# ICTs, development and government: from e-Readiness to e-Awareness

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# Agenda

- Why should access (to ICTs) be fostered?
- What do we mean by access?
- How has been access measured and why measurements do or do not work?
- Why are there different digital development models and what can be done to foster access?
- e-Readiness and e-Government

# Why should access be fostered?

# Why fostering access

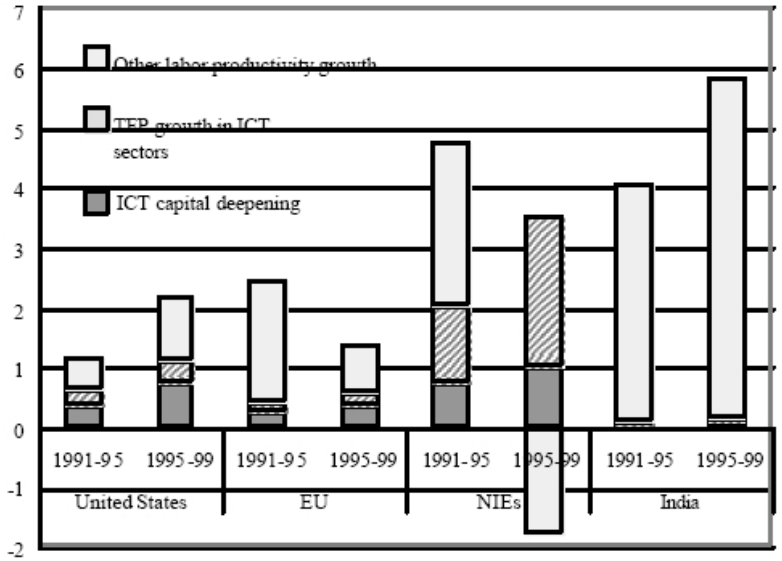
Evidence shows:

- Positive impact on sociability and personal relationships (communication)
- Positive impact on the (macro)economy, e.g. growth
- Positive impact on the (micro)economy, e.g. productivity
- Impact on employment, culture (positive and negative)

→ New opportunities, new divides

# Why fostering access

**Figure 3. Contribution of ICT to Labor Productivity Growth (% of GDP)**[2]



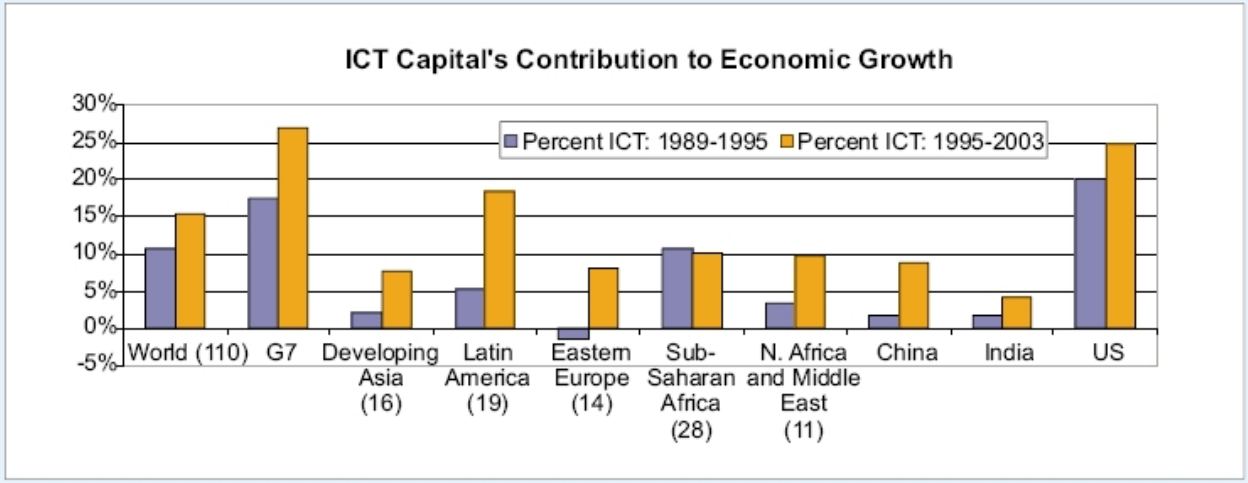

*Source: Based on findings from Van Ark et al. (2003) and Lee and Khatri (2003).*

**Christine Zhen-Wei Qiang, Alexander Pitt and Seth Ayers.**
**World Bank (2003) ICT & Development**

# Why fostering access

**Figure 4.1: ICT's contribution to economic growth**

*ICT capital contribution to economic growth, in percent, by region, 1989-1995 and 1995-2003*




*Source:* ITU adapted from Jorgenson and Vu. 2005.

*Note:* The Group of 7 (G7) refers to the following countries: Canada, France, Germany, Italy, Japan, UK, and US.

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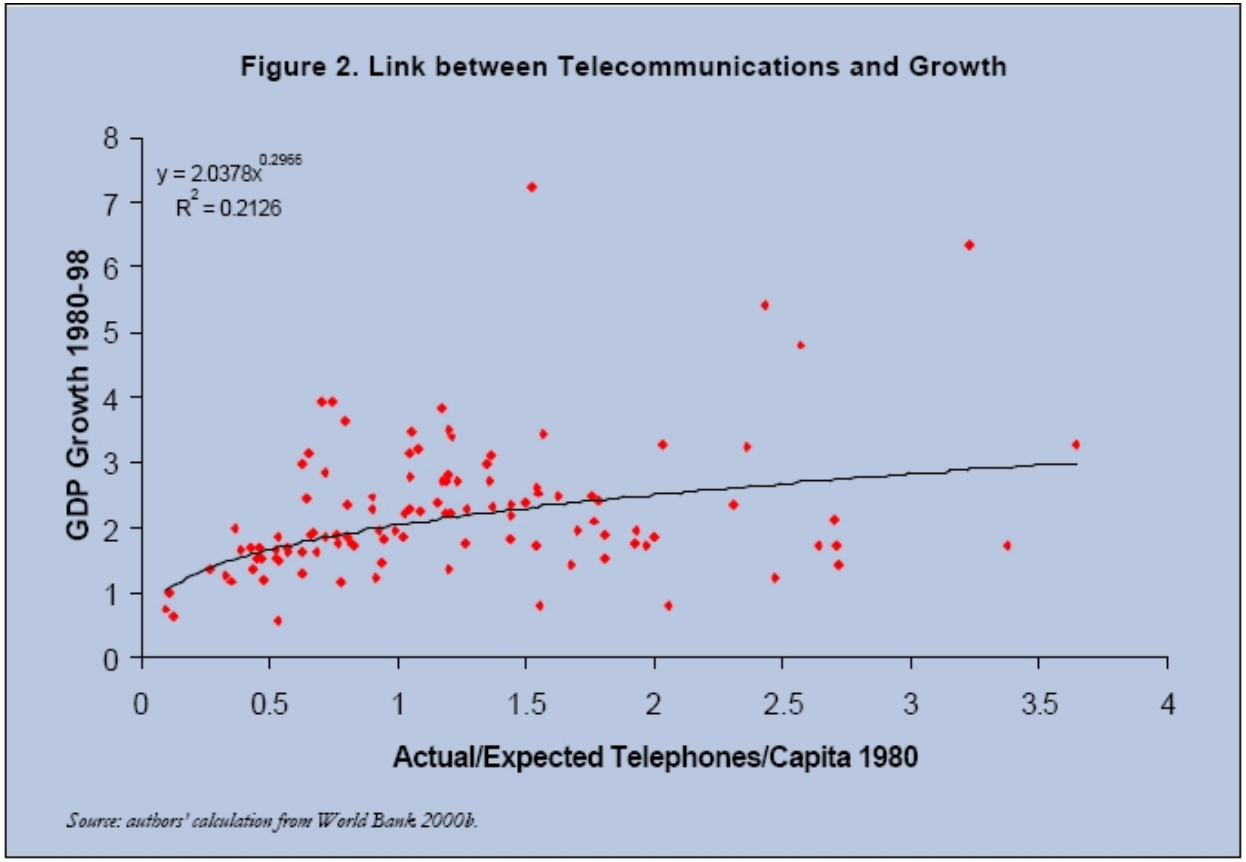
# Why fostering access




**Christine Zhen-Wei Qiang, Alexander Pitt and Seth Ayers. World Bank (2003) ICT & Development**

# Why fostering access

ICTs necessary for

- Investment
- Livelihood support
- Entrepreneurship

ICTs facilitate

- Cost-effective public services
- Cost-effective private services

**Nishimoto, S. & Lal, R. (2005). "Development divides and digital bridges: why ICT is key for achieving the MDGs". In Commonwealth Secretariat (Ed.)**

# Why fostering access

Health

- e-Health
- Genomics

Education

- e-Learning
- Blended Learning
- m-Learning

Governance

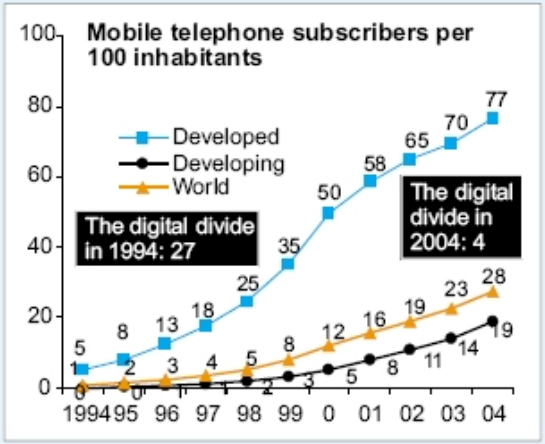
- e-Governance
- e-Government
- e-Administration
- e-Democracy
- e-Participation

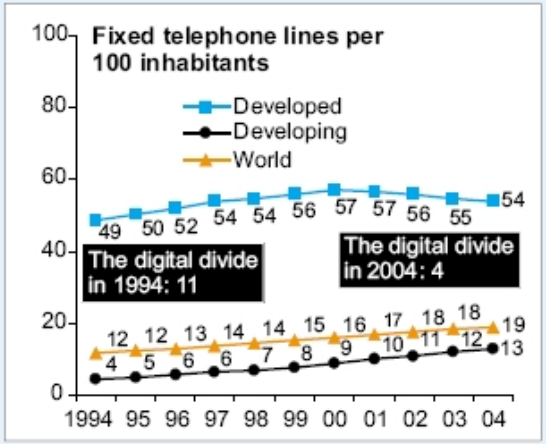
# What do we mean by access?

