Measurement issues related to household ICT

Sheridan Roberts, sheridanroberts@infosocietystats.com

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My presentation will cover…

- Statistically, what is household ICT?
- Internationally comparable core ICT household indicators
  - Household access to ICT
  - Individual use of ICT
- Statistical manuals and standards
- Potential new areas of measurement
- Discussion points.

Statistically, what is household ICT?

- Access to Information and Communication Technology (ICT) by households, including
  - Types of ICT
  - Nature of access
  - Barriers to access
  - Expenditure on ICT.
- Use of ICT by individuals, including
  - Frequency, location and types of activities undertaken using various ICTs
  - Time spent using ICT
  - Impacts of ICT use.

Internationally comparable core ICT household indicators

- The Partnership on Measuring ICT for Development first released a core list of ICT indicators in 2005
  - The core list was revised during 2008 and 2009 and published in 2010 as *Core ICT Indicators, 2010*.

- The revised list covers the household indicators
  - Household access to ICT (6 indicators)
  - Individual use of ICT sector (6 indicators)
  - Household access to electricity (reference indicator).

- The core list does not cover all aspects of household ICT; exceptions include
  - Impact of ICT, barriers to use, expenditure & investment, time spent, ICT security, activities using ICTs other than the Internet.

Core indicators – household access to ICT

HH1	Proportion of households with a radio
HH2	Proportion of households with a TV
HH3	Proportion of households with telephone: Any telephone Fixed telephone only Mobile cellular telephone only Both fixed and mobile cellular telephone
HH4	Proportion of households with a computer
HH6	Proportion of households with Internet access
HH11	Proportion of households with access to the Internet by type of access: Narrowband Fixed broadband Mobile broadband

Core indicators – use of ICT by individuals

HH5	Proportion of individuals who used a computer in the last 12 months
HH7	Proportion of individuals who used the Internet in the last 12 months
HH8	Location of individual use of the Internet in the last 12 months: Home Work Place of education Another person's home Community Internet access facility Commercial Internet access facility Any place via a mobile cellular telephone Any place via *other* mobile access devices

Core indicators – use of ICT by individuals

HH9	Internet activities undertaken by individuals in the last 12 months:
	Getting information about goods or services
	Getting information related to health or health services
	Getting information from general government organizations
	Interacting with general government organizations
	Sending or receiving e-mail
	Telephoning over the Internet/VoIP
	Posting information or instant messaging
	Purchasing or ordering goods or services
	Internet banking
	Education or learning activities
	Playing or downloading video games or computer games
	Downloading movies, images, music, watching TV or video, or listening to radio or music
	Downloading software
	Reading or downloading online newspapers or magazines, electronic books

Core indicators – use of ICT by individuals

HH10	Proportion of individuals who used a mobile cellular telephone in the last 12 months
HH12	Frequency of individual use of the Internet in the last 12 months: At least once a day At least once a week but not every day Less than once a week

Core indicators on household ICT – statistical framework

- The main statistical standards associated with these indicators are described in *Core ICT Indicators*. They are:
  - Survey scope
  - Classifications
    - household composition and size
    - individual age, gender, highest education level, labour force status, occupation.
  - Statistical units
    - households, individuals
  - Definitions of terms used in the indicators
  - Model questions and questionnaire
  - How to calculate the indicators.

Core indicators on household ICT

- Data are sourced from country surveys, often from modules in existing social surveys...
  - especially in developing economies.
- Major statistical issues are:
  - Variable age scope
  - Technical nature of some of the terms used and..
  - ...keeping up with technological changes
  - Aggregating and reporting data
  - Lack of data – time series and data for many developing economies.

Household use of ICT – major statistical issues

- Variable age scope
  - Use of ICT is strongly correlated with age.
  - If age scope varies across countries, their data will lack comparability.
  - The core ICT indicators have minimal standards on age scope (15-74) 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.
  - ITU collects detailed data and can produce more comparable tabulations (e.g. removing data for children under 15).

