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PROFILE OF THE INFORMATION SOCIETY IN THE HASHEMITE KINGDOM OF JORDAN

2003

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INTRODUCTION

A. THE VISION

With the ascension of HM King Abdullah II to the throne of the Hashemite Kingdom of Jordan, the stage was set for the development of a new vision for the economic development of the country. As a strategic decision, the development of the information technology sector was selected as having the greatest potential for contributing positively to Jordan's future success.

His Majesty shared his vision and aspirations with Jordanians, and called upon Jordanian IT and computer companies to put their thoughts together in an effort to formulate a national plan aimed at the full development of an information technology sector in Jordan. The outcome of this royal inspiration is known as Jordan's REACH initiative.

B. JORDAN'S ICT SECTOR

Jordan's ICT Sector is a dynamic value-added aspect of the economy that plays an important role in driving other major economic sectors. It has emerged as a strong economic player in Jordan since 1995. The IT Sector is responsible for the direct growth in value-added economic outputs which have considerable effect on the growth of the national economy, such as education, public administration, business service entities and manufacturing industries. In addition to computer software and hardware, Jordan's IT industry also includes the telecommunications sector.

An educated population is among Jordan's best assets. In comparison to other countries in the region, Jordan has the highest rate of college-educated people. Moreover, the proportion of Jordanians who are between 18 and 30 years of age is over 50%. A rate that is the highest in the Middle East.

C. IT ACTIVITIES IN JORDAN

According to Jordanian IT firms' activities, the IT sector includes the following fields:

- (a) Software Development;
- (b) Hardware & Packaged Software Sales;
- (c) Cables and infrastructure-related wiring and cabling systems;
- (d) Communication equipment;
- (e) Telecommunications services;
- (f) Internet services;
- (g) Mobile messaging and Wireless Application Protocol (WAP);
- (h) Data and information transmission and management services;
- (i) Multimedia production services;
- (j) IT Training;
- (k) IT Consulting & Research.

Table 1. The Jordanian IT Sector contribute up to 5.6% in the Gross Domestic Product (GDP)

	No. of Firms	Number of Employees	Gross Output	Gross Value Added
Services: Software Consulting & Supply	33	278	2,131	1,464
Maintenance Operations	43	114	531	391
Retail Trade: Retail Computer Sales	400	2,500	14,321	11,272
Industry: Computer-Aided/Printing & Design	8	98	1,574	76
Manufacturing of Electricity - Distribution and Control Apparatus	9	146	4,364	1,830
Manufacturing of Insulated - Wires and Cables	6	801	23,869	4,003
Manufacturing of Monitors and Receivers	2	291	28,496	8,556
Telecommunications: Telecommunications Services	5	5,423	252,151	218,610
Total IT Sector	506	9,651	372,438	246,203
GDP in 1998				4,408,000
Percent of GDP				5.6%

D. GENERAL INFORMATION ABOUT JORDAN

Official Name:	The Hashemite Kingdom of Jordan.
Population:	approximately 5 million (2000)
Area:	89,342 sq. km
Capital:	Amman
Main Cities:	Amman, Zarqa, Aqaba, Irbid, Salt & Mafraq
Official Language:	Arabic, although English is widely spoken in business.
Currency:	The Jordanian dinar (JD), equivalent to US \$ 1.41.
Air Travel:	

The Royal Jordanian Airlines links Amman with many of the capitals of Europe, Asia, the Arab world, and operates wide-body jets to the United States of America. Many other international carriers also operate regularly to Amman. The Queen Alia International Airport, 32 km south of Amman, is one of the most modern facilities in the Middle East.

Telecommunications:

Excellent direct telephone, Mobiles, Fax and Internet communications and services are available through out the country at international standards.

Time: GMT + 2 in Winter/GMT + 3 in summer

Working Days:

Private business: Friday is the weekly holiday. Government and banks: Friday and Saturday are weekly holidays.

Working hours:

According to Jordanian labor law, most workers are limited to 48 hours per week. Hotels, Restaurant and Cinema workers, are limited to 54 hours per week..

Holidays: There are 13 official holidays during the year.

I. POLICIES AND STRATEGIES

A. NATIONAL INFORMATION SOCIETY POLICIES AND STRATEGIES

1. *REACH National Initiative*

The REACH Initiative Report, prepared for H.M. King Abdullah II in 1999, presented a national strategy for Jordan to develop a vibrant, export-oriented Information Technology services sector.

The strategy lays out the main efforts to bolster the country's nascent IT sector and maximize its ability to compete in local, regional, and global markets. It outlines a clear plan, specifying actions to be implemented—by the private sector, the government, and by other stakeholders—to ensure a place for Jordan in the knowledge-based economy of the future. This comprehensive framework embraces actions in the following areas:

- (a) Regulatory Framework Strengthening;
- (b) Infrastructure Development;
- (c) IT Industry Development;
- (d) Capital and Finance;
- (e) Human Resource Development;
- (f) Government Support.

The vision of the REACH Initiative is for Jordan to become a major regional ICT services leader and an internationally recognized exporter of ICT products and services by capitalizing on its core human capital advantage. Based on the assumptions of the stimulation and growth made possible by implementing the REACH Initiative strategy, the following economic impacts are projected to be reached between 1999 and 2004:

- (a) 30,000 ICT related jobs by 2004 (20,000 direct and 10,000 indirect);
- (b) US\$550 million in annual exports by 2004;
- (c) US\$150 million in cumulative foreign direct investments by 2004.

The REACH Initiative is well underway. During the past three years, Jordan's ICT sector has grown from \$60 million to \$167 million, exports have increased by more than 350 percent, and employment has increased from 1,250 to 10,000 professionals.

Since the REACH Initiative was launched in 1999, industry stakeholders have worked together to update the strategy, responding to local and international industry developments. The third review culminated at the Jordan ICT Forum II in September 2002, resulting in the REACH 3.0 report.

2. *Connecting Jordanians Initiative*

In 1999, His Majesty King Abdullah II launched an ambitious strategy aimed at transforming Jordan into a knowledge-based economy and positioning this young nation as the leading ICT technology hub in the region. To implement strategy, the Ministry of Information and Communications Technology (MoICT) is tackling the challenge of how best to leverage ICT to serve Jordan's economic and social development.

To support a "connectivity" agenda, the MoICT introduced the Connecting Jordanians Initiative (CJI), aimed at coordinating an integrated national strategy to get Jordanians online.

Broadening ICT access to communities, businesses, and citizens throughout Jordan will help realize the nation's aspirations to become a knowledge-based society with a solid economy. Connectivity enables lifelong learning opportunities, which in turn, creates a better-informed and more involved citizenry. Citizens, harnessing the advantages of ICT in their daily lives, will contribute to a more competitive economy and a dynamic local culture.

B. SECTORAL PLANS FOR BUILDING THE INFORMATION SOCIETY

Education: Connecting Schools, Virtual Universities, etc.

Industry: EBDA initiative by Amman Chamber of Industry

Amman Chamber of Industry (ACI) in cooperation with The Ministry of Communication and Information Technology (MoICT) concluded the first series of training program specialized in E-Government and E-Commerce by the graduation of the government nominees from the staff of different ministries and government agencies.

This series of training comes as a continuous effort from the MoICT to prepare and qualify the public sector to cope with E-Government initiative. For the same purpose the (MoICT) adopted the E-Commerce center "EBDA" at ACI, and through their specialized program to deliver the training and awareness courses to serve as primary stage in enhancing the skills, and improving the understanding of E-Government.

The training program, which consist of five modules was conducted by EBDA group. Also the team of the Jordanian e-government project participated in the training program by shedding the light on their project objectives and strategies, and the legislations regulating the electronic transactions and issues, which going to be implemented soon.

