Republic of Lebanon
Presidency of the Council of Ministers
Office of the Prime Minister

# Recommendations on Measuring the Digital Economy

## National ICT Strategy Coordination Office

In April 2011, the National ICT Strategy Coordination Office at the Presidency of the Council of Ministers developed, along with the Central Administration for Statistics, the framework of ICT indicators (Annex I). The framework was approved by the various Lebanese private and public stakeholders at a workshop held at the PCM on April 14, 2011.

Dr. Huub Meijers, an expert on the digital economy from Maastricht University visited Lebanon and met with the various Lebanese stakeholders to validate the framework and assess the availability of data needed for the indicators. Once the framework was approved, and in order to quickly populate the first set of ICT indicators and draw from it lessons learned, the Presidency of the Council of Ministers commissioned a private company to conduct two surveys in order to populate the ICT indicators on household and business use. Concurrently, the Centre for Educational Research and Development was commissioned to conduct a survey on the use of both public and private schools. Finally various Lebanese institutions were asked to provide administrative data. These include the Ministry of Finance, National Accounts, Ministry of Education and Higher Education (Center for Educational Research and Development), Telecommunication Regulatory Authority, Office of the Minister of State for Administrative Reforms, and National Council for Scientific Research.

The final product will be released to the public in March 2012.

This document highlights the recommendations for measuring the Lebanese digital economy going forward. They come as a result of the experience of the working group during the past 9 months.

These recommendations are provided hereafter.

Republic of Lebanon
Presidency of the Council of Ministers
Office of the Prime Minister

## I- National Accounts Recommendations

1- Restructure the National Account. The current structure of the National Account doesn't give visibility over key promising sectors such as ICT, media, advertising, and other digital economy sectors and industries. The first recommendation is to review the structure of the National Accounts to give visibility on sectors the Government of Lebanon deems important to the economy.
2- Collect the following in order to measure the digital economy: the impact of ICT investment by all sectors of the economy, and the impact of the ICT as a production sector on the total economy.
3- Include in the National Accounts computation of the following:
   - Investments in ICT by all sectors
   - Value added (by sector including ICT and non-ICT) of ICT by sector
   - Deflators
   - Employment (presently not computed National Accounts)
   - Wages.
4- Use the ISIC 4 classification in the National Accounts and in the Ministry of Finance (MoF). This classification should be promoted and used by all concerned stakeholders both in the private and public sectors.

## II- Central Administration of Statistics Recommendations

5- Appoint the CAS as the organization in charge of coordinating all actions and creating a comprehensive publication on the Digital Economy in Lebanon.
6- Conduct representative surveys on a yearly basis to populate the indicators pertaining to the impact of ICT in total factor productivity (TFP) growth indicators (Annex I), and instate a rigorous data collection mechanism with the various concerned government institutions to gather the administrative data. Other surveys to be conducted by CAS need to measure:
   - Use of ICT by businesses
   - Access to, and use of, ICT by households and individuals
7- Coordinate with the Center for Educational Research and Development to measure the usage of ICT in schools.
8- Measure ICT indicators in both public and private institutions. For example the indicator for the penetration of computers in schools should include both private and public schools. Surveys needed should be designed accordingly.
9- Develop an updated household sample frame which requires a list of geographical units obtained from the last population census.
10- Adopt the ISIC Revision 4 sector classifications and disseminate information to all parties and stakeholders including companies, chambers of commerce, ministries, and other users.

11- Use international standards and methodologies when identifying sets and collecting data in order to compare and contrast Lebanon's results with other countries. Specifically, the recommendation is to use the "Partnership on Measuring ICT for Development" standards and set of indicators. For questionnaires, the methodology, and the quality checking and reporting, the recommendation is to use UNCTAD.
12- Insure that all information is disseminated on a yearly basis to all relevant (international) bodies (ITU, World Bank, World Economic Forum, WITSA, UN, Conference Board, GGDC, The Economist Intelligence Unit, ESCWA, etc.).

