



# *Measuring the Information Economy*

Dr. Susan Teltscher  
Chief, ICT Policy and Analysis Unit  
ICT and E-Business Branch, SITE  
UNCTAD

Scan-ICT Phase II Workshop Accra, Ghana  
30 March 2006

# Presentation outline

- 1. Why measure the information economy?*
- 2. What to measure?*
- 3. How to measure?*
- 4. UNCTAD's work on ICT measurement*

# Why measure the information economy?

- To **assess the impact** of ICTs on economic growth, trade, and enterprise competitiveness
- To **collect evidence** on ICT uptake and use at the national level
- To better **target national ICT policies** and create an enabling environment for e-business
- To **benchmark** your country's information economy against those of your neighbours, and globally
- To take **informed investment and business decisions**

# Availability of ICT statistics

## ➤ **ICT data are scarce in developing countries**

### *Global ICT Indicators Stocktaking:*

*Africa, Asia-Pacific, Latin America-Caribbean, Central-Eastern Europe, Western Asia*

- ➔ Metadata survey (household and business) to NSOs July/August 2004 (UN RCs, UNCTAD)
- ➔ Types of indicators collected/planned (list of 20 each for household and business surveys)

# Availability of ICT business indicators

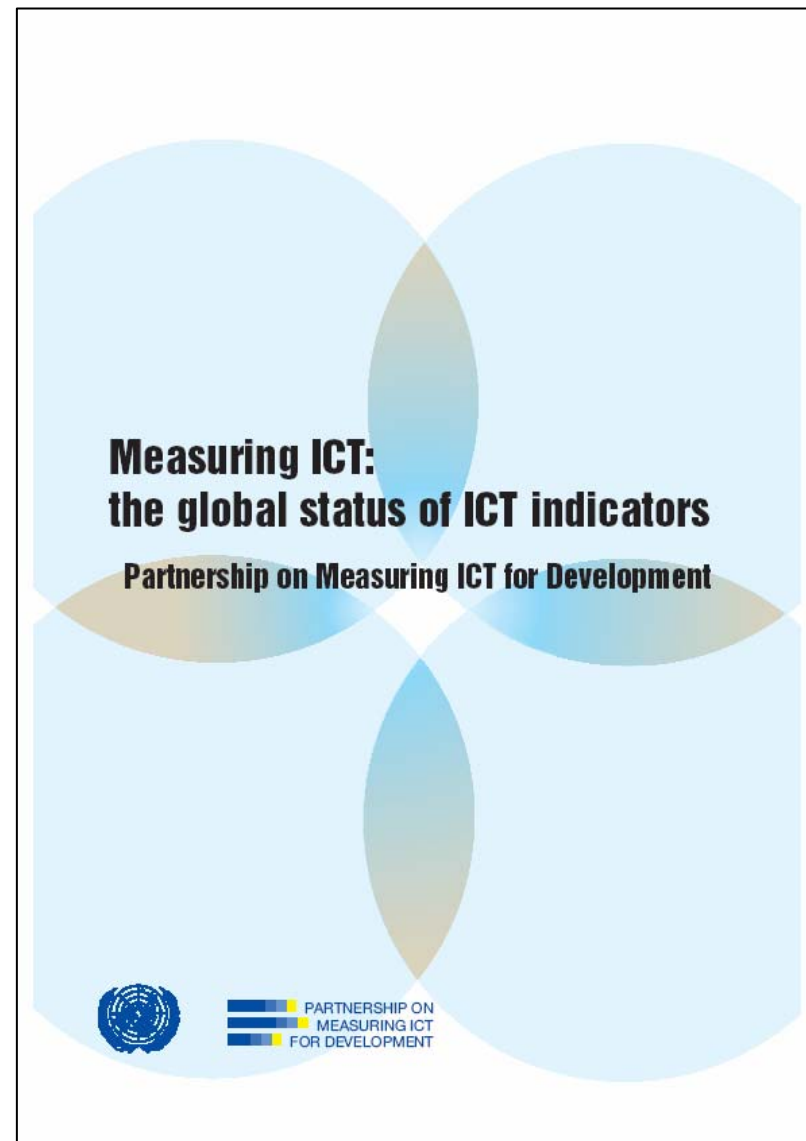
- Only small number of developing countries currently collect ICT business indicators (50 out of 85 respondents)
- Most countries collect *basic access indicators* (availability of telephone, computer or Internet)
- Data collection is mainly through manufacturing and services establishment surveys, which most NSOs already have in place
- More advanced indicators are collected through specific ICT surveys