Commerce: e-Banking & e-Business Portals

Government: Implementation of e-Government Plans

Health

In December 2000, The Center For Business Innovation (TCBI) recognized outstanding health care solutions with the eHealth Innovation Awards during the Health Internet Congress, which took place in San Jose, Calif., on December 11-12, 2000. The awards recognize eHealth companies that are best positioned to thrive in a highly competitive environment from an investor's perspective. The criteria for the awards include a practical and compelling business model, technologic innovation, customer satisfaction and the ability to forge critical partnerships.

This award was won by a Jordanian company for a Jordanian solution that has been in place since then, with more Smart cards for members of health insurance plans, and more electronic claim for doctors and insurance companies is installed.

II. LEGAL AND REGULATORY FRAMEWORKS

A. INTELLECTUAL PROPERTY RIGHTS AND PRIVACY STATUS

1. *Intellectual Property Laws*

Of all the REACH legislation advocated in Jordan, the most critical were those laws and regulations pertaining to ownership of intellectual property rights. The amendments to the Copyright Law, Patent Law, and Patent Regulations that were passed last year assure investors that intellectual property rights in Jordan meet the highest international standards.

In September 2001, the government of Jordan announced it had successfully amended one of the Labor Law's most criticized articles, widely viewed as an obstacle to investment in Jordan's ICT sector. Article 20 of the 1996 Labor Law was amended to protect employers' rights to inventions. The amended law now entitles employers to ownership of an invention or product if its creation was related to the work of the employer, or if the employee used the experience, information, or tools provided by the employer in creating the new invention.

To develop IPR legal capacity in the Kingdom, the University of Jordan has collaborated with the World Intellectual Property Organization (WIPO) to introduce the country's first Master's program in Intellectual Property. The program is offered through the faculty of law and designed for students seeking a legal or academic career in IPR. WIPO, one of the specialized agencies of the United Nations, has provided its standardized IPR Master's curriculum to the university. In addition to UJ law professors, WIPO will select foreign professors from various institutes worldwide to teach the courses.

Jordan joined the WTO in April 2000 and signed the Information Technology Agreement (ITA). Jordan started a gradual tariff reduction (zero binding) to implement the ITA as soon as it became a member of the WTO, and has a period of five years, (until the end of 2004), to reach the zero tariff rates on all IT products identified by the ITA.

By signing the WTO Agreements, Jordan made a serious and immediate commitment to enforce intellectual property rights (IPR) laws. All local and foreign copyrights, trademarks, patents, and other trade-related rights are protected in Jordan.

B. TELECOM REGULATORY FRAMEWORK IN THE COUNTRY

The Telecommunications Regulatory Commission (TRC) was transformed from a part-time body chaired by the Minister into a five-member full time commission, separated from Government with full authority to regulate and facilitate competition in the telecommunications industry. As a result of these changes, investor confidence in the ICT sector will grow dramatically.

Institutional strengthening of the Telecommunications Regulatory Commission (TRC) as an independent regulatory body should create a favorable environment for increased competition in the telecoms sector, resulting in lower prices for consumers. With five full-time board members assigned to the Commission, the TRC now possesses the technical capacity to implement MoICT policy fairly and efficiently and regulate an increasingly competitive, converging sector.

The restructured TRC, which became operational on 1st November 2002, will be implementing new operating procedures and programs to gear-up to its new status. These include launching major recruitment and training programs based on the implementation of its new organizational structure and strategic plan. These programs will focus on developing skills and expertise in the fields of law, finance and consumer protection. In collaboration with stakeholders, clear guidelines will be published on industry issues to ensure a high-level of transparency of procedures. Special focus will be given to the development and implementation of a customer care strategy to ensure Jordanian consumers interests are a priority in the development of the sector moving forward.

The TRC's new operating structure, outlined in the Amended Telecommunications Law in March 2002, has installed a board of full-time commissioners coming from diverse range of backgrounds and experience including; technical, legal, financial, commercial, and regulatory components to international standards. The law also stipulates that the TRC is to: regulate independently from the MoICT but in accord with its general policies; foster the development of the ICT sector, protect the interests of consumers; prevent anti-competitive behavior; comprehensively manage radio spectrum and provide a mandate for interconnection obligations.

In line with its policy to encourage local and foreign investments in the telecommunications sector, the Telecommunications Regulatory Commission (TRC) is studying a plan to introduce substantial tariff reduction in Jordan. According to TRC, the new reduced tariff affecting all Telecommunications Services in Jordan will take effect in January 2001

As of June 2000, tariff rates of telecommunications services in Jordan had already been reduced, which indicates that Jordan is moving rapidly to become an attractive telecommunications hub in the Middle East Region.

C. REGULATING THE INTERNET

1. *Internet Café Law*

A number of governmental bodies have repeatedly attempted to impose strict regulations on the operations of Internet Cafes, blocking content, requiring identifications for users, and a number of other rules that form an obstacle to increase penetration rates. int@j has on several occasions lobbied against such regulations, which are now in affect but not implemented. The association worked on drafting a law which was passed and acts against regulations imposed on Internet Cafes, aiming at providing Jordanians with open access to the entire net, and spreading awareness about harmful content at the same time, yet offering free-of-charge monitoring software tools which may be implemented on a voluntary basis by the management of Internet Cafes.

2. *Internet Security*

Currently, efforts are underway to develop a position paper and guidelines for minimum requirements to ensure internet security. These efforts are coordinated by the Data Communications Committee of int@j members, ISPs & Jordan Telecom, upon the request of the TRC.

3. *e-Transaction Law*

A new Electronic Transactions Law supporting e-commerce and e-banking was drafted and passed in January 2002. However, a comprehensive set of supportive regulations is still missing and needs to be worked out through joints efforts from the Ministry of Information and Communications Technology, the Ministry of Industry and Trade, and the Central Bank of Jordan. Jordan's Electronic Transactions Law, based on UNCITRAL model law, is a sleeping beauty that can only be awakened with the proper supportive regulations, instructions, and institutions in place.

Under the current law, an electronic signature has no evidentiary power until it is authenticated by a certification authority. The absence of certification bodies and a secure public key infrastructure (PKI) are major impediments to the creation of an effective e-contracts/e-transactions environment in Jordan. Furthermore, the Central Bank of Jordan is empowered by the Electronic Transactions Law to issue regulations on the electronic transfer of funds and methods of payments, but no regulations or instructions authorizing such transactions have been issued to date.

Regulations that will be adopted will be authorizing:

- (a) Digital certificates;
- (b) Licensing and regulating certification authorities;
- (d) National digital identity;
- (e) Foreign certification authorities.

Based on United Nations Commission on International Trade model law (UNCITRAL), Jordan's Electronic Transactions Law recognizes the equivalency of electronic signatures, documents, data, and transactions as having the same the legal status as original versions. In addition, the law grants the Central Bank of Jordan the authority for regulating the electronic transfer of funds and also sets penalties for any crime committed through electronic means. The crucial next step in implementing this law is to establish the infrastructure and institutions necessary for certifying and processing transactions.

D. PRIVACY AND SECURITY LAWS AND REGULATIONS FOR APPLICATIONS

Security & Privacy Laws are currently being drafted by Telecommunications Regulatory Commission with the help of int@j and its company members.

E. OTHER ICT-RELATED LAWS AND REGULATIONS

1. *Investment Promotion Law*

Under this law, software development companies, with objective to develop software are given industrial Tax cuts (15% instead of 25%).

III. ICT INFRASTRUCTURE

A. TELEPHONE PENETRATION

1. *Jordan Telecom*

Jordan Telecom's profit has actually been decreasing in the last two years. 2001 profits stood at US\$ 64.6 million compared with US\$ 83.9 million in 2000. Revenues however, grew from US\$ 401.5 million in 2000 to US\$ 435.5 million in 2002.