## III- Other Recommendations

13- Include an ICT line item in the national budget. Each Government department or agency should budget for, and reports its actual expenditure and activity related to ICT. The national budget should include a line item for ICT expenditures and revenues in order to build a comparative database year after year.

14- Appoint TRA as provider of administrative data for core indicators on ICT infrastructure and access; CERD for core indicators on ICT in education; OMSAR for e-government indicators; and CNRS for R&D indicators.

15- Establish a high quality on-line, real-time, National Business Register.

Republic of Lebanon
Presidency of the Council of Ministers
Office of the Prime Minister

**Annex I**

| Legend | | |
|---|---|---|
| **A: Administrative Data** | **S: Survey** | **C: Annual country-level school census** |

## I. Channel 1 – The impact of ICT investment by all sectors of industry

| Code | Description | Source | Responsible |
|---|---|---|---|
| | GDP | A | National Accounts |
| | Value Add by Sector | A | National Accounts |
| | Labor input by Sector | A | National Accounts |
| | ICT investments, also called Gross Fixed Capital Formation (GFCF) | A | National Accounts |
| | Non ICT investments | A | National Accounts |
| | Internal Rate of Return | A | National Accounts |

## II. Channel 2 – The impact of the ICT producing sector on the total economy

### II1. Core indicators on the ICT (producing) sector

| Code | Description | Source | Responsible |
|---|---|---|---|
| ICT1 | Proportion of total business sector workforce involved in the ICT sector | S | CAS |
| ICT2 | ICT sector share of gross value added | S | CAS |

### II2. Core indicators on international trade in ICT goods

| Code | Description | Source | Responsible |
|---|---|---|---|
| ICT3 | ICT goods imports as a percentage of total imports | A | Customs |

| | | | |
|---|---|---|---|
| ICT4 | ICT goods exports as a percentage of total exports | A | Customs |

## III. Channel 3 – The impact of ICT in total factor productivity (TFP) growth

### III1. Core indicators on ICT infrastructure and access

| Code | Description | Source | Responsible |
|---|---|---|---|
| A1 | Fixed telephone lines per 100 inhabitants: | A | TRA |
| A2 | Mobile cellular telephone subscriptions per 100 inhabitants | A | TRA |
| A3 | Fixed Internet subscribers per 100 inhabitants | A | TRA |
| A4 | Fixed broadband Internet subscribers per 100 inhabitants | A | TRA |
| A5 | Mobile broadband subscriptions per 100 inhabitants | A | TRA |
| A6 | International Internet bandwidth per inhabitant (bits/second/inhabitant) | A | TRA |
| A7 | Percentage of the population covered by a mobile cellular telephone network | A | TRA |
| A8 | Fixed broadband Internet access tariffs per month: In US $ as a percentage of monthly per capita income | A | TRA |
| A9 | Mobile cellular telephone prepaid tariffs per month: In US $ as a percentage of monthly per capita income | A | TRA |
| A10 | Percentage of localities with public Internet access canters (PIACs) | A | TRA |

### III2. Core indicators on access to, and use of, ICT by households and individuals

| Code | Description | Source | Responsible |
|---|---|---|---|
| HH1 | Proportion of households with a radio | S | CAS |
| HH2 | Proportion of households with a TV | S | CAS |

Republic of Lebanon
Presidency of the Council of Ministers
Office of the Prime Minister

| | | | |
|---|---|---|---|
| HH3 | Proportion of households with telephone | S | CAS |
| | –any telephone | S | CAS |
| | –Fixed telephone only | S | CAS |
| | –Both fixed and mobile cellular telephone | S | CAS |
| HH4 | Proportion of households with a computer | S | CAS |
| HH5 | Proportion of individuals who used a computer in the last 12 months | S | CAS |
| HH6 | Proportion of households with Internet access | S | CAS |
| HH7 | Proportion of individuals who used the Internet in the last 12 months | S | CAS |
| HH8 | Location of individual use of the Internet in the last 12 months | S | CAS |
| HH9 | Internet activities undertaken by individuals in the last 12 months | S | CAS |
| HH10 | Proportion of individuals who used a mobile cellular telephone in the last 12 months | S | CAS |
| HH11 | Proportion of households with access to the Internet by type of access: | S | CAS |
| | -Narrowband | S | CAS |
| | -Fixed broadband | S | CAS |
| | -Mobile broadband | S | CAS |
| HH12 | Frequency of individual use of the Internet in the last 12 months: | S | CAS |
| | -At least once a day | S | CAS |
| | -At least once a week but not every day | S | CAS |
| | –Less than once a week | S | CAS |

