

Bridging the Digital Divide in Egypt: Facing the Challenges

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Introduction

As Egypt celebrates its seventh millennium, it witnesses a world in which political borders are disappearing, markets are uniting, and competition is increasing. The global business arena has evolved, repositioning the power of a nation according to quality, accuracy, and speed, with which its citizens communicate. The catch-phrase of the future is fast coming into being: *Technological Efficiency* – how quickly and seamlessly a nation can adapt to an ever-changing technological landscape. In a bold stroke of innovation that demonstrates Egypt's commitment to the future, the Ministry of Communications and Information Technology (MCIT) was formed to ease the transition into the global information society. MCIT is strategically positioned to coordinate the efforts of different governmental entities with each other and with the private industry. In its efforts to translate into a reality the goal of creating an Egyptian Information Society, MCIT proposed the "National Plan for Communications and Information Technology".

The National CIT plan is Egypt's blueprint for the future, mapping out projects aimed to achieve successive leaps in the Information and Communication Technologies (ICTs) sector; its global positioning, exports record, and its creation of job opportunities for the country's youth. The plan reflects a clear understanding that ICTs play a major role in empowering economic and social development, and in supporting decision makers who are addressing economic and social reforms. Developed and developing countries alike have focused on developing the national infrastructure for communication and information technology, in order to build highly efficient and competitive industries. Governments have set national plans to encourage private sector participation, to increase and leverage ICT-related investments, and to create job opportunities; in order to raise the standards of living of individuals and to create a prosperous society. That is along with preparing the next generation from enabled youth to deal with this technology and use it to achieve the development needed for the making of a dynamic society. A society that is so transparent, in terms of information and speed of decision making, a society that we call now a Global Information Society.

We first present an overview of the National CIT plan (Part I), then we briefly list some key efforts and related achievements towards facing the challenges and bridging the digital divide (Part II).

Part I

A National Communications and Information Technology Plan

Understanding the challenges of the information era, the national CIT plan aims at translating the national initiative for technological development into a crisp reality. That is through preparation and execution of many ambitious programs and projects, and taking steps to achieve a leap in the industry, exports and job opportunities to youth.

Objectives Of The National CIT Plan:

- Create a vibrant and exportable ICT industry
- Support the development of a state-of-the-art national telecommunications network
- Increase employment opportunities in the communications and information technology sectors
- Build an information society capable of absorbing and benefiting from expanding sources of information
- Develop and upgrade ICT systems to improve standards of living and support competitiveness in international ICT market

The Pivots Of The Plan :

Pivot I: Developing the National Demand of Information and its Applications

Component 1.a. : Develop the national demand for information and its use

The local market represents the initial attraction point to build an advanced industry in the fields of communication and information technology. This is where Egyptian companies start to train professionals, attract experts, and acquire the necessary resources for this industry, which paves the future for competition in the World market.

The Government demand is a large segment of the local market, as the building of the Egyptian information society requires starting up many national projects. Added to that are cross sector projects within ministries and authorities to incorporate the information systems, data base networks and what follows from services such as training, consulting and technical support. Also, related industries producing hardware and software.

Component 1.b. : Increase rate of execution of National Informational projects

Based on previous plans, the government had prepared and started national information infrastructure projects such as the National ID Project, which provides the profiles of individuals within the society through data collected from citizens. That is beside the Property Registration Project, which identifies ownership of agricultural

land, plus other information projects within ministries and governorates. These projects need much more investment to optimize their use. These projects are also characterized with involving more than one ministry. For such projects, MCIT supervises the execution and act as a coordinator among contributing parties.

Components 1.c. : Increase rate of investment in Information Technology within Ministries and Organizations :

Each Ministry or governmental authority takes responsibility of suggesting a group of projects through the sector-al plan to develop the information infrastructure, innovate business processes and mechanize services provided to the public.

