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**ECONOMIC AND SOCIAL COUNCIL**

**Economic and Social Commission for Western Asia (ESCWA)**

# REPORT

## CAPACITY-BUILDING WORKSHOP ON MEASURING THE USE AND IMPACT OF ICT ON SOCIAL AND ECONOMIC DEVELOPMENT IN THE ARAB REGION TUNIS, 17-18 DECEMBER 2013

**Summary**

The Capacity-Building Workshop on Measuring the Use and Impact of Information and Communications Technology (ICT) on Social and Economic Development in the Arab Region was held in Tunis on 17 and 18 December 2013, under the patronage of, and in collaboration with, the Tunisian Ministry of Information and Communication Technology. Organizational support was provided by the Center of Information, Training, Documentation, and Studies in Communication Technologies in Tunisia.

The workshop aimed to improve the understanding and application of ICT use and impact measurement frameworks and models. It also aimed to build the capacity of member States of the Economic and Social Commission for Western Asia (ESCWA) in applying models to assess and measure the use of ICT and its services, specifically e-government and e-commerce, as well as its impact, especially on Arab youth. The workshop provided a platform for sharing experiences, lessons learned and good practices among ESCWA member States, as well as experiences from other regions.

A wide variety of topics were discussed during the sessions. Presentations were made on the importance and challenges of ICT use and impact assessments for socioeconomic development; insight into ICT impact on employment and youth; and measuring the impact of e-commerce and e-government. The workshop also included presentations on newly published ESCWA studies; the first titled "Impact of Selected e-Services on Socioeconomic Development in the Arab Region" and the second "Impact of ICT on Arab Youth: Employment, Education and Social Change". Two papers on assessing approaches and challenges of measuring ICT use and impact in Arab countries and on the case of Egypt in measuring the impact and use of ICT were also discussed.

The workshop resulted in a number of recommendations on priority areas and future work, and on possibilities for knowledge-sharing and transfer among countries. It was attended by 34 participants from 9 ESCWA member States, as well as experts from leading international and regional organizations involved in ICT for development and ICT measurement.

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**Introduction**

1.      Since the first phase of the World Summit on the Information Society (WSIS) was launched in 2003, immense progress was achieved in the development and deployment of the information and communications technology (ICT) infrastructure. An exponential growth in users and improved access was registered, as well as a proliferation of ICT as a tool in most, if not all, economic sectors.  To assess this growth and its implications, measurement endeavours and activities are indispensible.  To this end, a list of common core ICT indicators, developed by the Partnership on Measuring ICT for Development, was adopted, allowing for the collection of data on ICT infrastructure; access and use of ICT by households and individuals; use of ICT by businesses; the ICT sector; trade in ICT goods; ICT in education; and ICT use in government.  Through these indicators, it became possible to measure the accessibility and availability of ICT, a necessary step towards assessing the progression towards the information society.

2.      With time, however, the maturity of ICT infrastructure gave rise to demands for improved usability and effective ICT services, leading to developments in e-services, specifically e-government and e-commerce. The fast and continuous growth and development of ICT brought to light the need to understand the use and impact of ICT to develop improved and accessible services.  Questions were raised with regards to the potential impact of ICTs on individuals, businesses, Governments, communities and socioeconomic development in general. Determining the use and impact of ICT makes it possible to understand the effectiveness of ICT initiatives and projects that have been undertaken.  The manner in which recipients use ICTs and the impact they experience reveal which initiatives are successful or have failed, and more importantly the reasons for the success or failure.  Understanding the use and impact of ICT, whether negative or positive, could assist in the development of improved services and initiatives tailored to the needs and expectations of various target groups, especially youth.

3.      Measuring the use and impact of ICT, specifically as it relates to the benefits experienced by various targeted groups, such as youth, or through its implementation of e-services, such as e-government, can be challenging.  This is due to the nature of impact or the method of use which can be diverse, distributed and contextual, making it challenging to quantify.  However, in order to fully embrace the knowledge society and contribute to the knowledge economy, the need to understand the impact and use of ICT becomes more evident.

4.      The Capacity-Building Workshop on Measuring the Use and Impact of ICT on Social and Economic Development in the Arab Region was held by the Economic and Social Commission for Western Asia (ESCWA) in Tunis, on 17 and 18 December 2013, in collaboration with, and under the patronage of, the Tunisian Ministry of Information and Communication Technologies (MINCOM), with organizational support provided by the Center of Information, Training, Documentation, and Studies in Communication Technologies (CIFODE'COM).  The main objective of the workshop was to raise the awareness of relevant institutions in the region and build their capacity in understanding and applying ICT use and impact measurement methodologies.  It examined available frameworks, measurement models, and means to assess and measure the use of ICT and its services, specifically e-government, as well as its impact on Arab youth.