A new report, "Jordan Telecom: A transformed operator?" was released to the Arab Advisors Group's Strategic Research Service subscribers on October 20, 2002. The report states that the reduced profit margins of Jordan Telecom do not necessarily show a troubled operator. The Arab Advisors Group believes that these are the signs of the transformations that have been happening at Jordan Telecom (and the CAPEX investments it has made).

"The number of local and national minutes on the fixed network has decreased between 2000 and 2001 by 2.38% and 6.48% respectively. Given the massive growth in number of mobile phones in Jordan during the same period, and the increasing intra-mobile traffic in Jordan, the decline is a very clear evidence of substantial mobile – fixed traffic substitution in Jordan". Arab Advisors Group's President, Jawad Abbassi wrote in the report. "While the local fixed traffic volume has decreased on JTC's network, the revenues actually increased by 8.45% to exceed US\$ 56 million which stems from Jordan Telecom's tariff rebalancing". Mr. Abbassi added.

The 5-pages report shows that while PSTN national and local traffic volume is decreasing, the fixed-mobile traffic is increasing at very healthy rates. Between 2000 and 2001, fixed to mobile traffic increased by 50.52% and mobile to fixed traffic increased by more than 86%, and will grow to become one of the very important revenue streams for Jordan Telecom.

The report also explains the effect of VoIP international traffic termination in Jordan. Incoming international traffic was almost flat between 2000 and 2001 as it grew by only 1.5%. More importantly, 2001 was the year when, for the first time, outgoing international traffic was higher than incoming international traffic in Jordan. "Given the growth in the subscriber bases of fixed phone and mobile phones, the lack of growth in incoming international traffic can only be attributed to VoIP traffic termination". Mr. Abbassi noted. "Jordan Telecom is now much less dependent on international incoming traffic. Whereas the incoming international revenues made up close to 32% of its total traffic revenues in 1999, they constituted no more than 20% in 2001 while overall revenues grew in the same period. The company is therefore much less susceptible now to the phasing out of the international accounting rates regime". Mr. Abbassi added.

The report concludes by promising exciting time for Jordanian consumers. Even lower rates, attentive operators and two or three viable major operators in the country to choose from. Clearly, the region will be watching the Jordanian experience with much attention.

2. GSM

Jordan is applying the latest in mobile technology available in the world today, where it was the first to launch MMS in the Middle East and the second to launch the GPRS service. Mobile penetration in Jordan stands at around 24%, which is a good number within the developing countries and in the region. The usage of SMS in Jordan is among the highest in the world.

Arab Advisors Group's Mainlines and Cellular Market Share Indices.

A newly released comprehensive trend report from the Arab Advisors Group fully analyzes the dynamics of the mainline market and the cellular market in eleven Arab countries (Bahrain, Egypt, Kuwait, Jordan, Lebanon, Oman, Morocco, Qatar, Saudi Arabia, Syria, and UAE).

The main lines (fixed phones) markets in the Arab World continue to be monopolistic markets; currently the only providers of mainlines are the incumbent operators. The majority of those incumbent operators are state-owned. Most Arab fixed markets are expected to remain uncompetitive until the end of 2004, as the pressure will increase on the governments to liberalize the markets. Furthermore, all of the incumbent operators have a monopoly over international gateways except for Morocco, which has granted MediTel the right to offer its subscribers ILD service on its own.

The report shows that the Arab cellular market is more liberalized than the main lines market. Currently out of the eleven markets examined, six markets have duopoly operators (Egypt, Jordan, Kuwait, Lebanon, Morocco and Syria).

"Between the years 1998 and 2001, the total number of cellular subscribers in the eleven examined countries was lower than that of mainlines. However, the total number of cellular subscribers is expected to exceed that of mainlines by 2002. By the end of 2002 the number of cellular subscribers will have exceeded that of mainlines in 9 of the 11 examined countries (Bahrain, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, UAE)." Arab Advisors Group's analyst, Shahin Shahin wrote in the report.

The report serves as a breakthrough and truly accurate examination of each of the markets in a regional context. Towards that end, the Arab Advisors Group calculated the Market Share Index for each of the countries. The index is calculated by dividing the share of total subscribers in each country by the share of total population of each country from the total population of the eleven countries. The higher the score the better the development status of the market, penetration wise. A score of less than 1 indicates some underdevelopment in the market.

On the Cellular Market share Index, the UAE was first by a wide margin with a score of 5.38. Bahrain was second with a score of 3.98, followed by Kuwait (3.87), Qatar (2.72), Lebanon (1.88), Morocco (1.52), Jordan (1.46), Oman (1.2), Saudi Arabia (1.12), Egypt (0.51) and Syria (0.1). As for the Mainline Market share Index, the UAE also topped the ranks with a score of 2.96. Second was Qatar (2.54), Bahrain (2.3), Lebanon (2.04), Kuwait (1.95), Saudi Arabia (1.42), Jordan (1.19), Syria (0.98), Egypt (0.93), Oman (0.85), and Morocco (0.35).

"This comprehensive trend report from the Arab Advisors Group is based on eleven comprehensive country communications projections reports released on the eleven countries over the past period in addition to many more research notes" Jawad Abbassi, Arab Advisors President noted. "Our team has been focusing on the Arab World's communications markets for the past two years which gives us the unique opportunity of producing such regional comparisons for the benefit of all concerned" Mr. Abbassi added.

B. INTERNET BACKBONE

1. Increase Internet penetration

One crucial aspect of connecting Jordanians is through internet literacy and increasing the internet penetration rate. This can be achieved through higher PC penetration, and lower connectivity rates.

Part of the low PC penetration rate can be attributed to the high cost of PCs purchased in comparison to the average income per capita and the non-availability of financing schemes that would make PCs affordable to lower income groups. As an alternative, Jordan enjoys an exploding number of Internet Cafes/ public access points, where Jordanians can access the web at minimal fees, without having to incur the entry cost to the Internet and purchase a personal computer with its peripherals.

int@j is keen on maintaining lower connectivity prices for businesses and consumers, which in turn will encourage e-commerce activities, global business conduct, and higher exposure to the international business community. To that end, the association will continue lobbying with Jordan Telecom to maintain the appropriate price-drop rate throughout the coming years.

Education is the strongest tool to convince reluctant parents that the Internet will provide their children with valuable and needed benefits and access. The resistance stems from lack of knowledge, and numerous stories and rumors of incidents that resulted from children being exposed to explicit material on the web.

int@j is in the process of developing an easy-to-read brochure about the Internet, highlighting how it functions, the material and knowledge that is available on the web, and how children will be able to enhance their learning process by gaining access to this technology. In parallel, int@j will offer free content monitoring software tools to those households that would like to monitor the content their children will become exposed to.

C. ISPS AND ASPS

There are 10 ISP's in Jordan providing internet for the public. ISP's get their services through two ways: fiber optic submarine cables from FLAG company and through satellites, Internet through cables is cheaper and faster.

Total bandwidth in Jordan is approximately 200 MB (in 2003), in 1997 each ISP had a separate line with a total bandwidth of 8 MB, In 2001 each the bandwidth reached 20 M and was upgraded to 155 M in preparation for the ADSL service

D. ACCESS

1. *Connecting Jordanians through MoICT*

Currently, the Connecting Jordanian Initiative main priority is to ensure that access to computers and networks is readily available to all students in Jordan.

High-bandwidth access is crucial for achieving the goals of the CJI by providing the capacity for the current and projected needs of learning institutions. In this context, MoICT and the Ministries of Education, Higher Education, Planning, as well as other public agencies, are undertaking a detailed study to establish a broadband learning network. This network will link together more than 3,000 public schools, eight public universities, 23 community colleges, and 67 community access centers by 2005, affecting nearly 1.5 million Jordanians.

