INFORMATION SOCIETY STATISTICS AND ANALYSIS
A GUIDED TOUR

TASCHA seminar
University of Washington

George Sciadas

Seattle, April 21, 2011
• Context, misconceptions and reality

• Transformations and meaning

• We, the people... and our lives
Information as a strategic economic and social resource

Quantitative information is a major component
...and does not fall from the sky

Numbers and analytical insights
manage complexity – without reducing it to triviality

‘informed ignorance’ vs ‘uninformed arrogance’

The numeracy paradox
• Construction of indicators - mapping the unknown, but...
  *If you don’t know where you are, a map doesn’t help*

• Information flows
  *A patient is scheduled for amputation of right leg, but...*
  *Left leg is amputated*

• Standards - the numeracy scale
  *In 1999, NASA’s Mars Orbiter burns in space*
  - Scientists confuse metric and imperial units
A taxonomy

- Evolution of
  - technologies
  - policy needs

- Benchmarking indicators
  - over time
  - across countries

- Developing countries
  - similarities
  - specific needs
Are Information Society measurements coming of age?

- Overview of national and international experiences
- Official and other measurements
- Survey measurements and statistical aggregations
- A brief look through a cross-section of experiences
  - in different areas (people, business, gov’t)
  - over time
  - across countries
<table>
<thead>
<tr>
<th>US $ (,000)</th>
<th>Rural</th>
<th>Urban</th>
<th>Central City</th>
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<td>&lt; 10</td>
<td>23.6</td>
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<td>28.9</td>
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<td>25-35</td>
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<td>45.6</td>
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<td>50-75</td>
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<td>&gt; 75</td>
<td>52.2</td>
<td>58.1</td>
<td>56.4</td>
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</table>
In 1997, a range of policies followed:

- e-rate (for schools and libraries)
- Lifeline and Link Up (support for low income)
- Rural Health Care (affordable access)
- After 2000, A Nation Online
UNVEILING THE DIGITAL DIVIDE
Penetration over time, Canada

- Telephone
- Television
- Cable
- VCR
- Computer
- Internet
- Cell phone
- Vehicle
CONNECTED WE STAND, DIGITALLY DIVIDED… WE CRAWL

e, home use, Canada
Stylized relationship between penetration and growth-by-income
Possible future paths for Internet penetration

A: Penetration rate of lowest penetration decile to reach today's penetration rate of top decile
B: Penetration rate of top decile to reach 98%
C: Penetration rates of top and lowest penetration deciles to equalize at 98%

<table>
<thead>
<tr>
<th>Growth scenarios</th>
<th>rates of growth by decile</th>
<th>years</th>
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<tr>
<td></td>
<td>Lowest</td>
<td>Top</td>
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<tr>
<td>High growth</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>Medium growth</td>
<td>9%</td>
<td>3.5%</td>
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<tr>
<td>Low growth</td>
<td>6%</td>
<td>3%</td>
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</table>
Possible future paths for Internet penetration

- Unrecorded past
- Real data
- Projected paths

Growth rate (%)

- 98.0
- 77.1
- 21.0
- 13.9
- 2.4

Time

- 1996
- 2000

- 10-16 yrs
- 16-38 yrs
- 26-54 yrs
Internet penetration and proportion of female users
Figure 2.1: Three stages in the evolution towards an information society

- ICT Readiness (infrastructure, access)
- ICT Use (intensity)
- ICT Impact (outcomes)
- ICT Capability (skills)

ITC Development Index

Source: ITU
Indicators based on
• online transactions
Definition ignored
• methods of delivery
• means of payment
THE INTERNATIONAL SCENE

- WSIS 2003 & 2005

- OECD: A guide to Information Society Measurements

- International Partnership on Measuring ICTs for Development – Core Indicators

- Regional networks and initiatives
• The need and early attempts
• Rationale, criteria, guiding principles
• Problems encountered
  - absence of an ICT commodity classification
  - inadequacy of existing industrial classifications
• The definition
  - goods and services
• Implementation, applications and examples
• Interpretation, meaning and caveats
<table>
<thead>
<tr>
<th>NAICS Based Definition</th>
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</thead>
</table>