# Availability of ICT indicators

Results published in:

 PARTNERSHIP ON  
MEASURING ICT  
FOR DEVELOPMENT

[measuring-ict.unctad.org](http://measuring-ict.unctad.org)



# Availability of ICT indicators: global initiative



- A global, multi-stakeholder initiative by key stakeholders working on ICT statistics
- An umbrella for co-ordination of ongoing activities and for planning future activities based on the commitment by the partners
- A framework for raising additional resources to assist developing countries
- Launched at UNCTAD XI, Brazil, June 2004

# Availability of ICT indicators: global initiative



## Current members

### *International level*

ITU  
OECD  
UNCTAD  
UNESCO Institute for Statistics  
(UN ICT Task Force)  
World Bank

### *Regional level*

ECA  
ECLAC  
ESCAP  
ESCWA  
Eurostat

# What to measure?

- ICT access and use in enterprises (e-business)
- ICT sector (value added, employment)
- Trade in ICT goods and services
- ICT skills
- E-Government
- **Core ICT indicators**

# Core ICT indicators



## **WSIS Thematic Meeting: Measuring the Information Society**

- **Geneva, 7-9 February 2005**
- **270 participants from 85 countries**

**Key outcome: adoption of list of core indicators**

# Core ICT indicators

<i>Set of indicators</i>	<i>Basic core</i>	<i>Extended core</i>	<i>Reference</i>	<i>Total</i>
<b>ICT infrastructure and access</b>	<b>10</b>	<b>2</b>		<b>12</b>
<b>ICT access and usage by households and individuals</b>	<b>10</b>	<b>3</b>	<b>1</b>	<b>14</b>
<b>ICT usage by businesses</b>	<b>8</b>	<b>4</b>		<b>12</b>
<b>ICT sector and trade in ICT goods</b>	<b>4</b>			<b>4</b>
<b>Total</b>	<b>32</b>	<b>9</b>	<b>1</b>	<b>42</b>

# Core ICT indicators

- Starting point for collecting ICT indicators in developing countries
- Well defined
- Tested
- Model questions available
- Easy to collect
- Policy-relevant

