Monitoring the Digital Divide
...and beyond

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Monitoring the Digital Divide...and beyond

An ORBICOM project

in collaboration with

- CIDA
- infoDev, World Bank
- UNESCO

and contributions from: ITU, MIMOS, UIS, Statistics Canada, NRC
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- The Information Society
- ICTs for development
- The Digital Divide
- The need for a monitoring instrument
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Objectives

- Quantify the Digital Divide across countries
- Monitor its evolution over time

Terms of reference

- Place emphasis on developing countries
- Policy relevance
- Broader scope than connectivity
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The Conceptual Framework

The notion of Infostate

Infodensity (ICT stocks indicative of productive capacity)
ICT capital, ICT skills

Info-use (current ICT consumption flows)
ICT uptake, ICT intensity of use

Infostates are ever-evolving and unbounded
- interplay between absolutes and relatives
Socio-economic, geopolitical and cultural environment

Economy

**PRODUCTIVE CAPACITY**
- capital
- ICT infrastructure
- ICT uptake

**CAPACITY**
- labour
- ICT skills
- ICT intensity of use

**CONSUMPTION**

**INFOSTATE**

Infodensity

Info-use
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The Digital Divide is defined as the difference among countries' Infostates

- Model conducive to detailed analytical linkages
  - impacts of policies on performance
  - benchmarking, best practice, specific context, etc.

- Methodology robust for comparisons between 'haves' and 'have-nots', but not intended for comparisons among top countries
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The Empirical Application

An indicators model

indicators: 21

countries: ranging from 192 for Networks to 139 for overall Infostate

coverage: 95%-99% of global population

years: 6 (1996-2001)

Reference year and country

2001 - data driven

Hypothetica - the average country

Planetia - the planet (viewed as one country)
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Findings

- How big is the Digital Divide?
  - Its magnitude is huge
  - Differences between top and bottom are staggering
  - With the average country at 100, in 2001, Infostate values ranged from 231 to 5!
Findings

- What are the main causes of the Digital Divide?

  - All components contribute...
    ...
  
  - Generally, major causes are:

    Networks, particularly newer technologies
    (Internet, cell phones)

    Uptake - mostly PCs and Internet use

    Skills - as we move to higher levels
Findings

- How is the Digital Divide evolving?

  Generally closing but...

  ...due to middle countries catching up

  ...countries at the bottom
  - close slightly only against the top
  - continue to lose ground against all other countries
A (generally) closing Digital Divide
A closing Digital Divide
Findings

- At what speed is the Digital Divide evolving?

  - at a painfully slow pace

  - all things equal, it will take generations for countries at the bottom to achieve today’s Infostate levels of countries in the middle...
    ...which, by then, will have move upwards
Patterns of closing divides

normalized Infostates

120
100
80
60
40
20
0


Hypothetica
Slovak Republic
Malaysia
Argentina
Brazil
Jordan
Botswana
Zambia
Mauritania
Sudan
Findings

What contributes most to the slow overall closing of the Digital Divide?

Mostly the newer technologies

- Internet use
- mobile telephony
- Internet networks
Evolution - Ghana

- PC users
- Internet users
- Residential phones
- TV households
- International telephone traffic
- Literacy enrollment
- Mobile
- Internet
- Wireline

2001 (blue line)
1996 (red line)
Hypothetical (dotted line)
Evolution - Ireland

- 2001
- 1996
- Hypothetica

- wireline
- int'l telephone traffic
- mobile
- Internet
- literacy
- enrollment
- residential phones
- PCs
- Internet users
- TV households

Hypothetical values for comparison.
Macro linkages

- Correlation between Infostates and GDP

  In the 1996-2001 period, the marginal effect of an increase by one point in Infodensity is an increase of $124-$164 in per capita GDP

- The relationship is more complicated, though, and there are exceptions
Infostate and per capita GDP, 2001

GDP per capita, $US, PPP

Infostate
From Digital to Knowledge Divide

- Knowledge vs. information
- Knowledge confers capacity for action
- Knowledge comes in many forms, valued differently in different cultures and times
- ICTs conducive to codified knowledge
- Mode 1 and Mode 2 knowledge
- Social dimensions in addition to personal
From Digital to Knowledge Divide

- Knowledge in the context of development
- Knowledge vs. knower, East vs. West, thing vs. process
- Knowledge creation
- Transferring knowledge and de-contextualization
- Local/indigenous knowledge and its integration
- Absorptive capacity is key - serious policy implications

Refers to the capability to track, understand and assimilate externally sourced knowledge
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What’s next

- Disseminate widely, solidify and expand partnerships
- Need to monitor progress for Tunis
  - continue empirical application
- Intensify analytical activities
  - expand linkages, derive detailed insights

Document available at:
www.orbicom.uqam.ca