# What is the Digital Divide?

**Figure: 1.1: Overall, the digital divide is shrinking...**

*Mobile telephone subscribers per 100 inhabitants, 1994-2004 (left) and fixed telephone lines per 100 inhabitants, 1994-2004 (right)*




*Source:* ITU World Telecommunication Indicators Database.

*Note:* In these charts, the digital divide is calculated by dividing the penetration rates in the developed world by the penetration rate in the developing world. Penetration rates are rounded, whereas the digital divide is calculated based on actual numbers. For this reason, the digital divide results do not always correspond to the figures indicated in the graph.

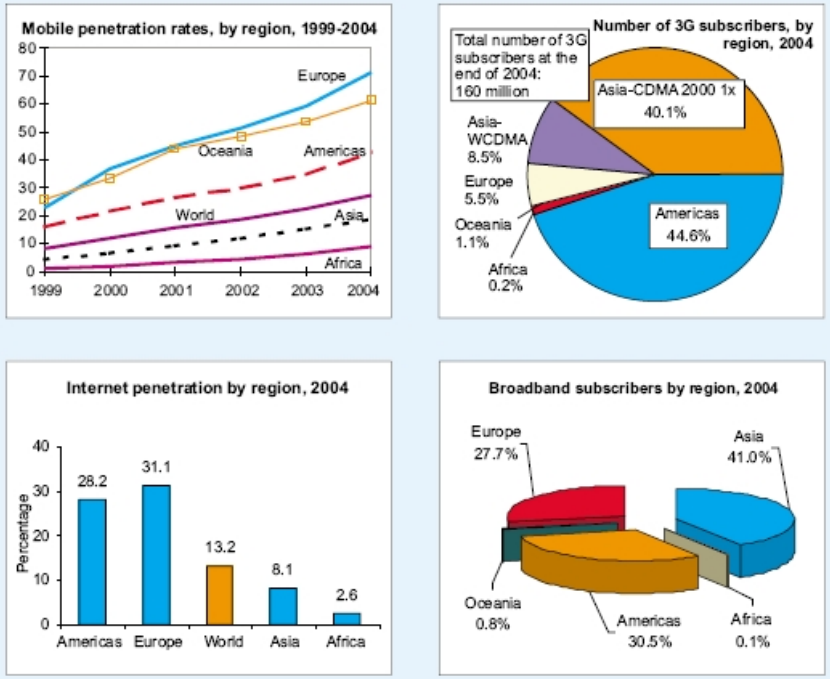
**BUT: In 1994, developed countries were almost 5 points ahead than developing in mobile penetration. Ten years later, they are 58 points ahead.**

**ITU (2006). World Telecommunication/ICT Development Report 2006: Measuring ICT for social and economic development.**

# What is the Digital Divide?

**Figure 1.2: …but major disparities remain**

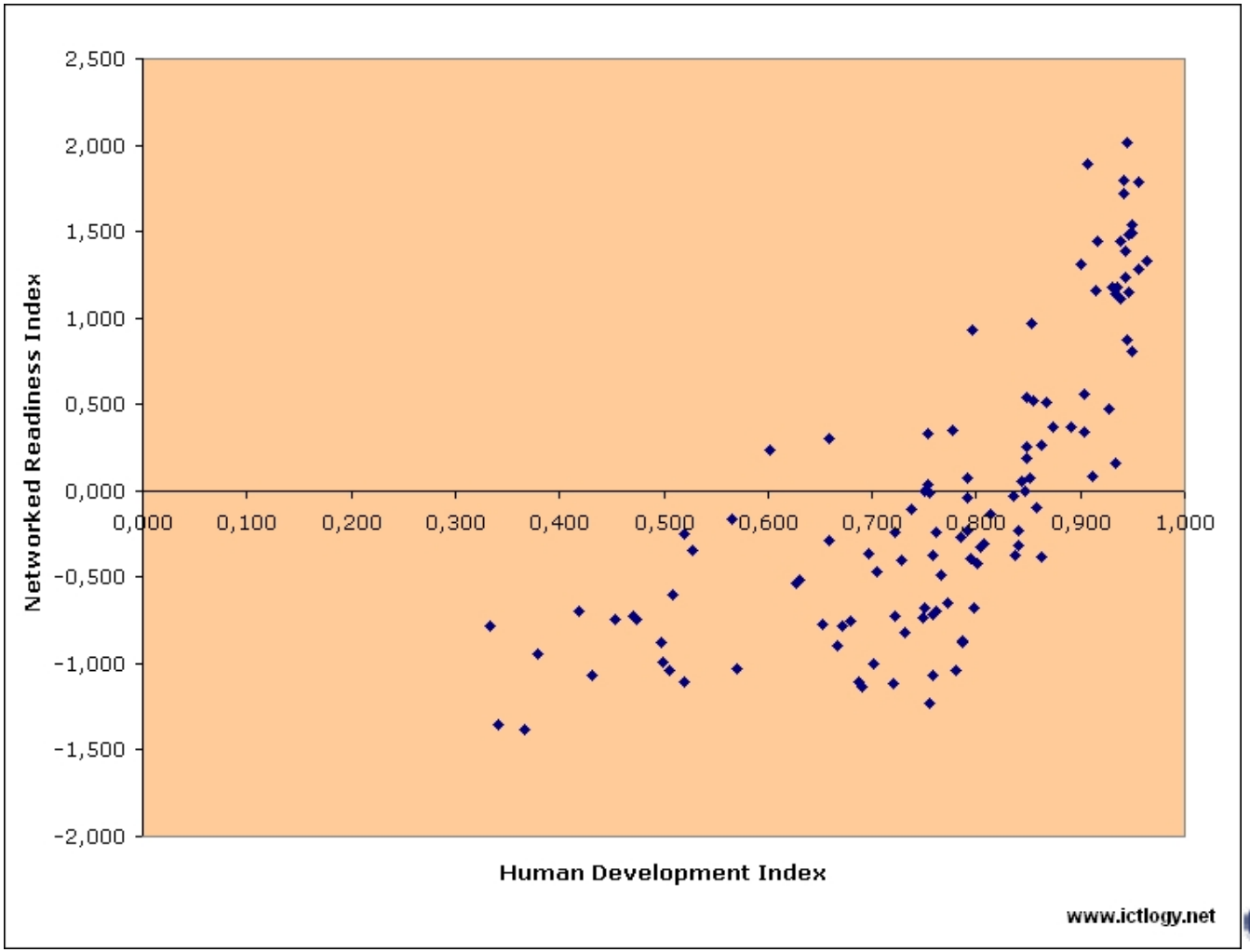
*Mobile cellular penetration, by region, 1994-2004 (top left) and distribution of the 160 million 3G subscribers at the end of 2004, by region (top right); Internet penetration by region, 2004 (bottom left) and distribution of broadband subscribers by region, 2004 (bottom right)*