This requires the increase in the approved budgets granted to information projects for each Ministry within the overall State plan . This takes place through the following steps :

- Appointing an IT consultant to each Minister
- Building a Follow-up unit to oversee execution of projects within the Ministry of Communication and Information
- Prepare sector-al plans for information within each ministry
- Amend the five years plan starting with the financial year 2000/2001 to increase investment in the field of IT
- Handing over the Information projects to the private sector to execute

Pivot II: Pursuing International Markets

Component 2.a. Establishing an entity for exporting software :

Within the framework of working to increase Egypt's share in the World's exports of software, the study that was prepared by one of the international experts houses has indicated the need to establish a specialized authority to encourage and develop exports in the field of IT. This authority should work on increasing the international demand on local products and preparing the required qualified professionals through the following :

- Studying the world markets in the field of communication and information and identifying the fields in which the Egyptian industry can be marketed outside of Egypt.
- Cooperation with the Egyptian companies to acquire contracts to implement overseas projects
- Studying the requests made by national companies and coordinating with the Government through the Ministry of Communication and Information to overcome any difficulties that face the export process.

Component 2.b. Establishing ICT Incubators

The Technology incubators are one of the modern methods to develop the industry by encouraging youth to enter this industry through formation of new companies that can

be incubated for a certain duration and provided with financial, administrative & technical support, that is beside assisting them in marketing their products. The objective of the plan is to establish incubators which capacity allows for 100 new companies.

Component 2.c. Electronic Commerce and Electronic Business

It is crucial that Egypt enters the e-commerce so as to enable Egyptian companies to have a presence in the international markets, and market Egyptian products. Also making commercial deals using the modern channels would increase Egypt's market share in the international trade. This calls for following actions:

- Prepare and develop the necessary Egyptian legislation.
- Develop processes within the financial institutions and securing financial transactions on the electronic networks.
- Develop work at Government authorities such customs and other control authorities of exports and imports.
- Increase social awareness of the importance of electronic commerce and executing training programs for public business sector.
- Increase the capacity of existing networks for exchanging data to accommodate for the increasing demand on applications of e-commerce.

Component 2.d. Establishing Information Industry Compounds

“Technology Cities” concept is one of the most effective ways to develop IT industry as it focuses on the communication infrastructure as well as integration of resources needed to serve this industry. The strategy of this action plan is to develop these cities as follows:

- Choose locations close to population & service in new cities
- Start up with limited areas and expand gradually
- Execute through the private sector. Companies are to carry out building the infrastructure, the construction, operation and management

Pivot 3 : Human Resources Development

Component 3.a. Providing Qualified Professional to develop the Communication and Information Industry

Human resources are perhaps the most critical component of the ICT industry. Despite the availability of university- and diploma-level human resources in Egypt, specialized training is needed if the nation is to secure itself a strong position on the global ICT market scene. MCIT is continually partnering with multinational corporations to develop and implement specialized training programs in telecommunications networking and information technology. Experience has already proven that graduates of specialized IT training programs become invaluable to the companies they join- whether in Egypt or abroad. Some

graduates even go on to establish their own companies, contributing to the industry's growth. The plan's initial aim to train 5,000 young professionals annually in conjunction with numerous renowned multinationals is already in motion. These young people will become the foundation for Egypt's future information society.

Component 3.b. Qualifying youth and children to enter the information age

Preparing Egyptians for the future, however, must not wait until students enter university. The Information Age is characterized by the active participation of the nation's youth from an early age. Egypt is nurturing its youth, preparing them for the future through the establishment of IT youth training centers and Information Technology Clubs. Over 200,000 children have already been provided with the proper tools and knowledge needed to compete in the international marketplace. This program will continue and expand at the rate of 200 new centers per year.

Component 3.c. Increase Social Awareness of Information Technology & Communication

The transformation to an information community requires the participation of all sectors of the Egyptian community. The community information centers for communication and information services carry out an important role in benefiting all citizens. These centers are established in cities with focus on less developed areas to contribute to the cultural leap on all levels. The plan aims at establishing 15-20 ICT community centers annually.