# Core ICT indicators

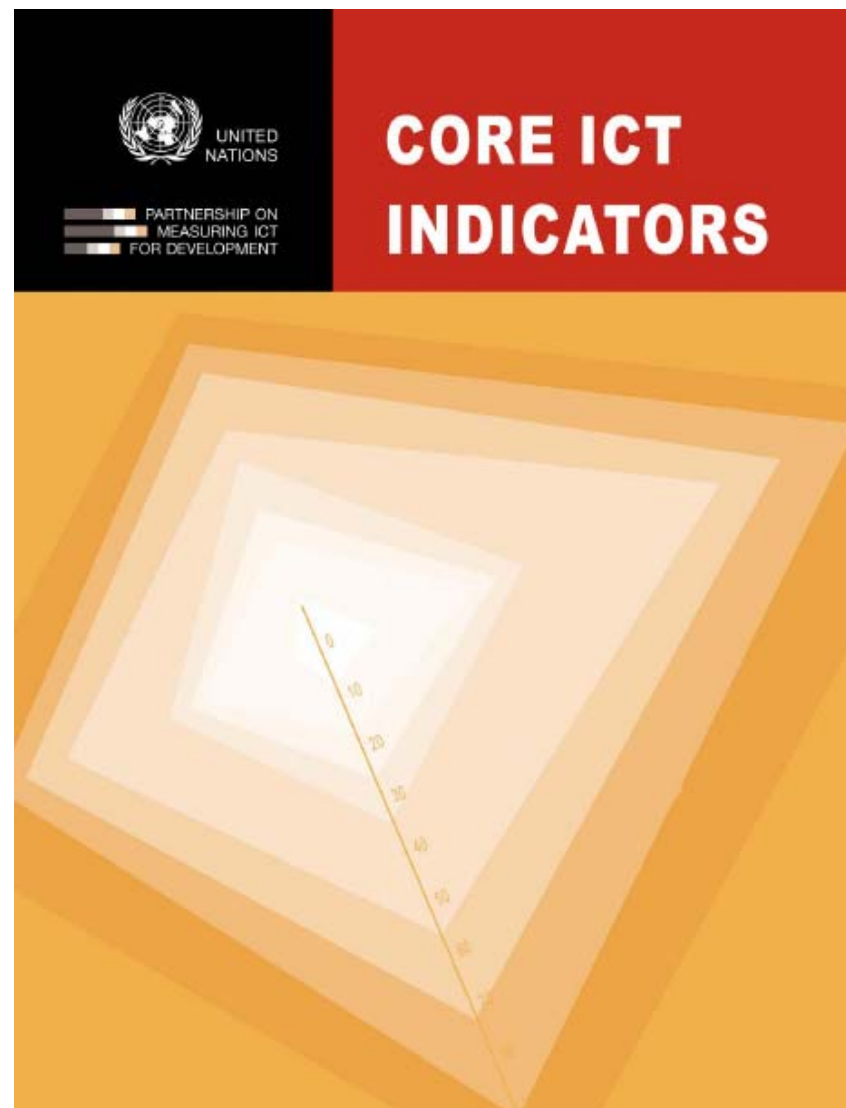
- Provide useful guidance for countries planning to collect ICT indicators
- Constitute the basis for developing internationally comparable ICT statistics
- Should be amended as experience is gained
- Possible future and supplementary indicators: education, government, health, language, impact

# Core ICT indicators

Definitions, model questions,  
methodologies:



[measuring-ict.unctad.org](http://measuring-ict.unctad.org)



# Core ICT indicators - business

## *Basic core*

- B-1** Proportion of **businesses** using **computers**
- B-2** Proportion of **employees** using **computers**
- B-3** Proportion of **businesses** using the **Internet**
- B-4** Proportion of **employees** using the **Internet**
- B-5** Proportion of **businesses** with a **Web presence**
- B-6** Proportion of **businesses** with an **intranet**
- B-7** Proportion of **businesses** **receiving orders** over the Internet
- B-8** Proportion of **businesses** **placing orders** over the Internet

## *Extended core*

### **B-9 Proportion of businesses using the Internet by type of access**

Response categories include analog modem, ISDN, DSL, cable modem, other narrowband, other broadband

### **B-10 Proportion of businesses with a Local Area Network (LAN)**

### **B-11 Proportion of businesses with an extranet**

## **B-12 Proportion of businesses using the Internet by type of activity**

### **Response categories:**

- Sending and receiving e-mail
- Getting information
- Performing Internet banking or accessing other financial services
- Dealing (interacting) with government organisations/public authorities
- Providing customer services
- Delivering products online

# Core ICT indicators – ICT sector

## *Basic core*

**ICT-1** Proportion of total **workforce** involved in the ICT sector

**ICT-2** **Value added** in the ICT sector (as a percentage of total value added)

**ICT-3** **ICT goods imports** as percentage of total imports

**ICT-4** **ICT goods exports** as percentage of total exports

# How to measure?

- National data collection
- Survey vehicles
- International data collection and databases

# Survey vehicles for business indicators

- Administrative sources
- Business registers
- Economic censuses
- Sectoral enterprise surveys  
(manufacturing, services)
- Specific ICT surveys

# Administrative sources

- Suppliers of ICT services (telephone, Internet) provide information on their subscribers; some basic ICT access indicators
- **Advantage:** low cost
- **Disadvantage:** limited information; not broken down by customer (per inhabitant)

# Business registers

- Information on firms such as presence of fixed and mobile phones, web site (basic ICT indicators)
- Economic classification (industry, size)
- **Advantage:** low cost
- **Disadvantage:** limited information, does not include informal sector

