

COOPI - Cooperazione Internazionale

<http://www.coopi.org>

ICT and Development in developing countries

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About Cooperazione Internazionale

- Cooperazione Internazionale (COOPI) is an Italian NGO
- Created in 1965
- Now active in almost 40 countries in the world
 - ★ Latin America, Africa, East Europe and Asia
- About 200 projects running
 - ★ Development programs
 - ★ Emergency initiatives
 - ★ Sensitization Campaigns
- Main donors: European Union, Italian Government, private donations, International Organizations, other Governments



Outline

- What *divide*?
- ICT and development, some examples
 - ★ Using ICT
 - ★ Adapting ICT
 - ★ Creating ICT
- Moving on
- Conclusions



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- This has been called the *digital-divide*;
- The focus is on access to information, not to technology;



About the divide

- The digital-divide exists, as showed in many reports:
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- Is the digital-divide growing?



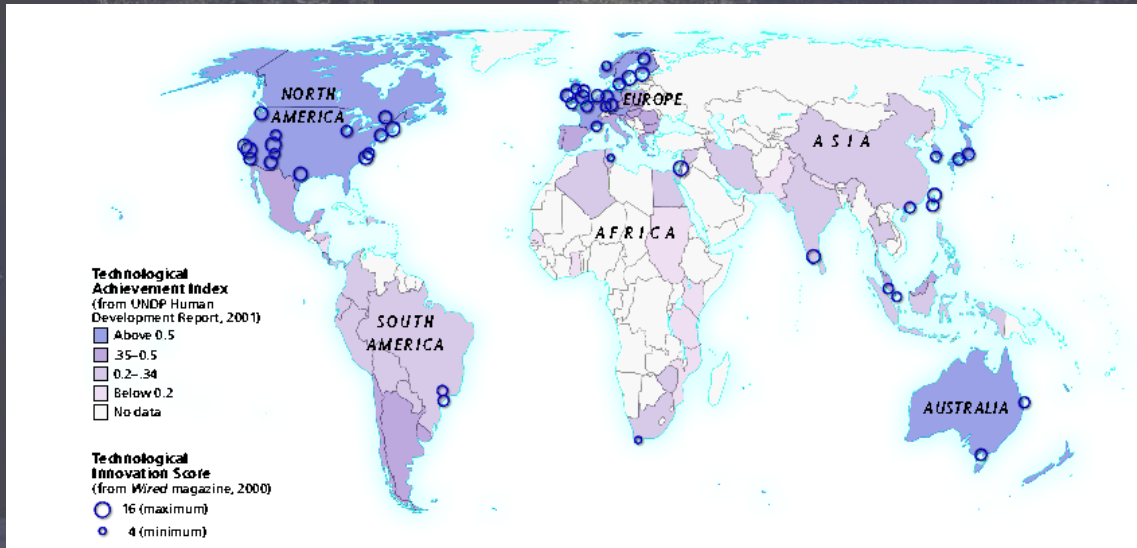
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- Is the digital-divide growing?
 - ★ Probably yes.



Location of Centers for Innovation

ICTs are today being developed in the North of the Planet



From UNDP HDR 2001 [1]



Technology and development

- **Using** ICT for development
 - ★ Technology is used *as-is* to reach development goals
- **Adapting** ICT for development
 - ★ Technology is adapted to local and specific needs
- **Developing** ICT for development
 - ★ New solutions are devised



Using existing ICTs

- **Telecentres (TLC)**
 - ★ Community access point to ICTs
- **ICT in education**
 - ★ Schoolnet - ICT for education in Africa
 - ★ Anywherebooks - on-demand book printing
- **Economics**
 - ★ Manobi - information system for fishermen
 - ★ Peoplik - virtual marketplace for artisans



Adapting existing ICTs

- **Geographical Information Systems**

- ★ MiGIS - GIS with Indigenous Knowledge
- ★ GramChitra - Participatory GIS

- **Telehealth**

- ★ Tsilitwa - telehealth in South African villages
- ★ ALERTA - a phone based monitoring system

