UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

UNCTAD

EXECUTIVE SUMMARY

ICTPOLICYREVIEW

Egypt

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Towards an inclusive information economy

At an early stage, the Government of Egypt recognized information and communication technology (ICT) as an important enabler for national economic and social development and for strengthening the country's competitiveness. Since the 1990s, it has created multiple institutions and designed several ICT strategic plans to support the adoption and use of ICTs by the public and private sectors.

The Ministry of Communication and Information Technology (MCIT), formed in 1999, is charged with the task of supporting and empowering the information society. Three national ICT plans have been implemented so far by MCIT, in close cooperation with relevant government agencies and the private sector. During preparation of the next ICT strategy (2011-2014), the MCIT decided that an evaluation of the impact of policy measures and sector-specific interventions of the most recent national ICT strategy was needed to assess the progress made and to stake out directions for the future.

This Review responds to the need for such an evaluation. It documents the considerable progress made so far and helps the Government of Egypt understand its strengths and the challenges ahead to create a more inclusive information economy. It proposes best practices from other countries to help the Government identify its medium- to long-term strategic ICT objectives and options available to achieve them.

The next strategy must be considered against the background of the ambitious goal set by the Government to make Egypt a frontrunner in the information and knowledge society. It is essential that the new strategy builds on achievements already made, addresses areas in which progress has been less pronounced, as well as keeps up with the continuous technological and market changes occurring in the global ICT landscape.

In its efforts to assess progress, the MCIT developed a series of indicators, including those developed by the UN Partnership on Measuring ICT for Development.

Thanks in part to strong Government commitment, Egypt has seen marked improvements in, for example, ICT infrastructure, the availability of trained human resources, exports of ICT-enabled services and promotion of digital content. The Review evaluates the main achievements by Egypt in the area of infrastructure development, skills developments for the ICT sector, ICT use in the educational system, e-content development, and the promotion of an export-oriented ICT sector.

In terms of achievements in **ICT infrastructure**, the Government has implemented a number of policy measures to improve connectivity and access, including the deregulation of the telecommunication sector with the allocation of three licenses to mobile operators. High-quality fiber broadband connections are now available in main cities and business parks, such as the Smart Village. Mobile uptake has improved dramatically; penetration surged from 25 subscriptions per 100 inhabitants in 2006 to 90 in December 2010. The number of people accessing the Internet using a mobile or a USB modem has also increased, from around 7 million at the end of 2009 to 8.6 million at the end of 2010.

For ICTs to have maximum impact on development, policy action should not only aim at developing the infrastructure, but also seek to strengthen the capacities to use such tools. The Government of Egypt has long invested in ICT-relevant human capital to ensure that the market's growing needs are met. In this context, it has launched various programs through several institutions to support the generation of ICT engineers and technicians demanded by the private sector, in particular for the Information Technology Outsourcing (ITO) and Business Process Outsourcing (BPO) sectors. As a result, Egypt has been ranked among the top ten emerging economies for its IT skills.

With regard to ICT use in the educational system, Egypt has launched several initiatives, such as the Egyptian Education Initiative, the Smart Schools Network (representing less than five per cent of all schools) and IT Clubs. These initiatives have been successful in raising the quality and extent of ICT-based education in the school system. The challenge, however, is enormous, with a young and growing population, over 52,000 primary and secondary schools and 12 million undergraduates.

To promote greater uptake of ICTs in Egypt, another central element is the availability of **relevant e-content in Arabic** on the Internet and other forms of ICTs

(such as mobile devices). Although e-content development in Egypt, as in the rest of the Arab region, is still emerging, the Government of Egypt has made considerable progress in several areas, such as the Arabic e-Content for Books and Software Initiative; cultural and educational content development, and e-government content. At the same time, the development of such content remains a growth opportunity, as much of it could potentially be generated locally for the Egyptian market and other Arab-speaking markets.

With regard to the **promotion of its export-oriented ICT sector,** Egypt has achieved significant success in establishing itself as a recognized location for BPO services. In A.T. Kearney's Global Services Location Index, Egypt climbed from 12th position in 2007 to 4th in 2011. Other reports confirm this trend. Egypt's main strengths in this context are its geographic location, relatively low costs of doing business, a proactive and supportive business environment, an active and well-financed program to support the offshoring industry, and a young, well-trained and multilingual work force. Another asset has long been the strong support from the highest political level. This has helped to ensure good coordination between different players involved in promoting the sector.