Household use of ICT – major statistical issues

- The technical nature of some of the indicators
  - Some of the technologies in the core indicators are changing and may be confusing for respondents...
    - especially fixed and mobile broadband Internet services
    - use of mobile devices to access the Internet.
  - The core indicator standards include relevant definitions and advice on designing questions
    - For instance, tailor questionnaires and interviewer instructions to include particular Internet access services available in the country.
  - The aim is to reduce bias associated with technical concepts.

Household use of ICT – major statistical issues

- Keeping up with technological changes.
- Recent technology trends have driven some changes in the indicators
  - Mobile broadband (HH11)
  - Telephoning over the Internet/VoIP (HH9)
  - Posting information or instant messaging (HH9)
  - Using the Internet at any place via a mobile cellular telephone (HH8)
  - Using the Internet at any place via other mobile access devices (HH8).
- Definitions are provided in *Core ICT Indicators*.

Household use of ICT – major statistical issues

- Aggregating and reporting data is addressed in *Core ICT Indicators*
  - Aggregation across response categories needs to be done by countries at the unit record level.
  - HH8, HH9 and HH12 may be presented as proportions of all individuals <u>or</u> of individuals that used the Internet
    - Need to be clear on the basis (i.e. denominator used).
  - ITU collects data as numbers, rather than percentages, thus enabling re-aggregation across classifications (e.g. by age).
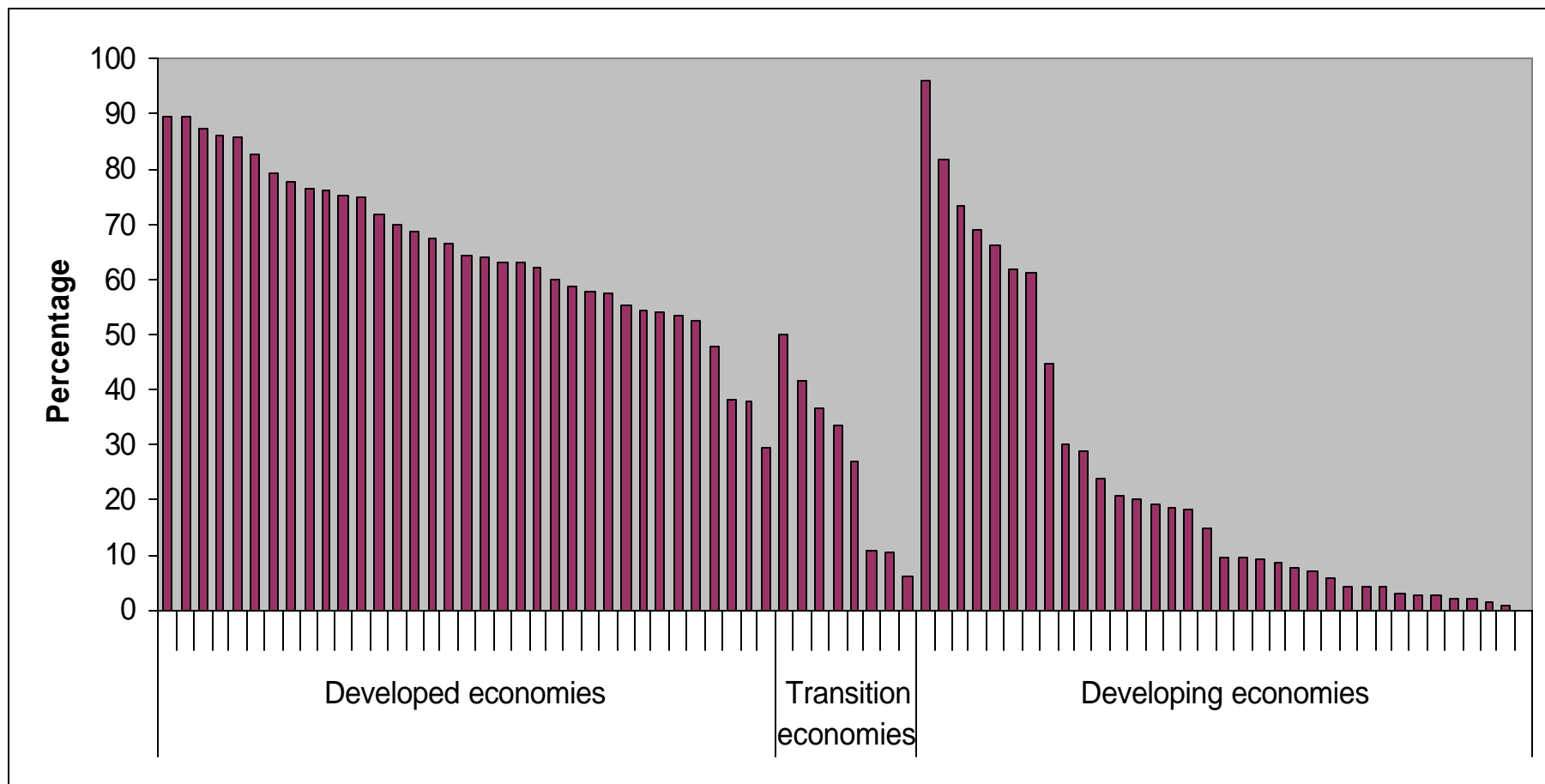 - Data provided to ITU should refer to the total population, not the sample.