The benefits of a broadband network include:

- (a) Promoting collaborative learning programs;
- (b) Providing access to learning content for all Jordanians and contributing to lifelong learning opportunities;
- (c) Supporting a wider range of high-bandwidth services, including multimedia-rich content;
- (d) Promoting the development of a cluster of e-learning content, applications, and services for regional and global export;
- (e) Meeting the network requirements of specialty users;
- (f) Stimulating the development of "knowledge economy" skills.

The government of Jordan is now preparing a business plan to determine the most efficient and cost-effective approach to implementing the broadband network.

E. PC DISSEMINATION

1. *Setting up ICT Community Centers by the Ministry of Planning*

Public access is a critical element of the Connecting Jordanians Initiative. Given low disposable income levels it is not realistic to suppose that residential and small business penetration rates for computer ownership and Internet in Jordan will rise dramatically, even with effective public awareness and marketing campaigns by government and business. Accordingly, public access points will continue to play a critical role in Jordan for the next ten years.

His Majesty King Abdullah II has taken the lead in increasing public access to information technology by establishing the Jordan Information Technology Community Centers (JITCC) Initiative.

JITCCs are full-service computer labs hosted within already existing community and youth centers throughout Jordan. JITCCs are strategically located in urban and rural communities, often serving women, children, and people with special needs who might not otherwise have access to technology. Forty-one of the 67 centers are already operational.

As executing agency for the JITCCs, the National Information Center (NIC) has established a Project Management Unit (PMU) to manage the program. The Royal Court, Ministry of Planning, UNDP, local NGOs, and international donors have all cooperated to build, equip, and fund the JITCCs.

Currently, services provided through the JITCCs include walk-in Internet access, ICT support access (computers, printers, faxes, etc.), English language learning software, pilot social development services (leadership training, special needs, etc.), and training in basic computer literacy.

According to a study published in April 2002, at that time, 20 centers had already offered 737 computer courses to 7,437 course graduates. The study revealed that most of the centers were already capable of covering their operating costs with the revenue they earn in training fees. For those centers located in poorer rural areas that are not sustainable, the government of Jordan is committed to maintaining them over the long term and keeping training fees low.

Public-private partnerships are now being forged to expand and deepen the level of services offered by the centers. To guide that process, the Program Management Unit of the JITCCs is currently undertaking a needs assessment study for all communities where these centers exist with the aim of building a sustainability model for community access. In some cases, additional infrastructure will be provided. Depending on the needs and demands of each community, other services may also be introduced or expanded, including e-health, e-government training, e-learning, and/or business development services like market research and e-commerce instruction for micro-entrepreneurs.

IV. ICT CAPACITY-BUILDING

A. AWARENESS AND DISSEMINATION

1. *Training all Government Employees to have the ICDL*

In its continued efforts to implement e-Government practices, the MoICT launched the first phase of the International Computer Driving License (ICDL), as part of the e-Government ICT Literacy Training Program. The initiative, valued at JD 2.5 million, aims to train 20,000 government employees from across the Kingdom and get them ICT literate by the year 2005.

The ICDL program covers basic IT literacy and is divided into four modules: an introduction to IT, Windows Environment, Word Processing, Communications and Internet. For the first time, in addition to English, the program will be taught in Arabic. The program has been prepared to include translation of all of the course materials and awareness programs for both the training providers and the training coordinators of involved governmental institutions.

2. *www.IT.jo*

The first of its kind in the region, *www.IT.jo* is an online database for ICT professionals in Jordan. Launched during the early parts of 2000, based on His Majesty King Abdullah's request to develop an online database with the aim of gathering intelligent information about Jordan's available IT skills. While this project was very successful at first and yielded a total of 5,000 registrations, population and continuous update of the users' data soon began to decline and diminish.

In order to revive the site and its functions, the Ministry of Information & Communications Technology outsourced the management of this project to *int@j*, the Information Technology Association of Jordan in mid 2001. The association immediately used all valid entries to assess ICT skills available in Jordan, and map the same against the private sectors' current and short-term needs. The resulting document which mapped the gap and identified a number of critical skills was published and introduced to the public towards the end of 2001.

In order to meet the project's mission - to provide a voluntary comprehensive online support unit for Jordanian ICT professionals that will enhance their skills and expertise through a structured skills-development program – *int@j* has prepared a proposal to re-launch *www.IT.jo* into its second phase, which includes the following activities:

- (a) Strengthening relationships with ICT professionals in Jordan and abroad;
- (b) Re-brand the site, and launch promotional, PR & advertising campaigns;
- (c) Re-assess available skills, the companies' needs, and SWOT analysis on a quarterly basis;
- (d) Provide training opportunities through negotiating with universities, colleges, and training centers – and establishing a fund to subsidize the training of critical skills;
- (e) Advocate with the private sector on investing heavily into human resources development by developing a master HRD template;
- (f) Re-build *www.IT.jo* into a comprehensive and multi-functional online portal that will ensure long operational, functional, and financial sustainability.

The long-term self-sustainability however will only result from the development and launch of the comprehensive online portal, which will be based on a previous research on the current users' future expectations from the site.

The *www.IT.jo* database will serve as a clear and straightforward communication mechanism between employers and job seekers. This portal will assist individuals to find new careers or advance their current employment status, in addition to providing employers with a comprehensive tool to locate and recruit new staff members. The portal will allow job seekers to register (for free), and search the database of vacancies. Applications can be submitted online, using either the direct search utility, or the smart "agents" that are made available to both – employers and job seekers. Agents are pre-defined searches and saved search criteria that scan the entire database periodically, and e-mail matching records to the seeker with a link to more details. Employers may either post a vacancy online (for a fee), or purchase the right to search the entire database of resumes on a monthly basis. Applications are received online and added to the employer's private workspace, where more filtering and pre-screening functions can be found.

B. VOCATIONAL TRAINING

At the current time, ties between the local ICT industry and the universities remain weak. These ties need to be strengthened through better communication and cooperation. Towards that end, a formal mechanism for coordinated planning needs to be instituted, int@j intends to undertake a number of activities including:

- (a) Establishing a high-level working group to define specific goals for student, faculty, and curriculum enhancement with concrete priorities and timetables;
- (b) Employing the working group to coordinate the training and education goals of the Ministries of Education, Higher Education, and the MoICT from the grade school level up through university and beyond. For example, review the Tawjihi examination system to ensure quality students are able to enter ICT fields of study.

Using information collected in employment and training databases to identify skills and training gaps and incorporate them into e-learning, e-government, and higher education planning. Coordinate with the donor community to fill gaps where the private sector and higher education institutions cannot.

Initiating industry-based collaborative projects that enable companies to benefit from the expertise of the universities. These types of partnerships allow faculty to develop professionally while improving the quality and relevance of research and teaching.

C. UNIVERSITY EDUCATION

Up to 2,000 Jordanian are being trained as IT specialists annually. Graduating students with degrees in computer science and engineering-related fields at the end of the academic year (1997 / 1998) were 942. On average, Jordanian universities and colleges graduate about 2000 semi-skilled IT professionals to the open labor market.

The Jordanian government realizes the importance of education in developing the IT Sector and forced radical reforms to introduce computer-based education in public and private schools. Public and Private educational and training institutions specializing in IT-core and IT-related fields are considered to be national development flagship centers.

The University of Jordan, Jordan University for Science and Technology (JUST), Hashemite University and other Jordanian universities established IT dedicated colleges and are running specialized software development and programming courses all year round.

The Government of Jordan has taken aggressive measures towards building Internet awareness in Jordan and passed directives to make computer education a must in the elementary school system in Jordan. Internet is daily accessing Jordanian households, and in Jordan the Internet is considered a way to advance in life in general, and as a career advancer in particular.

