



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

**NATIONAL PROFILE FOR
THE INFORMATION SOCIETY IN THE SYRIAN ARAB REPUBLIC**

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

NATIONAL PROFILE FOR THE INFORMATION SOCIETY IN THE SYRIAN ARAB REPUBLIC

1. *Policies and Strategies*

National information society policies and strategies

In 2002, the Syrian government, in cooperation with the United Nations Development Program (UNDP) launched a project with the aim of setting a national strategy for telecommunication and information in Syria. The 10-year strategy, which was presented in January 2004, emphasizes the role of telecommunications for socio-economic development.

This e-strategy included strategic objectives and action frameworks for the development of ICT sector in Syria, and emphasized the role of ICT in developing the country in general. The Ministry of Communications and Technology has direct responsibility for the development of ICT sector within the framework defined in the ICT strategy. The general framework of the ICT strategy in Syria depends on policies and executive plans sponsored by the government and supported by private sector institutions, and social committees to reach the following objectives:

- Improving GDP, and maintaining economic balance;
- Supplying high quality telecom and data exchange services and accessing the internet with affordable cost for individuals and institutions to enhance their social and economic activity;
- Availing IT systems and data processing facilities for all institutions to increase their competitiveness and performance;
- Establishing an economic and industrial sector around ICT that guides the software industry and web content development industry;
- Enhancing transparency of governmental procedures, using advanced ICT systems and increasing the participation of the citizen in the public life;
- Producing and publishing knowledge using ICT with special emphases on the cultural content;
- Availing the necessary legislative framework to use ICT and organize ICT sector.

Sectoral plans for building the information society

The Ministry of Education (MOE)¹ in cooperation with UNESCO formulated a national strategy aiming at using ICT in schools and gradually introduce IT courses and implement e-libraries to link to institutions of higher education. The MOE started in 2002 the building of a network to connect schools, the administrations in the region and provide the ministry's network access to the Internet. The ministry finished connecting about 800 schools out of 3000 schools to be connected within three years.

In the 10-year strategy, the Ministry of Communications and Technology is to provide the legal framework for developing and using ICT and regulating the telecom sector. A new telecom law has been drafted, and could be enacted within a year. There are plans to form a separate regulatory authority, which could take up to two years.

ICT infrastructure is emphasized to reach certain targets by year 2013. To increase telecommunication penetration rates to become as follows: 30% for fixed line telephones, 30% for cellular telephones, 20% for Internet usage, and 30% for PC penetration. The implementation of ICT strategy requires around US\$ 8 billion investment over the 10 years period to achieve these goals. Individuals' share in this investment is over 50% with the government contributing US\$ 2 billion.

¹ The Ministry of Education <http://www.syrianeducation.org.sy/>

The Ministry of Industry (MOI) conducted a study about ICT use in industrial companies and institutions in the public sector. The MOI established, in cooperation with the Syrian European Business Center (SEBC), an information system for registration of private industrial firms.

The Ministry of Transport (MOT) plans to apply one-stop-shop in all its administration offices vehicle registrations and fees collections and possible use of smart ID cards for cars.

The *IT plans of the Ministry of Interior (MOI)* plan to develop several information systems, such as, automation of government civil records started in 2000, a computerized legal register system, finger print matching system and traffic management system. The ministry plans to use ICT to provide better services through its web site and voice information system. The ministry plans also to integrate the different IT systems and to provide e-government service through a portal. The implementation of this project is planned over three years.

The Ministry of Health (MOH) seeks to implement e-health applications, such as use of smart H-cards as electronic medical records, the first phase of this project included issuing smart H-cards to diabetic patients in Damascus, and the second phase will be issuing cards to patients in Al-Bassel Cardiology Center. Another project involves designing the ministry's web page to facilitate doctors' exchange of medical information and consultations.

Through the project titled "Illiteracy e-radicating", the Ministry of Education is planning to utilize television broadcasting, Internet services and e-learning to reach illiterates without the need for high spending².