Household use of ICT – major statistical issues

- Lack of data
  - Especially for many developing countries.
  - The situation is better for household access indicators than individual use indicators.
  - The capacity-building efforts of ITU (and the *Partnership* more broadly) should be noted, they consist of
    - Manuals and other guides
    - Technical workshops and training courses.

HH6, Proportion of households with Internet access (latest year available)

Source: ITU World Telecommunication/ICT Indicators database

Statistical manuals and standards – *Core ICT Indicators, 2010*

- Produced by the <u>Partnership on Measuring ICT for Development</u>

  - A revised edition was released in 2010.

- The 2010 edition includes core ICT indicators and related statistical standards and methodologies.

- Link http://www.itu.int/ITU-D/ict/partnership/material/Core%20ICT%20Indicators%202010.pdf.

Statistical manuals and standards –
Manual for Measuring ICT Access and Use by Households and Individuals, 2009

- Produced by ITU and released in 2009 (first edition).

- Covers all the core household ICT indicators.

- Content includes statistical standards, methodologies, data sources, data processing, model questions and questionnaires.

- Link
  http://www.itu.int/ITU-D/ict/publications/hhmanual/2009/index.html.

Other statistical manuals and standards

- OECD *Guide to Measuring the Information Society, 2009*, www.oecd.org/sti/measuring-infoeconomy/guide.

- Eurostat information society statistics home page, with links to methodological manuals and questionnaires, http://epp.eurostat.ec.europa.eu/portal/page/portal/information_society/introduction.

- General standards from UNSD, ITU, UNESCO, ILO
  - Household survey methodology, population census standards, ICT definitions, education, labour force, occupations.

Potential new areas of measurement – child online protection

- Recent work by ITU – builds on existing studies conducted over the last decade or so.

- A broad 'COP' framework includes subjective issues, risky behaviours, incidents, preventative actions, classifications, actors and indicators.