# Economic censuses

- Cover all enterprises, suited to collect few basic ICT indicators
- **Advantage:** exhaustive, allows for disaggregation/break-downs of indicators
- **Disadvantage:** very expensive, low periodicity (not suited to measure rapid changes), limited information

# Sectoral enterprise surveys

- Manufacturing, services, retail, (agriculture); to collect basic ICT indicators
- **Advantage:** annual periodicity; low cost (add ICT questions or module); existing user group
- **Disadvantage:** limited number of ICT-related questions; no coverage of informal sector

# Specific ICT surveys

- To collect more advanced ICT indicators
- **Advantage:** suited to collect a large number of ICT indicators, may cover microenterprises
- **Disadvantage:** tend to be irregular (one-off surveys); more expensive

*Special:* ICT sector surveys

# International business data collection

- **OECD**: ICT business data for OECD member countries
- **Eurostat**: ICT business data for EU
- **UNCTAD**: **ICT business data for developing countries**
- **Others** (WB, other regional bodies, private providers)

# UNCTAD E-Business Survey

- Annual survey with developing country NSOs

2004: 23 countries – 10 comparable results

2005: 39 countries – 19 comparable results

(Africa: 7 countries, 3 replies)

**2006:** 60 countries - ?? comparable results

(Africa – 12 countries, ?? replies)

- Indicators on ICT use in enterprises and the ICT sector
- List of core ICT indicators

# UNCTAD E-Business Survey 2005

Indicator	Number of countries collecting the indicator
Businesses using the Internet	20
Businesses using computers	19
Businesses with a website	17
Businesses receiving orders over the Internet	15
Businesses placing orders over the Internet	15
Businesses accessing the Internet by modes of access:	14
<ul style="list-style-type: none"> <li>• <i>Analogue modem</i></li> </ul>	13
<ul style="list-style-type: none"> <li>• <i>ISDN</i></li> </ul>	7
<ul style="list-style-type: none"> <li>• <i>Fixed line connection under 2 Mbps</i></li> </ul>	9
<ul style="list-style-type: none"> <li>• <i>Fixed line connection of 2 Mbps or more</i></li> </ul>	7
<ul style="list-style-type: none"> <li>• <i>Other</i></li> </ul>	7

# UNCTAD E-Business Survey 2005

Indicator	Number of countries collecting the indicator
<b>Businesses using the Internet by type of activity:</b>	<b>13</b>
<ul style="list-style-type: none"> <li data-bbox="110 382 1325 436">• <i>Internet e-mail</i></li> <li data-bbox="110 454 1325 508">• <i>Getting information about goods or services</i></li> <li data-bbox="110 525 1325 579">• <i>Getting information from gov.organizations/public authorities</i></li> <li data-bbox="110 596 1325 651">• <i>Other information searches and research</i></li> <li data-bbox="110 668 1325 722">• <i>Internet banking or accessing other financial services</i></li> <li data-bbox="110 739 1325 793">• <i>Transacting with government organizations/public authorities</i></li> <li data-bbox="110 811 1325 865">• <i>Providing customer services</i></li> <li data-bbox="110 882 1325 936">• <i>Delivering products online</i></li> <li data-bbox="110 953 1325 1008">• <i>Other</i></li> </ul>	<p data-bbox="1549 382 1587 419">11</p> <p data-bbox="1549 454 1587 491">7</p> <p data-bbox="1549 525 1587 562">3</p> <p data-bbox="1549 596 1587 634">4</p> <p data-bbox="1549 668 1587 705">5</p> <p data-bbox="1549 739 1587 776">4</p> <p data-bbox="1549 811 1587 848">7</p> <p data-bbox="1549 882 1587 919">3</p> <p data-bbox="1549 953 1587 991">5</p>
<b>Businesses with a local area network (LAN)</b>	<b>12</b>
<b>Businesses with an intranet</b>	<b>11</b>
<b>Businesses with an extranet</b>	<b>9</b>
<b>Employees using computers</b>	<b>8</b>
<b>Employees using the Internet</b>	<b>6</b>