The Virtual Museum project aims to offer a virtual tour of historical and artistic sites in Syria. Currently in the planning phase, this project involves archival systems and interactive media technology and Internet broadcasting.

Realisation of WSIS objectives

An important effort has to be made to realize WSIS objectives in Syria: The availability of communication services - despite the significant enhancements - is still below expectations (in terms of quality and cost). Access to the Internet is still one of the lowest worldwide. ICT sector is increasing slightly, but is still a small economic sector and cannot be considered one of the major economic sectors that enhance socio-economic development. The main achievements to realize WSIS objectives in Syria are:

- The National ICT strategy for socio-economic development, which will be incorporated in the next 5-year plan for 2006-2010;
- The enhancement of telecommunication infrastructure through different expansions and providing new services;
- The establishment of a number of telecenters in rural and remote communities.

Progress towards fulfillment of national policies and strategies

Although specific goals were assigned to each of the above-mentioned objectives, and the Ministry of Communications and Technology defined some projects to be realized according to governmental planning, the execution of these projects is still pending. The implementation of the e-strategy will be carried out during the next 5-year plan (2006-2010).

² Prof. Najwa Kassab Hassan. Project n. INT/02/x32. Innovation in Public administration in the Euro-Mediterranean region. *Need's assessments of Governance & public administration in Syria*.
<http://www.unpan1.un.org/intradoc/groups/public/documents/un/unpan015906.pdf>.

2. Legal and regulatory frameworks

In general, the legal and regulatory framework of ICT sector in Syria can be considered “under construction”: the ministry of telecommunication and technology cooperates with relevant institutions (ministry of justice, SCS, universities, international organizations) to draft laws and regulations required to promote ICT development and use in Syria. These laws and regulations are related to issues such as electronic signature, data and privacy protection, ISP licensing and operation, telecom regulation, IT profession accreditation. Some significant steps have been taken in this direction and some laws and regulations are almost ready to be issued.

National Intellectual Property Rights

The Syrian government adopted a law concerning the Intellectual Property Rights (IPR). This law defines the general rules to protect paper documents, multimedia products, artistic works and software products³, and the Ministry of culture (MoCu) was assigned to provide standardized applications to this law. The enforcement of the IPR law is still vague and not specific to ICT. This may be due to lack of public awareness, lack of law enforcement, lack of accreditation of originator of work and weak purchasing power due to low standards of living. A new draft IPR law was prepared in collaboration between the MoCu, MoCT, SCS and representatives from ICT private sector. It still has to be passed by the Syrian Parliament.

Telecom regulatory framework

The Syrian Telecommunications Establishment (STE) is currently the sole telecommunication operator with full monopoly over wired throughout Syria until 2010. STE is to provide telecommunication services according to the policy of the administrative council. However, STE can implement investment contracts to private sector in value-added services. The two GSM operators have signed Build-Operate-Transfer (BOT) agreements with STE (Controlled Duopoly).

Regulating the Internet

STE worked on drafting Internet regulations, and have granted a license to the Syrian Computer Society (SCS) to provide Internet services to its members and some sectors. During the implementation of a National Public Data Network, STE has set up a number of rules to grant Internet Service Providers licenses. In accordance with this, the Ministry of Communications and Technology (MoCT) formed a committee to study the regulations of ISP services. Nine private companies applied to get ISP license, the MoC granted licenses to two private ISP in May 2005, other applications are still under study.

Privacy and security laws and regulations for applications

The MoCT formed a specialized committee to prepare a draft of data protection and privacy law. This committee drafted a law related to electronic signature and submitted it to the ministry to follow-up the approval by the prime minister and the parliament.

The ministry signed a contract with a local consultancy bureau to design a standard unified IT system for administrative and financial activities in the public sector. The main outcomes of this study are a unified business process schema and standard documents and forms. Several ministries, including MoCT, produced a draft for an Electronic Document Exchange and E-Commerce Law but the Syrian Parliament has not yet passed the law.

