United Nations
Economic and Social Commission for Western Asia (ESCWA)

NATIONAL PROFILE FOR
THE INFORMATION SOCIETY IN EGYPT

This document has been reproduced in the form in which it was received, without formal editing.

NATIONAL PROFILE FOR THE INFORMATION SOCIETY IN EGYPT

Egypt has achieved significant progress in building the Information Society (IS), through providing an enabling legal and regulatory framework combined with an adequate Information Communication Technology (ICT) infrastructure. Egypt's efforts in building the Information Society are spanning a myriad of applications of e-government, e-businesses, e-learning and many other socio-economic development applications. These efforts have resulted in Egypt e-readiness Index being 3.19 in 2003[1]. Egypt ranked 136th globally in the UN E-Government Readiness Report 2004, which constituted a surge of four positions on its 2003 index. It ranked 12th among Arab countries, up from 13th in 2003.

Considerable success has been made in integrating ICTs into government functions. Some government ministries have interactive on-line presence, and national e-government initiatives are under way to increase the number and range of services available on-line. Egypt ranks moderately when measured by the criteria provided in the WSIS plan of action and the UNDP human development report.

Egypt is undergoing a large development programme in ICT, which marked a clear commitment to the development toward the information society (2004).

1. *Policies and Strategies*

National information society policies and strategies

The Government of Egypt is committed to building an Egyptian Information Society to offer every individual, businesses and communities the opportunity to harness the benefits of the new information era within the confines of national priorities and issues.

Egypt has embarked on large ICT development programmes in the recent years starting from 1999. The Ministry of Communications and Information Technology (MCIT) was formed in 1999 to facilitate Egypt's transition into the global information society, building upon existing endeavours such as the Information and Decision Support Centre (IDSC). MCIT was entrusted with the task of creating an Egyptian Information Society with initiatives in to prepare the National Plan for Communications and Information Technology. MCIT's plan was geared towards supporting and empowering the Information Society in Egypt in close coordination with relevant government agencies and with the private sector. These commitments have been translated into developing and expanding the telecommunications infrastructure, establishing hundreds of information centres, expanding the pool of IT skilled labour and creating information systems and databases among governmental and private entities. Egypt plans were outlined in Egypt ICT National Plan (1999/2000–2001/2002) followed by the Egyptian Society Framework to establish the foundation of the Egyptian Information Society in the coming twenty years.

Progress towards fulfilment of national policies and strategies

The National Plan for Communications and Information Technology incorporated the Egyptian Information Society Initiative (EISI), to develop Egypt's Information Society till 2020. In 2003 Egypt revised its Egyptian information society initiative. The strategy and vision of Egypt's information society is detailed in the in phase I of WSIS[2] document "Building Digital Bridges: Egypt's vision of the information society". Such vision includes seven basic axes, namely:

- Digitisation of telecommunication networks for fixed and mobile telephony;

- E-Government services to citizens and investors in their locations through the Internet;

---

[1] The Global Information Technology Report 2003-2004

[2] Egypt's Information society, MCIT Report May 2005

- E-business services to transform the Egyptian community into an information society in line with international developments;

- E-Learning applications aimed at spreading knowledge and information using through the Internet;

- Developing health services using information technology (IT) to raise the efficiency of presenting therapeutic services and telemedicine especially in remote areas;

- E-documentation of civilization and nature tradition through building integrated information systems to make local and international presentation of Egyptian civilization;

- Developing technology related industries through raising the quality level of Egyptian companies and raising their international ability for competition.

The framework is designed to exploit the new opportunities inherent in ICT through Egyptian models and through interactive relationships between citizens, businesses, and government. EISI aims to establish a "citizen-driven info-centric structure," designing an array of complementary e-services geared in their objectives and policies to develop nationally relevant hardware and software.

Sectorial plans for building the Information society

In 2005, the Egyptian government approved the establishment of the Information Technology Industry Development Authority (ITIDA), an autonomous body entrusted with the mission of developing the IT sector and enabling IT industries to boost exports. ITIDA aims at:

- Developing and enhancing IT industry on the national level;
- Working towards transfer and use of advanced IT;
- Increasing the chance for exporting Egyptian advanced IT products;
- Helping development and growth of companies working in the field of IT;
- Coordination and care for IT industry;
- Care for the common interests of the IT sector;
- Developing investment in the field of IT industry.