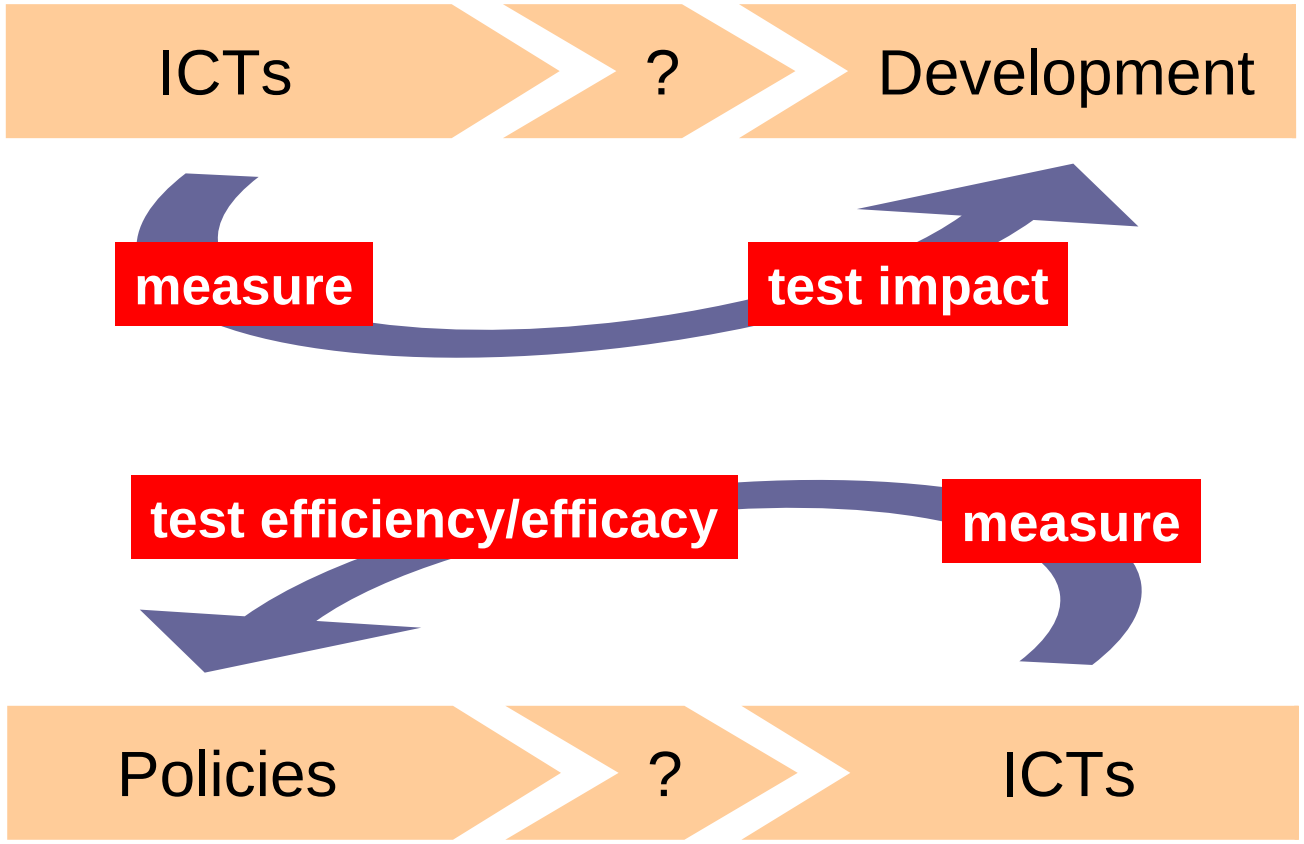

*Source:* ITU World Telecommunication Indicators Database (top left and bottom charts) and ITU adapted from 3GToday.com (top right).

**ITU (2006). World Telecommunication/ICT Development Report 2006: Measuring ICT for social and economic development.**

# What is the Digital Divide?



# Fostering the Information Society



# What is access

Two (main) models (and a half):

Telecommunications model:

- Capability to send one's message – THE EMITTER

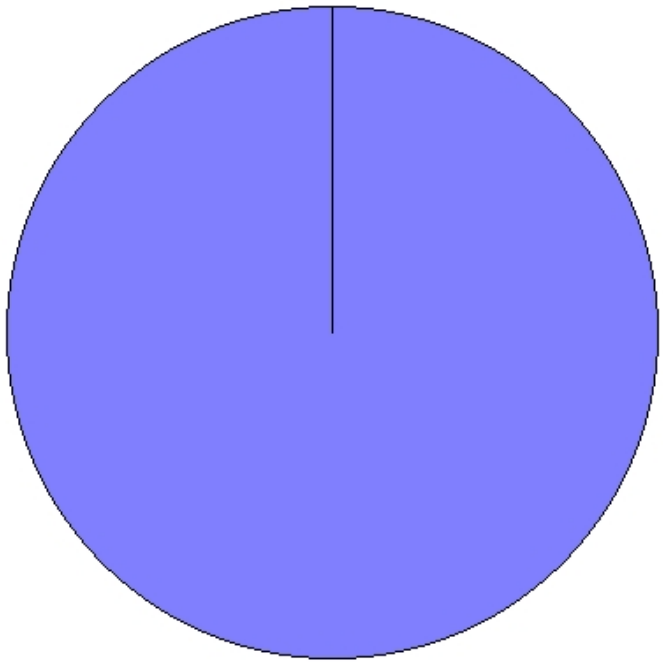
Broadcasting model:

- Range of products on offer – THE RECEIVER

Conduits model:

- The ability/capacity of effective usage

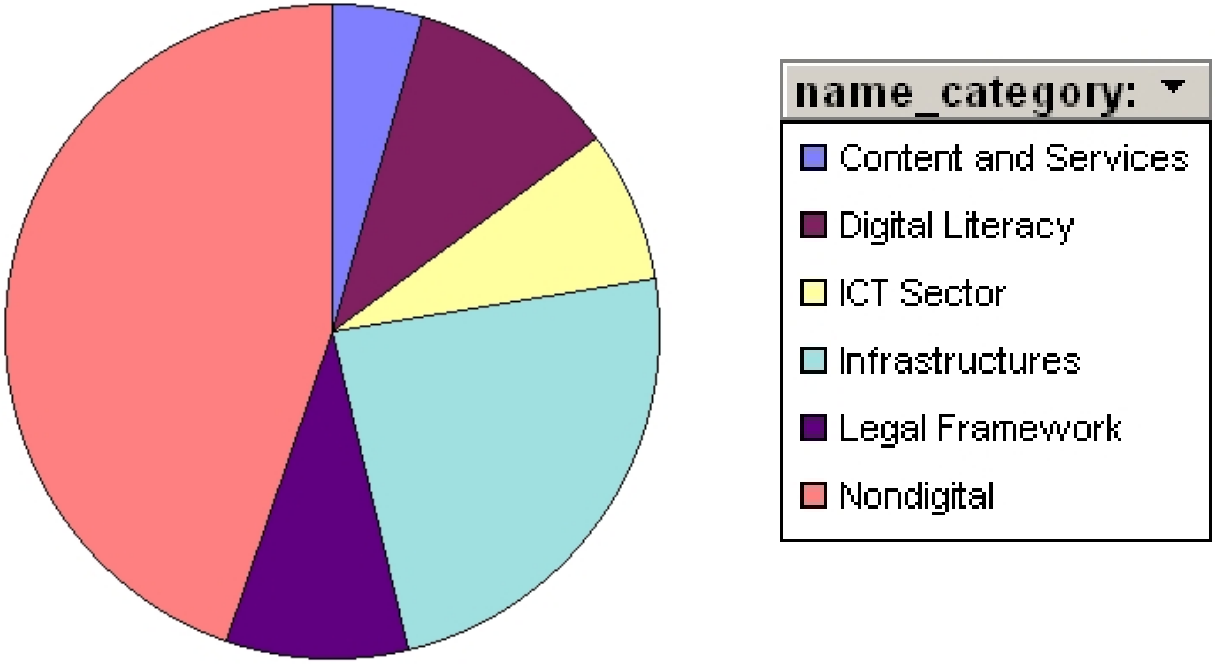
# The telecom aproach




ICTs ? Development

Policies ? ICTs

# The e-Readiness approach




ICTs ? Development

Policies ? ICTs

# How has been access measured and why measurements do or do not work?

# How to measure access

- Theoretical models
- One time assessments
- Indices
- Data Sets

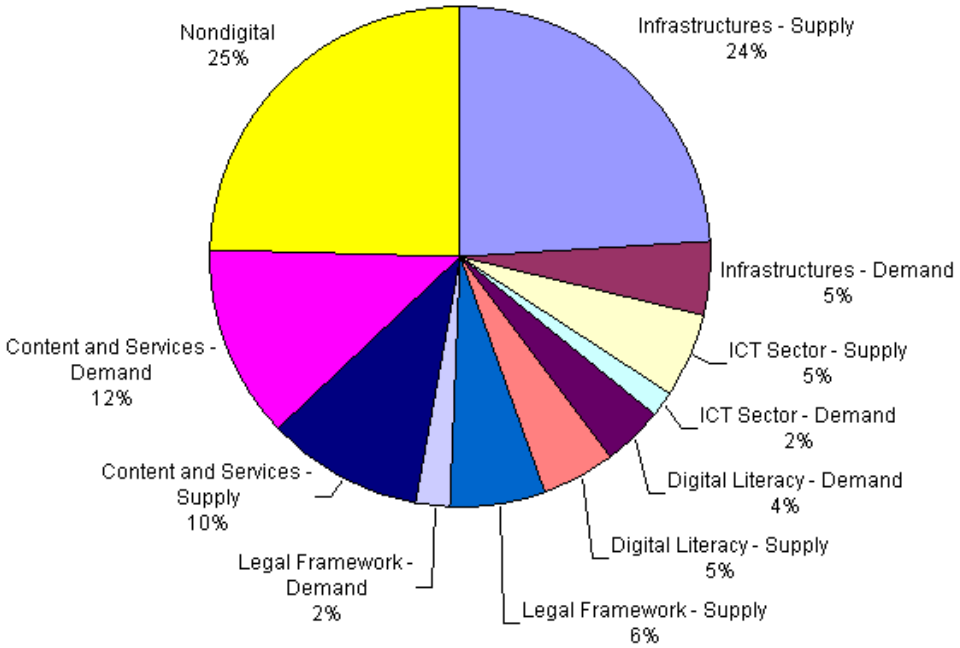
Composed by indicators that can be categorized into:

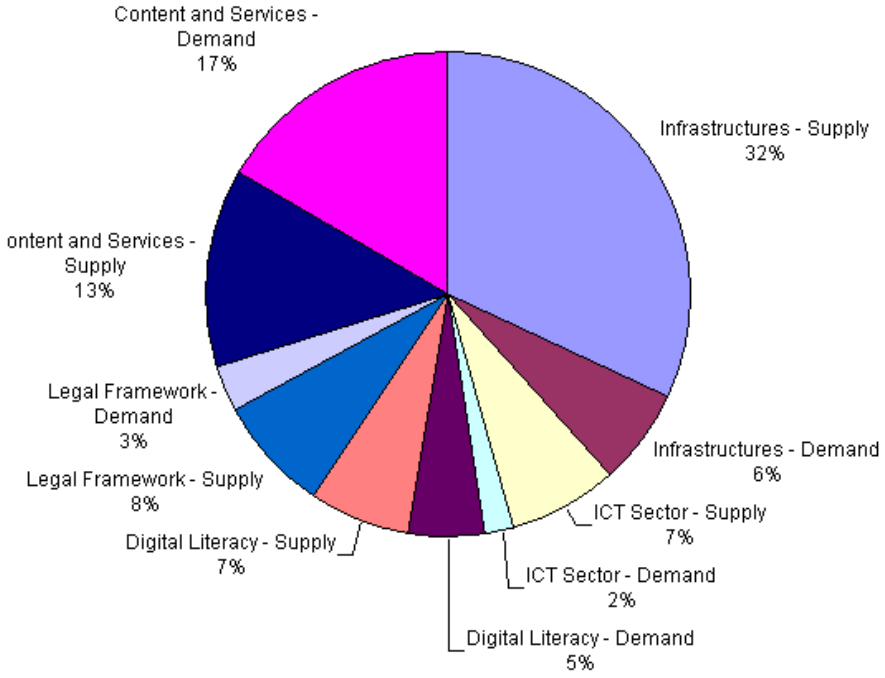
- Infrastructures
- ICT Sector
- Digital Skills
- Legal framework
- Usage

All of them from the point of view of

- supply
- demand

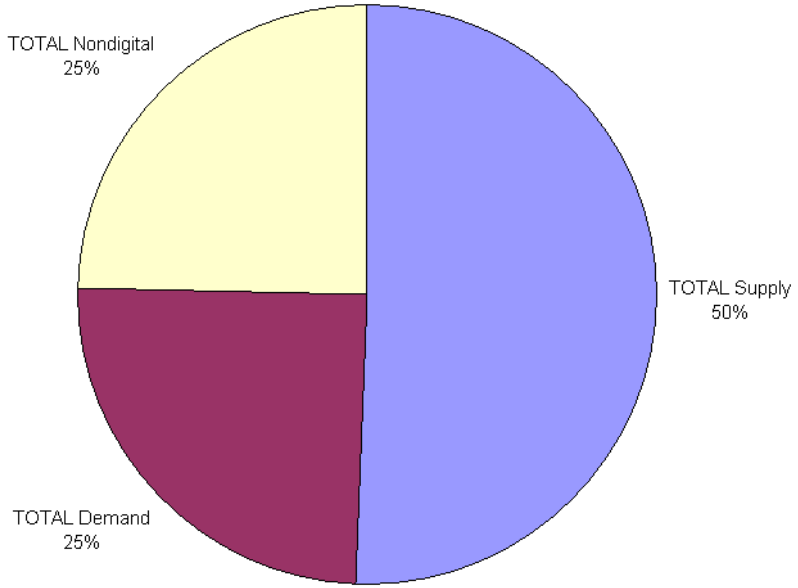
# Distribution of indicators

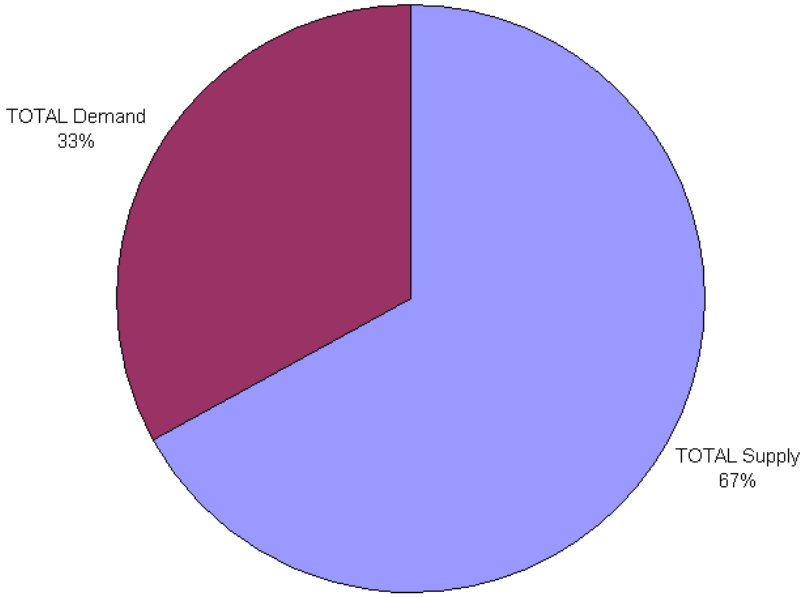



- Lack of available indicators, analyses difficult to be made
- Tiny concern about the affordability of infrastructures
- Role of the ICT Sector is, in our opinion, underrepresented
- Little effort is put to measure the digital capacity
- Few existing indicators measure both the regulation of the information Society