5.      Participants in the workshop represented ICT ministries and authorities, and statistics institutions from ESCWA member States.  Experts participating in the workshop also represented international organizations, namely the International Telecommunication Union (ITU) and the Organisation for Economic Co-operation and Development (OECD).

## I.  RECOMMENDATIONS

6.      Participants highlighted the important role of ICT in economic and social development, and called for developing ways for measuring its impact on the overall development process in the Arab region.

7.    The following is a list of the main recommendations classified according to different themes. Countries may use the suggested recommendations to draw related policy actions and initiatives, giving due consideration their local context and priorities.

## A.  MEASURING THE USE AND IMPACT OF ICT ON DEVELOPMENT

8.    The following are methods to measure the use and impact of ICT on development:

(a)   Improve data collection, particularly for the core ICT indicators set by the Partnership on Measuring ICT for Development, based on statistical surveys;

(b)   Enlarge data collection efforts beyond the core ICT indicators and adopt, among others, the newly proposed indicators as defined by the framework for measuring the WSIS targets;

(c)   Build capacity for ICT survey-based statistics and improve regional cooperation among countries with sharing of good practices and experience;

(d)   Strengthen cooperation among all stakeholders in the region, including universities, international organizations such as the United Nations and its specialized agencies;

(e)   Collect e-commerce data periodically, through dedicated business surveys or by embedding a related module in the national survey on economic activities, and take concrete initiatives to assist small and medium enterprises (SMEs) in embracing e-commerce;

(f)   ICT use and impact measurement is still a work in progress, even for developed countries. Developing Arab countries can leverage the Partnership and its members – particularly regional commissions such as ESCWA – as a platform to get support and exchange experience in this evolving domain;

(g)   Develop strategies within national statistical offices (NSOs) to collect data on ICT. The strategies should include short-, medium- and long-term plans and address the quantitative and qualitative aspects of ICT statistics, as well as the sustainability and periodicity of the data collection process;

(h)   Strengthen coordination between national entities and agencies in charge of the collection and production of ICT data;

(i)   Harmonize the methodologies for producing ICT statistics between countries of the region, while conducting both international and peer evaluations;

(j)   Support the implementation of an ICT standard survey for member States which have not started yet collecting basic indicators for measuring access and use of ICT;

(k)   Promote the use of regional and global ICT indices to recommend polices and attempt to measure the impact of ICT on development over time;

(l)   Work on including data on Palestine in all international studies covering ICT indicators and global comparison reports, especially those published by the United Nations and its specialized agencies, such as the International Telecommunication Union.

## B.  E-SERVICES AND THEIR IMPACT ON DEVELOPMENT

9.    The following are examples of ways to advance development through the use of e-services:

(a)   Raise awareness of e-government services and participation level through citizen-driven initiatives, especially at the local and regional levels;

(b)   Encourage the emergence of an app industry for mobile smart phones, in coordination with digital Arabic content (DAC) development, to produce apps for government and other public e-services;

(c)   Encourage e-participation and promote the use of the latest advances in technology, such as open data and mobile apps development, in government services;

(d) Initiate policy recommendations to help member States improve the adoption and development of e-services, which should have a positive impact on long-term economic performance;

(e) Establish national/regional ICT indices based on input efficiency utilization and output effectiveness, to monitor transformational change and the impact of policy interventions over time for a sustainable development of e-services;

(f) Develop an innovative impact measurement framework, using multidimensional indicators (economic, management, social and technological indicators), to measure systematically the value of e-government services from the perspective of all stakeholders.

## C. IMPACT OF ICT ON YOUTH AND EMPLOYMENT

10. The following are examples of measures to enhance the impact of ICT on youth and employment:

(a) Mainstream ICTs into well-thought initiatives targeting youth, especially in education;

(b) Improve the educational system and enhance the use of ICTs to match skills with market needs;

(c) Improve financing of young entrepreneurs and SMEs in ICT;

(d) Accelerate the pace of digitization and develop a clear framework for its advancement as an industry in the Arab region, given its implications and its positive impact on stimulating economic growth and creating job opportunities for Arab youth and women.

## II. PRESENTATIONS AND DISCUSSIONS

11. The workshop agenda comprised six main sessions in addition to the opening and closing sessions. The presentations covered a variety of topics, including recently published ESCWA studies on measuring impact, background papers submitted to the workshop, case studies from member States and contributions from representatives of international organizations.

12. The first presentation was delivered by Souheil Marine, ESCWA Consultant, on the subject of measuring ICT use and impact in Arab countries – an assessment of approaches, challenges, and proposals. The presentation reflected on the problematic nature of ICT measurement and its importance for policymaking. The situation in the Arab region shows that, beyond ICT infrastructure indicators, ICT indicators are still scarce and in cases missing, therefore making the future measurement of the social and economic impact of ICT difficult. The available measurement frameworks and methodologies were covered in the presentation, in addition to an overview of available county indicators. The presentation discussed approaches and issued recommendations for improving ICT measurement through statistical data collection, domain-specific impact indicators such as e-health and domain-specific surveys, such as those on ICT in education.

