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"Measuring the Impact of Information and Communications Technologies for
Development"

"Technologies to Address Challenges in the Areas of Water and Agriculture"

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Measuring the Impact of Information and Communications Technologies for Development

Statement of Government Policy 2007 on the Information and Communications Sector

The Ministry of Information and Communications Technology (MoICT) as mandated by Article (3) of the Telecommunications Law No. 13 for the year 1995 is responsible to issue the general policy for the Information Technology and telecommunication sectors. In 2007, the Government of Jordan adopted a new policy statement for the ICT sector for various reasons including the perceived needs of the market, the Jordanian economy as a whole, social development factors, the rapid pace of technological change, and the Government continuous will to work toward the achievement of its commitments set forth in international agreements to which Jordan is a signatory, for example the general undertakings made as part of the World Summit on the Information Society (WSIS) Geneva and Tunis goals and plans and the U.N. Millennium Development Goals [Article 17] of the Statement of Government Policy 2007.

The sectors within ICT are identified as particular drivers and enablers of economic and social growth. MoICT, as the body that has overall responsibility for the achievement of National goals and objectives within ICT has broad powers of oversight and action within the sectors that comprise ICT [Article 23], and responsibility to monitor progress toward meeting stated policy goals and objectives [Article 25] in addition to supervising and directing the collection of relevant statistics by various stakeholders, including the Telecommunication Regulatory Commission (TRC), the National Information Technology Centre (NITC) and the Information Technology Association (INT@J), for purposes of its ongoing monitoring of Jordan’s e-readiness progress [Article 100].

The National Information and Communications Strategy (2007-2011)

The National ICT Strategy of Jordan, 2007-2011, defines three high-level strategic objectives to achieve in five years: to increase the size of the ICT sector to $3 billion, to increase employment in the ICT sector to 35,000, and to increase internet penetration—i.e., the number of people who use the internet—to 50% of the population. These specific objectives were set since it is believed that bridging the digital divide will help achieve not only direct ICT sector growth, but,
more importantly, growth in the economy as a whole as well as improvement in citizens’ quality of life. The strategy identified four pillars of strategic activity necessary to fulfill the strategic goals: connectivity, research and development, labor issues and education, and regulation and investment climate. And the strategic objectives were decomposed into a number of strategic outcomes, with performance indicators, that represent the fulfillment of the objectives.

**Measuring the Impact of ICT on Development**

An Economic and Studies Department was established, within the premises of MoICT, for purposes of collecting statistics and monitoring progress with respect to Jordan’s e-readiness and the National ICT strategy Key Performance Indicators (KPIs), in addition to conducting a wide range of studies and survey analysis across different areas of economic and priority interest that have a bearing on policy development and analysis.

The process of collecting ICT qualitative and quantitative data that is; accurate, timely and verifiable, as mandated by the Statement of Government Policy 2007 in [Article 100], did not go without any significant challenges. From the outset, concerned stakeholders as the Department of Statistics, Telecommunications Regulatory Commission (TRC), National Information Technology Center (NITC), and the Information Technology Association of Jordan (int@j) presented different sets of data that needed to be harmonized, updated and conformed to international standards and best practices taking into consideration the gender dimension. In this regard, the MoICT drew from the extensive experience of different agencies such as the ITU, UNCTAD, ESCWA and OECD to ensure an evidence-based approach in decision-making and strategy development across various sectors of digital economy.

In the year 2007, MoICT and INT@J embarked on series of measures to address the aforementioned challenges; chief among them is classifying the ICT industrial activities by utilizing ISIC4.0 classification system which was then used to assess the economic impact of ICT on tourism. Furthermore, participated in ITU-related workshops on Information Technology and Telecommunication statistics to better understand the relevance of ICT performance indicators and incorporate them into Jordan’s National ICT Strategy to assess performance measures. It also conducted information gathering, surveys and studies, most of which obtained through one-on-one/phone interviews with stakeholders. They are now being implemented on annual basis to measure internet access and subscription, PC penetration rates and ownership, including IT use in enterprises, households and government.
In short activities undertaken by the Economic and Studies Department with respect to measuring the impact of ICT on development can be summarized as follows:

A. **ICT use in businesses’ survey:** This project aims at measuring and assessing the diffusion of ICT across Jordanian enterprises as regards: PC use, internet access, e-commerce and e-transactions in addition to e-government in accordance with [Articles 89] which stipulates the need to create market demand for PC and internet access.

B. **ICT use in households survey:** This project aims at measuring ICT diffusion in Jordanian households by assessing the availability of computers, internet access, mobile penetration, connectivity and monthly expenditures on ICT and investigates the reasons for not using ICT, also in accordance with [Articles 89] which stipulates the need to create market demand for PC and internet access.

C. **The Assessment of the Economic Impact of ICT in Jordan (Phase I):** This project aims at assessing the impact of ICT use across five sectors of the economy, notably: Education, Health, wholesale and trade, financial services and manufacturing in terms of enhancing economic and labor productivity; increased employment (*direct, indirect and induced*), tax revenues, and contribution to GDP in accordance with [Articles 21] which emphasized that IT is an area of immense potential in the direct contribution that it can make to the efficiency of the wider economy and the development of Jordan’s human resources.

D. **The economic impact of ICT on the tourism sector (Phase II):** This project aims at assessing the impact of ICT use on tourism as regards economic and labor productivity, tax revenues, contribution to GDP, Gross output and gender, also in accordance with [Articles 21]. The study also provides the sector with value-added information on areas for ICT deployment.