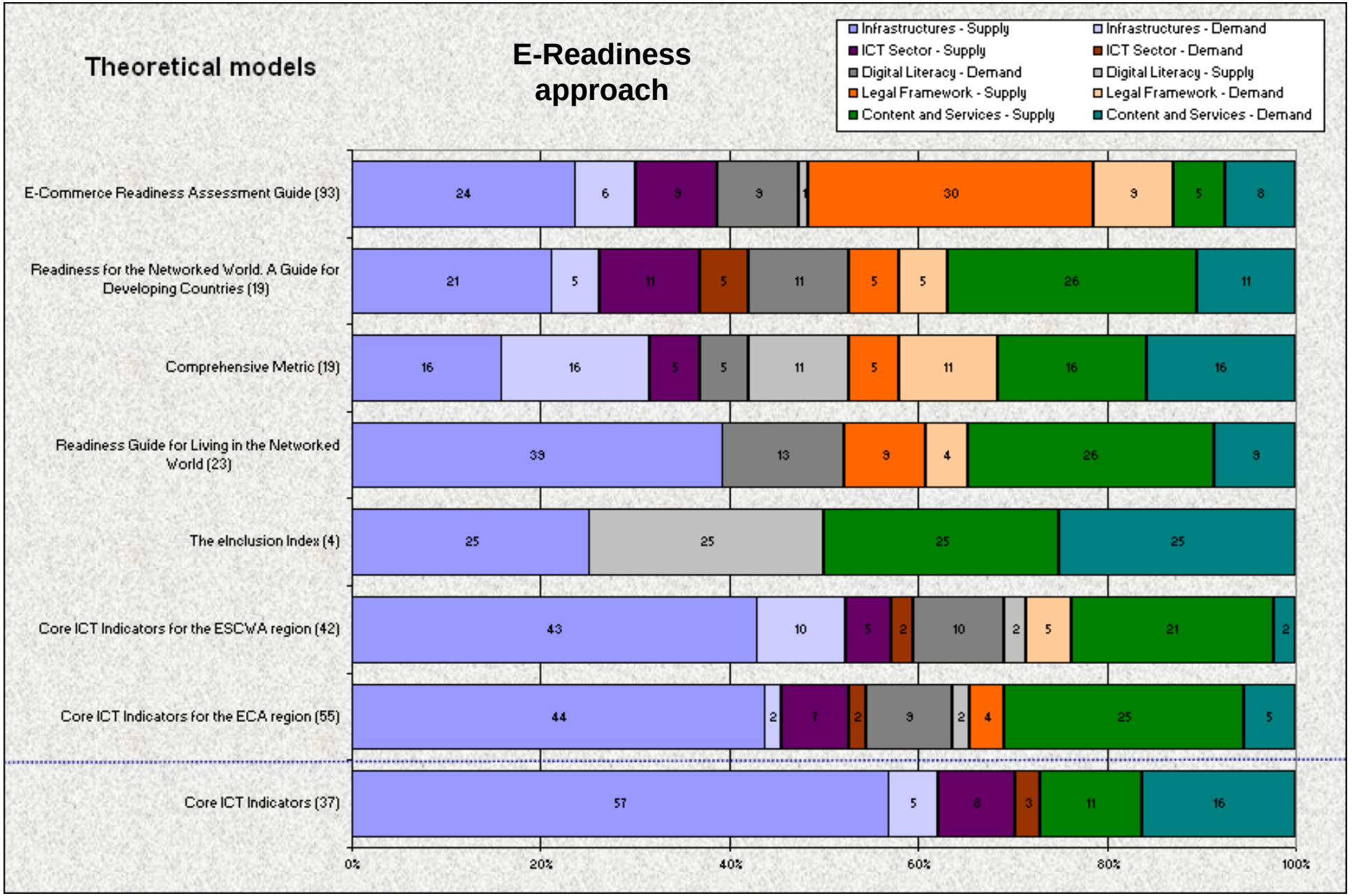
# Supply vs. demand indicators



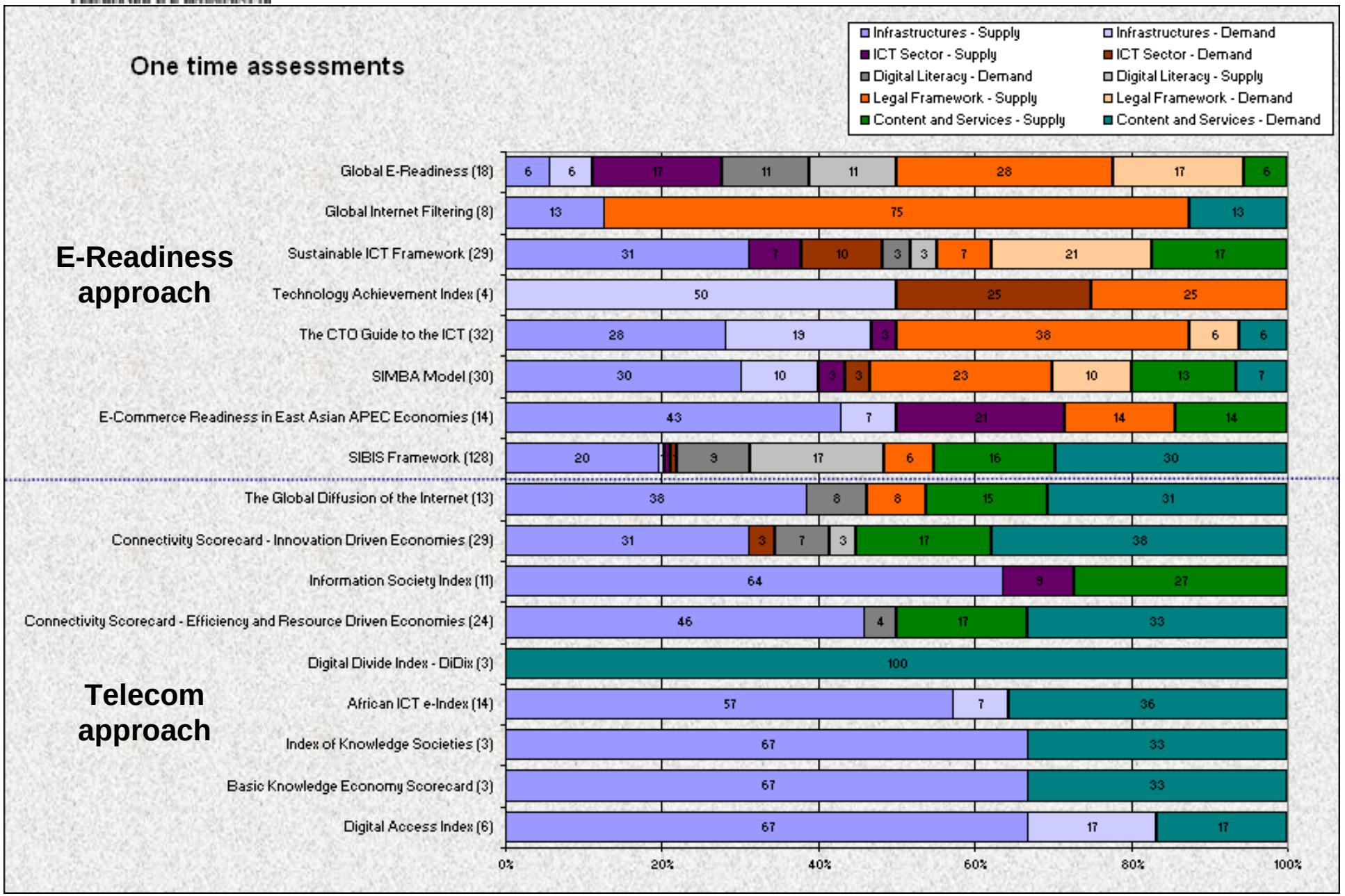




- **Absolute predominance of supply side indicators**

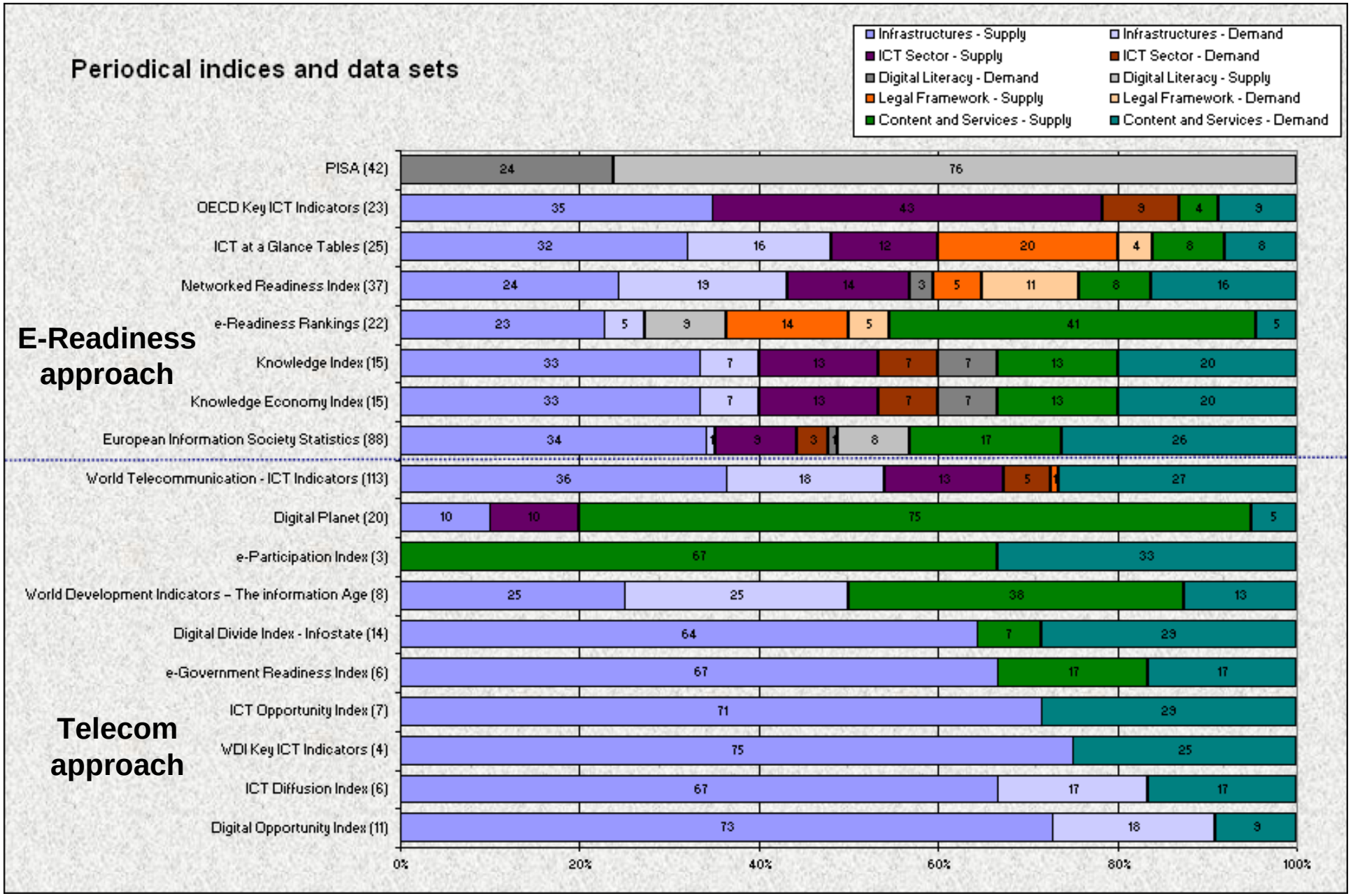
# Share of indicators



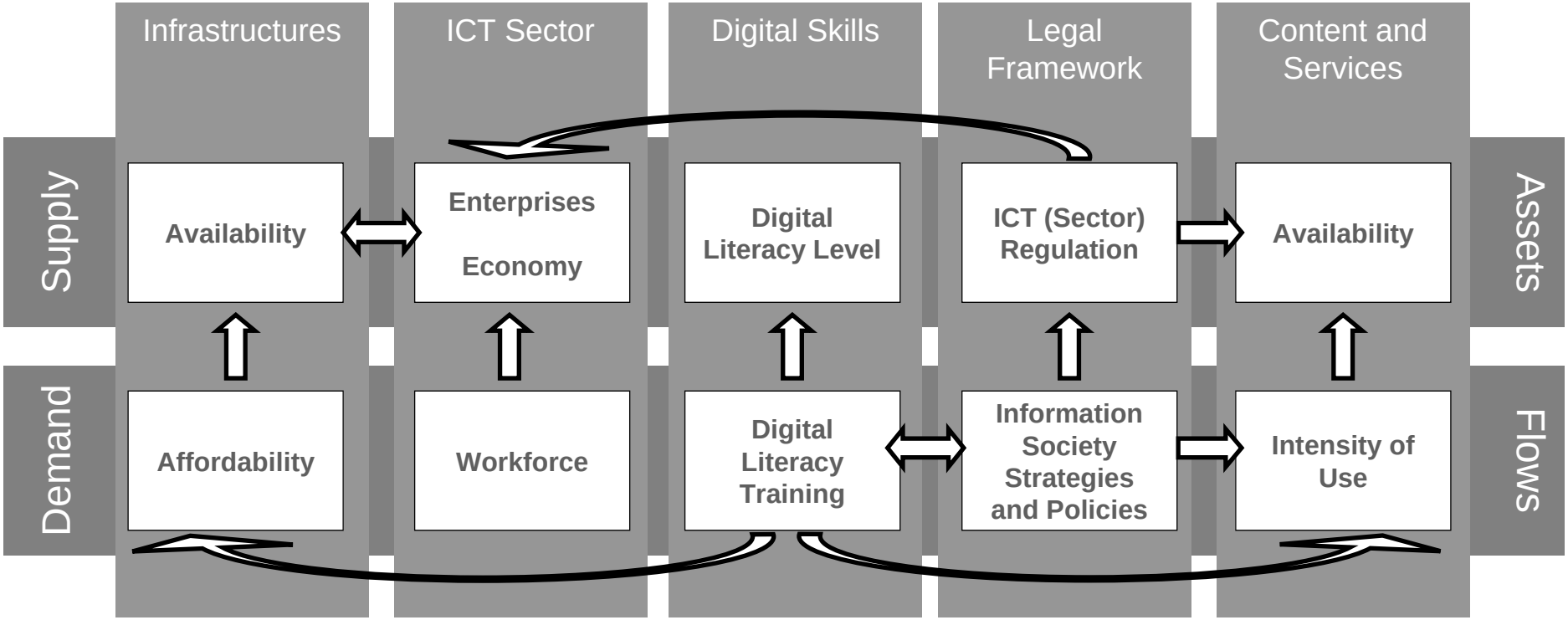