Involvement of WSIS objectives

The government announced in December 2004[2] an ambitious strategy to face current challenges in the country. One of the programmes focuses on the development of an Information Society. In the past five years the Egyptian Information Society Initiative has moved forward in the modernization of the country's ICT infrastructure. The challenge now is how to invest and utilize ICT in socio-economic development. Continuing provision of communication services in Egypt including telephone and mobile services, Internet, and personal computers at reasonable prices in a key aspect.

2. *Legal and regulatory frameworks*

National Intellectual Property Rights

Egypt is firmly committed to protecting intellectual property rights and combating piracy. It is a member of the World Intellectual Property Organization (WIPO) (since 1990) and has adopted the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), under the auspices of the World Trade Organization (WTO). Table 1 shows the adoption of international laws and agreements by Egypt.

Table 1. Adoption of international laws and agreements by Egypt

Patent law	Yes
Trademark law	Yes (since 1969)
Copyright law	Yes (since 1992)
Paris convention	Yes (since 1951)
Madrid agreement	Yes (Since 1952)
Hague agreement	Yes (since 1975)
WCT	No
PCT	No
TLT	Yes (since 1999)
PLT	No
Nairobi treaty	Yes (since 1982)
TRIPS	Yes (since 1995)
WTO member	Yes
Reference paper	Yes
IPR enforcement	Yes
Basic telecom agreement	Yes

Source: ESCWA database of indicators and Egypt profile 2003

Telecom regulatory framework

MCIT has been actively fostering legislative reform to support the liberalization of the telecommunications sector.

A regulatory framework was created in 1999 to encourage private-sector participation. Within this framework, Law No. 19 and a Presidential Decree were issued in 2003 to separate telecommunications services provision (operator and service provider) from the regulatory functions. The newly created National Telecommunications Regulatory Authority (NTRA) was assigned all regulatory functions as an independent regulatory authority. Telecom Egypt became a telecommunications operator and service provider after becoming public-private company on the stock market.

The NTRA, developed a transparent regulatory framework to support the market and provide telecommunication services to all citizens. To promote competition and encourage investment in Egypt, NTRA established licensing terms and conditions for various telecommunication services.

The NTRA awarded over 20 licenses to operators who offer an array of telecommunication services to the Egyptian market from mobile, Internet, data, VSAT, and payphones and pre-paid calling cards. The NTRA is also managing advanced radio management and monitoring system and has proceeded with the rationalization of the frequency spectrum to introduce new services.

Privacy and security laws and regulations for applications

Egypt adopted progressive legal policies to facilitate ICT related growth. Notable among these policies are Telecom sector liberalization, the issuance of a new Telecom law, an e-signature law, and of an enhancement to the Investment law.

Other ICT-related laws and regulations

The Egyptian government prepared an integrated law for communications in February 2003. The new communications law aims at liberalizing the communications sector in Egypt and transparency in the different fields of communications. The law also lays down the organization needed by the different communications services and encouraging investments in this sector.

3. *ICT infrastructure*

Telephone penetration

The Egyptian government aims to modernize ICT Infrastructure by deregulating and liberalizing gradually, public private partnership and the involvement of several stakeholders. Apart from GSM operators owned by the private sector and international companies, the bulk of the telecommunication infrastructure in Egypt is owned and operated by the state monopoly, Telecom Egypt (TE).

TE has serious plans towards privatization of major stakes of the company before the end of 2006, when its monopoly will be cancelled due to commitments to GATS. In April 2005, TE called for investor bankers to advise Telecom Egypt on the best scenario of privatisation to be followed.

Egypt currently has an advanced telecommunications network that is almost 100% digital. TE chiefly owns the infrastructure; other operators have a mixture of access and switching infrastructure, and mostly use TE's Network for transmission. In addition to Telecom Egypt, the Egyptian market includes two mobile operators, Mobinil and Vodafone; six Public Data Communications Operators; two Pay phone operators, and two VSAT operators. Table 2 summarizes the development in Egypt.