Other ICT-related laws and regulations

Syria signed a European partnership agreement of Free trade in services between Arab countries to liberalize the market 6 years after signature of the agreement in order to open competition in the ICT sector⁷. Syria is not a WTO member, but has signed the Paris convention, Madrid agreement and Nairobi treaty.

³ Syrian law no 12 article 3, 2001

3. ICT Infrastructure

Telephone penetration

Although fixed-line teledensity is either falling or steady in most countries in the region as mobile services take market share, Syria having a less developed market has experienced recent fixed-line growth⁴. Fixed-line subscribers increased to 2.657 million reaching a penetration rate of 14.8%⁴ by the end of 2004. There were 420,00 rural area fixed-line subscriptions (17% of total subscriptions) by the end of 2003. There are also telephone-centers (exchanges) set up in different cities.

Syria has a relatively low number of mobile subscribers compared to other Arab countries with 2.48 million cellular subscribers (penetration rate of 13.79%) by the end of 2004, but shows strong growth with a penetration of 2.4% in 2002⁵.

Total cellular network capacity is about 2,718,000. There are plans to expand the cellular networks by 1 million lines for each operator in 2005 (Syriatel and Areeba). ISDN subscribers' growth increased 161% compare to 2003 with 5,000 by end of 2004. There are only 1400 paging service subscribers only due to wide coverage of the cellular service. There are no major market structure changes in Syria recently, but the introduction of prepaid services in late 2003 led to a significant growth. Table 1 summarizes evolution since 2002

Table 1. Evolution of telephone and Internet usage in Syria

Year	Population (Million)	fixed telephone lines (K)	Penetration fixed telephone lines (%)	Penetration Household (%)	Mobile telephone lines (K)	Penetration mobile phones (%)	Internet subscribers
2002	17.04	2,096	12.23	49	400	2.34	73,000
2003	17.80	2,411	13.70	55	1,185	6.75	120,000
2004	17.98	2,657	14.80	59	2,480	13.79	180,000

Source: ITU data 2005

International Connectivity

STE executed several connectivity projects with Arab and neighboring countries during the last 10 years. These projects include submarine fiber optic cables with Cyprus, Egypt, and Lebanon, in addition to Iraq microwave links with Lebanon, Jordan, and Turkey. In total there are almost 50 different routes, including microwave, terrestrials and submarine cables as well as satellite communications. STE also has plans to expand the international capacity with neighboring countries. STE is currently a member of Arabsat, Intersat and utilizes IndiaSat and Intersputnik.

Internet backbone

A project to construct a separate Internet backbone for public data network began in 2002. STE still runs and controls infrastructure. There are currently delays due to US sanctions limiting technology to Syria. STE announced the availability of PDN service in Damascus and Aleppo, some ministries such as the ministry of health and the ministry of interior got experimental free of charge access in these two cities. STE did not publish tariffs of PDN services.

⁴ Serene Zawaydeh, Arab Advisors Group, *Syria Communications Projections report 2005*

⁵ Paul Budde Communication Pty Ltd, *Telecoms & Broadband – The Middle East 2005*

Currently, Syria has installed a new public data network with POPs. ADSL broadband can be accessed in all cities. The new optical fiber network is made up of 3 nodes connected by STM4 and connecting other nodes using STM1.

ISPs and ASPs

There are only 2 Internet service providers operating in Syria, the STE and the Syrian Computer Society (SCS). Services include Dial-up, leased line, wireless and ISDN. No ASPs are available now in Syria. According to STE, there are about 2,000 Internet subscribers, which is less than 1% of total population in Syria.

Access

The capacity of the fixed line network has increased to 3.5 million by the end of 2004 compared to 2.4 million lines in 2001. STE’s waiting list has been declining, but remains high with 2.4 million fixed line applications on the waiting list in 2005 due to a high percentage of phantom requests submitted by subscribers and some fixed lines in areas that do not have enough access network capacity.