# Share of indicators



# Share of indicators



# A Comprehensive Model

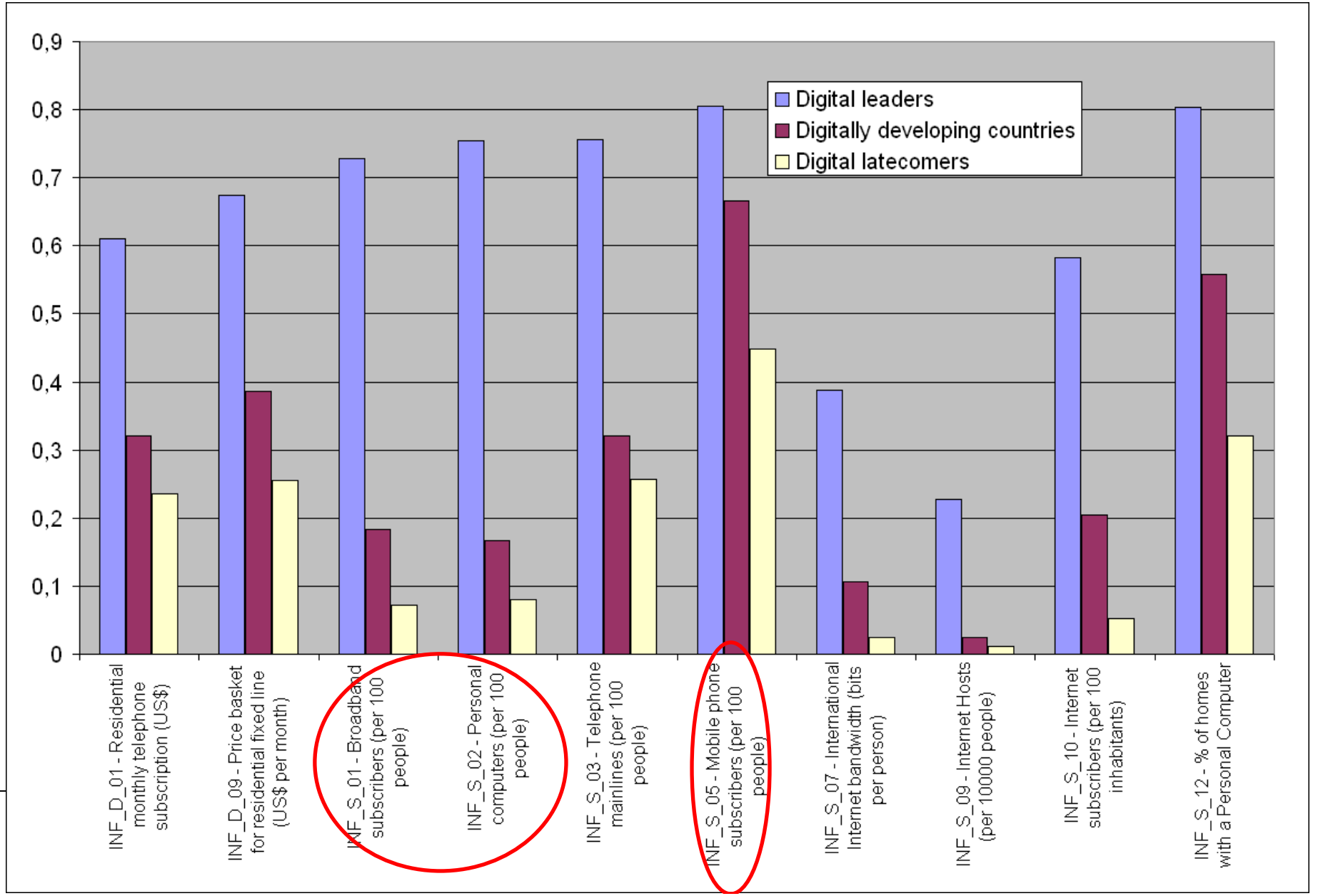


# What can be done to foster access?

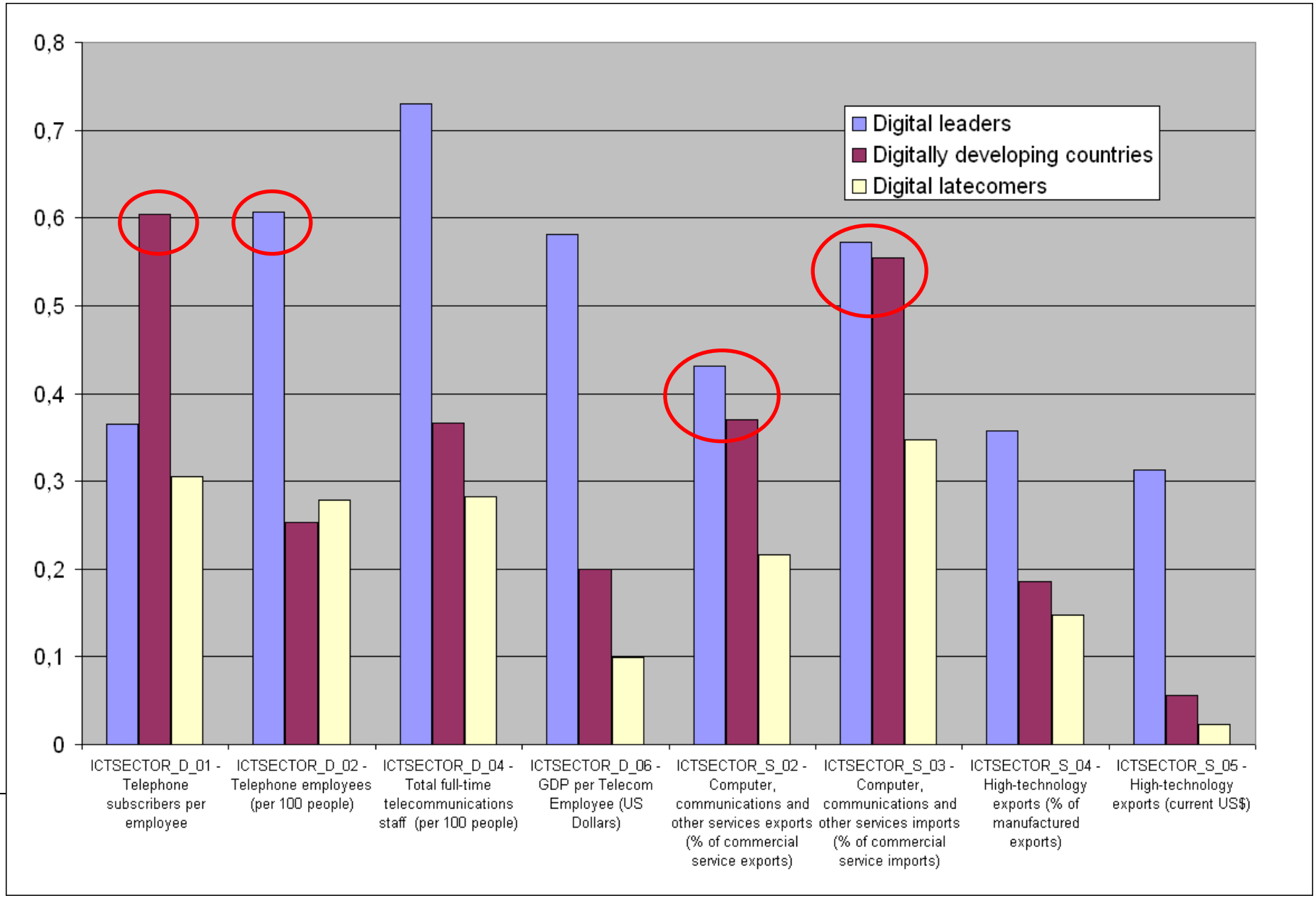
# Some… evidences?

