



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

**NATIONAL PROFILE FOR
THE INFORMATION SOCIETY IN THE UNITED ARAB EMIRATES**

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The United Arab Emirates (UAE) is a union of seven sovereign sheikhdoms, formed when the British withdrew from the Gulf in 1971. It boasts mountains, beaches, deserts, oases, camel racing, Bedouin markets and duty-free shopping in Dubai, all packed into a relatively small area (83,600 sq km). The population has reached nearly 4.32 million by end 2004. The national government is a federation with specified powers delegated to the UAE federal government and other powers reserved to member emirates, which explains the huge difference in accepting and utilizing ICTs in the different emirates. Dubai is considered the most advanced of the seven Emirates.

GDP has reached US\$91 billion with a GDP per capita at US\$21,065 by the end of 2004. The main productive sectors are oil, gas, petrochemicals, trade and fishing, but UAE is highly committed to diversifying development to include new and sustainable sectors such as ICT. Two engines drive the UAE's vibrant economy: Abu Dhabi's massive oil revenues and Dubai's emergence and growth as a regional trading centre.

The UAE has achieved significant accomplishments in building the information society. By providing an enabling legal and regulatory framework combined with the existence of national data and communications infrastructure, important progress has been made in diversifying the economy away from dependence on petroleum exports. This has stimulated commercial success among a wide variety of businesses, including multi-nationals, local small and medium sized enterprises, and locally-based international companies such as the Thuraya2 satellite phone system.

In addition to commercial activities, considerable success has been made in integrating ICTs into government functions. Most government ministries have interactive on-line presence, and a national initiative is under way to increase the number and breadth range of services available on-line. These efforts have resulted in the UAE being ranked highest among all ESCWA member states, in deed all Arab countries, in e-Government readiness by the United Nations.¹

1. *Policies and Strategies*

National information society policies and strategies

Diversification of the economy away from dependence on oil is a major component of the national strategy for the UAE. To accomplish this, industries based on tourism, and ICTs have been given significant emphasis. While an explicit national plan of action for building the Information Society is not published, the commitment of UAE to developing a robust ICT sector is clear. Initiatives such as Dubai Internet City and Dubai Silicon Oasis illustrate the successful implementation of these investment activities.

Sectoral plans for building the information society

In addition to the investment in physical assets that these installations represent, notable achievements in fields such as e-government have been demonstrated. Based on a legislative mandate provided at the federal level in resolution number 631/1, the UAE is pursuing a deliberate path to incorporate ICT in government services. This plan calls for approximately 90% of government services to be available by telephone (including fixed and mobile lines) and Internet services by the close of 2007. Commercial partners assisting in the implementation of these efforts include Oracle and Microsoft.

Sectoral plans for building the information society, Progress towards fulfillment of national policies and strategies

The UAE consistently ranks very highly when measured by the criteria provided in documents such as the WSIS plan of action, the UNDP human development report. While their present development strategy

¹ World Public Sector Report 2003, e-Government at the Crossroads, Department of Economic and Social Affairs. ST/ESA/PAD/SER.E/49

is not specifically tuned to the metrics provided in these documents, their achievements in areas such as telephone penetration and societal integration of ICT perform well under these indicators of achievement.

2. Legal and Regulatory Frameworks

National Intellectual Property Rights, Privacy status and status of Freedom of Expression

The UAE is firmly committed to protecting intellectual property rights and combating piracy. It is a member of the World Intellectual Property Organization (WIPO) and has adopted the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), under the auspices of the World Trade Organization (WTO). Based on this solid legal framework, the UAE has successfully embarked on a campaign to protect intellectual property and reduce piracy. Statistics have shown that copyright violation in the field of computer software has dropped from 86% in 1995 to 41% in 2001 and 34% in 2003 according to an independent research company report.

Telecom regulatory framework in the country

The telecommunication infrastructure has been owned and operated as a monopoly by Etisalat². While the UAE owns a majority stake at 60%, individual UAE nationals own 40% of the company. In 2000, Etisalat initiated a subsidiary ISP called Emirates Internet and Multimedia (EIM). Since that time, Etisalat created e-Company, which resells all Internet and data transport services. Because of the impressive infrastructure capacity of the UAE, several other regional ISPs purchase communication services from the Etisalat network.