TE had interest to enter into the mobile service by establishing a third telecom operator, but after several economic studies, TE opted for buying stakes in Vodafone. Table 3 shows Egypt telecommunications infrastructure indicators[2]

Table 2. Number of players in the telecommunication arena in Egypt

Service Type	October 1999	December 2004	Notes
Mobile	2	2	
Public data network	1	6	Very dynamic market
Internet backbone providers	1	4	
Internet service providers	40	196	(282 Free Internet Numbers) due to Free Internet Initiative, the entry barrier was lowered to allow new players.
Value added voice services	-	2	
Public phone services	3	3	
Equipment manufacturing	2	3	
Prepaid calling cards	-	3	Recently introduced
Copper wire manufacturing	3	4	
Fibre optic cables	2	2	
VSAT	--	2	

Source: MCIT

Table 3. Egypt's ICT Indicators

Details	Indicator	October 1999	June 2003	March 2004	March 2005
Telecommunication Infrastructure Indicators					
Fixed Services	Centrals capacity (million)	6.4	10.9	11.6	12.1
	No. of fixed telephone lines subscribers (million)	4.9	8.35	9.1	9.6
	Wailing list for fixed telephone lines (thousands)	1265	302	70	66
	No. of centrals in rural areas	775	1008	1082	1112
	No. of public phone cabinet (thousands)	13.300	48,614	48.98	54.35
Mobile Lines	No. of mobile phone subscribers (million)	0.654	5.04	6.1	8.6
	No. of mobile phones/100 individual	0.98	6.45	8.9	12.3
	Mobile services companies	2	2	2	2
Internet Penetration	Internet capacity	20 Mbps	850 Mbps	1.1	2.0 Gbps
	No. of Internet users (million)	0.300	2.1	3.15	4
	Monthly internet subscription	100 EGP ($29)	Cost of local call	Cost of local call	Cost of local call
PC Penetration	No. of PCs (million)	0.850	1.5	1.7	2.0
	No. of PCs /100 individuals	1.25	2.2	2.5	2.85
Human Development Indicators					
	No. of trainees for the Basic Skills development programs	1200	48339	89383	101669
	No. of IT clubs	30	401	826	861
	No. of trainees for the specialized training programs	500	10990	209000	21834
ICT Business Status					
	No. of ICT companies operating in Egypt	266	807	1115	1320
	No. of employees in the ICT sector	10256	25624	34250	37372

Source: MCIT

Egypt has a comparatively acceptable telephone penetration rate. In 2003, TE had a fixed exchange line capacity of 8.8 million telephone lines. All the telephone lines are digital of which around 12,000 are ISDN in addition to the leased circuits. The number of fixed-line telephone connections increased from 6.4 million lines in 2000 to 12.1 million in 2005, which represents a penetration of 16.4 lines per 100 inhabitants. Egypt also has a high rate of mobile line distribution with 8.58 million subscribers in 2005, compared with 1.4 million in 2000[2,3].

Internet backbone

TE's nationwide network is composed of several major components, including access, transmission, switching and signalling/service intelligence to support the voice services. In addition, a packet network exists independently as an overlay data network and offers X.25 and Frame Relay services. The two

---

[3] ICT Indicators Database, ESCWA

equipment manufacturers, Egyptian Telephone Company (ETC) and Egyptian German Telecommunication Industry (EGTI) are currently carrying over 30% of the Egyptian supplied equipment. Further investment in the telecommunications network is a continuing priority for the national government. In 2003, expenditures of US$981 million were devoted to expansion, improvement and maintenance of the infrastructure. In 2005 the expenditure reached US$1018 million. High quality Internet services are available, featuring dial-up, ADSL, ISDN, Frame relay, ATM, leased line, and satellite options. The total bandwidth available for the country has increased from 850 Mbps in 2003 to 2060 Mbps in 2005.

ISP and ASPs

Telecom Egypt owns several IT subsidiaries, one of which is Telecom Egypt Data (for Internet services), the other is Masreya (for IT), a partner in EGYNET and Nile Online Public Data Networks, and Noor company. During the recent years, TE has made several attempts to privatise the company but was not successful due to the deterioration of the capital markets then. Currently, most of the Internet Service providers lease capacity from the infrastructure of Telecom Egypt.