Based on the assessment of the main achievements of the Government of Egypt in the selected areas, the Review identifies main challenges and makes policy recommendations. The latter are based on the findings of the evaluation and lessons learned from other countries. For each area, the Review proposes indicators that can serve as a basis for setting clear and measurable targets in the next national strategy. Some of the main recommendations can be applied to several of the policy areas discussed in the Review. Due attention to these areas should help to realize the untapped potential in the Egyptian ICT landscape and maximize the development impact.

Make policies more demand-driven

In order to make sure that the next national ICT strategy sets the appropriate priorities and uses the most efficient means to reach the development goals identified, it is essential to make strategies and policies more demand-driven. This is of particular importance as ICT markets and technology are in a constant state of flux.

Greater use of market and demand studies would help: a) to identify the priority needs of Egyptian consumers and businesses in terms of information and services, in the case of broadband deployment or e-content development; b) to understand the evolving needs and challenges of ICT companies, teachers, instructors and students to meet the changing needs of the ICT industry; and finally c) to track the markets and demand for higher-end ICT-enabled services.

Make ICT policies more inclusive

In order to bring Egypt to the forefront in leveraging ICTs for development, it is important to extend the reach of access to, and benefits from, ICTs. This means, among other things, enhancing infrastructure coverage in underserved areas, promoting greater use of ICTs among enterprises that are located outside the technology parks, and finding ways to reach Arabic-speaking users. The Review makes several concrete recommendations to this end. For example, in terms of reaching underserved areas, the new broadband strategy should be well integrated with the universal access strategy, promoting a combination of market-based incentives and government subsidies. The Government may choose to encourage municipalities to take the lead in planning, building, owning and operating their own broadband networks.

Given the much higher penetration rates for mobile telephony than for other ICTs in Egypt, adequate attention should be paid to the provision of services and content development using mobile platforms. UNCTAD proposes that a task force involving mobile operators and international mobile content developers should be established by the Government to look into, and/or advise policy makers on, ways to speed up progress in boosting mobile applications and services in Arabic.

Potential contributions from small- and medium-sized enterprises (SMEs) should be considered in the next strategy from both the supply side (as producers of ICT goods and services) and the demand side (as users of ICTs). SMEs represent an important (but so far little exploited) vehicle in order for Egypt to succeed in growing the ICT sector. They should play a key role in the exports of ICT services and in the production of relevant content in Arabic. Egypt should also make sustained efforts to foster greater ICT use among smaller enterprises.

Work in partnership with the private sector

The Government already has considerable experience in partnering with the private sector in various areas of the ICT strategy. Private sector operators can play a great role in fiber deployment and in the provision of network services through Public Private Partnership-based models. The same applies to content development and training programs: by stating that private sector operators can have a role to play in service delivery, the Government may encourage and engage private entrepreneurs in making investments and sharing skills and expertise that can assist the Government in providing on-line services. Key actions include: determining the demand for different kinds of digital content; creating a legal environment that supports the use of e-commerce; introducing e-payment solutions; and creating incentives for the development of company websites in Arabic.

Move towards exports of higher value-added services

The value of ICT-enabled services has grown to more than US$ 800 million and the Government expects to meet its target of US$ 1.1 billion by 2010. At present, contact centre services are one of the most important segments of the ICT-enabled services market in Egypt.

MCIT recognizes the importance of developing services with higher added value because this would allow companies to take advantage of the increasingly skilled and plentiful IT-related graduates and technicians in this area. In the next few years, MCIT, the Information Technology Industry Development Agency (ITIDA) and the Egyptian General Authority for Investment (GAFI) should work together to develop and promote higher value outsourcing services such as Knowledge Process Outsourcing, ITO and technical support, application development, business application implementation, remote infrastructure management, and the 'Arabization' of software. There is also a need to encourage innovating companies and researchers to come to Egypt. In this context, the Government may enhance its efforts at curbing software piracy and ensuring a sufficient supply of adequately trained staff.