# E-Business indicators (2004 or latest year)

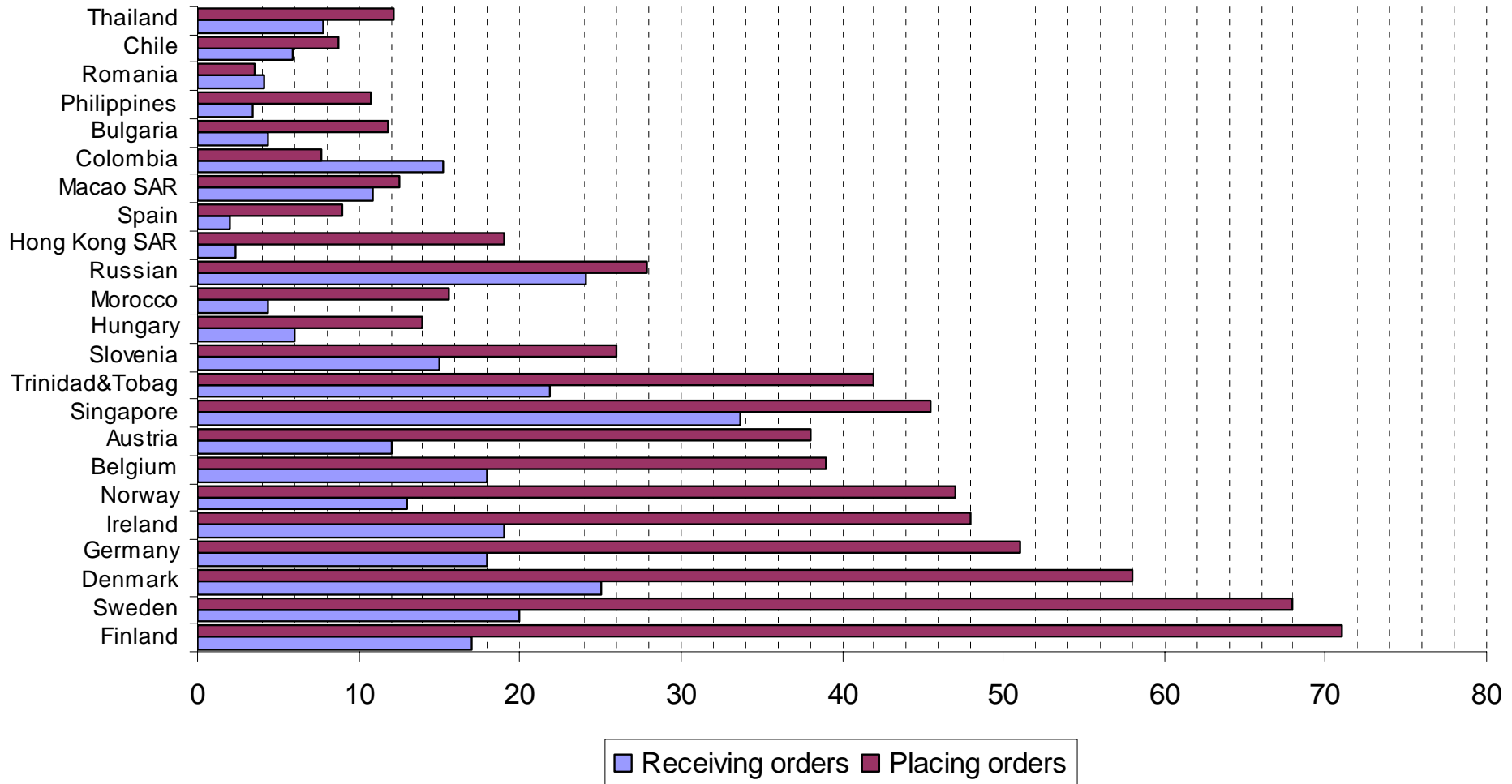
	Enterprises using <b>computers</b>	Enterprises using the <b>Internet</b>	Enterprises with Internet that have a <b>website</b>
Andorra	73.1	63.0	76.2
Argentina	..	68.0	67.7
Bulgaria	83.5	61.8	40.3
Chile	24.7	20.3	42.6
Colombia	16.8	8.9	12.0
Hong Kong (China)	58.4	50.4	29.4
Kazakhstan	64.4	37.3	16.9
Madagascar	80.2	67.0	50.1
Mauritius*	7.4	4.9	24.5
Morocco	100.0	90.0	42.2
Philippines	84.8	58.6	17.1
Republic of Korea	95.6	94.0	41.4
Rep. of Moldova	10.6	51.6	..
Romania	84.2	51.4	35.3
Russian Federation	84.6	43.4	31.0
Singapore	83.1	75.9	..
Trinidad & Tobago	86.2	77.3	57.6