1. *Royal Scientific Society (RSS)*

The Royal Scientific Society (RSS) has been running an Information Technology Upgrading Center, which was funded by the Japan International Cooperation Agency (JICA). The center graduates about 120 students, who already had completed their B.Sc. degree education in computer science, annually with high IT skills and Internet programming competence.

There are about 10 specialized training centers in Jordan providing Internet courses, where most of these centers are Microsoft Certified. Oracle and IBM educational courses had been instituted in Jordan since 1995. 40% of new graduates in computer science degrees have good expertise in active server applications and other Internet programming fields.

Recently, Microsoft Corporation agreed to provide training courses to IT students of the Yarmouk University. Furthermore, SUN Microsystems has agreed to utilize the premises of Princes Summyya University at the RSS to train IT students at the collage for possible future employment with the company.

Table 2. Distribution of Students at Jordanian Universities in Computer Science and Engineering-Related Fields 1997/1998

Subject	Admitted			Enrolled			Graduated		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Computer Science Majors									
Information Technology	42	30	72	42	30	72	-	-	-
Information Systems	95	37	132	579	119	698	164	21	185
Computer Science	829	386	1215	345	1323	4778	476	207	683
Engineering Majors									
Computer Engineering	104	10	114	494	51	545	55	6	61
Electronics Engineering	76	8	84	296	284	324	9	-	9
Computer Technologies	-	-	-	-	-	-	14	3	17
Electronics & Communications Engineering	98	2	100	496	20	516	69	2	71
Communications Engineering	-	-	-	31	2	33	-	-	-
Applied Engineering Majors									
Electronics Engineering	42	3	45	167	24	191	17	4	21
Computers & Control Engineering	38	16	54	172	61	233	36	1	37
Communications Engineering	34	10	44	157	51	208	31	10	41
Computer Technologies	-	-	-	95	30	125	-	-	-
Total	1358	502	1860	5984	1739	7723	871	254	1125

D. RESEARCH, DEVELOPMENT AND INNOVATION IN ICTS

1. Subsidized training opportunities

To ensure equal opportunities for all Jordanians and encourage the less privileged to remain as competitive, int@j will create a fund to subsidize the training costs for those in need. This fund is particularly important for the continuity of the www.IT.jo portal as described earlier. Funds will be solicited from donor agencies, foreign diplomatic missions, the Jordanian government, the private sector, and any other organization that may wish to contribute to the further development of Jordan's ICT skills and talents.

2. Promoting Internships at Companies

Together with Universities, the private sector initiated programs to prepare ICT graduates and employees with the skills they need to succeed in the workplace. int@j is assisting in these efforts primarily through the promotion of student participation in year-round, extended internship programs. These programs are intended to offer students practical work experience so that they will be better prepared for employment post-graduation.

Other incentives are planned as well, such as: establishing a competition for best student ICT project and faculty mentor, awarding prizes of software and hardware. Also a mentorship program to provide guidance to students interested in pursuing careers in ICT. Then, creating a database of ICT-related training programs available in Jordan, including information on organizations providing grants and subsidies for training ICT employees. Incorporate this information into the www.IT.jo human resources web database.

3. Women's Participation in the Sector's Growth and Success

int@j is very concerned with the percentage of women's participation in Jordan's ICT sector development, and will encourage the substantial increase thereof. As of today, this gender's ownership in the sector remains at minimal levels; although several of the country's most successful ICT companies are owned/ managed by women. int@j engages in several activities intended to promote increased female participation in the sector.

4. Establishing & maintaining HR Departments in Companies

Local ICT companies need to establish sophisticated “Human Resources Management” departments within their management structure. HRD manuals and systems however are relatively costly and may not be feasible and affordable to many small and medium sized firms, despite their absolute necessity. int@j is currently developing a master template, encompassing a detailed and thorough generic HRD system and structure, and will offer such for free to all its member companies. Members in turn will be able to perform minor modifications and adjustment, resulting in their own personalized HRD manuals and systems. int@j will finance the initial development of the master template, and subsequently update the document on an annual basis to ensure compliance with latest trends and developments.

5. “Jordanian Ambassadors’ Program”

Many Jordanians that immigrated to other countries hold powerful positions within their organizations and social statuses, and are in position to generate a significant amount of “deal flows” to Jordan. In addition to generating “deal flows”, influential Jordanians residing abroad are able to encourage foreign investors to consider Jordan as a destination for their ambitions. To capitalize on such individuals, int@j will develop a “Jordanian Ambassadors’ Program”, that is designed to equip influential Jordanians residing abroad with the necessary knowledge and support needed to effectively represent their country amongst their peers. This program includes continues updated information about Jordan’s accomplishments, statistics, promotional material, and as many “tools” as possible to support Jordan’s reputation and cause abroad.

6. Centers of Excellence

The purpose of this joint project developed between int@j and ANERA (American Near East Refugee Aid) is to help establish and grow an IT industry in Jordan that will create, over time, thousands of high-quality jobs. The project will train Jordanian university graduates in IT, helping to create a cadre of international level professionals and to help these graduates find or create jobs.

American Near East Refugee Aid (ANERA) was founded in 1968 in the aftermath of the 1967 Arab-Israeli War, to help the hundreds of thousands of displaced Palestinians. Initially providing emergency relief, ANERA determined the effects of the war on Palestinian society would last well into the future and therefore began implementing projects that would establish a foundation for social and economical growth.

V. BUILDING THE ICT SECTOR

A. ICT FIRMS

1. *int@j promoting & representing the sector*

The Information Technology Association of Jordan (int@j) was first established in May 2000 as a result of a national initiative to develop the IT Sector in Jordan (REACH Initiative).

The Information Technology Association of Jordan (int@j) is a voluntary non-profit, private organization, and its mission is to effectively represent, promote, and advance the Jordanian software and IT services industry in the global market.

int@j is the focal point for all Jordanian ICT industry-related activities and is open to all value added IT related, software development and support enterprises. It proposes to fulfill its mission through the following objectives:

Advocate industry issues – represent IT industry interests and lobby with government and international groups; propose national initiatives and conduct public relations efforts.

Promote industry investment opportunities in Jordan – promote Venture Capital (VC) and Initial Public Offerings (IPOs); form relationships with local export-oriented groups; represent the industry at conferences and trade shows; set up databases and publicize membership through websites, newsletters, hyperlinks, promotional materials and advertising.

Provide industry research and market information- conduct market studies; disseminate local, regional and international opportunities; provide market trends.

Effect standardization, certification and quality control in the IT industry – promote certification bodies and their value addition; enforce an IT industry code of ethics; standardize employment contracts and benefit packages.

Support human resource development – work with educational institutions to focus on critical skills; strengthen ties with local universities and collaborate with overseas universities; and initiate industry programs to benefit university students.

Advance industry intellectual property rights – certify IPR compliance; update members in IPR law changes; and work towards local IPR regulations conducive to IT industry growth.

Form international IT industry alliances – actively seek alliances with global players; develop and attract venture capital funds; and disseminate success stories.

Manage industry stakeholder relations and resolve industry conflicts – build and reinforce bridges among association members; and between association members and government, media, universities, NGOs and donors.

2. YEA promoting entrepreneurship

The Young Entrepreneurs Association is a non-profit, membership-based organization established to create outstanding young entrepreneurs through idea exchange, education, training and advocacy to improve entrepreneurs' skills allowing them to compete in the global economy.

