Social and Legal Issues in Informatics

MSc Management – IS and Services Science

Digital Divide

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Overview

- Status in different countries
- Importance
- Problem and solutions
- Initiatives
- Policies

Digital Divide

Digital Divide

- Gap between those with regular, effective access to digital technologies and those without
  - Ease of access
  - Ability to use
  - Quality of content
- Reinforces differences and inequalities

International aspect

- Situation is highly different from countries to countries

Internet Usage (2010)

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	Population (2010 Est.)	Internet Users Dec. 31, 2000	Internet Users Latest Data	Penetration (% Population)	Growth 2000-2010	Users % of Table
Africa	1,013,779,050	4,514,400	**110,931,700**	10.9 %	2,357.3 %	5.6 %
Asia	3,834,792,852	114,304,000	**825,094,396**	21.5 %	621.8 %	42.0 %
Europe	813,319,511	105,096,093	**475,069,448**	58.4 %	352.0 %	24.2 %
Middle East	212,336,924	3,284,800	**63,240,946**	29.8 %	1,825.3 %	3.2 %
North America	344,124,450	108,096,800	**266,224,500**	77.4 %	146.3 %	13.5 %
Latin America/Caribbean	592,556,972	18,068,919	**204,689,836**	34.5 %	1,032.8 %	10.4 %
Oceania / Australia	34,700,201	7,620,480	**21,263,990**	61.3 %	179.0 %	1.1 %
WORLD TOTAL	6,845,609,960	360,985,492	**1,966,514,816**	**28.7 %**	444.8 %	100.0 %

NOTES: (1) Internet Usage and World Population Statistics are for June 30, 2010. (2) CLICK on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the US Census Bureau . (4) Internet usage information comes from data published by Nielsen Online, by the International Telecommunications Union, by GfK, local Regulators and other reliable sources. (5) For definitions, disclaimer, and navigation help, please refer to the Site Surfing Guide. (6) Information in this site may be cited, giving the due credit to www.internetworldstats.com.

Taken from:
http://www.internetworldstats.com/stats.htm

Distribution of ICT

China / India

- High production of ICT

Northern/Western countries

- Production of high value-added software and services

Dimensions of gap

High vs Degraded quality of access

- Low performance computers
- Low performance connections
- High price connections
- Internet access through Internet café or at home
- Internet connectivity

Different levels of skills

- Ability to operate the technology
- Ability to actually use the technology for some purpose
- Need for reading and writing skills
- Different levels of training capabilities
  - "Computer-literate"

Different cases

US

- Digital divide among different categories of populations
- Cities vs rural schools

Brazil

- Multinational firms dominate the system
- Poor roots in the country

India / China

- Multinational firms dominate the system
- But rely intensely upon host country competences
- Problem: get the right balance

Western vs Eastern Europe

Canada vs US

Importance of "closing" gap

Economic equality

- Important, possibly vital information may be accessed/provided through Internet

Social issues

- Raise educational level of disfavoured socio-economic children

Gender issues

- Eg. To allow girls to access information

Democracy

- Increased information / Increased participation to elections, etc.

Economic Growth

- Exploitation of latest technologies provide competitive advantage
- Economic benefit further provided to highly educated population
- Loop

“Global” digital divide

Widening of gap: the economic issue

- Wide Internet access => high economic advances
- Poor Internet access => low economic result

Awareness of

- Importance of technology, in particular information and communication technology (ICT) for economic development

Problem

- Difficult to connect both

Where is the problem?

Access is NOT the key factor

- to give access does not enhance life necessarily
- Low-quality or new type of content can hurt or misguide people

"Real access" (www.bridges.org)

- Physical access
- Appropriate technology
- Affordability
- Capacity
- Relevant Content
- Integration
- Socio-cultural factors
- Trust
- Legal and regulatory framework
- Local economic environment
- Macro-economic environment
- Political Will

How to close the gap?

Make access easier and wider

Make content more useful and relevant

Promote entrepreneurial efforts

Change laws and policies at national level

- foster information creation and knowledge sharing

How to close the gap?