Source: UNCTAD (2005)

\* microenterprises



# E-Commerce (2004 or latest year)



Source: UNCTAD (2005)



# Activities carried out over the Internet

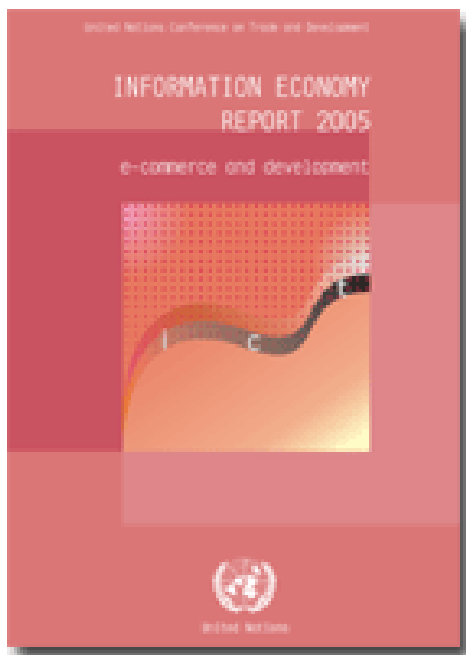
Country/territory	Argentina	Bulgaria	Colombia	Hong Kong (China)	Kazakhstan	Madagascar	Romania	Russian Fed.	Thailand	Trinidad & Tobago
Internet e-mail	72.1	..	79.9	96.2	87.9	99.6	..	93.8	70.0	97.7
Getting information about goods or services	68.2	..	..	93.8	61.7	..	61.8	56.6	..	..
Getting information from government organizations	..	59.1	..	58.5	..	..	56.1	..	..	..
Other information searches and research	..	..	..	..	86.1	64.2	..	..	85.6	83.7
Internet banking/other financial services	..	41.7	..	34.1	..	..	43.4	..	5.6	..
Transacting with government organizations	..	61.0	..	..	..	..	12.6	..	..	..
Providing customer services	21.0	..	..	17.3	45.0	..	..	5.1	..	36.2
Delivering products online	..	..	..	21.8	..	..	..	5.7	..	..
Other	..	..	..	48.8	92.0	16.4	..	..	..	..

Source: UNCTAD (2005)



# UNCTAD E-Business survey

Results published in:



## ***Information Economy Report***

(previous: *E-Commerce and Development Report*)

➔ **UNCTAD *Information Economy Database***

## What we have learned

### Comparability:

- Lack of continuity in data collection (one-off surveys)
- Differences in types of surveys, sampling units, frames, sizes, denominator
- Differences in response categories (e.g. modes of access and activities the Internet is used for)

### Availability:

- Lack of coordination between Government entities

## Suggestions for action: policy level

- Long-term process: start early (start small)
- Awareness creation among policy makers
- Link ICT agenda with e-measurement agenda both nationally and internationally (follow-up to WSIS)

## Suggestions for action: technical level

- Coordination among national statistical systems
- Use core list as a starting point (add questions to existing surveys)
- Use agreed-upon definitions and indicators – need to harmonize results
- **Capacity building in NSOs:** definitions and methodologies; survey implementation and data collection; database development and analysis



Scan-ICT Phase II Workshop  
Accra, Ghana  
31 March 2006

**THANK YOU**

[susan.teltscher@unctad.org](mailto:susan.teltscher@unctad.org)  
[www.unctad.org/ecommerce](http://www.unctad.org/ecommerce)  
[measuring-ict.unctad.org](http://measuring-ict.unctad.org)