The 2 mobile operators, Syriatel and Areeba (previously Spacotel Syria) are required to conform to strict prices fixed by STE. According to the agreement, STE has the right to introduce a third GSM operator by 2008 as per the ministry’s strategy. According to STE figures, Syriatel had market share of 54% by end of 2004 and 57% of the prepaid subscribers total market⁶.

The new prepaid cellular connection fees (7.7USD) introduced in April 2005 will be affordable for larger population and accelerate cellular market growth, according to Arab Advisor group.

Broadband (ISDN line) penetration is extremely low with only 0.188% of the total mainlines in 2004⁷. Main factors may be low GDP per capita, lack of country development, illiteracy and lack of liberalization of telecom market and high broadband tariffs (Table 2).

Table 2. Service rates in Syria

ISDN	64 Kbps	0.04 USD/mn
	128 Kbps	0.08 USD/mn
Leased Line		
	64 Kbps	200 USD/month
	128 Kbps	375 USD/month
	256 Kbps	675 USD/month
	512 Kbps	1200 USD/month
	1 Mbps	2175 USD/month
	2 Mbps	3850 USD/month

Al Buraq EasyComm, a subsidiary of Hamsho International, operates Payphones in Syria. The number of payphones has declined to 2,637 by end of 2004. STE operates public telephone cabinets (kiosks) in rural areas, and plans on issuing a tender to install 4,500 additional payphones.

There is a regional mobile telecommunications via satellite (GMPCS) in Syria. Thuraya satellite services are provided by STE for user in areas where cellular service is not available and is used by business users such as travelers, maritime and oil companies. By end of 2004, there were only 500 Thuraya subscribers in Syria⁴.

⁶ Syriatel <http://www.syriatel.net>

⁷ Serene Zawaydeh, Arab Advisors Group, Syria Communications Projections report 2005

Table 3. Service rates in Syria

Type of service	Cost (USD)
Local calls (per 3 minute)	0.011
Fixed telephone line installation	77
Mobile phone connection fees: postpaid	77
Mobile phone connection fees: prepaid	8
Mobile to mobile (postpaid – Syriatel)	0.077
Mobile to Fixed (postpaid - Syriatel)	0.115
Mobile to mobile (prepaid) 4/2005	0.14
Mobile to Fixed (prepaid) 4/2005	0.19

Source: Arab Advisors Group, Syria Communications Projections Report. April 2005

PC dissemination

Given the low-income levels, the cost of a computer is still high relatively to the average income. Most people resolve to buy locally assembled computers to reduce cost. Unofficial estimations of the number of PCs entering the Syrian market show that this number is around 110,000 PCs per year. The cost of locally assembled PC is 400-600 US\$.

4. ICT capacity-building

Awareness and dissemination

The Syrian Computer Society⁸ (SCS) remains the main promoter of IS in Syria through the promotion of ICT applications in the society-at-large. The main axes of activity in the promotion of IS were:

- Consultancy to the Syrian Government;
- Lobbying for Internet introduction and advanced ICT programmes in higher education;
- Carrying out awareness activities through a national IT dissemination program public lectures on various IS related topics and publication of the "Informatics Culture" journal;
- SCS annual conference and SCS exhibitions;
- Annual conferences organized by the Syrian Computer Society and universities;
- Specialized conferences organized by private sector companies and NGOs; i.e. NOSSTIA.

The MoE, in collaboration with the SCS is implementing the national literacy-training program (NLT) for training on computers. The training includes 3 phases (Basic training, Specialization A and B) as well as self-training, and covers the basic IT literacy modules. The MoE established 214 training centers; each center includes 6 PCs connected by a Local Area Network. The total number of trainees exceeded 300,000, most of them being young peoples.