- Highly significant correlation amongst almost all digital variables, no evident causality amongst them
- The main reasons for the development of a Digital Economy are analogue variables (e.g. Education, Health)
- Changes in digital variables cannot be explained within the digital economy (i.e. by only changing other digital variables)
- Is (digital economy based) leapfrogging a mirage? (i.e. ICTs as multipliers or catalysts, but not development locomotives)

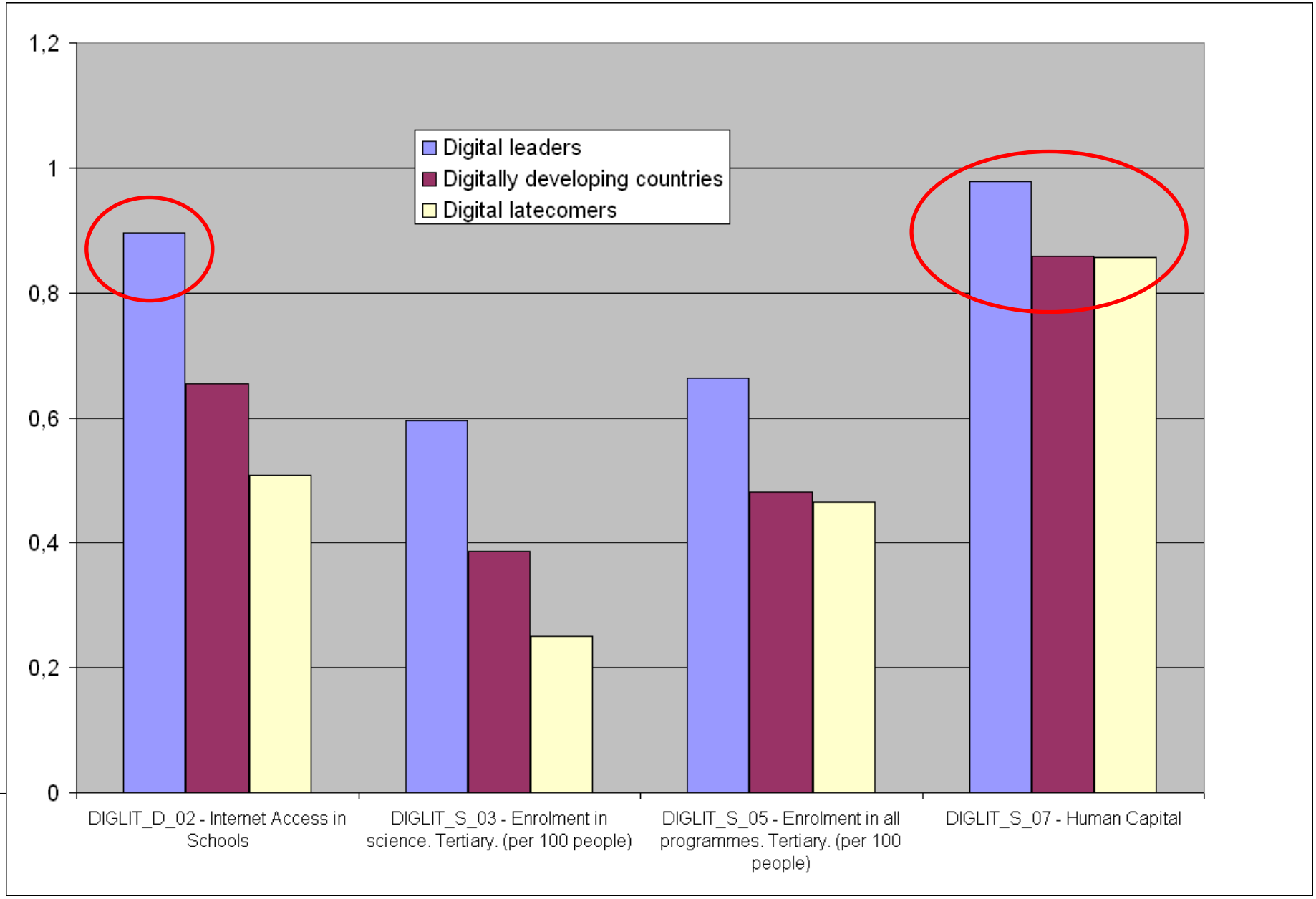
# Infrastructures



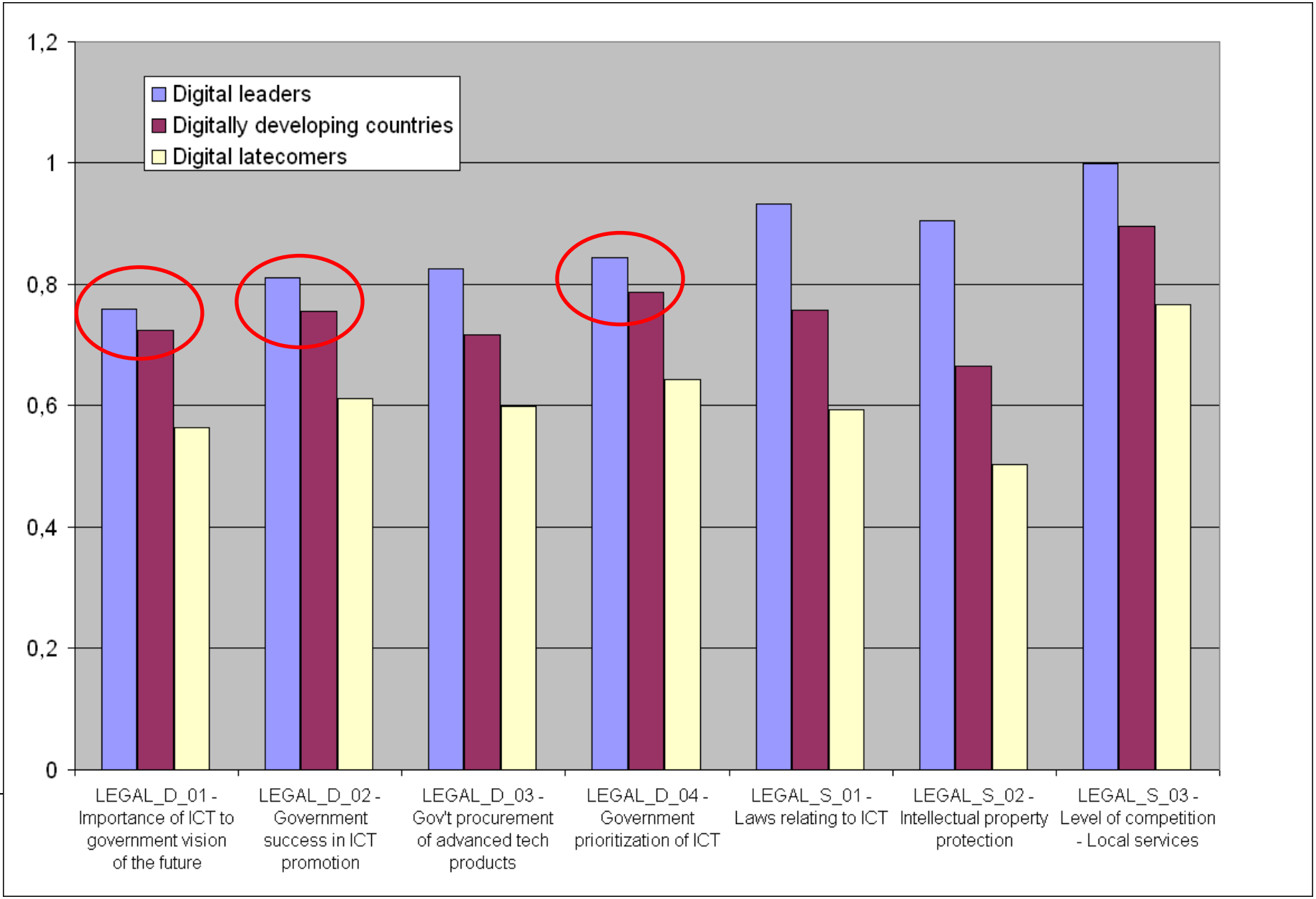
# ICT Sector


0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
Digital leaders
Digitally developing countries
Digital latecomers
ICTSECTOR_D_01 - Telephone subscribers per employee
ICTSECTOR_D_02 - Telephone employees (per 100 people)
ICTSECTOR_D_04 - Total full-time telecommunications staff (per 100 people)
ICTSECTOR_D_06 - GDP per Telecom Employee (US Dollars)
ICTSECTOR_S_02 - Computer, communications and other services exports (% of commercial service exports)
ICTSECTOR_S_03 - Computer, communications and other services imports (% of commercial service imports)
ICTSECTOR_S_04 - High-technology exports (% of manufactured exports)
ICTSECTOR_S_05 - High-technology exports (current US$)