Usefulness

- adjust technology to human beings and their needs
- provide ICT-enabled solutions to help the poor:
  - using new technology to provide clean drinking water
  - improve (rural) health care services
  - extend quality of education
  - Internet-connected libraries

Inform people

- advantages and prospect of ICT

How to close the gap?

Investment in human resources

Investment in high quality education

Define strategy for

- Combining openness to trade, education, government regulations

Initiatives: UN

United Nations

- World Summit on the Information Society
  - Geneva, 2003 / Tunis, 2005
  - http://www.itu.int/wsis/index.html

- World Telecommunication and Information Society Day (May 17th)
  - To help making the Internet a global facility for all people
  - To raise awareness of the possibilities that the use of the Internet and other ICT can bring to societies and economies
  - To raise awareness of ways to bridge the digital divide.
    - http://www.un.org/events/infoday/2007/
    - http://www.itu.int/wtisd/index.html

Initiatives: OLPC

Education Project: One Laptop per Child (OLPC)

- US based, non-profit organization
- created by members of MIT Media Lab
- http://www.laptop.org/

Laptop prototype

- "Children's machine"
- Linux-based
- Target Cost: 100$
- For sale on Amazon (Dec 2010) - $199 (regularly price goes down)
  - http://www.amazon.com/xo

Participation

- Countries (Brazil, Thailand, US, …)
- Sponsor organisations (RedHat, Google, eBay, …)

Digital Divide Policy Initiative

- Open Economies project
  - Launched by Harvard University
- Work with government and businesses leaders
- To design and implement policies
  - foster digital entrepreneurship around the world.

- http://cyber.law.harvard.edu/openeconomies/

Policy

Policy is essential

- to support these strategies
- to decide among them in the allocation of limited resources.
- Developing/Emerging Countries
  - Lack of ICT related laws
    - For e-Commerce
    - For intellectual property

Example

South Africa

- Electronic and Communications Act (2002)
  - ICT Policy Framework
    - Correcting historical imbalances in the provision of communication services through easy and cheap access to ICT
    - Developing an innovation system for ICT
    - Developing ICT human resources
    - Making South Africa globally competitive in ICT products and services
    - Opening up opportunities for historically disadvantaged communities
    - Utilise ICT for further integration in Africa

Example

South Africa Initiatives

- National ICT Strategy
- E-Government
- Telecom liberalisation
- ICT Sector development and investment
- Local software development
- Satellite technology
- Education
- Telemedicine and Health Care

Debate: IPR vs ICT

Intellectual Property Rights in support of ICT development

Pros:

- Protection of ideas
- Make profit with copyright
- Control of copyright means advantage in the emerging, knowledge-based global economy
- India production of software - copyrighted
  - Need for local infrastructure to help copyright enforcement
- African music could be supported too

Debate: IPR vs ICT

Cons:

- Copyright ownership belongs essentially to industrialized nations company
- Need to pay for access to knowledge: books, scientific material, etc.
- Publishers and record companies are in western countries
- Even if work is copyrighted, local market is not big enough

Berne convention

- Allows some countries to use material despite the copyright for teaching or private use

http://www.iprcommission.org/papers/text/final_report/chapter5htmfinal.htm

Open source software for ICT development

Price is relevant for developing countries

- Price of software
- Price of maintenance

Security and technological independence

Translation into local languages

- E.g. Ubuntu Linux distribution
- Translation of an open source software by local people is made possible

Adaptation of software to local customs

- Non-free software is developed for western culture

Open source software for ICT development

Difficult to get local support for open source software

Open source projects and countries

- Africa: Educational related project
- Europe: games, stock software, cheap airline tickets
- America: games, development tools

South Africa

- Strong decision in favour of use of OSS where applicable

http://www.bridges.org

ICT as a developing tool

Summary

- Developing an ICT infrastructure
- Leveraging ICT to promote learning
- Digital business ecosystems
- Local digital entrepreneurship
- Have appropriate policies!