The MoE and the UNESCO-Cairo Office signed a memorandum of understanding related to ICDL on a preparatory project of establishing training and testing centers to train teachers. SCS will supervise the implementation of the ICDL programme as well as the training and testing centers. The SCS started organizing ICT training courses since 1997. SCS supervises the programs designed to ICDL trainers (about 40 trainers joined these courses) and gives certification to private and public training centers to become ICDL certified training centers.

In 2001, the Fund for Integrated Rural Development of Syria (FIRDOS) launched an ICT training program for rural citizen. ICT training is one of the different programs supported by FIRDOS; training courses on basic computer skills were organized in different rural areas. The cost of training course is only

⁸ Syrian Computer Society www.scs.org.sy

1US\$ (the cost of training manual given to the trainee). In addition, the first Mobile Information Center (MIC) was launched with each MIC visit villages weekly and train people there.

Computers at school

The Ministry of Education (MoE) started in 1997 purchasing computers to some selected schools, in 2002 about 4700 schools received computers, the total number of computers distributed at schools at the end of 2002 was 12800 computers. The ministry continued to acquire PCs and other IT equipment since 2003, so now about 80% of preparatory and secondary schools have computer labs.

Vocational training

The SCS provides vocational training course in various fields of ICT, trainees are from public and private sectors, and the SCS organizes tailored courses of some public establishments. Training courses at the SCS are organized by trimesters of three months; each trimester includes about 15 courses. The number of trainees enrolled in each training course is about 15 trainees.

The National Information Technology Center (NITC) offers specialized training, such as MCSE, CCNA, CCNB, OCP. There are also other well-known training institutes with good experience and reputation in vocational training. The cost of training is still considered to be high, the complete set of training courses in one of the specialization fields costs about 2,000 – 4,000 US\$ excluding exam fees that has to be passed in neighboring countries or abroad. Other private and public training centers do exist, such as New Horizon and the training center of the Ministry of Higher Education, and are on the increase.

Some private training centers, such as New Horizon, provide high-level training courses in specialization topics, e.g. MCSE, Oracle, CCNA, CCNB, and Web design. None of these centers is a certified examination center.

The Telecommunication Sector Support Program (TSSP) aims at developing the STE to enhance its general performance in ICT. Started in 2002 with duration of 3 years⁴, the programme mainly consists of training, ICT development and network improvement. A consultancy study funded by this program aimed to provide a tender document of the CCBS (Customer Care and Billing System), contracting of this system is in its final steps. This program included the delivery of a data center to STE, and a pilot project of fiber optic access network.

University education

The Syrian Higher Education and Research Network (SHERN) project supports of the ICT infrastructure program launched by The Ministry of Higher Education (MHH), in cooperation with the UNDP. The project aims at connecting universities and HIAST. This network allows for distance learning, exchange of curricular and scientific research among higher education institutions.

The ICT situation in Syrian Universities is more developed than in Syrian schools. Damascus University has automated administrative system, with computers in each faculty, library and connected to Local Area Network (LAN).

Computer-engineering faculties are established in the 4 Syrian public universities. The Higher Institute of Applied Sciences and Technology (HIAST) is known to offer a comprehensive curriculum in Computer Engineering with practical training equivalent to that in European Universities. HIAST is the main academic and scientific body in Syria that cooperates with both the public and private services sectors.

Research, Development and Innovation in ICTs

Research and development (R&D) activities in Syria are mainly applied research and projects related to institutional administrative automation. Syria is considered to be a pioneer in Arabization. However, their reach is limited to universities, due to the lack of financial resources.

5. Building the ICT sector

ICT firms

There are no exact statistics available about the number of ICT companies in Syria. The core business of national IT companies is commercial, through promoting imported products. The Syrian IT companies are classified under small and medium sized companies. The total number of companies registered with SCS is about 120 companies; less than 20 companies out of which have software development activities.

An e-Village project to act as an incubator for small ICT enterprises is being studied. But it is not yet launched since no sources of financing have been identified.