Pivot 4 : Establishing Alliances with International Industries

Governments throughout the world are learning that the involvement of foreign direct investment can stimulate and accelerate economic growth. In Egypt, this strikes as nothing new. For a quarter century now, multinational companies have been warmly welcomed. In fact, in every phase of its infrastructure development, Egypt has captivated the attention of numerous international businesses. Historically, the majority of companies which are awarded major contracts realize high returns, deciding, consequently, to establish a permanent presence in the country. The plan adheres to the development model currently employed throughout the country. This model revolves around the direct investment of corporations into infrastructure development through a licensing agreement: A strategy mutually advantageous given that companies acquire new markets without financial risk, and the start-up cost to the government is virtually nil. The multi-national pioneers who are investing in Egypt's ICT sector – companies such as Microsoft, Oracle, IBM, Lucent, Motorola, Siemens, NEC, and Alcatel – are also cooperating with MCIT in the establishment and conduct of in-depth training programs aimed to foster local creative technological development.

Pivot 5 : Renovating the Infrastructure of Communication

- Underlying all of the nation's ICT goals and developments, is the cornerstone of the National ICT Plan: A US\$1 billion investment to establish the most

advanced telecommunications network possible. This network – a high-speed core backbone necessary to any modern-day information-driven society - will not only ease the transfer of information within Egypt, but is also essential to the establishment of IT-related industries such as software development.

Establishing such a network is being achieved through the following:

- The liberalization of the telecommunications industry
- The development and upgrading of Telecom Egypt (TE)
- The activation of the Telecom Regulatory Authority's (TRA) role

The TRA will prepare a comprehensive Plan for telecommunications value-added services in which companies will be invited to establish and operate the required infrastructure under TRA supervision. Included in the Plan is supervising the provision of telecommunications services, such as setting rates, monitoring quality, and introducing and licensing new services. The TRA will also encourage private sector participation by preventing monopolies and guaranteeing intellectual property rights.

Framework for the Telecom Act:

- Licensing national companies for management and operation of networks and services
- Encouraging competition with full transparency
- Protecting consumer rights and offering quality service at affordable rates
- Maximizing returns on the use of the frequency spectrum
- Organizing the licensing of wired and wireless communications services
- Opening foreign markets for Egyptian communications services

To facilitate the growth of the telecommunications sector, MCIT is offering incentive packages, supporting partnerships, improving postal services, and implementing relevant legislation. A three-tier incentive package is sure to attract investors to this burgeoning market. These incentives include a five-year tax holiday on all telecommunications-related investments, a reduction in sales tax on all computers, and a moratorium on customs and sales tax on all software and services related to IT. To encourage public-private partnerships, MCIT will oversee the creation of the IT Industry Development Organization. This new company, partially financed and supported by the government, yet operated as a private, non-profit organization, will focus on key issues: the incubation of new companies, export promotion, partnerships with multinational corporations, and training and certification.

Pivot 6 : Creating An Enabling Environment For The Industry To Grow

ICT's legislation provides protection to the inventor, the producer and the distributor of the products or services. The Intellectual Property Rights Law is one of the most important legislative that guarantees, if implemented effectively, protection to software manufacturers and copy-write owners.

Added to that, lots of countries are competing to attract information and communication industry, to take advantage of certain benefits in taxation and

customs. That is in addition to the willingness of banks to give credit facilitation to this industry due to its High Risk – High Value Added nature.

In order to establish a supportive legal environment for the investor and businesspeople, MCIT has prepared an integrated Telecommunications Act and an Information Technology Industry Development Act. The proposed Acts accommodate the on-going changes in activities and services in these fields. That is in addition to specifying and empowering the new roles of Government and Private sector to match the dynamic technology behind both the information and communication sectors.

Part II:

Facing The Challenges

Over the last two decades, Egypt has been striving to enhance its information and communication infrastructures. Several computerization and networking initiatives were launched, including a major national project to establish a national ICT think tank, namely, the Egyptian Cabinet Information and Decision Support Center (IDSC). IDSC was established in 1985, and since then it has launched and executed hundreds of ICT programs and projects, including: a network of 1500 governmental information and decision support centers and units; an ICT Human Resource Development Program and a national Information Technology Institute; a Geographical Information and Decision Support Program; in addition to several national databases covering various sectors including population profile, debt management, trade and supplies, manufacturing and production, education and healthcare. IDSC has lead the efforts to bring the Internet to Egypt in 1993, then to broaden its use nationwide.