E. **Jordan’s ICT industry workforce:** This provides gaps analysis on ICT workforce skills, existing knowledge and competency levels, experiences and soft skills taking into consideration the accelerated pace of ICT development at the international scale. The survey serves as an essential tool to identify means to ensure the achievement of the third strategic objective of the national ICT strategy related to increasing employment in the ICT sector to 35,000.
F. **ICT indicators database:** This project aims at building and developing an information database on ICT sector indicators to serve as a national and international information reference regarding the diffusion the impact, and multi-sector deployment of ICT. This database is used in monitoring the progress toward meeting national ICT policy goals and national ICT objectives, and their contribution to the achievement of the Millennium Development Goals (MDGs), economic growth, productivity, sustainable development and jobs creation, and accordingly the improvement of the quality of life. The ICT indicators database is also used to assess Jordan ICT competitiveness regionally and globally.

G. **ICT & TIES Industry Statistics Survey:** This survey is conducted in cooperation with INT@J. It identifies the size of the sector as regards to market growth, Investment opportunities, Exports and employment. This survey a viable tool to assess Jordan ICT competitiveness as [Articles 81] of the 2007 statement of government policy indicated that government requires that all practical steps be taken to attract local and foreign private sector investment and to yield high quality employment, export revenues and associated profitability in order to develop Jordan’s IT sector so that it becomes internationally competitive. [Articles 105] recognizes the ‘multiplier effect’ that IT investment has on the wider economy.
Technologies to Address Challenges in the Areas of Water and Agriculture

Water

In compliance with WSIS resolutions of building multi-sector partnerships to mainstream ICT in the work and activities of government organizations across different sectors of the economy, the Ministry of Water and Irrigation (MWI) stipulated in its Policy Statement and strategy for the year 2008-2012 that Information technology shall be used as an important tool to develop the water and irrigation sector in Jordan.

Toward that end, the MWI established a Research and Development (R&D) unit to carry out, within the context of international cooperation, the duties and responsibility of engaging in technology-transfer and technical cooperation mechanisms in ground water exploration, management and quality control with a view to facilitating technology-transfer in the water and irrigation sector as well as promoting the use and adoption of modern technologies by farmers for irrigation, water protection, use, reuse, and distribution.

Several measures were introduced to that effect:

1- Establishing Public Private Partnerships to lease government land with permits to use water resources not earmarked for higher priority areas, especially in remote areas, with a view to introducing advanced agricultural practices.

2- The MWI in cooperation with concerned stakeholders introduced a capacity-building program to educate farmers on the importance of ground water protection and facilitate technology-transfer in that area.

3- Facilitating technology-transfer via:

   a) Promotion of best practices and adoption of modern and innovative technologies to increase efficiency in producing, distributing, use and the reuse of water.

   b) Deployment of advanced technologies in a variety of fields, some of which include but not limited to, monitoring technologies in regards to water consumption
patterns, water quality and quantity through the installation of water meters, remote control devices, telemetry and automation and field central controls.

**Agriculture**

As regards the Agricultural sector, the Ministry of Agriculture issued, in direct consultation and policy dialogue with the public sector, a cohesive document that would serve as a roadmap and action plan to develop Jordan’s agriculture landscape in different subsectors (i.e. livestock) in cooperation with different stakeholders as partners for development. This included a set of actions and projects that, among which, stressed the need for the optimal utilization of Information Technology and several measures were introduced to that effect. These include:

1. Technology-transfer mechanisms to promote the adoption, promotion and deployment of innovative and modern technologies in agricultural development.
2. Keeping abreast with rapid developments in the field of bio-technology.
3. Adopt advanced technologies to raise the proportion of self-sufficiency in agricultural products.
4. Study agricultural input by using integrated pest management technologies.

As a result of implementing the above mentioned document the Ministry of Agriculture launched two information technology based projects in order to assist the partners and end users benefiting from the agricultural sector to perform better, the two projects are as follows:

1. **National Agricultural Information System (NAIS):** Is a national platform for information, knowledge sharing and exchange for agricultural research and development for target groups and stakeholders in Jordan.

   **Objectives:**

   - To strengthen the capacity of the Ministry of Agriculture and other stakeholders to establish an effective and efficient information system that will support agricultural development and ensure food security in Jordan, based on the needs and demands of its stakeholders and integrating the various resources in the Ministry.
   - To serve as an information and knowledge repository/exchange mechanism at the national level and a gateway to the national knowledge systems for Agricultural Research and Development (ARD) in Jordan.
2. **Jordan Integrated Hazardous Substances Information Management and Control System Project (JI-HSIMCS):** It is an automated system that serves as a tool for managing and controlling hazardous substances that are imported and manufactured in Jordan. This system will also serve as a source of information about hazardous substances to all concerned ministries and other governmental and non-governmental organizations.

System includes the following organizations:

- Ministry of Environment.
- Ministry of Health.
- Ministry of Industry and Trade.
- Jordan Customs
- Ministry of Interior
  1. Prohibition of Chemical Weapons Directorate.
- Jordan Food and Drug Association.
- Aqaba Special Economic Zone Authority (ASEZA).

Objectives:

- JI-HSIMCS system will enhance the capacity to manage hazardous substances (HS) among different organizations.
- Improve the documentation of procedures for permitting, transporting, handling and controlling hazardous substances.
- Provide up-to-date statistical information to decision makers, giving them a clear view about the type, use and location of hazardous substances that exist within the border of the Hashemite Kingdom of Jordan.
Major References