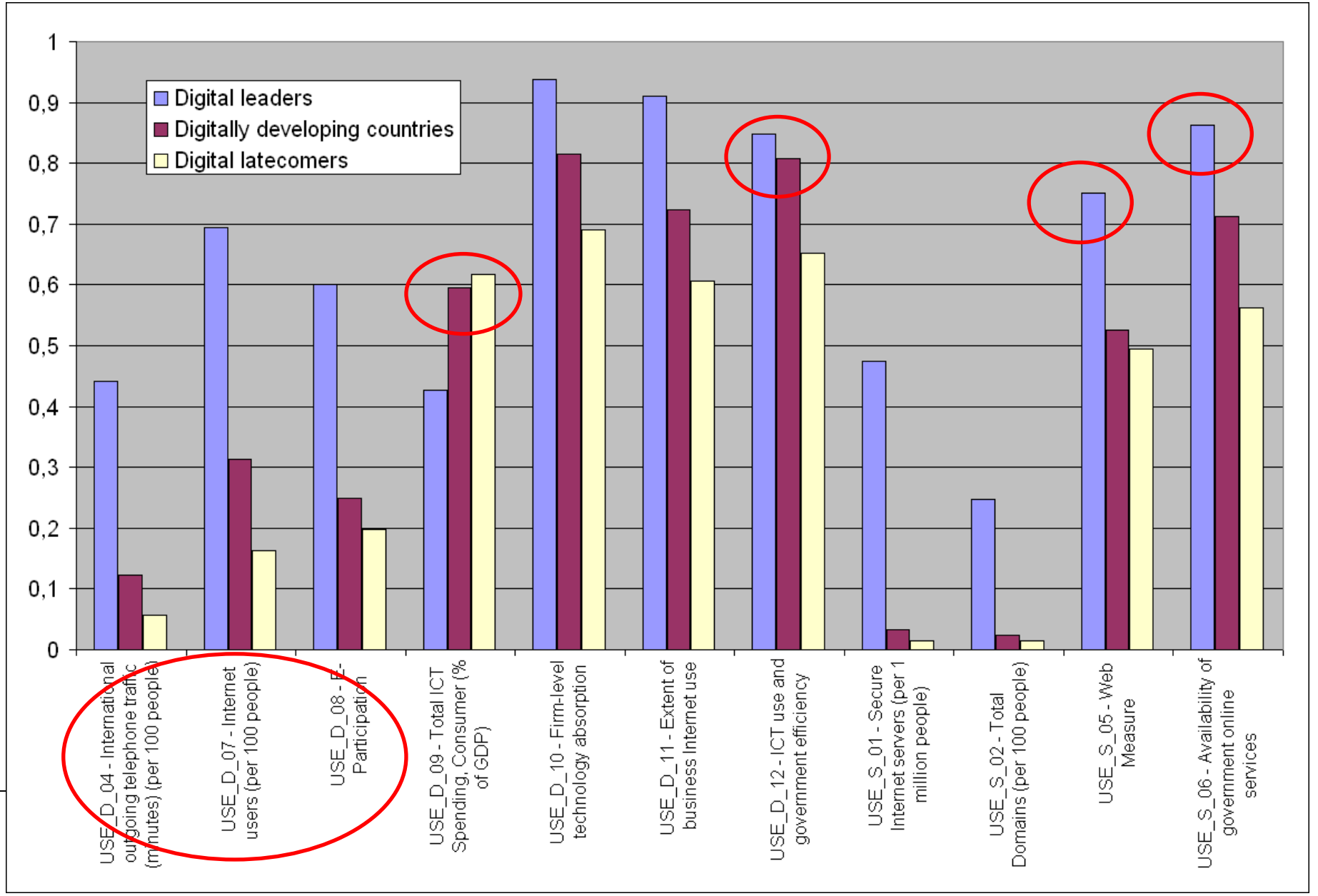
# Digital Skills



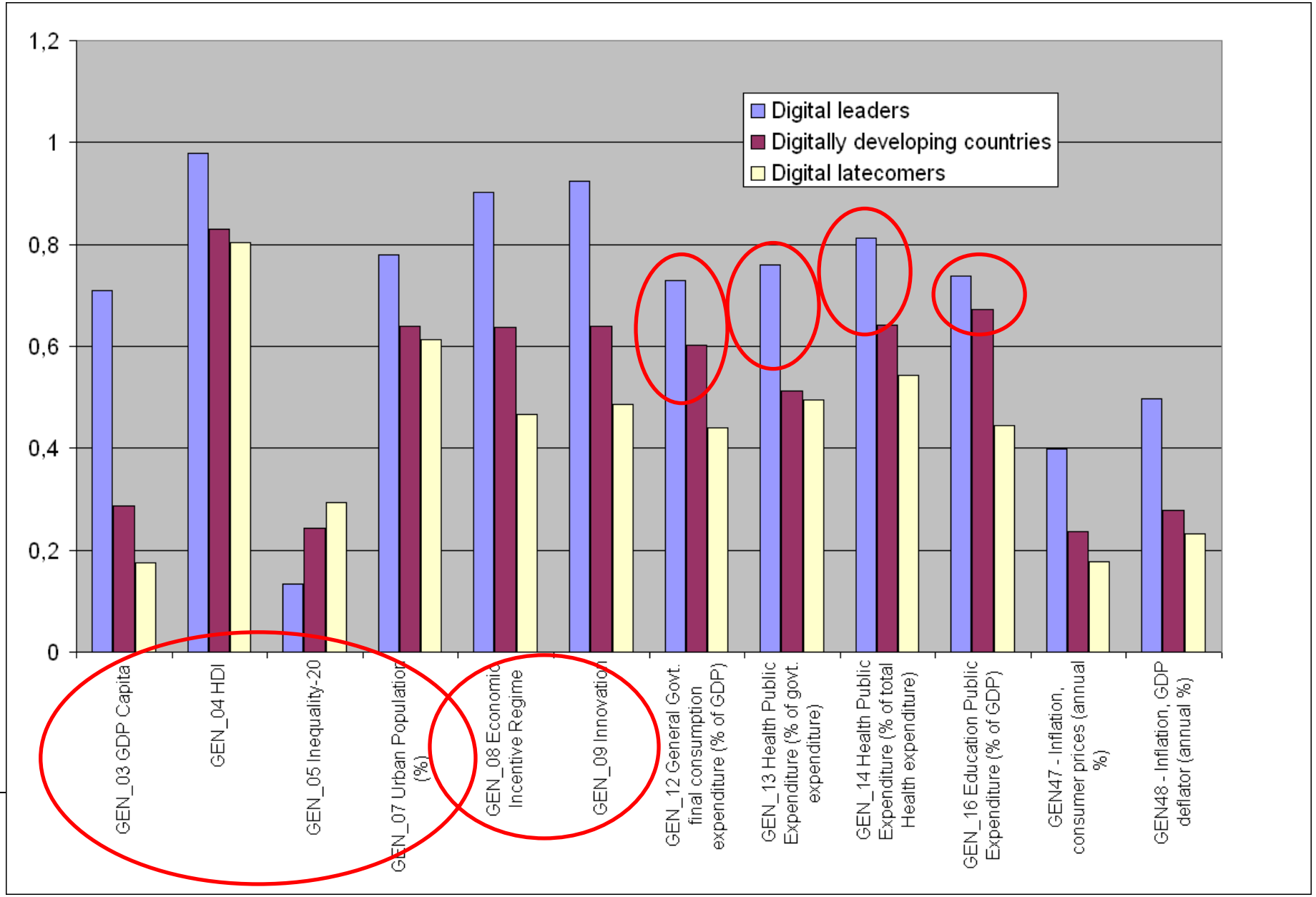
# Legal Framework



# Usage


Digital leaders
Digitally developing countries
Digital latecomers
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
USE_D_04 - International outgoing telephone traffic (minutes) (per 100 people)
USE_D_07 - Internet users (per 100 people)
USE_D_08 - E-Participation
USE_D_09 - Total ICT Spending, Consumer (% of GDP)
USE_D_10 - Firm-level technology absorption
USE_D_11 - Extent of business Internet use
USE_D_12 - ICT use and government efficiency
USE_S_01 - Secure Internet servers (per 1 million people)
USE_S_02 - Total Domains (per 100 people)
USE_S_05 - Web Measure
USE_S_06 - Availability of government online services

# Socioeconomic environment



# Digital literacy

Correlation between LiveJournal users and FaceBook users and significant

BUT

Relationships of causability between LiveJournal or Facebook users and Human Capital, non significant

Relationships of causability between LiveJournal or Facebook users and Human Capital, non significant

→ reflection: can digital literacy be proxied by level of education? NO?

# e-Readiness and e-Government

# e-Readiness & e-Governance

**Technological Infrastructures**

- Hardware
- Software
- Connectivity

**ICT Sector**

- Infrastructure installation
- Infrastructure maintenance
- Infrastructure creation

**Digital Literacy**

- Technological literacy
- Informational literacy
- Media literacy
- e-Awareness

**Content, Community & Services**

- Locally relevant content
- Content creation, transmission & commercialization
- e-Comunication among individuals and communities
- Presence in the Net & virtual communities
- e-Services
- e-Public Sector

**Legal Frame-work**

- TelCos Law
- Infrastructures Policies
- Foreign trade Policies
- Intellectual property and patents
- ICT Sector fostering

- Infrastructures Policies
- R+D+I Policies
- Educative Policy

- Intellectual property and patents
- Data protection
- Identity in the Net
- Information Society Law

- Content Policies
- e-Communication Policies
- Distance learning Policies
- Internet Governance
- Foreign trade Policies
- Participative Democracy
- ICT4D

# e-Readiness & e-Governance

| e-Readiness | ICT Sector & Content and Services | Leadership |
|---|---|---|
| **Technological infrastructures**<br>• PC in institutions and agents<br>• Affordable generic and specific software<br>• Affordable quality connectivity | • Infrastructures in institutions<br>• Infrastructures for agents working with the institutions<br>• Connection among institutions and with agents | • Realistic and progressive goals setting in the field of digital divide and e-sectors development<br>• Identification of promoters (agents, institutions)<br>• Sponsors participation and involvement<br>• Prescriptors system<br>• Internal organization and coordination. Legal and political accompanying measures |
| **Digital Literacy**<br>• Infrastructure creation/maintenance capacitation<br>• Functional literacy | • Infrastructures maintenance<br>• Creation of specific databases, applications for public/private sectors<br>• Human resources capacitation<br>• Awareness en corresponding e-sector | |
| **Content, Community & Services**<br>• Information about institutions and agents<br>• Specific/sectorial information, content, procedures<br>• Use of the Net among agents and institutions<br>• e-Services<br>• e-Public Sector | • **Information** and user/customer feedbacking<br>• Transparency & monitoring<br>• Processes shared **management**<br>• Data sharing and agents **relationship/networking**<br>• Participation in decision **stages** | |

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