Investment in ICTs

The rate of public investment in the science and technology sector is considered to be one of the lowest in the world. This is due to weakness in the Syrian market and to the fact that Government support and tax-exception are not very much compatible with the conditions and requirement for establishing new ICT companies. Public annual investments in ICT do not exceed 600 million US dollars, the major part of which being reserved to telecommunication infrastructure.

Syriatel was established after obtaining the BOT agreement in 2001 from STE establishing a GSM network. The company issued a successful Initial Public Offering in September 2004.

Government facilitation

The current laws and regulations do not give special advantages to ICT companies; the terms and conditions of investment promotion law (Law No. 10) do not take into account the specific needs of ICT companies and new start-ups. No tax exemptions are applied on new ICT companies, and imported ICT products are not exempted.

Export of ICT equipment/software

The main exports in ICT are software development and IT services that are provided by individuals and local companies to international companies and institutions. No official statistics available about the total value of exported software and services since this kind of activities is new, and most of the companies working in this field do not provide exact data about their activities. Unofficial estimations of software development turn around 10 million US\$ per year. Imported hardware components are mainly assembled to meet the local market needs.

6. Applications in Government Establishments

Syria has an e-government index of 0.264 for 2003, indicating a deficient level of e-government readiness, a large part of which is due to their lower level of human/capital and technology infrastructure.⁹

Computerization of public administration

The Ministry of Interior (MOI) is currently building a national integrated information system and automation of civil registration. The system is to be a basis for population databank, including civil records, statistics, issuance of national identification number and card. The project is planned over for 6 years (2001-2006). The MOI finished data entry of about 28 million civil registers (all citizens registered since 1922) in March 2005, all registration offices (254 offices) are connected to civil registration servers installed in the fourteen directorates so the registration of new born, marriage, divorce, death, and the extraction of civil

⁹ United Nations Economic and Social affairs. World Public Sector report, E-Government at the crossroads, 2003 <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan012733.pdf>

register documents are done online. The next step is to carry on data cleansing to identify duplicate data and build the national civil registration data bank.

The Ministry of Finance (MOF) continues to use IT in its work, such as, gradual automation of financial management systems, re-engineering and organizing document flow, linking between different database, to provide digital and statistical records about the finance administrations. After a successful implementation of IT system in the two main cities, Damascus and Aleppo, the ministry is deploying the system in all governorates and building a wide area network to connect the distributed systems with the central system at the ministry. This expansion is ongoing at present.

The computerization of the Damascus City Governorate includes the automation of network and implementation of the database and achieving systems that rely on the Geographical Information Systems (GIS). The Governorate outsourced the development of digital maps of Damascus City.

Digitization of information

In addition to the automation of civil registration and automation of financial records at MOF, the Ministry of Tourism is implementing a project in order to produce digital maps for Damascus using GIS. Several ministries have started their own archiving projects, such as, the Ministry of Foreign Affairs that has digitized more than 100,000 documents and have facilities for document search.

e-government plans

There are currently no e-government applications in Syria. The most important effort in this area in the initiative of the Ministry of Communications and Technology is to build a government portal to provide e-government services.

e-procurement applications

E-procurement applications are still very limited: some ministries (such as the Ministry of Health) publish tender books on their web sites. This is due to the limited applications of ICT in the public sector and to laws pertaining to application requests for proposals (RFP), tender submission, evaluation and contracting.

Computerization of customs processing

The Customs Department issued in 2004 an important tender document for the modernization of customs infrastructure, including goods inspection equipments, tracking of containers and trucks, registration of customs tariffs and fees. The project reached contracting phase.

Computerization of taxation and revenue management systems

The MOF is at the design and development stage of various software developments of accounting work through installation of a special network in each department and connecting these networks with the ministry. The ministry aims to computerize all taxation check-ups and collection services. The ministry is actually in the phase of deployment of the computerized system of tax verification and collection on the fourteen departments.