- **Localization**

- ★ Tajik Linux - Translation of Mandrake Linux



Developing new ICTs

- **Daknet**

- ★ An *ad-hoc* network implemented on bus and motos

- **Simputer**

- ★ A palmtop-like, affordable, oversimplified PC

- **Jahi**

- ★ Computing and network devices for extreme environments



Telecenters

- Community centers with ICT services
- Many *flavors*: **Telecenters** (TLC), **Community Community Technology Centers** (CTC), **Telecottages** (and more?)
- Widely diffused in the world (mostly Latin America and Africa)
- Based on a common model
 - ★ located in underserved and marginalized areas (urban and rural)
 - ★ 10-20 PC connected to the internet (when possible)
 - ★ Several services but also support to the local community activities (e.g. trainings)
 - ★ managed by local NGOs and associations
 - ★ TLCs should be self-sustainable, after the first effort for creation



Telecenters

Initiatives for the diffusion of Telecenters

- **E-Cidadania**¹ of the Prefeitura de S. Paulo, Brasil
 - ★ Based on Free Software
 - ★ About 100 TLCs running in 2003
- **Somos@Telecentros**²
 - ★ A Latin American network of 350 TLCs
 - ★ Promotes TLCs the region through research, meetings, etc.
- **WSIS**³ Civil Society working group
- **CTCnet**⁴ Community Technology Centers Network in the US



¹<http://telecentros.sp.gov.br>

²<http://tele-centros.org>

³<http://mailman-new.greennet.org.uk/mailman/listinfo/telecentres>

⁴<http://ctcnet.org>



Schoolnet Africa

<http://www.schoolnet africa.net>

- African NGO to improve access to education through ICT
- Present in 30 African Countries
- Some programs
 - ★ One million computers to African schools
 - ★ From guns to computers
(multimedia computer access to child ex-combatants in Angola, Liberia and Rwanda)
 - ★ Africa teachers network



AnywhereBooks

<http://www.anywherebooks.org>

- Californian NGO + National Library of Uganda
- Virtual Mobile Library
 - ★ Print on-demand
 - ★ Digitalization and diffusion of books from NLU
- 30,000 books printed in 300 sites
 - ★ Creation of 300 mini public libraries
- Each book costs 1\$ (paper and ink) + 11\$ (car and printer)



Manobi

<http://www.manobi.net>

- Manobi is a Telco Company from Senegal
- Information Service for fishermen in Senegal
- Built on a GSM+GPS infrastructure (SMS + WAP)
- Fishermen can have real time informations
 - ★ on fleet management
 - ★ on weather conditions
 - ★ on prices
- After the first year 57 users (41 buyers and 16 fishermen)



Peoplink

<http://www.peoplink.org>

- Peoplink is an NGO that helps artisans from developing countries to sell their products through Internet
- Artisans manage locally their catalog using the CatGen software
- Peoplink provides
 - ★ CatGen + IT support
 - ★ a web portal, as a virtual marketplace
 - ★ logistics services
 - ★ Active in Mali, Nepal, India, Bangladesh, Haiti



Geographic Information Systems

<http://www.gisdevelopment.net>

- **GramChitra** (MIT Media Lab (US) and Centre for Spatial Database Management Solutions (India).)
 - ★ Map villages in Faridabad region (India)
 - ★ Provide a methodology for planning
 - ★ development of GramChitra, an *ad-hoc collaborative* platform (PDA + GPS).
- **MI-GIS** (Village in Yunnan region - China)
 - ★ Mobile Interactive GIS
 - ★ Insert Indigenous Knowledge into a GIS
 - ★ Using Participatory Rural Appraisal exercises



Tsilitwa

• The problem

- ★ Tsilitwa its a village in South Africa. The nearest hospital is 20 Km far
- ★ Villagers often walk to the hospital due to transport costs
- ★ There is a clinic in the village but no doctors
- ★ In the village there is no electricity nor telephone line

• The solution

- ★ A wireless connection was established between the the hospital and the village.
- ★ Nurses from the clinic can talk with the doctor in the hospital in videoconference
- ★ Villagers can be assisted faster and cheaper



ALERTA

- A software system to monitor the spread of diseases in Peru, created by the company VOXIVA
- The task was previously performed with fax and snail mail. Its completion time was not less than one month
- Tested on 76 health centers over a region with 20000 inhabitants
- Completion time is reduced to a few days.



