOA (Service Oriented Architecture)
- Grids
- Enterprise 2
  - Document management
  - CRM
  - Cloud computing

Second Generation Digital Divide
WS on ICT Skills, Education and Certification

Case Study: Survey of ICT Awareness

- Conducted by Vasile Baltac
  - On Internet site, Romanian language, anonymity of responses
  - Terms or Notions in modern ICT public use: I know what is about vs. I do not know or I guess
  - 83 responses
  - All categories of | education levels
  - Questions about:
    - URL, Bluetooth, TCP/IP, RFID
    - Encryption 64 vs. 128 bits Certification Authorities
    - ADSL, Wi-Fi, GPRS, Wi Max
    - Document Management, CRM, ERP
    - ECDL
    - etc.

Pie chart of education levels: Other; 2 — Ph. D.; 4 — Master; 7 — Bachelor; 15 — Undergraduate; 30 — High School; 25

Survey: I do not know or I guess responses

Technology Divide

- Only academic interest?

- European Commission believes that the roll out and development of high speed broadband internet could create around one million jobs in Europe

- Broadband-related growth in economic activity to the tune of €850 billion

- Internet broadband for all Europeans by 2010
  - High-speed internet broadband for all Europeans by 2013
    - Vivianne Reading The Digital Europe Strategy The Ludwig Erhard Lecture 2009 Lisbon Council, Brussels, 9 July 2009

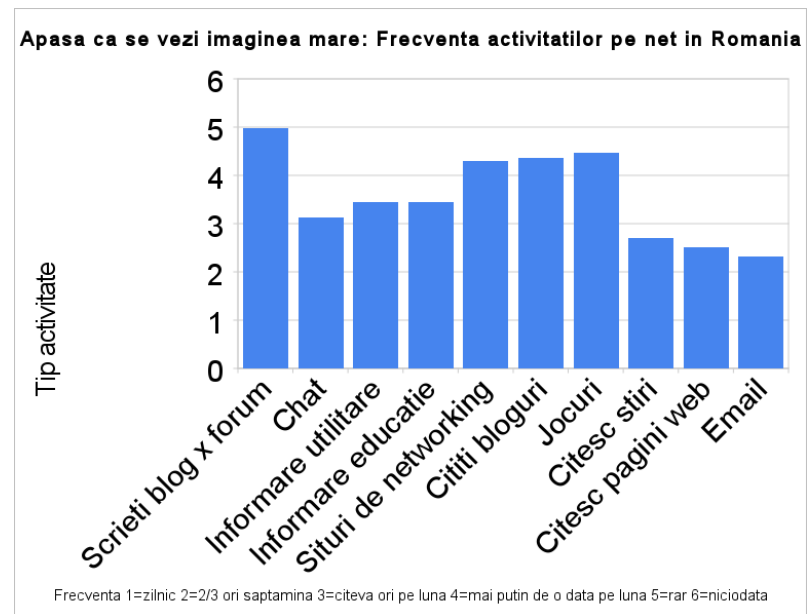- 10% of additional broadband penetration yields 1.3% extra growth
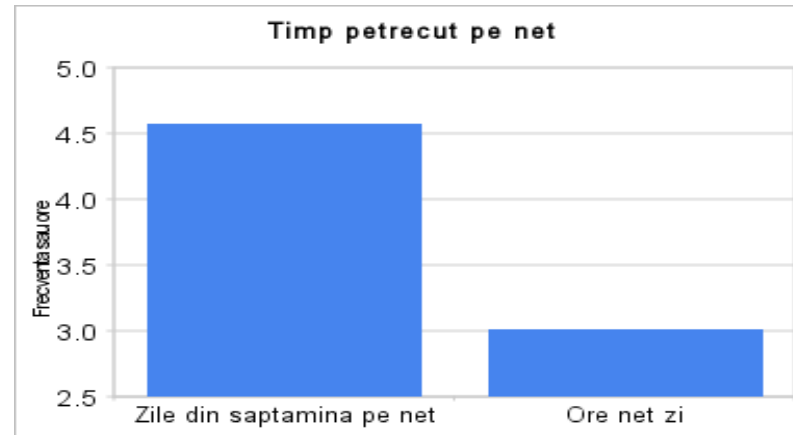 - World Bank study

Disparities: Romania Case Study

A study by BCS (Social Research Office) - August 2009

- 45.8% Romanians access Internet
- 18% each day
- Average 4 times per week, 3 hours daily
- Mostly doing:
  - Forum or blog comments
  - Chat
  - News reading
  - Educational information
  - Social networking sites
  - Email
  - Games

    Study by Sorin Adam Matei Purdue University, Indiana, USA

- Internet Banking, eCommerce, Cooperation platforms, eGov. ?

Timp petrecut pe net

Apasa ca se vezi imaginea mare: Frecventa activitatilor pe net in Romania

Frecventa 1=zilnic 2=2/3 ori saptamina 3=citeva ori pe luna 4=mai putin de o data pe luna 5=rar 6=niciodata

2ⁿᵈ Generation Digital Divide: Skills not Access

- DD broadening – a Second Generation Digital Divide
- Access important not always relevant
- Skills more important
- Digital literacy – only a first step
- Additional Digital training needed
    - Internet apps
    - Cloud computing
    - Network Security
    - eGovernment
    - eCommerce
    - eBanking
- ECDL stepping forward
    - Additional modules
- Change of mentalities by training
    - More and more digital savvy people

ATIC - A Bridge to Romania

- The Association for Information Technology and Communications of Romania (ATIC)
    - organization aiming to consolidate an appropriate framework for the development of IT&C in Romania
    - ECDL Licensee for Romania
- ECDL Romania as exclusive sub-licensee
- Member of **CEPIS** (Council of European Professional Informatics Societies), **WITSA** (World Information Technology Software Alliance); and **IT STAR** Regional Alliance
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Thank you!