7. Applications in Education

e-learning

HIAS and a number of Syrian universities are developing projects in e-learning within the framework of the Euro-Mediterranean Information Society (EUMEDIS) cooperation projects. The MEDFORIST project is one that aims at training a number of Mediterranean specialized trainers using ICT and e-learning on different topics of interest for SMEs such as Enterprise Resource Planning, Customer

Relationship Management, e-Commerce, and Supply Change Management that could benefit industrial and commercial business management.

e-school projects

E-school projects are still under consideration at the Ministry of Education. The ministry implemented few experimental e-classes in Damascus to evaluate the possibilities, benefits and requirements of implementing e-learning principles at schools. This experience will start in September 2005.

Virtual universities

The Syrian Virtual University¹⁰ (SVU) is the first Virtual university established in the Middle East by the Syrian Ministry of Higher Education in 2002. This includes the basic feature of a modern university with the framework for work and improve distance learning and provides online curricula. The work of the SVU is based on representing a number of foreign universities, facilitating registration procedures, and providing online curricula. SVU offers undergraduate degrees (in business administration, information technology, engineering) and Higher National Diploma in Computing and Business Applications both in Arabic and English.

8. Applications in Commerce and Business

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

There are no real or active e-commerce activities in Syria, due to lack of necessary laws and regulations, and the unavailability of communication infrastructure and facilities for e-transactions (payment). The lack of local electronic payment systems prohibits electronic transactions through the Internet among companies in Syria.

There are currently no companies in Syria using websites that are hosted by local servers that offer e-commerce services. However, there are few companies that offer information about their products through websites hosted by outside servers and can be accessed through portals.

Availability and quality of e-banking

The lack of e-banking applications is considered to be a factor that impedes the spread of e-business in Syria. Syria's government-controlled banking system consists of the Central Bank of Syria and five specialized banks. Only the Central Bank and the Commercial Bank may engage in international transactions and hold foreign exchange deposits outside Syria. Within Syria, only the Commercial Bank may trade or sell Syrian currency for foreign currency and is the only bank permitted to provide commercial banking services¹¹.

Maturity of regional ATM and banking networks

In 2000, the Ministry of Economy and Foreign Trade announced that private banks could be established. To date, six private banks have been licensed to operate in the country, but only four have established offices and provide limited banking services. In early 2002, the Real-Estate Bank began issuing ATM cards for use in Syria, and installed about 50 ATMs in main Syrian cities; these ATMs accept locally issued cards and international cards and operate in local currency only.

In 2004 the Commercial Bank of Syria (CBS), the only Syrian bank authorized to operate in foreign currencies, signed a contract with a Moroccan company to provide card issuing and management system. The system was installed during the first quarter of year 2005 and the bank started issuing local cards. CBS

¹⁰ Syrian Virtual University www.svuonline.org/sy/eng/about/admin.asp

¹¹Hayden Wetzel. Trade, Proj Financing, Syria Country commercial guide 2004, Chapter 8. <http://www.strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr120220e.html>

is planning to issue international cards with the VISA label during the third quarter of year 2005 and to extend the number of ATMs and POSs to reach 200 ATMs and 1000 POSs by the end of year 2005. This system is designed to operate in local currency and US dollars.

Maturity of bank-to-bank financial transfer system (B2B)

Bank-to-bank financial transfer is carried out through the central bank of Syria, no IT systems are used to facilitate fund transfer, and this task is still carried out by traditional ways.

9. *Applications in Healthcare*

Databases for national healthcare

The ministry of Health (MoH)¹² is working on the Health Sector management program (2003-2007) to improve the health status of the Syrian population. This program includes training to strengthen the Decision Support System (DSS) that uses IT products to connect administration departments in the ministry.

The MoH also seeks to implement other projects related to e-health applications, with plans to use smart cards as electronic medical records, which is registered on the Smart Card.

The DSS aims to provide the infrastructure for e-libraries, e-medicine and distant learning. The MoH seeks to continue the process of developing the ministry's website to include full directory of medical services provided by the ministry and migrate the IT applications into a web-based environment.