Access

Internet services have enabled the growth of the Information Society in Egypt.   In 2003 there were 2.1 million Internet users in the country. In March 2005 the number of Internet users reached 4.2 millions representing 5.7% of the total population. A further example of this trend can be seen in the growth of registered domains under the national country

PC Dissemination

Combined with a personal computer dissemination estimated at 2.2 % in 2003, growing at a projected average rate of 77 % per year, and the "Free Internet" Initiative, and the "PC for every House", the number of personal computers reached 2 millions in March 2005[4]. This represents penetration of 2.7 PC per 100 inhabitants.

4. *ICT Capacity-building*

Awareness and dissemination

Over 50 percent of Egypt's population is under the age of twenty-five. This workforce becomes very attractive for offshore development activities.

Computers at school

Egypt aims at promoting the use of ICT in education and to develop a new generation of citizens who understand and are comfortable with the use of ICT in their daily lives. Egypt places a very high priority on ICT-based educational initiatives. Technological skills are taught in schools, at elementary, secondary and collegiate levels.

Vocational training

Vocational training outside of the traditional educational framework is also available. Within the framework of carrying out the national plan of MCIT, the National Telecommunication Institute held courses in Telecommunications, specialized IT, and basic IT skills. In March 2005. the total number of trainees in basic IT skills development reached 101,669 and in specialized training reached 21,834.

University Education

Training at the University level is available in disciplines such as computer science, engineering, and other ICT related. Enrolment and graduation rates have been increasing since these programmes were launched in 1997. Currently more than 15,000 students are enrolled in universities in different ICT fields of study. Basic and public higher public education is free to all citizens.

---

[4] MCIT website www.mcit .gov.eg

Research, Development and innovation in ICTs

The efforts of research and development in the communications and information sector are concentrated in Research Centers and universities where most Egyptian universities make basic and applied research in the field of communication and computers in both:

(a) Faculties of computers and information: There are currently eight public faculties in addition to ten private faculties;

(b) Departments of communications in faculties of engineering: There are currently 13 public faculties in addition to several private faculties.

Most of these faculties carry out research M.Sc. and Ph.D. students and several applied research projects.

5. *Building the ICT sector*

ICT firms

The national e-strategy is designed to foster the creation of an export-oriented ICT industry. The government of Egypt has created Information Technology Industry Development Authority (ITIDA) and provided the physical infrastructure necessary to encourage success in the business of the ICT sector. Local corporations such as Telecom Egypt have created clear value chains in the ICT sector. In order to expand its services, Telecom Egypt adopted the strategy of partnership with private sector under different modalities and frameworks, ranging from telecom backbone provider arrangement, to peering partner schemes, up to full equity holder. With mobile operator, TE is an equity partner; with payphone companies, ISPs and Data carriers different models are used. In addition, foreign multi-national corporations have undertaken significant investment activities in Egypt.

Investments in ICT

Through tax incentives, and special economic zones, the government has been able to create a fostering environment for ICT incubation. The smart village and Idea developers are examples of this trend. Recent incentives related to new taxes law and customs law (2005) provide opportunities to encourage foreign companies to invest in Egypt in ICT field.

Investment in ICT programs is a combination of government and private sector investments mobilised to achieve the above goals. The General Authority for Investment and Free Zones provides figures based on new companies registered capital and increase in their capital, these are shown in figure 21 below and indicates that the amount of capital investment in private companies in telecom is in the range of USD 1 billion.

Other indicator includes the amount of imported telecom equipment, which is directly related to the operator's infrastructure that is estimated by International Data Corporation (IDC) in the range of USD 1 billion each year. Table 4[4] shows the ICT expenditures from year 2002 till year 2005.

Table 4. ICT Expenditures

Item	Year 2002	Year 2003	Year 2004	March 2005
Telecom Expenditures (Million $)	859.4	978.1	981.8	1018.7
IT Expenditures (Million $)	360.1	542.4	624.7	756.9
ICT Expenditures (Million $)	1219.5	1520.5	1606.5	1775.6

Source: General Authority for Investment and Free Zones, MCIT.