### A. IMPACT OF SELECTED E-SERVICES

13. Rami Zaatari, First IT Officer at ESCWA, gave a presentation on the recently published study titled "Measuring the Impact of e-Services on Socioeconomic Development". After setting the scene on the complexity of ICT impact measurement, the presentation evaluated the available methodologies of ICT impact assessment, whether analytical techniques, statistical surveys, or case and panel studies. The study devoted special attention to the subject of e-government and reflected on activities implemented by a number of countries to improve the delivery of e-government services, particularly Gulf Cooperation Council countries. However, in this case, concerns were raised as to measuring the availability of e-government services and the actual usage by citizens, which may be a more accurate measurement of impact. E-commerce was another focus area in the study, which analysed the subject from qualitative and

quantitative viewpoints, highlighting the lack of official data. The presentation concluded with policy initiatives and recommendations for improving and measuring the impact of ICT.

14.    Electronic and mobile commerce was also the subject of the presentation delivered by Piotr Stryszowski, Administrator at the Structural Policy Division, OECD. He gave an overview of the benefits of e-commerce to businesses in terms of lower market entry barriers, cost reduction and increasing market scope. He explained how e-commerce is still largely dominated by business-to-business transactions, despite measures of support to business-to-consumer transactions. He concluded with an overview of e-commerce innovation in solution delivery in terms of e-payment options, as well as innovation in the postal system.

15.    The presentation on measuring e-government in Tunisia was delivered by Khaled Sellami, Director General of the e-Government Unit, which focused on the evaluation of Tunisia in the United Nations e-Government Survey for 2012. The presentation provided an analysis of the index value for Tunisia through background information on the status of e-government services in Tunisia. It also presented a comparison of Tunisia with other northern African countries such as Egypt and Morocco. The case of the Tunisian National Portal was featured as a case study in the Survey report. The presentation ended with a discussion on the open data index and the efforts of the Tunisian Government in support of the open data initiative.

16.    Ibrahim Osman, Associate Dean and Professor, American University of Beirut, introduced an Integrated Strategic Measurement and Management Framework for Managing Performance of E-government Services, which is the outcome of projects funded by the European Union and the Qatar National Research Fund (QNRF). This evaluation framework considers three perspectives of engaging e-government stakeholders: government at the macrolevel, and users and providers at the microlevel. The framework uses management science to extract insightful knowledge from the traditional metrics used in the E-Government Development Index ranking. It is based on frontier analysis to identify the set of "best practice" efficient countries in the world. A relative efficiency score is produced for each country representing the quality of the transformation of utilised resource (inputs efficiency) into impactful outcomes (outputs effectiveness). The data from the 2013 e-government survey on 188 countries showed that ESCWA member States are above average in terms of inputs efficiency and below average in terms of output effectiveness. The results provide recommendations to each country on priority areas, associated targets and peer countries to collaborate with, in order to improve the quality of e-government services.

B. COUNTRY EXPERIENCES IN ICT MEASUREMENT

17.    A presentation was delivered by Samir Oualha, Director of Statistics, MINCOM, on the core indicators for measuring the use of ICT in Tunisia within the framework of the Partnership. It included statistics for indicators such as telephone and mobile usage, internet users and internet bandwidth. It also highlighted the results of the household and business surveys commissioned in Tunisia for the year 2012. The presentation ended with statistics on capacity-building in ICT and its use in educational institutions.

18.    The paper on measuring the information society in Palestine was presented by Khaled Qalalwa, Director of Science and Technology Statistics, Palestinian Central Bureau of Statistics. The presentation discussed the details of the Palestinian household and business surveys, their scope and periodicity. It also discussed the surveys undertaken to measure cybersecurity, including child online safety, which targeted parents, teachers and children using the internet. The role of different stakeholders was also highlighted, such as the initiatives undertaken by the Ministry of ICT as well as activities by the private sector and civil society.

19.    The presentation given by Diana Boughanem, Head of the ICT Office, Ministry of Telecommunications, Lebanon, explained the consequences that may occur if measurement does not take place in a proper fashion. The case of Lebanon was highlighted, comparing the country's ranking in the 2012 versus the 2013 ITU report titled "Measuring the Information Society". A notable improvement was recorded in the ranking and evaluation of the country, due to proper submission of accurate statistics.

Lebanon was even featured among the top five economies of the region in terms of progress in the ITU global ICT Development Index. Emphasis was made throughout the presentation on the importance of national attention to measurement.

