Measurement issues related to business ICT

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My presentation will cover...

- Statistically, what is business ICT?
- Internationally comparable core ICT business indicators
- Statistical manuals and standards
- Potential new areas of measurement, focusing on business ICT use
- Discussion points.
Statistically, what is business ICT?

- Use of Information and Communication Technology (ICT) by businesses, including
  - Use of a range of ICTs
  - Activities facilitated by ICT, including e-business
  - Expenditure and investment on ICT
  - Impacts of ICT use on business effectiveness
  - ICT security
  - ICT skills
  - Barriers to use.

- Characteristics and performance of the ICT sector - businesses that produce ICT goods and services.

- International trade in ICT goods and services.

- Business use of ICT will be a focus of this presentation.
Internationally comparable core ICT business indicators

- The Partnership on Measuring ICT for Development released a revised core list of ICT indicators in 2010.
- It covers the business ICT indicators
  - ICT use by businesses (12 indicators)
  - The ICT sector (2 indicators)
  - Trade in ICT goods (2 indicators).
- The core list does not cover all aspects of business ICT; exceptions include
  - Impacts of ICT, barriers to use, expenditure & investment, ICT security, use of mobile phones, integrated e-business, ICT skills and trade in ICT services.
Core indicators – the ICT sector

- ITC1. Proportion of total business sector workforce involved in the ICT sector.
- ICT2. ICT sector share of gross value added.

The main statistical standards associated with these indicators are:
- The definition of the ICT and business sector (ISIC Rev3/3.1, 4)
- Definitions of variables used in the indicators.

Data are sourced from country industry surveys, usually conducted for other purposes.

Major statistical issues are:
- Data availability and age of data
- Survey scope
- Change in definition of the ICT sector (ISIC Rev4) leading to break in time series.
Core indicators – international trade in ICT goods

- ICT3. ICT goods imports as a percentage of total imports
- ICT4. ICT goods exports as a percentage of total exports
- The main statistical standards associated with these indicators are described in Core ICT Indicators. They are:
  - The definition of ICT goods (HS 1996, 2002, 2007; CPC Ver 2)
  - Trade concepts (UN COMTRADE).
- Data are sourced from UN COMTRADE, based on country trade data reported to UNSD.
- The major statistical issue is:
  - Change in definition of ICT goods leading to break in time series without appropriate treatment.
## Core indicators – use of ICT by businesses

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Proportion of businesses using computers</td>
</tr>
<tr>
<td>B2</td>
<td>Proportion of persons employed routinely using computers</td>
</tr>
<tr>
<td>B3</td>
<td>Proportion of businesses using the Internet</td>
</tr>
<tr>
<td>B4</td>
<td>Proportion of persons employed routinely using the Internet</td>
</tr>
<tr>
<td>B5</td>
<td>Proportion of businesses with a web presence</td>
</tr>
<tr>
<td>B6</td>
<td>Proportion of businesses with an intranet</td>
</tr>
<tr>
<td>B7</td>
<td>Proportion of businesses receiving orders over the Internet</td>
</tr>
<tr>
<td>B8</td>
<td>Proportion of businesses placing orders over the Internet</td>
</tr>
<tr>
<td>B9</td>
<td>Proportion of businesses using the Internet by type of access: narrowband, fixed broadband, mobile broadband</td>
</tr>
<tr>
<td>B10</td>
<td>Proportion of businesses with a local area network (LAN)</td>
</tr>
<tr>
<td>B11</td>
<td>Proportion of businesses with an extranet</td>
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</tbody>
</table>
# Core indicators – use of ICT by businesses

<table>
<thead>
<tr>
<th>B12</th>
<th>Proportion of businesses using the Internet by type of activity:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sending or receiving e-mail</td>
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<td></td>
<td>Telephoning over the Internet/VoIP</td>
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<td></td>
<td>Posting information or instant messaging</td>
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<td>Getting information about goods or services</td>
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<td>Getting information from general government organizations</td>
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<td>Interacting with general government organizations</td>
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<td>Internet banking</td>
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<td>Accessing other financial services</td>
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<td></td>
<td>Providing customer services</td>
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<td></td>
<td>Delivering products online</td>
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<td></td>
<td>Internal or external recruitment</td>
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<td></td>
<td>Staff training</td>
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</tbody>
</table>
The main statistical standards associated with these indicators are described in Core ICT Indicators.