Regulating the Internet, Privacy and security laws and regulations for applications

In combination with a robust telecommunications infrastructure, the UAE has adopted progressive legal policies to facilitate ICT related growth. Notable among these policies are the e-Dirham and e-stamp initiatives. By purchasing pre-paid cards, the e-Dirham program facilitates cashless transactions over the Internet. The e-stamp program is used to validate transactions in a similar way to the paper-based fiscal stamps commonly used in traditional transactions. These initiatives have opened they way for on-line commerce to fulfill a more meaningful role in the national economy.

Other ICT-related laws and regulations

The three laws pertaining to intellectual property – copyright law, trade mark law and patent law were passed by the UAE Federal Government in 1992. In February 2002, Dubai issued Law No.2 of 2002 ‘the Facilitation of Electronic Transaction Law’ which is applicable only in the Emirate of Dubai. Recently, in the first quarter of 2005, the Federal Legislation Committee has approved a draft law on cyber crimes.

3. ICT Infrastructure

Telephone penetration, Access, and PC dissemination

The UAE has a comparatively high telephone penetration rate, Within the UAE, Etisalat has a fixed exchange line capacity of 1.4 million telephone lines – 100 percent digital – of which around 50,000 are ISDN in addition to the leased circuits. The number of fixed-line telephone connections increased from

² Etisalat is mainly owned by the government and was found in 1976. UAE decreed the ending of the Etisalat monopoly in the telecom sector in 2005. The decree creates a new Supreme Committee that will supervise the telecommunications sector, and a Monitoring Authority that will ensure good services for the public good. This announcement opens the door to a new era of competition among telecom suppliers. From what has been seen elsewhere in the region and internationally, some judgment can be made about what this means in practice: a second, and possibly a third mobile phone network, competing on service and price; a proliferation of Internet Service Providers; more cable TV and video services; and telecom IPOs on the UAE stock market. Bahrain and Kuwait are good examples, since they have already liberalized telecoms to considerable effect.

To effectively end the Etisalat monopoly, the UAE Telecommunications Regulatory Authority approved in May 2005 the formation of a new telecoms company, reported Wam. The new \$1.1bn telecom provider will be 40% owned by the General Pensions and Social Security.

1,138,000 lines in 2003 to 1,200,000 in 2004, which represents a penetration of 28 lines per 100 inhabitants. The UAE also boasts one of the highest rates of mobile line distribution in the ESCWA region with 3,700,000 subscribers in 2004, compared with 2,950,000 in 2003³. High quality Internet services are available, featuring dial-up, ADSL, ISDN, Frame relay, ATM, leased line, and satellite options. Basic dial-up service costs .486\$ per minute for peak usage and .27\$ for off-peak usage. The total bandwidth available for the country has increased from 1024 Mbps in 2003 to 2,680 Mbps in 2005.

Combined with a personal computer dissemination estimated at 16.2% , growing at a projected average rate of 14% per year, the Internet services available have enabled the growth of the Information Society in the UAE. In 2003 there were 2,747.83 Internet users per 10,000 inhabitants in the country. A further example of this trend can be seen in the growth of registered domains under the national country code. These registered domains have increased from 48,000 in 2003 to 56,169⁴ in 2005.

Internet backbone

Further investment in the telecommunications network is a continuing priority for the national government. In 2003, expenditures of Dh997 million (US\$271.66 million) were devoted to expansion, improvement and maintenance of the infrastructure⁵. As part of this expansion of services, an ambitious project is underway to deliver voice, high-speed data, and broadcast television to consumers through a single cable-based modality.

The Fibre Optic Gulf (FOG) project consists of a 1,300 kilometer long fibre optic cable link between UAE, Qatar, Kuwait and Bahrain. A Memorandum of Understanding for the FOG project was signed by these countries in 1994. FOG links the UAE to Kuwait via Qatar and Bahrain. FOG has a transmission capacity of 5 Gbps (billions of bits per second) per fiber pair and SDH technology will enable the system to accommodate enormous volumes of traffic, making possible broadband ISDN, Internet, Video-On-Demand and other new services. The system is designed to be upgradeable to a transmission speed of 10 Gbps per fiber pair to accommodate future demand.