Figure 1. Investment in IT and Telecommunication sector

LE Billion
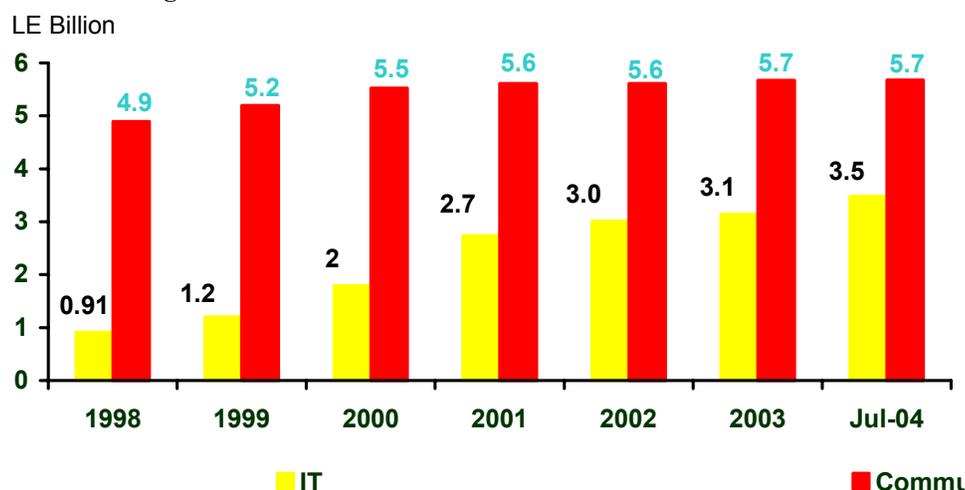
Egypt mobilised a lot of resources for investment in ICT. The introduction of competition and the opening of the markets led to large developments and decrease in service prices especially for Internet. The amount of government investments remains below the required level to achieve real transformation of the society. The level of investment required to increase the e-access reach by another 20% of the society is estimated at USD 4.8 billion. Table 5 shows the development of licensed companies capital and investments

Table 5. The Development of licensed companies capital and investments

Item	Year 2002	Year 2003	Year 2004	Year 2005
Number of established companies				
* Information Technology	894	968	1179	1264
* Communications	34	40	45	56
Capital Issued				
* Information Technology (Millions $)	294.2	322.2	393.4	552.9
* Communications (Millions $)	515.2	529.1	517.3	525.9
Capital Investment				
* Information Technology (Millions $)	512.3	542.4	624.7	756.9
* Communications (Millions $)	961.2	978.1	981.8	1018.9
Labor Force				
* Information Technology	26235	28086	31805	32451
* Communications	4565	4677	4763	4921

Source: MCIT website

Government facilitation

The Egyptian government signed two agreements with Microsoft and Oracle to supply government bodies with software of these two companies at suitable prices to be used in the different administration applications.

Export of ICT Equipment and software

The Government gives support to public and private companies to increase exports of their products and services in the field of communications and information technology such as the following:

(a) Tax Exemptions for a limited period for operating companies;

(b) Export encouragement and companies subsidy through establishing the IT Industry Development Authority;

(c) Giving technical and material support to software companies in order to develop their institutional and technical performance through Software Engineering Competence Center (SECC) of the MCIT.

6. *Applications in government establishments*

Egypt is pursuing a deliberate path to incorporate ICT in government services.

Computerization of public administration

Egypt's government services portal host 700 related information and services to various ministries. The citizens have an access to services online such as retrieving and paying phone bill, taxation and customs services, traffic services and host of others services.(Source: Egypt's Government Services Portal). In addition, the Ministry of Communication and Information Technology actively conduct the Ministries Automation Project. The project aims to reduce the amount of paperwork and to provide a standardized inter-departmental exchange of information. By design, all interrelated information will be computerized and achieved to enable usability by the various governmental departments. The Project was launched in 2000 and is currently implemented in CIT ministry with the ability to generate 300 reports and 400 screens (queries) relating to: Human Resources administration, budgeting and accounting, Inventory administration, procurement and remunerations. In its final phase, the project will connect and computerize all ministries interactively. Lately, the financial systems were installed in the Ministry of Industry, the Central Auditing Organization and General Secretariat of Cabinet Ministry.

e-government plans

In July 2004, the Ministry of Administrative development initiated the development plan of E-government Programs[4,5]. This plan calls for approximately 54% of government services to be available by telephone and Internet services by the close of year 2007. Commercial partners assisting in the implementation of these efforts include Oracle and Microsoft.