From the date of its creation in September of 1999, and through the execution of the National ICT plan, MCIT's focus has been to empower, inspire, and support the Egyptian information Society. In doing so, MCIT paid special attention to bridge both the "internal" and the "external" digital divide. The *internal* digital divide may be characterized by a widening gap between the ICT *haves* and the *have-nots* within Egypt. Citizens in the capital and major cities have had significantly better access to ICT infrastructure and services compared to citizens in rural and remote areas. MCIT focused on extending the communication infrastructure across Egypt, and on upgrading the telephone exchanges and communication services in rural areas. In addition, special incentives are given to ICT private service providers to local and operate in rural areas and in disadvantaged communities.

We can summarize the achievements towards bridging the internal and external digital divide since the National CIT plan was approved in October 1999, as follows:

◆ Telecommunications:

- Telephony*: Nationwide telephone capacity increased from 6.4 million lines to 9.3 million lines and the number of subscribers increased from 4.9 million subscribers to 7.3 million subscribers. Thus, teledensity has increased to over 13 lines per 100 inhabitants. The number of (digital) telephone exchanges in rural areas, small cities and villages has reached 1011 exchanges, which

corresponds to a coverage of 96.5%. In addition, the costs of international calls have been cut by more than 50%.

- *Mobile phones*: Two private GSM operators provide these services to over 3.9 million subscribers, up from 655 thousand subscribers in October 1999.
- *Public pay phones*: Two private companies provide this service through more than 42000 public pay phones, up from 14000 in October 1999.
- *Telecommunication network*: The number of international circuits has increased to about 11500, up from 6000 in October 1999. In addition, the concept of intelligent networks with value-added services has been introduced, with over 58 corporate service providers.

◆ **Internet:**

- *International links*: The capacity of international links is over 500 MB/Sec up from 20 MB/Sec in October 1999. This increase is mostly attributed to private sector investments, and to the establishment and licensing of six major companies to enhance and expand the digital backbone for the Internet in Egypt.
- *Users*: The estimated number of Internet users is over 1.2 million users, up from 300 thousand users in October 1999.
- *Access cost*: Access is available through a government-supported private-sector-led initiative for “free-Internet” initiative, i.e. Internet access at a cost of a local phone call, that has expected to start in April 2002. The “free-Internet” service currently covers 15 governorates, and the remaining 10 governorates will be covered by the end of the year 2002.

◆ **Universal Access to ICTs:**

- *Information Centers and IT Clubs*: Over 350 MCIT supported centers and clubs have been established, offering ICT services at discount rates to communities across Egypt.

◆ **Education and Human Resource Development:**

- *Low-end/computer literacy Program*: Over 60000 high-school and university graduates have received basic ICT training at the introductory level for periods between 6-12 weeks.
- *High-end/ICT Professional Development Program*: Over 8500 professional received high-level certified professional training by leading experts both in software development and in telecommunications. The average length of training is about 6 months.
- *Technical Education*: A national technological university is being established.

◆ **ICT industry development:**

- *ICT Companies:* 722 ICT companies operate in Egypt, up from 266 companies in October 1999.
- *ICT professionals:* Over 25000 professionals work in the ICT sector, compared to about 10000 in October 1999.
- *Smart Village:* Plans have been prepared to establish three ICT technology parks or “Smart Village”, the first of which is scheduled to be opened by the end of the Year 2002. This effort is carried out by a recently established “Smart Village” Company which has an initial capitalization of the equivalent of US \$30 million.
- *ICT Incubators:* A new company to support new start-up ICT companies has been established, with initial investments of the equivalent of US \$15 million.
- *ICT Industry Development Organization:* A special organization that empowers and supports the growth and development of ICT industry is being established. The mandate of this organization includes setting standards, protecting intellectual property rights, encouraging and supporting international alliances and partnerships.

◆ **Information Content Creation and National Databases:**

Several programs and pilot projects have been launched including:

- *E-Government Program*
- *National identification number project*
- *National Center for Protecting Cultural and Natural Heritage*
- *Pilot and sectoral programs and projects: e-commerce, telemedicine, distance education, etc.*
- *Huge Data centers and information portals.*