**North American Industry Classification System (NAICS)**

**Manufacturing**

- 33331 Commercial and Service Industry Machinery Manufacturing
- 33411 Computer and Peripheral Equipment Manufacturing
- 33421 Telephone Apparatus Manufacturing
- 33422 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
- 33431 Audio and Video Equipment Manufacturing
- 33441 Semiconductor and Other Electronic Component Manufacturing
- 33451 Navigational, Measuring, Medical and Controlling Devices Manufacturing
- 33592 Communication and Energy Wire and Cable Manufacturing

**Goods Related Services**

- 41731 Computer, Computer Peripheral and Pre-packaged Software Wholesaler-Distributors
- 41732 Electronic Components, Navigational and Communications Equipment and Supplies Wholesaler-Distributors
- 41791 Office and Store Machinery and Equipment Wholesaler-Distributors
- 53242 Office Machinery and Equipment Rental and Leasing

**Intangible Services**

- 51121 Software Publishers
- 51322 Cable and Other Program Distribution
- 51331 Wired Telecommunications Carriers
- 51332 Wireless Telecommunications Carriers (except Satellite)
- 51333 Telecommunications Resellers
- 51334 Satellite Telecommunications
- 51339 Other Telecommunications
- 51419 Other Information Services
- 51421 Data Processing Services
- 54151 Computer Systems Design and Related Services
- 81121 Electronic and Precision Equipment Repair and Maintenance
Participating countries:

- Brazil
- Cameroon
- Egypt
- India
- Malaysia
<table>
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<tr>
<th>Year</th>
<th>Lines (millions)</th>
<th>Calls (billions)</th>
<th>Minutes (billions)</th>
<th>Calls per day per line</th>
<th>Calls per day per capita</th>
<th>Minutes per day per line</th>
<th>Minutes per day per capita</th>
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<td>102</td>
<td>312</td>
<td>1,734</td>
<td>8.4</td>
<td>3.8</td>
<td>46</td>
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<td>2001</td>
<td>188</td>
<td>609</td>
<td>4,866</td>
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<td>5.9</td>
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<td>47</td>
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<td></td>
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<td></td>
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<td></td>
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<td></td>
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<td>1983</td>
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<td>2003</td>
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<td>65</td>
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Sources: Federal Communications Commission, Statistics Canada and author's estimates (italics)
## Traffic volume over cell phones, US and Canada

<table>
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<tr>
<th></th>
<th>subscribers (millions)</th>
<th>billions of minutes</th>
<th>minutes per line/day</th>
<th>minutes per capita/day</th>
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Sources: Federal Communications Commission, Statistics Canada
SUMMARY

INFERENCES

• ICTs have numerous outcomes
  - economic and social outcomes are inter-related

• The Information Society is also a ‘talkative’ society
  • ICTs change behaviour and absorb extra time daily
  • People choose to expand from geographic communities to communities of interest

• People are willing to pay, indicative of deriving utility

• Technological evolution, prices, learning/adaptation of usage affect and re-define outcomes
IDRC and the Gates Foundation
A TASCHA project
Assessing the economic and social impacts of public access to ICTs

- Multi-dimensional, 5-year research
- Brazil, Chile, Bangladesh, the Philippines, Ghana
- Literature Review
- Inventories
- Country Surveys
  - PA venues
  - PA users
  - Non-users
- A series of in-depth studies
- Cost-Benefit
THE GLOBAL IMPACT STUDY

STAGE 1: Inquisitive, investigative

- Concepts
- Definitions
- Boundary decisions
- Questions/hypotheses
- Info gathering (incl. audiovisual)

ICT use

people

business

gov’t
edu
admin
health

impacts

STAGE 2: Methodology structural

foundation

lit review
existing data

inventories
In-depth studies

surveys

facilities

focus groups

users

logs

tracking?

non-users?

STAGE 3: Outputs

A. Impacts and resources

country-specific

inventory d-base

survey results

audiovisual, testimonials

maps

B. Cost-Benefit

global syntheses

finishing

longitudinal

interventions?

Experimental

Taxonomy of facilities

Classification of services

Establishment of relative priorities

Content development
THE (R)EVOLVING LOOP

Analysis: An iterative process

questions

policy issues
business strategies

integration
frameworks
theories

analysis

data
THANK YOU