Digitization of information

At the national level, the government's official Web portal www.egypt.gov.eg was launched in 2004. This site is available in Arabic, contains useful information on many governmental services and offers a number of interactive functionalities.

Among the different Governorates in Egypt, Cairo has the most successful implementation of e-government solutions. Aspects such as supply chain management, electronic purchasing, and access to government services through the government web portal have been deployed and are operational. Other regions also offer localized e-government services but generally on a smaller scale.

e-procurement applications

The Government cares to spread the initiative: towards a no-paper, no-money information society by activation of e-procurement applications through:

(a) Spreading the use of e-signature, e-documents and e-contracting in government bodies and banking sector;
(b) Use of e-payment in the fields of government services and utilities;
(c) Spreading the use of pre-paid cards and banking cards;
(d) Establishing consumer Credit Information system.

---

[5]http://www.egypt.gov.eg

Furthermore, the government locally connects the e-business network and facilitates its connection to local and international networks. The government is considering establishing directives to encourage and support e-purchasing and e-payment.

7. *Applications in education*

e-learning

Utilizing ICTs in education is particularly challenging for Egypt given the region's comparatively low literacy rates. Available data for 2003 ranks the adult literacy rate in Egypt at approximately 57.9%[3]. The Egyptian government has invested in increasing quality in its educational systems. As such, computer skills are taught at elementary, secondary and university levels.

In addition to training within the traditional educational system, Egypt is also pursuing e-learning and distance education directly through regionally focused projects. Joint initiative by regional institutions like RITSEC and ITI is intended to provide the technological and supportive infrastructure for academic institutions and corporate training organizations to deploy fully online programs.

The E-Learning Competence Centre (ELCC) joint initiative between MCIT and Cisco (2004) was set up to create a national e-learning programme, establishing an organization to lead and coordinate all e-learning projects in Egypt.
Ministry of higher education is in the process of building a national e-Learning centre for higher education. The centre aims at introducing courseware development and delivery among Egyptian universities as well as other higher education institutions.

e-school projects

MCIT adopted, in co-operation with the Ministry of Education, a project to expand the use of IT in schools, called the Smart Schools Project. It consists of two basic stages:

▪ First stage of duration of 5 years covering 7500 preparatory schools with 4.5 million students. This stage started in September 2003 with a pilot project for 60 schools covering 13 governorates distributed as follows:

    i.   30 governmental and experimental schools;
    ii. 20 private schools and national institution;
    iii. 10 schools in co-operation with Education Development Program in Alexandria

Planed timeline	Preparatory schools
2003-2004	500
2004-2006	1500
2006-2008	2000

▪ The second stage is expected to include most primary and secondary schools. The number of students at these schools is about 11 million students.

The infrastructure costs of this project are estimated at $ 80,000 dollars for every school and operation costs are about $ 20,000 dollars annually for every school. The annual cost is about $150 dollars for every student.

Virtual Universities

The Egyptian university co-operate through Computer and Information College at Cairo University in Avicenna Virtual University Project. This is managed by UNESCO and financed by the European Commission. The budget of the project is estimated at about 5 million Euros while fifteen European and

Mediterranean countries participate in this project. The project started since January 2003, and it is expected to achieve the following until and of the year 2005:

- Establishing a network formed of 15 knowledge centres for electronic learning in countries joining this project;
- Preparation and qualification of 45 expert to work in this field, 300 members of teaching stuff to the electronic production of curricula, 600 auxiliary associations in electronic learning;
- Developing 120 courses electronically to serve different education sectors;
- Establishing a virtual library to include curricula developed through the project.