20.   The presentation delivered by Yamen Helel, Deputy Director, National Statistics Institute, Tunisia, focused on the Tunisian household survey to measure ICT use and access. It described the themes and target audience of the survey, which attempted to reach a representative sample of Tunisian families selected from rural and urban areas. The survey questions were formulated in the light of the indicators adopted by the Partnership. The presentation concluded by listing the main challenges facing the deployment of this survey, some of which were its periodicity and the capacities of researchers in analysing the results.

21.   The presentation by Ahmad Khatib, Head of the IT Department, Presidency of the Council of Ministers, Lebanon, described the methodology adopted in setting the ICT indicators framework in Lebanon, including a listing of stakeholders involved in the 2011 household and business surveys, such as the Ministry of Finance, the Telecommunications Regulatory Authority, the Office of the Minister of State for Administrative Reform and others. Lebanon's ranking in global ITU and World Economic Forum reports was then overviewed and discussed.

22.   The case of Tunisia in conducting the business survey for ICT use and access was presented by Feyrouz Elatrous, Head of ICT Statistics, National Statistics Institute, and Atef Ouni, Deputy Director, National Statistics Institute. The presentation explained that the first survey on business ICT use and access was conducted in 2009, covering the core ICT indicators on use and access, mobile use in businesses, e-commerce and cybersecurity. The business survey was later included as a subunit within the national economic activities survey to obtain the information required by the indicators of the Partnership.

C. IMPACT ON SOCIOECONOMIC DEVELOPMENT

23.   The presentation on measuring the impact of ICT in Egypt was delivered by Nagwa Elshenway, Undersecretary for Information, Ministry of Communication and Information Technology, Egypt. Acknowledging the difficulty and importance of measuring the impact of ICT, the presentation detailed efforts by the Egyptian Government to measure the impact of ICT on economic development. Despite high growth rates in recent years, the market in Egypt is still far from saturation and is in need of added-value projects and new policies to accommodate new demands. A number of themes are considered for this purpose, including the impact of ICT in the health sector, on education, women and investment.

24.   Hania Sabbidin Dimassi, ESCWA, gave a presentation on the study titled "Impact of ICT on Arab Youth: Employment, Education and Social Change". The presentation discussed background information on the status of employment and of educational systems in the Arab region, highlighting the related challenges and needs. It then linked these areas with the impact of ICT from an economic, financial and entrepreneurial perspective. It also addressed the use of ICT in education and e-learning and included brief examples on the impact of ICT for social change. The presentation ended with a summary of the recommendations included in the study.

25.   Karim Abdelghani, Programme Coordinator, ITU Regional Office for Arab States, delivered a presentation on the 2013 ITU report titled "Measuring the Information Society". The presentation reviewed the indicators and statistics collected and analysed within the report, in order to evaluate, monitor and compare the information society in the different countries and globally. The presentation noted the global increase of growth in terms of ICT access and use, which is, nonetheless, parallel with a continuing digital divide. The presentation focused on the most notable results of the report, such as country ranking according to the index, as well as according to regions, including the Arab region. The recommendations included at the end addressed a number of stakeholders, mostly Governments and decision makers for building the information society and bridging the digital divide.

# III. ORGANIZATION OF WORK

## A. VENUE AND DATE

26.    The workshop was organized by the ICT Division at ESCWA under the patronage of, and in collaboration with, MINCOM.  The workshop took place on 17 and 18 December 2013 in Tunis, with organizational support provided by CIFODE'COM.

## B. OPENING

27.    The workshop was opened with welcoming remarks by Samir Sidhom, Director General of CIFODE'COM.  Nibal Idlebi, Chief of the ICT Applications Section, ESCWA, then delivered a speech, thanking all the partners from Tunisia that contributed to realizing this workshop.  She overviewed the objectives and main topics of the workshop and highlighted the work of ESCWA in ICT measurement since 2004.  This speech was followed by welcoming remarks by Mongi Thameur, Head of Cabinet, MINCOM.

## C. PARTICIPANTS

28.    The workshop was attended by 34 participants, 20 per cent of whom were women, from nine ESCWA member States, and by experts from international organizations, namely ITU and OECD. Participating experts represented ministries, government authorities and selected public institutions which have been involved in ICT development, statistical analysis, measurement exercises and/or socioeconomic development issues.  The detailed list of participants is contained in the Annex to this report.

## D. AGENDA

29.    A summary of the workshop agenda is as follows:

   (a)   The importance and challenges of ICT use and impact assessments for economic and social development in developed and developing countries;

   (b)   The identification and application of measurement models that could provide insight into ICT use and impact, especially e-government and e-commerce;

   (c)   ICT impact on employment and youth;

   (d)   Country-level presentations illustrating examples of ICT impact assessments, as well as good practices and lessons learned in the area.

## E. DOCUMENTS

30.    The documents discussed during the workshop are available on the ESCWA website: http://www.escwa.un.org/information/meetingdetails.asp?referenceNum=3272E.

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