The Fibre Optic Link Around the Globe Cable System (FLAG) project connects Europe to South Asia via UAE. The FLAG Network Operations Centre (FNOC) is set up in Fujairah, which positions it in the midpoint of the cable system.

The other cable that connects UAE is the South East Asia –Middle East – Western Europe 3 Cable System (SEA-ME-WE3). The total length of the cable is approximately 30,000 kms and has a capacity of 40 Gbps.

4. ICT Capacity-Building

Awareness and dissemination

An increased interest in spreading awareness of ICTs is shown through the increased number of specialized ICT and technology related conferences, forums and workshops. This is evident in the activities taking place in Dubai where the Government has issued a special magazine called "Dubai 4 All" to better acquaint and educate the general public about e-Services. The Federal Government is also increasing all activities relating to the dissemination and spread of awareness through supporting national media and conferences. Finally, almost all local and national daily newspapers have a dedicated section for spreading public ICT Knowledge.

³Madar Research

⁴<http://www.itu.int/ITU-D/ict/statistics/> Information Technology

⁵United Arab Emirate Yearbook 2005.

Computers in schools, Vocational training

The UAE places a very high priority on ICT-based educational initiatives. Technological skills are taught in schools, at elementary, secondary and collegiate levels. In particular, the Elementary and Secondary Education Development Committee at the Ministry of Education and Youth has mapped out a plan to reorganize the Resources Centers at government schools for the benefit of students with special needs. Vocational training outside of the traditional educational framework is also available.

University education

Training at the University level is available in disciplines such as computer science, engineering, and other ICT related fields. Enrollment and graduation rates have been increasing since these programs were launched in 1997. The student body is predominately expatriate, with UAE citizens comprising only about 10-15 percent of enrollment. Higher education in public universities is provided for free for all nationals.

Research, Development and Innovation in ICTs

Interest in R&D is increasing at a steady pace. Recently, Zayed University has been allocated a special R&D budget for the first time. In Dubai, the technology park "Mohammed Bin Rashid Technology Park" is designed to become a regional business-driven technology and science hub for the Middle East, Central Asia and Africa. The Park aims to form strategic alliances with local and international universities as well as international organizations. Also, Dubai Silicon Oasis (DSO) is set to support Dubai's and the UAE bid to be at the forefront of the technological revolution in the Middle East region. Finally, the Dubai Silicon Incubation Centre (part of DSO) will provide broadband and wireless incubation facilities for the development and commercialization of intellectual property.

5. Building the ICT sector

ICT firms

⁶The government of the UAE has created an enabling legal environment and provided the physical infrastructure necessary to encourage success in the business applications within the ICT sector. Local corporations such as Etisalat have created clear value in the telecommunications and data transport fields. For example, the satellite telecommunications firm Thuraya was incorporated in the UAE in 1997. Since that time, it has proved quite successful in delivering both mobile satellite handsets and fixed satellite pay-phones in the coverage area. In order to expand its services, a second satellite was launched on 10th of June 2003. A third satellite, built by the Boeing Corporation, is planned for deployment, with the exact launch date to be fixed. In addition, foreign multi-national corporations such as Oracle, Microsoft, IBM and Sun have undertaken significant investment activities within the ICT sector in the UAE.

Figure 35. Thuraya Coverage Map



⁶ http://www.thuraya.com/tech/coveragemap_industry.htm

Government is also fostering ICT through initiatives such as DIC, the free trade zone for e-commerce and ICT related services. Such decision, as well as the one to create Jabal Ali, proves a vision of development. Jabal Ali free trade zone was established in 1979. The zone exempts foreign companies from normal UAE commercial laws and provides unrestricted import of labour and export capital, as well as tax holidays and exemption from duty on goods intended for re-export or trans-shipment. The zone contains more than 200 factories, as well as water desalination units, an aluminium smelter and a steel fabrication unit. Jabal Ali's success prompted Abu Dhabi to create a similar free trade zone at Sa'diyat.

Recent innovations have included the establishment of the Dubai Internet City and the Dubai Media City, ambitious attempts to apply the free trade zone strategy to the ICT and media industries.