8. *Applications in Commerce and Business*

Extent and maturity of e-commerce and e-business applications

The Egyptian Government has issued the e-signature law and deployed a successful e-commerce infrastructure. It is interested in activating e-commerce and e-business applications through:

(a) Organizing and spreading the use of electronic signature;

(b) Building infrastructure for electronic signature using smart card technology;

(c) Spreading the use of electronic signature, documents, and contracts at government organizations and the banking sector;

(d) Providing services of electronic signature and documents to public through mail bureau, information technology clubs and community centres;

(e) Connecting networks of electronic exchange locally and facilitating their connection to local and international networks to increase using electronic sale points;

(f) Stimulating the private sector to invest in the development and dissemination of e-commerce and e-business software and systems especially in the field of electronic payment systems, production planning, management systems, and client services systems, making use of international experience and expertise;

(g) Community acknowledgment about challenges, opportunities, and work samples application in the age of e-commerce and e- business.

In addition to specific e-commerce initiatives, Egypt has created some enabling environment for commercial activities. Some forms of business licenses can be obtained online. Most Chambers of Commerce provide local information through an on line presence.

The role of the newly formed Information Technology Industry Development Authority (ITIDA) in enhancing e-business will be through the implementation of e-signature law, the impact of ITIDA on the development of the local market, export development and capacity building as well as the implementation of IPR legislation is still to be seen.

As a developer and regulator of e-signatures, ITIDA plans to promote and regulate e-signature related activities. These include implementing the e-signature law, issuing licenses in Egypt, providing technical counseling in disputes related to the e-signature law, creating awareness and promoting e-document exchanges between the government, businesses and citizens. ITIDA will also act as the catalyst, coordinator, and national focal point with other national and international stakeholders. As a national developer, ITIDA's vision is to turn Egypt's IT industries into world-class, export-oriented industries and empower them to be among the world's top 15 IT exporters.

Availability and quality of e-banking

Although nowadays only 10 % of Egyptians have bank accounts, this number is increasing at a high rate, which encourages the use of electronic bank operations. Consequently this supports deal between clients and associations (B2C) and among different associations (B2B).

Automatic teller machines (ATM) have spread in Egypt during the last years as there are 850 automatic teller machines in Egypt and most of the banks in Egypt are connected now to a network of ATM, although not all banks are connected to the same network of teller machines which leads electronic telling cards not to work on all teller machines. Yet, Egyptian exchange bank is currently putting criteria and specifications to connect banks together. Currently, the number of clients using electronic banking operations is still small compared to the total population. The Government is making efforts to increase the use of electronic banking operations through:

(a) Depositing salaries and pensions into bank accounts and national post offices;

(b) The Board of Directors of the Central of Egypt has issued on 26th of April 2005 the roles pertaining to the registration of Credit information in the general Administration of Credit Risk Information Collection Bureau; all the information will be submitted by banks to the Administration for consolidation and share;

(c) Using e-payments in the field of governmental services and utilities including Internet banking, mobile banking, pre-paid cards and credit/debit cards.

9. *Applications in Healthcare*

The Ministry of Health, aware of ICT's potential benefit to the healthcare system, has established the e-health programme to provide health services to remote parts of Egypt. MCIT is responsible for integrating ICT in different key public services such as health, where new technologies can provide critical value-added services. MCIT's e-health team, working in cooperation with the Ministry of Health and Population, is using ICT technologies as a medium for health administration, clinical consultation, and to bring continuing medical education to remote or underserved areas of Egypt. This initiative should:

- Improve the delivery of medical services;
- Integrate diagnostic services and facilities in remote areas;
- Create a diagnostic services system and link Egypt's medical centres with medical centres around the world;
- Offer diagnostic services for patients;
- Provide medical service in emergencies;
- Offer training facilities for the medical community in rural areas;
- Reduce the cost of health care by better patient management;
- Acquire international consultations for special cases at an affordable cost;
- Detect and obtain early diagnosis of endemic diseases.