Daknet

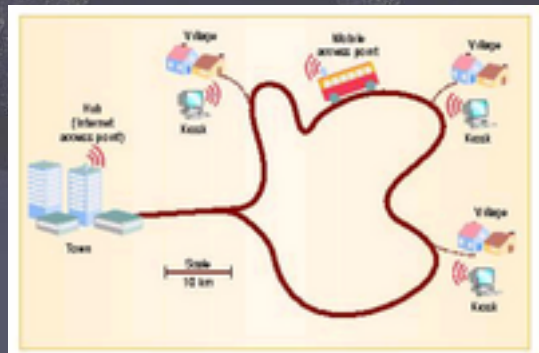
<http://www.firstmilesolutions.com>

- A wireless “store-and-forward” network between remote villages in rural areas
- Developed at MIT Media Lab, deployed in India and Cambodia
- Based on the existing transport infrastructure
- Messages (text/audio/video) are physically transported from one village to another, by bus or motorcycle
- Used to send messages and to access public administration services
- Connected villages up to 400Km
- About 500\$ per village



Daknet

- Messages are left at access points, located near the bus stop
- the bus mounts a laptop equipped with a wireless card
- when the bus stops by the access point, the laptop *senses* its presence and automatically download new messages and upload those to be delivered
- for every village the same operations are repeated automatically



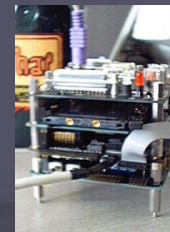
Simputer

<http://www.simputer.org>

- Simple, In-expensive, Multi-lingual People's compUTER
- A PDA based PC, "radical simplicity for the masses"
- GNU/Linux based Operating System
- New protocols have been developed to have a complete audio and video based interaction with the Simputer (for illiterate people)
- Launched in ???, with a price of 300\$ (still about the double of a refurbished computer)



Jahi Foundation



- Starting from the needs of farmers in Ban Phon Kam, Laos, the Foundation developed the **Jahi PC** and Communication System to help them in communications, education, economic development and health-care
- The Jahi PC is a solid-state, low-wattage computer that can be powered by a foot-crank
- The communication system is based on a high-bandwidth wireless network, and support for village small businesses
- Jahi Foundation is developing a rugged computer and printer assembled from off-the-shelf components that draws less than 20 watts in normal use - less than 70 watts when the printer is printing - and that can survive dirt, heat, and immersion in water.



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- There is need for a wider participation to the development of ICT
 - ★ because they control the way information produced is transmitted



The role of Free Software

- Encourage locally developed solutions
 - ★ More specific to the problem
- Provide for sustainability
 - ★ Local developers and experts can more easily transmit their knowledge
- Allows a diversification of the market
 - ★ Small companies can be *competitive* without huge investments



Access to Intellectual Work

<http://www.creativecommons.org>

- Creative Commons is an organization for the development of alternatives to full copyright licenses
 - ★ “We use private rights to create public goods”
- Many licenses offered, contextualized in many countries
- A new licence was released in September
 - ★ The Developing Nations License allows you to invite a wide range of royalty-free uses of your work in developing nations while retaining your full copyright in the developed world



Conclusions

At the beginning the questions were:

- What is the digital-divide?
- Is there a digital-divide out there?
- Is it growing?

Now the focus is on:

- How can we use ICT for development?

Is it time to move on to:

- How can we promote the development of ICT in developing countries?
- Which can be the role of the civil society to this regard?



References

- [1] UNDP *Human Development Report 2001, Making New Technologies Work for Human Development*, UNDP (2001);
- [2] P. Biggs, *ICT development indices*, UNCTAD (2003);
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- [9] *Electronic Journal of Information Systems in Developing Countries (EJISDC)*, City University of Hong Kong, Erasmus University of Rotterdam, University of Nebraska, Omaha (2004)



Thanks!

- This presentation
 - ★ http://palmerini.org/publ/talks/ict4d_fse.pdf
- More resources
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Thanks!

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- Questions
 - ★ ...now!