Since YEA launch in February 1999, the association has succeeded in achieving its main objectives of training, advocacy and other services needed by the young generation of entrepreneurs in Jordan. It has also created an action and results-oriented structure aimed at empowering volunteers, members, board members as well as staff. The YEA strives to enhance the spirits of its members by offering them the chance to join any of its five committees, the Public relations, Networking, Public Policy Advocacy, Education and Training, and Membership Services, in order to draw the lines of achieving the YEA's mission and work on developing the best image and services for entrepreneurs in Jordan.

3. World Bank & YEA working to create a node to support SMEs

The SMExchange is a capacity building program which links intermediary organizations (chambers of commerce, business or trade associations, and investment promotion agencies) in developed and developing countries to support SME development through the transfer of knowledge and experience. Its ultimate mission is to stimulate trade and investment between SMEs in the North and South.

The program, presently implemented in the MENA region, is based on three tools designed to facilitate the knowledge transfer:

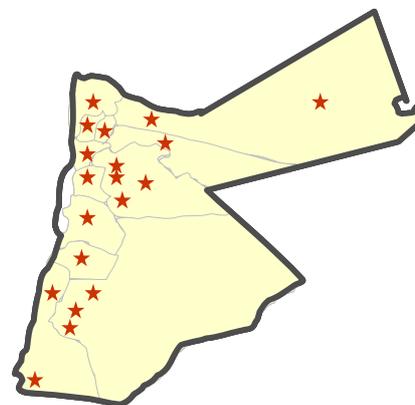
- (a) A website which contains information on capacity building programs, offered and requested, by intermediary organizations from the North and South;
- (b) An SMExchange Liaison Officer (SMELO) from a European intermediary organization seconded to an intermediary organization in the South for a three year period;

- (c) “World Bank Group Road Shows” to get the World Bank, IFC and MIGA closer to the companies in developing countries through conferences and seminars organized in partnership with intermediary organizations, explaining how to better use WBG private sector services.

B. INVESTMENT IN ICTS

1. *Enhanced Productivity Programs by Ministry of Planning*

The Enhanced Productivity Program (EPP) is a government-funded development project for Jordan. It is based on the idea that the government has a role to play in facilitating the ability of all Jordanians to improve their lives. To that end the EPP creates opportunities for rural communities to be a part of income-producing, self-sustaining industries. In addition, and unlike previous government initiatives, the EPP focuses on an integrated approach to rural development where one EPP project leads directly to and supports the other EPP projects. The end result will be individuals and communities generating income and employment in their towns and villages, with the government playing the role of enabler and supporter.



19 center in 12 governorates

The EPP came originally out of the second Dead Sea Forum in March 2001 and was formalized by a Cabinet decree in January 2002. The Cabinet granted the EPP extraordinary rights such as a special tendering committee in order to facilitate the project’s success. The project was also given leeway in the hiring of exceptional staff with competitive salaries. In another sign of the government’s dedication to the success of the EPP, an initial budget of JD 25 million was approved.

With this flexibility comes accountability. The Cabinet also set-up a steering committee composed of Ministers and private sector representatives to oversee the EPP. The Steering Committee, chaired by the Prime Minister, has at its disposal a special Monitoring and Evaluation Unit which helps keep the EPP aligned with its goals. The goals established represent a very high standard of implementation for the EPP, which requires the support of all levels of government to achieve success.

2. *EPP Structure and Goals*

The structure of the EPP is flat but effective. Each of the Program Officers is autonomous within his/her own sub-element. Decisions are made by the Director with reference to the Minister for major contracts. There are four distinct EPP sub-elements, each with its Program Officer. Some of these are further subdivided into component parts and yet each of the sub-elements supports the others. The Program Officers sit in one room, sharing their ideas and updating one another on a daily basis.

3. *Village Clusters*

Village Clusters grew out of a successful experience with a similar project in Lebanon. Groups of rural communities sharing social and economic characteristics form an association. This association, together with the EPP, selects two projects for implementation in their collective area. One of the projects if not both are income generating for the communities. The association is required to match at least 30% of the funding provided by the EPP to demonstrate its commitment to the long-term sustainment of the projects.

4. *Enterprise Development Centers*

The EDCs are twenty consultancy centers covering every governorate in Jordan. Each center is located in a central area and staffed by at least two senior consultants. These consultants are tasked with locating men and women interested in creating a new business opportunity or expanding their current business and provide them

access to the resources they need to succeed. Specifically, they offer help with business planning, training and access to sources of funding. The consultants and their clients may turn to an Amman-based Central Support Unit for expert guidance on financial management, specialized businesses (agribusiness) and IT requirements.

The EPP and its JD 25m budget represent a tangible demonstration of the government's belief that Jordanians will be able to create their own economic opportunities when given a stable, supportive environment in which to do so. EPP funding is seed money to be used by our communities to start a new initiative, meet a new need. The other support that the EPP offers in training, technical assistance and resources can only go so far. It is our belief that the clients of the EPP will turn that assistance into a long term alternative for themselves and their families.

The goals of the EPP are as ambitious as the needs of certain segments of the population are great. Its success will depend on the active support of the government, the private sector and individual Jordanians.

5. Jordan Information Technology Community Centers (JITCCs)

Presently, information and communication technology is one of, if not the main driver of globalization and sustainable economic and social development. Its significance lies in the fact that it is a tool used by economies to enhance productivity, as well as increase value added by creating a knowledge-based economy and improving educational outputs. Hence, currently ICT is a top priority on the Government of Jordan's agenda, aiming to improve, develop and enhance its information and communication technology cluster, both as an economic activity and a mean of achieving sustainable development affecting economic, social and environmental aspects.

Accordingly, Jordan witnesses the evolution of several initiatives created by Government, Private Sector and International Organizations. All of which constitute an integrated trend towards achieving the objectives of a multidimensional sustainable development.

The JITCCs initiative was created with a vision of harnessing the power of information technology in support of a sustainable development strategy for Jordan, designed to meet the challenges of the 21st century. To this end, a network of Jordan IT Community Centers (JITCC) will serve-within the National Network-as a platform for enhancing technological literacy, sustainable livelihoods, equity and human development among the remote, poor and information deprived segments of Jordan's population.

The main objective of the JITCCs is to introduce information and communications technologies to various communities in Jordan, specially rural communities, in a bid to bridge the digital divide and enhance the potential of those communities towards development and prosperity in the information age. These objectives are envisaged to be two-fold. On the one hand, they would facilitate access to information through information technology service centers. And on the other, they would spread awareness on new technologies and the benefits of their utilization for community development.

The initiative aims at establishing IT community centers in every town and village (Up till now, nineteen centers were established in twelve different governorates comprising Jordan), to provide those communities with tools to access, search and acquire knowledge. Within this context, access to the National Information System (NIS) and its vast amount of public information is facilitated, together with provision for Internet access. Furthermore, it will allow networking among those communities, which will enhance exchange of local information among them. It will also provide those communities with the tools and technologies to publicize their local information and participate fully in the National Information System and hence, in the national efforts to transfer Jordan into a knowledge-based economy.

6. IT investments in Jordan: Opportunities in the IT Sector

New investment opportunities in the IT sector will benefit from this growing sector, and will find a long-term sustainable business growth, especially in the following fields:

- (a) Data Communication, messaging, transmission, and connectivity services;
- (b) Non-conventional telecommunications services playing a direct role in enhancing growth in the Jordanian industrial, commercial, and services sectors;
- (c) Custom-tailored and of-the-shelf Computer software and programming packages;
- (d) Specialized IT services serving technology-intensive industrial projects at it parks;
- (e) Research and development, including laboratories and testing centers;
- (f) Manufacturing and assembly of electronic parts, IT, and telecommunications products;
- (g) IT and telecommunications services outsourcing centers providing value-added front-office management functions or back-office support services.

The Government of Jordan's policies and plans encourage the private sector to invest in e-commerce activities and to encourage the government to launch e-government services will have good impact on IT investments in Jordan.