Databases for national healthcare

The Ministry of Health and population established a database on the national level for health care where data and information management are circulated through:

1. Insurance Information Centres;
2. Information Resources Units (RC);
3. The Ministry Web site.

Telemedicine and medical use of teleconferencing

The Ministry of Health established, in co-operation with Ministry Communications and Information Technology, the Egyptian Remote Treatment Network using teleconferencing linking seven sites:

(a) Nasser's Institute in Cairo;
  (b) Beni Suef Governorate;
  (c) Aswan Governorate;
  (d) Al Mahalla Al-Kobra City;
  (e) Mobile (connecting ambulance vehicles with Medical Centres through VSAT connection);
  (f) Sharm Al-Sheikh;
  (g) Luxor.

The target of this project is to achieve the networking of all Egyptian governorates, as well as African and Arab Countries in order to provide treatment services and medical consultations.

Maturity and implementation of Health Care Information Technology Systems

In addition to the successful deployment of patient care packages, the implementation of telemedicine shows Egypt has capitalized well on the opportunities provided by ICT in health care.

The General Organization for teaching hospitals and institutes (GOTHI) has developed a network for connecting all affiliated hospitals and medical institutions (along with the nine hospitals and institutions forming GOTHI). The WEB server Unit &GOTHI Network Centre was developed with the aim of Hosting web homepage sites of all GOTHI units, centers, hospitals and institutes. Allowing all GOTHI units, centers, hospitals and institutes access to medical, drug and Medline databases through Internet access. Access GOTHI Medical Electronic Library, providing Internet services and access for all GOTHI staff, construction of an efficient Intranet between GOTHI centers and establishing an infrastructure for a Telemedicine project between GOTHI medical facilities

10. *Digital Arabic Content*

ICT can be used to protect Egyptian cultural identity through the use of tools to preserve documents and manuscripts, archive and index materials, offer worldwide access to cultural and historical materials, and generate and promote interest in Egyptian cultural life and heritage.

Arabic versus English content on the web for national use

Egypt has promoted the use of Arabic on the Internet in several substantial ways. First, by ensuring that its on-line initiatives utilise Arabic.

Most of the Arabic content in Egypt on the Internet includes:

  (a) News sites, i.e. newspapers and TV news;
  (b) Cultural sites;
  (c) Encyclopaedias and translation.

MCIT adopts the idea of establishing a national centre for electronic documentation of the urban and natural heritage. A large part of the urban and natural heritage was published in the Arabic language on the Internet. Moreover, the Ministry of Education has published the preparatory stage curricula and a large part of the primary and secondary school curricula in Arabic on the Internet.

In May 2005 an initiative for digital Arabic content was declared. A protocol was signed between MCIT, the Publishers Union and the e-learning and e-business Solutions Union in which public private partnership was established between the three parties in which MCIT finances a project of 13 million US dollars for three years to digitise and create an Arabic portal for a number of the available Arabic books in different disciplines.

Local creation of software products in Arabic

The Arabisation of software features prominently among the business models presently under incubation in many new and established ICT start-ups. These software companies address the market needs for new and existing software products to integrate Arabic language functionality.

Obstacles for its development and ways for removing them

The weaknesses of the digital content in Egypt in comparison with the English content, is due to several reasons such as:

(a)   Limited number of ICT users;
(b)   Weakness of Arabic IT applications;
(c)   Weakness of cultural activities as a result of the high rate of illiteracy;
(d)   Most institutions and companies only put informational content using the English language.

In an initiative for the development of the digital Arabic content in Egypt, the Minister of Communication and Information technology witnessed the signature of a cooperation protocol signed in May 2005 between MCIT, the Federation of Egyptian Publishers, and the Union of Educational and Commercial Software Producers. The protocol stipulates the following:

(a)   The development of translation application in Arabic and publishing them on the Internet;

(b)   Support and initiate scientific research in developing instruments and systems that makes Arabic content possible through the Egyptian Academy of Scientific Research and Technology and the Information and Communications Research Council;

(c)   Encouraging and supporting national programmes to preserve heritage in electronic form in the Arabic language;

(d)   Encouraging private, public and civil society associations to establish Internet sites in Arabic;

(e)   Developing Arabised IT tools such as Arabic Internet browsers and an Arabic Domain Names System;

Moreover, to spread Arabic language IT terminology, through organizing conferences and seminars, and encouraging scientific researches in this field.