Investment in ICTs

The UAE has recently altered its corporate ownership regulations to allow outside businesses the opportunity to own up to 100% of local companies, without a local sponsor. Through tax incentives, and special economic zones, the government has been able to create a fostering environment for attracting ICT ventures. Dubai Internet city and Dubai Silicon Oasis are just two examples of this trend.

Government facilitation

Currently, there is no Federal policy contributing or facilitating the buildup of the ICT sector on a national level. Notwithstanding, local governments provide various levels of support and facilitation to advance and expand the ICT infrastructure. Also, the growth of ICT Free Zones companies and activities is certain to contribute to the growth and advancement of the infrastructure.

Export of ICT equipment/software

Although the UAE is a net importer of ICT equipment/ software, there are companies that develop in-house software to cater to the needs of the local and export markets. For example: Mercator – the Information technology division of Emirates Group – develops software related to the airline industry and has implemented it in different countries around the world.

6. Applications in Government Establishments

Computerization of public administration

At the national level, the government's official web portal is www.uae.gov.ae. This site, which is available in both English and Arabic, contains useful information on living and working in the country. In addition, it offers the following interactive functionality:

- Payment of electricity bill online;
- Pay/Inquire about Etisalat bills on line;
- Dubai Police SMS registration;
- Fare table for all bus routes in Dubai;
- Lost Driver's license;
- Reporting a damaged Driver's license;
- Values of traffic violations;
- One Stop Inspection and Fines Enquiry Service;
- Parking Fines Enquiry & Payment;
- Fines inquiry & payment⁷.

In addition, to the many government regulatory services listed above, further functionality (such as the issuance of certain licenses) is facilitated by the national portal www.government.ae.

Among the differing Emirates which make up the UAE, the Emirate of Dubai has had the most success in implementing 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

⁷<http://www.dubai.ae/>

are operational. Other regions with UAE also offer localized e-government services but generally on a smaller scale.⁸

Digitization of information

This issue is directly related to the overall development and deployment of e-Government services. Considerable steps are taken in several Emirates, most notable is Dubai. Both Dubai Courts and Dubai Department of Justice have advanced digitization for information and services pertaining to proceedings and other necessary legal information.

e-government plans

The Dubai e-government initiative was launched in April 2000 and it has passed several phases, beginning with the formulation of a strategy, the assessment of needs and requirements, as well as of existing services and infrastructure, the launch of basic e-government services, followed by the launch of the e-government portal, www.dubai.ae, in October 2001, to the incorporation of advanced transactional facilities, such as online payment. As of August 2004, there were about 1,444 online services.

While the UAE federal e-government project was launched in late 2002, with the setup of a Federal E-government Steering Committee, under the direction of the Ministry of Finance and Industry (MOFI). The UAE federal government's portal, www.uae.gov.ae, provides a link to all ministries which already have their own websites.

e-procurement applications

To facilitate the B2B e-commerce in the region, the Dubai government launched Tejari.com in June 2000 based on the Oracle technology platform. Tejari's mission is to maximize the business potential of the regional customers by providing innovative online B2B services. The platform offers organizations to search online catalogues, create auctions, perform spot-buys, and participate in reverse auctioning. The transactions carried out in the market place during the first nine months of 2003 reached 9,057 from only 2,378 at end 2002 – an increase of 281 percent in transactions between end 2002 and September 2003. The total trading partners transacting with Tejari has reached 2,960 and the total value of transactions recorded through tejari online reached more than US\$1 billion since its launch.

Computerization of customs processing

Dubai Customs Authority launched E-Mirsal website www.emirsal.com in June 2000, allowing importers to enter the necessary information for customs clearance processing via a secure Web site. The E-Mirsal system uses an array of Microsoft Technology. All the customs process can be performed automatically as the site automatically calculates duties and fees, allowing the customer to pay using either a standing order or a credit account.

Computerization of taxation and revenue management systems

These systems are implemented and used on a departmental – Emirates level. Most noticeable of such systems is the B2B Customs Clearing System which offers full computerization and automation for clearing imported/exported goods. It is important to notice that the UAE has no personal taxes.