Introducing traditional and advanced e-commerce and e-government applications will play a direct role in improving the country's economic performance through the following key developments in Jordan:

- (a) Introduce a Jordan-wide Intranet;
- (b) Introduce a central Jordanian portal for government services and general or sector-specific business portals for business services, especially between business associations and their members;
- (c) Re-engineer the partnership between the public and private sector and create compatible applications architecture;
- (d) Enhance the services of the National Information Center;
- (e) Create better and more effective participation by public and private sector institutions in the national information system;
- (f) Bolster the country's business infrastructure and the enabling environment for doing business in Jordan;
- (g) Facilitate the process of re-inventing the country's B2B, B2C, G2C, G2B, and G2G services and activities;
- (h) Encourage the establishment of private virtual networks and electronic services networks;
- (i) Streamline government and business procedures and create standardized practices in government and business service applications;
- (j) Enhance the role of government in encouraging business startups;
- (k) Allow flexibility in processing supply, purchases, and procurement transactions in an intra-business environment (B2B) on the one hand and in an inter-government environment (G2G), which opens the opportunity for the introduction of B2G transactions;
- (l) Expedite the legislative process in introducing the national electronic payments system and the national electronic authentication and verification machinery;
- (m) Enhance Jordan's participation in the world trading system;
- (n) Introduce service exports activities;
- (o) Bolster the role of the Internet in becoming an environment for the supply of business and government services;
- (p) Organize domestic market activities;
- (q) Facilitate the interface between the tax and customs authorities and businesses.

7. Benefits of Investment in Jordan

The Investment Promotion Law No. 16 of 1995 recognizes the benefits that foreign investment will bring to Jordan, and includes provisions to encourage domestic entrepreneurs as well.

Jordan targets the following sectors for favorable tax and customs duty treatment: Industry, Agriculture, Hotels, Hospitals, Maritime transport, Railway, Leisure and Recreational compounds, Convention and Exhibition Centers. The benefits enjoyed by investors are considerable, such as:

- (a) Freedom from Customs Duties;
- (b) Exemption From Taxes.

8. *Investment Guarantees*

- (a) Jordan investment law affords equal treatment to both Jordanian and non-Jordanian investors. The law allows the non- Jordanian investor to own any project in full or in part, or to engage in any economic activity in the Kingdom, with the exception of some trade services which require a Jordanian partner;
- (b) Except for participation in public share holding companies, the investment of the non Jordanian may not be less than fifty thousand Jordanian Dinars (JD 50,000 or \$US 70,000);
- (c) The investor has the right to manage the project in the manner he/she deems appropriate, and through the person(s) chosen by the investor for its management;
- (d) The Non-Jordanian investor shall be entitled to remit abroad without delay, and in a convertible currency, the invested capital together with any returns and profits accrued, the proceeds of liquidation of the investment or the proceeds of the sale of all or part of the project;
- (e) Non-Jordanian technicians and administrators working in any project may transfer their salaries and remuneration abroad;
- (f) With approval of the investment promotion committee, the investor may re-export the exempted fixed assets;
- (g) With approval of the investment promotion committee, the investor may sell the exempted fixed assets or relinquish them to another investor or project not covered by the provisions of this law after paying the fees and taxes due on such fixed assets;
- (h) Any investor whose investment is guaranteed by his country or by an official agency thereof, may assign to that country or agency any returns on his investment or other compensation to which he is entitled;
- (i) It shall not be permissible to expropriate any project or to subject it to any measures that may lead to expropriation unless such expropriation shall be by way of compulsory purchase for the purpose of the public interest, and in return for just compensation to be paid to the investor. The compensation paid a non-Jordanian investor in such case shall be in a convertible currency;
- (j) Investment disputes between an investor of foreign capital and Jordanian government agencies shall be settled amicably. If no amicable settlement can be reached within a period not exceeding six months, either party may resort to litigation or may refer the dispute to the International Center for the Settlement of Investment Disputes (ICSID).

C. GOVERNMENT FACILITATION

The role of the Government in promoting ICTs for development as well as those of civil societies institutions/NGOs, financial and development institutions & the business sector Government:

1. *Jordan Investment Board (JIB)*

Jordan Investment Board (JIB), Jordan's official authority on administering and attracting investments to Jordan, assists local and foreign investors by facilitating their investment applications and completing all the necessary procedures under the Investment Promotion Law No. 16 of 1995.

Records for June 2000 show that a total of 12 IT projects with a total investment of JD 13 million have registered at the Jordan Investment Board (JIB).

Activity	No. of Companies	Total Investment in JD
Computer Software Development & Programming	10	2 million
Computer Hardware and Peripherals Assembly	1	2 million
Computer & Electronic Components	1	9 million
Total	12	13 million

New amendments to the Investment Promotion Law were in effect in the year 2001. Amendments included providing IT public and private parks in Jordan all the benefits and incentives under the existing Investment Promotion Law. Foreign investors can own up to 100% of any IT-related investment in Jordan.

Records at the Amman Chamber of Commerce indicate that the number of active firms in the computer business in the city of Amman, in June, 2000 reached 645 firms. Out of this number, there are 385 registered computer importers with a total capital of JD 31 million.

Jordan's Customs Department exempted key products related to the computer and software sector from all import tariffs in 1999. Investors receive eligibility for exemptions from customs fees and duties on imported fixed assets as soon as the JIB approves their investments. The Jordan Customs Department grants most imported IT products easy and unconditional access at customs and border points.

2. Ministry of Information & Communications Technology (MoICT)

With the adoption of Jordan's Telecommunications Law, strong leadership from the Minister, and technical assistance from highly qualified staff and consultants, the Ministry of Post and Communications has successfully evolved into the Ministry of Information and Communications Technology (MOICT).

The MoICT is responsible for articulating policy in the areas of information technology, telecommunications, and postal services. Dubbed the 'e-Ministry,' its expansive role goes beyond policy-making and includes: stimulating local and foreign ICT investment, promoting ICT awareness and development, increasing technology adoption throughout the population, and overseeing Jordan's e-Government Initiative. Through open dialogue with the private sector, the Ministry is shaping a legal, commercial and regulatory environment that attracts and enables investment.

D. EXPORT OF ICT EQUIPMENT/ SOFTWARE

1. IT Market

The total market for IT hardware and software sales in Jordan is estimated to be approximately US\$60 million, including the government and commercial sectors. According to various sources of data, about 27% of this figure corresponds to sales of software and IT services, while 73% corresponds to computers and other hardware. The IT market is estimated to be growing between 15 and 30% per year. But exports, which currently exceed US\$7 million, are growing at over 100% annually. This reflects the fact that Jordanian IT firms are building capacity, and are competing locally, regionally, and in several cases globally through establishing Joint-Venture projects with IT multinationals.

2. Free Trade Agreement with United States (FTA)

On Friday, September 28th, 2001 United States President Bush signed into law the United States-Jordan Free Trade Area Implementation Act, which implements the U.S.-Jordan Free Trade Agreement (JFTA). The JFTA eliminates duties and commercial barriers to bilateral trade in goods and services originating in the United States and Jordan. It

is America's fourth free trade agreement, following the U.S.-Israel FTA and the North American Free Trade Agreement (NAFTA), and the first with an Arab country.

This agreement in turn – now fully in place and effective – presents Jordanian ICT companies with a wealth in business opportunities with US based counterparts. As this agreement is however relatively new and unexplored to the sector, int@j will engage in the following activities to promote the agreement and its benefits amongst its membership of ICT companies:

Since the FTA was signed and ratified in both countries, a number of potential investors/ business partners have visited Jordan to explore future opportunities. In addition, int@j will gather an increasing number of potential investors/ business partners during activities such as the trade mission, the Jordan ICT Forum, and other marketing events.