They are:

- Industry and size – scope and classifications
- Statistical units (enterprises, establishments)
- Definitions of the terms used in the indicators
- Model questions
- How to calculate the indicators.
Core indicators – use of ICT by businesses

- Data are sourced from country surveys; most are ICT-specific surveys...
  - but a good starting point may be to add some questions to an existing business survey.

- Major statistical issues include:
  - Variable industry and business size scope
  - The technical nature of many of the indicators
  - Aggregating and reporting data
  - Lack of data – time series and for most developing countries.
Business use of ICT – major statistical issues

- Variable industry and business size scope
  - Use of ICT is related to the industry of a business’s activity and its size.
  - If the industry and size scope varies across countries, their data will lack comparability.
  - The core ICT indicators have minimal standards on scope designed to enable comparability.
  - Where the scope of a particular country’s survey is broader, it may be possible to tabulate data to be consistent with the recommended scope.
  - UNCTAD collects detailed data and can produce more comparable tabulations.
Business use of ICT – major statistical issues

- The technical nature of many of the indicators
  - Many of the technologies in the core indicators are changing and are inherently complex.
    - web presence, types of Internet access, LAN, extranet, intranet, Internet sales/purchases.
  - This presents challenges for surveys, especially those that are mail-based (the majority).
  - The core indicators standards include definitions for technologies
    - with the aim of reducing any bias associated with technical issues.
Aggregating and reporting data is addressed in Core ICT Indicators.

- Aggregation across categories needs to be done by countries at the unit record level.
- B7, B8, B9 and B12 may be presented as proportions of all businesses or of businesses that use the Internet
  - Need to be clear on the basis (i.e. denominator used).
- UNCTAD collects data as numbers, rather than percentages, thus enabling re-aggregation (e.g. by industry, size category).
- Data provided to UNCTAD should refer to the total population, not the sample.
Business use of ICT – major statistical issues

- Lack of data – time series and for most developing countries.
  - This is a major issue which is gradually being addressed.
  - The capacity-building efforts of UNCTAD (and the Partnership more broadly) should be noted, they consist of
    - Manuals and other guides
    - Technical workshops and training courses.

- Countries that would like to receive technical assistance on business ICT measurement should email emeasurement@unctad.org.
B3, Proportion of 10+ businesses using the Internet (latest year available)

Statistical manuals and standards – Core ICT Indicators, 2010

- Produced by the Partnership on Measuring ICT for Development
  - A revised edition was released in 2010.
- The 2010 edition includes core ICT indicators and related statistical standards and methodologies.
- Link
Statistical manuals and standards –

- Produced by UNCTAD and first released in 2007
  - A revised edition was released in 2009.
- Covers all the core business ICT indicators.
- Content includes statistical standards, methodologies, data sources, model questions and questionnaires.
Other statistical manuals and standards


- General standards from UNSD, WCO, ITU, ILO
  - ISIC, CPC, SNA, Harmonized System (for trade statistics), ICT definitions, employment.
Potential new areas of measurement in business ICT use

Potential new indicators include:

- Use of mobile phones by businesses
- Barriers to ICT use
- Use of more advanced ICT applications (e-business)
- ICT expenditure and investment
- ICT security
- ICT skills
- Impacts of ICT use.
Potential new areas of measurement – use of mobile phones by businesses

- The argument for including use of mobile phones as a core indicator is based on the importance of mobile phones for small businesses in many developing economies.

- UNCTAD’s manual (2009 revision) suggested some possible indicators on business mobile phone use
  - Proportion of businesses using mobile phones
  - Proportion of businesses receiving/placing orders via mobile phones
  - Proportion of businesses using mobile phones by type of activity (several response items).
Discussion points...

- New indicators
  - Mobile phone use by businesses
  - Other potential new indicators.
- Other issues relating to business ICT measurement.