7. Applications in Education

e-learning

Utilizing ICTs in education is particularly challenging for the UAE given the region's comparatively low literacy rates. Available data for 2003 ranks the adult illiteracy rate at approximately 22.7%⁹. The government of UAE has invested heavily in increasing quality in its educational systems in order to empower its citizens with the skills necessary to compete in a global knowledge economy. As such, computer skills are taught at elementary, secondary and university levels.

⁸http://www.theemiratesnetwork.com/dir/Government/Ministries_and_Chambers/

⁹http://hdr.undp.org/statistics/data/cty/cty_f_ARE.html

Among the earliest e-learning initiatives targeting secondary school students in the UAE has been IT Education Project, established by Dubai Crown Prince and UAE Defense Minister, Sheikh Mohamed bin Rashid Al-Maktoum, as part of his vision for the introduction of IT to all walks of life in the emirate. The project was launched in 2000, with the aim of delivering industry-relevant IT curricula through e-learning, initially to students at first and second year secondary school levels in Dubai. The project has since expanded to cover all public secondary schools in Dubai and Abu Dhabi, and is set to be introduced throughout public schools in the UAE, eventually, down to the primary school level.

At the higher education level, e-learning has been introduced in a more structured manner, as part of universities' and colleges' long-term strategies to migrate online a large section of their general curricula –especially those related to IT– as well as to offer continuing education courses for adults and corporate users.

The UAE's Higher Colleges of Technology (HCT), established in 1988, have grown to 11 colleges distributed across various emirates. Over 14,000 students were enrolled at the different campuses during the 2002-2003 academic year. Collectively, the colleges offer some 25 online courses as part of the academic curricula.

e-school projects

As an example of these efforts to integrate ICT in the educational system, the Sheikh Mohammed IT Education project has implemented technological infrastructure and training programs in 40 high schools in the UAE (20 in Dubai, 20 in Abu Dhabi). Annually, over 13,000 matriculate through this system. In addition, the success of this project has established the precedent for expansion of the project to include the UAE's e-government project through facilitating IT training programs for government departments¹⁰. The education project now offers courses to the following agencies:

- * Dubai Police Department;
- * Dubai Islamic College;
- * Dubai Police Academy;
- * Dubai Immigration;
- * Visually impaired students of Tamkeen.

In addition to training within the traditional educational system, the UAE has also initiated a project called "Knowledge Village." This purpose-built installation constitutes infrastructure for delivery of e-learning services and to "... position the Middle East as a center of excellence for learning and innovation¹¹. The UAE is also pursuing distance education directly through a regionally-focused project called Access Knowledge. This joint initiative by Dubai Internet City and e-College is intended to provide the technological and supportive infrastructure for academic institutions and corporate training organizations to deploy fully on line programs.

Virtual universities

Dubai Police Department's Electronic Total Quality Management College (E-TQM), based in Knowledge Village was launched in September 2002, as the region's first virtual institution offering total quality accreditation and courses. The larger part of the courses is conducted online, with presentations, discussions, interactive exercises and case studies available to users in both English and Arabic. E-TQM targets not only police personnel, but users interested in specializing in quality management. It is affiliated with several international associations such as the European Center for Total Quality Management, the British Quality Foundation and the International Academy for Quality. As of June 2003, more than 200 students had already enrolled in the virtual college.

¹⁰<http://www.itep.co.ae/english/AboutUS/aboutus.asp>

¹¹ <http://www.kv.ae/about/>

8. Applications in Commerce and Business

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

Because of its superior infrastructure, and commitment to on line economic technologies, the UAE has deployed a commerce infrastructure more successful than any other in the Middle East. Electronic currency, and automated supply chain management projects have created an environment in which goods and services can be purchased in a highly efficient fashion. An example of this achievement can be seen in the www.tejari.com on line portal. This system, which municipal agencies are required to use, facilitates on line commerce for business to business transactions.

In addition to specific eCommerce initiatives, the UAE has specifically focused its ICT integration efforts on creating an enabling environment for commercial activities. Many forms of business licensure can be obtained online. Further, most Chambers of Commerce provide local information through an on line presence.