Telemedicine and medical use of teleconferencing

Telemedicine applications are still not available in Syria. However, it is within the plans of the MoH to enable the exchange of consultations and medical information through its Web site. Currently, there are some Web pages that provide medical news and updates and information from pharmaceutical companies.

Maturity and implementation of Health Care Information Technology Systems

The MoH is developing a healthcare project called PARADIGMA aiming at the establishment of an ICT infrastructure that supports healthcare systems in the Euro-Mediterranean region. This project is within the framework of the EUMEDIS initiative region and is implemented in collaboration with HIAST.

10. *Digital Arabic Content*

Arabic vs. English content on the Web for national use

Private sector companies and individuals mainly construct the Syrian Web sites. By the end of 2002, STE had started hosting sites on the .sy domain. However, most Syrian sites are hosted outside the country, mainly in the US and Dubai. There are Syrian portals that link sites in various fields, local information, link to companies and marketing local goods.

Most of Syrian Web sites are static sites (not dynamic) they are designed to provide information about companies or institutions. The quality of their content is in general poor, and not up-to-date. Some information web sites (news papers and magazines) and electronic newsletters are well known to national Internet users, and some successful experiences were through a cooperation between private and public sector (e. g. bakaloria.com).

There are very few government Web sites online, and the majority of these are in Arabic. English content, whenever available is poor and not up-to-date. There is definitely a language problem reflected by the limited number of Arabic Web sites, and limited quality of Arabic software, particularly tools such as Arabic search engines and Optical Character Recognition (OCR) tools.

¹² The Ministry of Health <http://www.moh.gov.sy/>

Local creation of software products in Arabic

HIAST has been working in cooperation with ALECSO on processing and recognition systems for the Arabic language¹³. Sakhr outsourced the development of some components of their Arabic content management and archiving systems to a Syrian private company.

Obstacles for its development and ways for removing them

Obstacles to the development of DAC include: low-income, low Internet penetration and high access costs, making the Internet an unfavorable mean to access information. There is also a lack of laws and regulations such as, protecting privacy and security that governs e-transactions and e-documentation, which limit e-applications that generate content. In addition, there is a significant need to train staff, companies in IT and computer use as well as in foreign languages.

Table 4. Information Communications Technology indicators 2005

Telecom indicators	2001	2002	2003	2004
Total population (M)	16.72	17.13	17.55	17.98
Population density (per km2)	90	92	95	...
Total GDP (USD Millions)	18,400	21,872	21,517	...
GDP per capita (USD)	1,100	1,277	1,226	...
Total telephone subscribers (K)	2,017	2,499	...	...
Total telephone subscribers per 100	12.06	14.59	...	...
Fixed telephone (K)	1,817	2,099.3	2,411	2,657
Fixed telephone Penetration (%)	10.8	12.2	13.7	14.8
Main lines per 100	10.87	12.26	...	...
Household Penetration (%)	...	49	55	59
Cellular Subscribers	200	400	1,185	2,480
Cellular Penetration (%)	1.15	2.34	6.75	13.79
Cellular subscribers per 100	1.2	2.34	6.75	...
Internet Users (K)	60	365	610	610
Internet Subscribers (K)	...	73	120	180
Internet Penetration (%)	...	...	...	3.3
Internet Users 10,000	35.89	213	347.58	...
Personal Computers (K)	270	330	500	...
Personal Computers per 100	1.61	1.93	2.85	...
Internet Host computers	9	11	11	...
Internet Host per 10,000 pp	0.01	0.01	0.01	...
ISDN Subscribers	0.98	1,390	1,910	5,000

'...' = data not known at the time of publication

Source: ITU data 2005 and Arab Advisors 2005.

¹³ The Commission on Science and Technology for sustainable development in the south (COMSATS)
<http://www.comsats.org.pk/hiast/hiasthome.html>