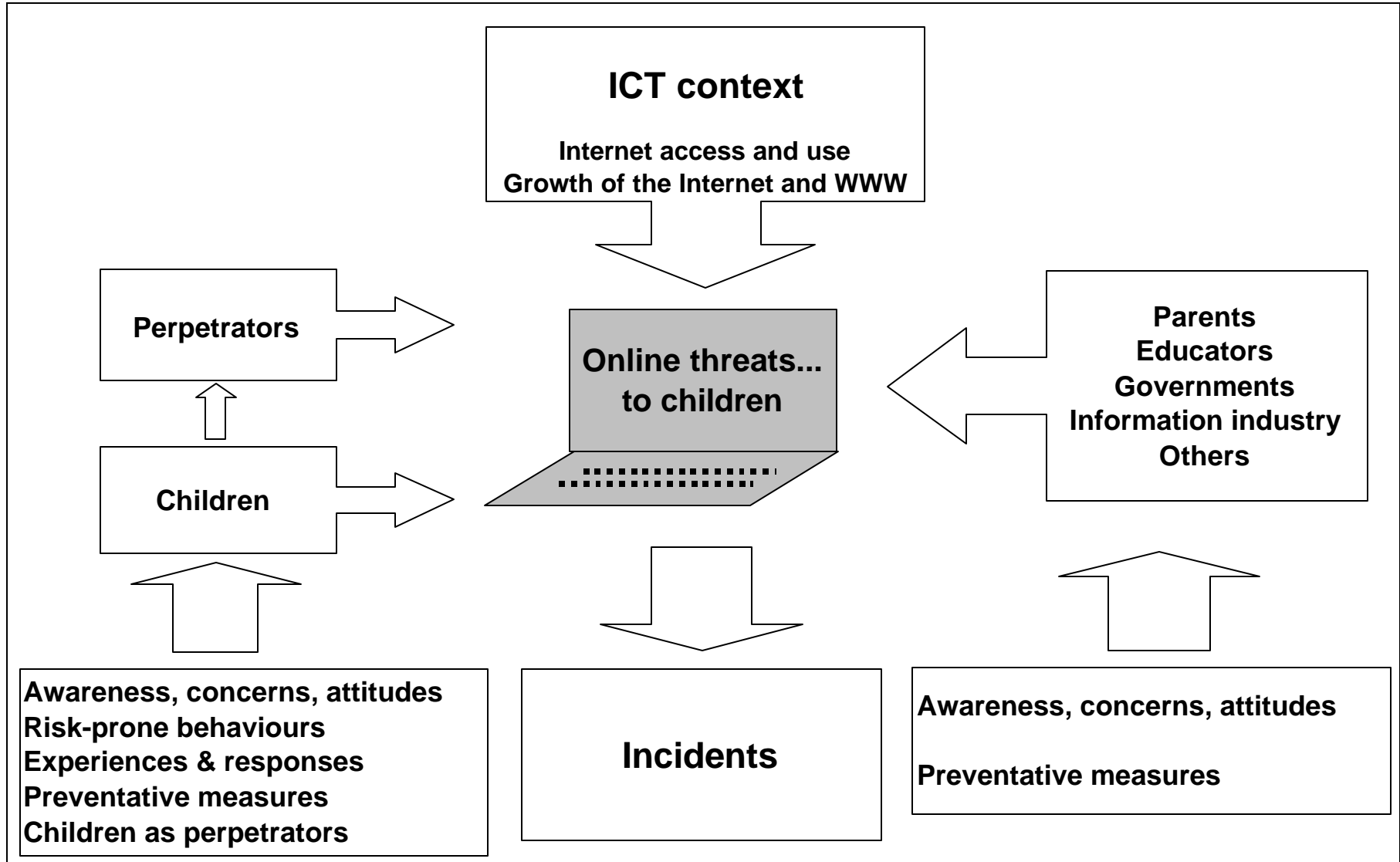- The COP framework will be released later this year.

Potential new areas of measurement – child online protection

- Household ICT indicators suggested by the framework
  - Two additional Internet activity items (HH9) to better measure risk-prone behaviours of children
  - Time spent online by children
  - Parents' rules applying to children's Internet use
  - Protective measures taken by parents at home.
- More emphasis on data on children
  - …many countries do not collect data on children's ICT use.

Measuring child online protection: conceptual overview

ICT context

Internet access and use
Growth of the Internet and WWW

Perpetrators

Online threats...
to children

Children

Parents
Educators
Governments
Information industry
Others

Awareness, concerns, attitudes
Risk-prone behaviours
Experiences & responses
Preventative measures
Children as perpetrators

Incidents

Awareness, concerns, attitudes

Preventative measures

Other potential new areas of measurement

- Barriers to ICT access and use
- ICT expenditure by households
- Activities using ICTs other than the Internet
  - Activities are currently limited to the Internet.
- ICT skills
- Purchases over the Internet, including by direct download
- ICT security.

Discussion points...

- New indicators, e.g. child online protection indicators

- Changes to the UNCTAD manual

- Other issues relating to household ICT measurement.