Leverage foreign skills and expertise

In order to allow Egypt to speed up its expansion into services of higher value added, as well as to promote innovations, the Government should design a targeted strategy to leverage foreign skills and expertise. This is an important way of complementing domestic efforts at building the skills needed by an expanding ICT sector.

The Review highlights the untapped potential represented by Egyptian experts in the diaspora and the need to encourage brain circulation. The Government can do more to help bridge the gap between government organizations and diaspora communities, for example, by enhancing communication and information sharing with the diaspora communities through the use of modern and targeted services mediated by web-based and on-line information sharing platforms. Along with efforts to attract world-class Egyptian experts, the Government should seek to attract other international expertise by removing barriers to such inflows.

Strengthen coordination among government entities

Several different ministries, agencies, public corporations and business associations are operating in the ICT field. They need to work more closely on the strategic ICT issues of tomorrow to make the overall efforts of the Government as effective as possible. This Review has identified several areas in which such collaboration could be strengthened. The Government's actions can have an important effect on raising awareness. For example, by encouraging organizations under government control to speed up the development of e-government services, and by encouraging them to work in partnership with the private sector in developing appropriate solutions, it can both improve the level of services to various stakeholders and stimulate more content development among enterprises.

Make use of the latest technology

Staying abreast of technological change is highly demanding for any government, especially in an area as dynamic as the ICT sector. Innovation in the ICT sector takes place at the speed of the Internet. Of particular significance are rapidly advancing innovations in 4G technologies, Web 2.0, IPv6, ultrafast broadband and next generation networks in general, smartphones and related applications, pervasive computing, and wireless sensor networks. Green ICT and related clean technologies (cleantech), especially smart grids, smart buildings and smart transportation/logistics, Green Growth, and the development of new outsourcing services, are also highly relevant.

In education, infrastructure costs associated with extending the Smart Schools Network and related initiatives to the entire country were found to be prohibitively high. One novel solution involves the use of virtualization technologies to reduce the number of central processing units servicing school labs, where one virtualized PC, or ultra-thin client device, can be turned into 10 independent workstations at a cost of about US$ 50 per seat. Egypt may consider this technology, for example, to computerize schools and other parts of the educational system. A variant on this approach is to use cloud-based services.

MCIT is already developing a Green IT strategy. As part of this initiative, it could consider how smart energy technologies, as well as alternative power technologies (including solar and wind), can assist in reducing the energy and carbon footprint of the ICT sector (PCs and network resources). It can also analyse how to use ICTs to enable energy efficiency and to limit greenhouse gas emissions in other sectors. The Smart Village is the natural place to demonstrate these technologies.

Egypt needs to be aware of, and seize the opportunities for, taking part in global research and development activities. Green Growth is a growing trend that requires ongoing research about energy efficient technologies, including green ICTs and nanotechnology in general.

Set quantifiable targets and continue to monitor progress

A detailed implementation plan is needed for the execution of the next strategy. In the plan, the Government should set measurable targets and indicators of performance and should track and report on these regularly to all stakeholders involved. The implementation, or action, plan can and should change over time in response to government policies and priorities, but also in response to the rapidly changing technology development and innovation environment. This Review proposes a set of indicators for each policy area. The Government must decide which of these it thinks are best harmonized with its overall development objectives. The Government must also try to arrive at realistic but ambitious goals in each area and make active use of the chosen benchmarks when assessing performance. The choice of indicators should reflect discussions with relevant stakeholders in order to ensure that targets are shared to the greatest extent possible across society.

Establish a long-term vision

In its next ICT strategy, the Government of Egypt should outline a vision that extends beyond 2014. While rapid changes in the technological landscape make it difficult to identify the concrete initiatives over a period longer than three to four years, it is important also to set medium- to long-term strategic objectives. Some efforts – such as expanding the availability of skills – take time to realize. It is therefore desirable that the Government specifies the direction it wants Egypt to take for the longer term. Such a guiding framework should allow for adjustments in policies when needed, but should set clear targets to be achieved by different points in time. The ICT strategy should also include budgetary estimates for relevant initiatives, as well as a framework of processes to guide the institutional implementation of the strategy, taking into account the need to coordinate the various contributions by relevant stakeholders.

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