## III3. Core indicators on use of ICT by businesses

| Code | Description | Source | Responsible |
|---|---|---|---|
| B1 | Proportion of businesses using computers | S | CAS |
| B2 | Proportion of persons employed routinely using computers | S | CAS |
| B3 | Proportion of businesses using the Internet | S | CAS |
| B4 | Proportion of persons employed routinely using the Internet | S | CAS |
| B5 | Proportion of businesses with a web presence | S | CAS |
| B6 | Proportion of businesses with an intranet | S | CAS |
| B7 | Proportion of businesses receiving orders over the Internet | S | CAS |
| B8 | Proportion of businesses placing orders over the Internet | S | CAS |
| B9 | Proportion of businesses using the Internet by type of access: | S | CAS |
| | -Narrowband | S | CAS |
| | -Fixed Broadband | S | CAS |
| | -Mobile Broadband | S | CAS |
| B10 | Proportion of businesses with a local area network (LAN) | S | CAS |
| B11 | Proportion of businesses with an extranet | S | CAS |
| B12 | Proportion of businesses using the Internet by type of activity | S | CAS |

## III4. Core indicators on ICT in education

| Code | Description | Source | Responsible |
|---|---|---|---|
| ED1 | Proportion of schools with a radio used for educational purposes | C | CERD |

| | | | |
|---|---|---|---|
| ED2 | Proportion of schools with a television used for educational purposes | C | CERD |
| ED3 | Proportion of schools with a telephone communication facility | C | CERD |
| ED4 | Learners-to-computer ratio in schools with computer-assisted instruction | C | CERD |
| ED5 | Proportion of schools with Internet access by type of access | C or S | CERD |
| ED6 | Proportion of learners who have access to the Internet at school | C | CERD |
| ED7 | Proportion of learners enrolled at the post-secondary level in ICT-related fields | C | CERD |
| ED8 | Proportion of ICT-qualified teachers in schools | C | CERD |
| EDR1 | Proportion of schools with electricity | C | CERD |

## III5. E-government indicators WSIS- Target 6

| Code | Description | Source | Responsible |
|---|---|---|---|
| 6.1 | Proportion of persons employed in central government organizations routinely using computers | A | OMSAR |
| 6.2 | Proportion of persons employed in central government organizations routinely using the Internet | A | OMSAR |
| 6.3 | Proportion of central government organizations with a Local Area Network (LAN) | A | OMSAR |
| 6.4 | Proportion of central government organizations with an intranet | A | OMSAR |
| 6.5 | Proportion of central government organizations with Internet access, by type of access | A | OMSAR |
| 6.6 | Proportion of central government organizations with a web presence | A | OMSAR |

| | | | |
|---|---|---|---|
| 6.7 | Proportion of central government organizations offering online services by level of sophistication of service | A | OMSAR |

## III6. R&D indicators WSIS -Target 3

| Code | Description | Source | Responsible |
|---|---|---|---|
| 3.1 | Proportion of public scientific and research centers with broadband Internet access | A | CNRS |
| 3.2 | Presence of a national research and education network (NREN), by bandwidth (Mbit/s) | A | CNRS |
| 3.3 | Proportion of public scientific and research centers with broadband Internet access to a NREN | A | CNRS |
| | R&D expenditure | A | CNRS |
| | Number of patents registered | A | CNRS |
| | -ICT patents | A | CNRS |
| | -Non ICT patents | A | CNRS |
| | Number of scientific publications | A | CNRS |
| | Number of Prizes awarded in scientific fields | A | CNRS |