The UAE has made extensive use of duty free economic zones to stimulate business growth. These incentives have been specifically targeted at ICT related companies in the form of Dubai Internet City and Dubai Silicon Oasis. The favorable business conditions created by these policies, combined with a robust technological infrastructure have enabled the UAE to attract substantial foreign direct investment and business activity.

Availability and quality of e-banking

E-banking refers to the deployment of banking services electronically through a range of technological devices. E-banking was first introduced in the UAE in 1996, but has been slow in the uptake, both by banks and clients. Of the 46 banks operating in the UAE at end 2003, 13 (28.26 percent) offer clients e-banking services – seven of them national banks and six foreign banks. An estimated 18 percent of bank clients in the UAE use e-banking channels for transacting financial services – equivalent to some 135,000 unique clients. According to Madar Research Group, the total payment cards (debit & credit) in circulation is about 2.1 million representing a density of 52.5 cards per 100 inhabitants by end 2003.

Maturity of regional ATM and banking networks

According to Central Bank of UAE the total number of Automated Teller Machines (ATM) in the country stood at 1,018 ATMs by end 2003 representing a density of 2.5 ATMs per 10,000 inhabitants. The ATMs are locally linked to UAE switch while regionally it is switched to GCC switch. Of the 46 banks in UAE, around 40 banks are connected to the UAE switch with a total of 945 ATMs currently linked to the UAE switch.

Maturity of Bank to Bank financial transfer system

The inter bank payments in UAE are done via the swift network and the accounts are maintained by the Central Bank of UAE which recently introduced a real-time gross settlement (RTGS) system to facilitate these payments. Compared with 2003, the incoming messages through Swift increased by 15 percent and the outgoing messages by 18 percent.

9. Applications in Healthcare

Databases for national healthcare

More than fifteen health care locations utilize electronic patient care technologies licensed from the MEDICOM corporation. In addition to direct patient care and billing, this project has been expanded to include laboratory services. Successful deployments of the system at Mafraq Hospital and Al Jazira hospital have provided the precedent to justify further implementation at five additional hospitals.¹² The project will be further expanded to include an eMedical Certification System for management of health certificates to

¹² http://www.medicomsoft.com/press_room1.htm#

facilitate obtaining and renewing work and residence permits in Dubai through the Dubai Municipality Clinic.

Telemedicine and medical use of teleconferencing

In addition to a full-featured automated health information system, several telemedicine options are available in the UAE. These service providers include:

- Arab TeleMedicine Network;
- TelDermServ – Teledermatologic Network Services for Counseling on Diagnosis of Skin Diseases;
- TeleMedicine Egypt Network;
- The Hospital for Sick Children Telehealth Program.

Maturity and implementation of Health Care Information Technology Systems

Because of the comparatively high quality telecommunication infrastructure of UAE, these services can be distributed more effectively than in most countries in this area. In combination with the successful deployment of patient care packages, the implementation of telemedicine shows the UAE have capitalized well on the opportunities provided by ICT in health care.

10. *Digital Arabic Content*

Arabic vs. English content on the Web for national use

The UAE has promoted the use of Arabic on the Internet in two substantial ways. First, by ensuring that its on-line initiatives utilize Arabic. The Al- Bawaba.com Arabic content portal is an excellent example of this type of achievement. Second, by pursuing active digitization programs to proactively provide Arabic language content. The popular Arabia.com site, based in Dubai Internet City, is a testament to the growing market available for Arabic language content. In previous years, visitors to this portal primarily utilized its English language functions. However, recent trends have reversed this majority, with the Arabic content becoming the more popular portion of the site.

Local creation of software products in Arabic

In general, no major developments of software products in Arabic are taking place in UAE. Arabization is mainly conducted as part of in-house activity and as part of the localization process by solution providers. Most local activities revolve around developing Arabic/English websites for local companies. Notwithstanding, there are some small software houses that develop and create software in Arabic but mainly for regional markets and for limited use.

Obstacles for its development and ways for removing them

Furthermore, the Arabization of software features prominently among the business models presently under incubation in the Technology Parks and Incubators in the region, notably Dubai. These software companies address the market needs for new and existing software products to integrate Arabic language functionality. Utilizing government emphasis and market forces in these complimentary ways enables the UAE to substantially contribute to the field of Arabic digital content.