All contacts obtained will be collected and stored in a dedicated database for active and continuous follow up. Contact people in this database will from thereon receive periodic updates about latest legislative changes, investment opportunities, and any other information that is directly related to investing in Jordan in general.

3. *Jordanian American Business Association (JABA)*

The American Chamber of Commerce in Jordan (JABA) launched a strategy for implementing the US-Jordan Free Trade Agreement (FTA) in a bid to maximize the benefits of businesses under the pact.

TIJARA, a six-point plan, seeks to enhance bilateral trade and investments through establishing effective private-public partnership, enhancing Jordanian trade facilitation efforts, and upgrading and diversifying Jordanian export capabilities.

It will also work on promoting trade exchange and attracting investments to the Kingdom through organizing incoming and outgoing delegations as well as matchmaking activities for businessmen.

The project is carried out in cooperation with the United States Agency for International Development (USAID) which will provide funding for the scheme, as well as the public and private sectors in both countries.

The initiative will also work on raising public awareness and disseminating information on the FTA through organizing, among other activities, training programs for both the public and private sectors and road shows, a press release from JABA said.

JABA, a non-profit business association, is currently housing the FTA Unit set up with the assistance of the Access to Microfinance and Improved Implementation of Policy Reform (AMIR) Program, in order to respond to inquiries from Jordan, the US and elsewhere on the FTA. The association has also set up a telephone hotline for the FTA Unit.

Jordan is the first Arab state and the fourth country in the world that has a free trade deal with the US. Under the agreement, which entered into force on Dec. 17, duties on goods and services traded between the Kingdom and the US will be phased out over four stages until they are eliminated by 2010.

Jordan is the third largest recipient of the USAID program and has received nearly \$2 billion in economic assistance to date.

The USAID plans to allocate \$150 million in assistance to the Kingdom this year, to be channeled to support local industries, water resource management, and family health and planning projects.

IV. APPLICATION IN GOVERNMENT ESTABLISHMENTS

A. COMPUTERIZATION OF PUBLIC ADMINISTRATIONS

1. *IT Parks*

In a bid to encourage private investments in the IT sector, the government set forth a law in 1999 allowing the establishment of public and private IT parks, first of which in Jordan is CyberCity, a World Class Information Technology and Industrial Park by design. CyberCity will be an open park for any international investor that will host many commercial, industrial, and tourist and recreational activities.

International investors will be able to establish manufacturing and technical facilities at CyberCity in software development, research and development, electrical and electronic industries, and textiles and garment industries.

Another IT Park to get started in Jordan is a joint venture by Hillwood of the United States, and the Hashemite University in Zarka, Jordan. This newly announced project will encourage software development, IT education and training, and other outsourcing activities in the IT field.

An Employment Survey conducted by the Jordan Department of Statistics showed that the total number of active employees with university degrees in computer science and mathematics in 1998 reached 6,005 out of a total workforce of 103,298 employees with university degrees in Jordan.

The Jordan University of Science and Technology (JUST) (northern Jordan) has signed an agreement with Boscan International, a Hong Kong investment group, to establish an industrial & IT park over a 4 square kilometer land to the JUST. The park is called CyberCity. The educational and academic communities of the JUST and Yarmouk University (located in Irbid, north of Amman) will be the prime participants in the park's research and development centers and in the training centers to be established at the park. The groundwork at CyberCity will start in the year 2001.

The Hashemite University has signed an agreement with Hillwood, an American multinational company, to establish an industrial & IT park in Zarka, north east of Jordan. The park will be located on the University's premises over a 1.5 square kilometer area.

The educational and academic communities of the Hashemite University and other universities and colleges in Zarka will be the prime participants in the park's research and development centers and in the training centers to be established at the park.

B. E-GOVERNMENT PLANS

Following his majesty's vision to position Jordan as knowledge based economy, the government of Jordan aims to become a successful model of e-Government.

The vision emphasizes a private-sector approach, where government is seen as a service-provider and the citizens are seen as consumers, entitled to efficient, high-quality services at reasonable costs. It also aims to improve the efficiency and productivity of government, whether in government-to-government, government-to-business, or government-to-consumer transactions. The goal is to build the competitive advantage of Jordan through creating an environment where government services are more available, accessible, transparent and convenient.

Realizing this vision requires a national effort that is endorsed by his majesty, and coordinated by the Ministry of Information and Communications Technology (MoICT).

The e-Government program is an all-encompassing effort to streamline procedures and improve both the internal operations and services to the public consisting of Citizens, Government and Business entities, using multi-channel electronic delivery technologies (Internet, WAP, TVs, PDAs, etc). Services offered will vary by nature from information to communications to transactions. The e-Government program will therefore present opportunities to the local, regional and global firms across a wide range of expertise.

The e-Government strategy resides on five building blocks:

- (a) Management and Organization Framework: The first building block required to successfully implement the e-Government program is an appropriate management and organization design to implement the various projects. The coordination unit for the program is housed in the Ministry of Post and Communications under which the different project teams operate;
- (b) Legislation: Jordan has significantly leapt forward with respect to modernizing its legal framework to adapt to the rapidly changing e-environment. An electronic transactions act was enacted before the end of 2001. The law addresses issues such as electronic signatures, electronic payment, privacy issues, cyber crimes, and the use of electronic documents as admissible evidence in the courts of law. A bundle of other e-laws are also being drafted and proposed;
- (c) Education and Awareness: Intensive training programs will be required to ensure a smooth transition into the new environment. The ministry of post and communications is addressing a training aspect through close coordination with world-renowned names such as Microsoft, Oracle, CISCO, etc. Awareness campaigns will also be organized for both the internal and external users of the e-Government services;
- (d) Infrastructure: This deals with the technical and operational aspects of the e-Government infrastructure. On the physical side, issues relating to the data networks, access channels, and hardware will be addressed. The operational side will deal with standards, interoperability framework, and security issues;
- (e) e-Services: This relates to the actual delivery of services to users, first of which is a set of eight fast track projects. The fast-track projects will begin with the placing of information on web sites, followed by the interactive exchange of information, and leading to actual transactions where, for example, drivers' licenses can be renewed online. Later projects will identify candidates for subsequent projects. The intent is to bring all government transactions online.

The program will, in the long term, result in the upgrading of the government services, increasing skilled human resources, digital inclusion, and eventually creating a society where e-government contributes to the economic and social development of the Kingdom.

C. E-PROCUREMENT APPLICATIONS

1. *Set-up of a National Fund that will provide seed money for companies*

Establishing an SME Fund is significant, and the reason for that is to provide Jordanian SME's with a source from which they can obtain capital. The fund would be partially financed by the Jordanian Government and partially by other investors.

int@j has begun the process of creating a fund that offers Capital Resources to SMEs at Preferential Terms. With the understanding that private sector financing must be prioritized, government and donor funding sources will be tapped to create funds that offer lending at preferential rates. In particular, the ICT-SME Risk Capital Fund that int@j will lobby for should be established with the following characteristics:

- (a) Establish a JD 5 million to JD 7 million Investment Company that invests according to a highly standardized methodology in amounts ranging from JD 100,000 to JD 500,000, with an average investment size of between JD 200,000 and JD 250,000.

- (b) This Fund would invest only in existing ICT-SMEs whose needs for expansion financing are significantly larger than their current equity.
- (c) In each case the Fund would invest for minority shares in the SME investee while limiting its total exposure in equity to no more than 25% of the total amount invested in the enterprise.
- (d) The larger portion of the investment would be in the form of a low-interest loan with attached rights to a small percentage of the investee's sales ("royalty rights"). Through this methodology, the Fund would provide a type of financing which allows for more risk than a commercial bank and less risk than a more conventional venture Capital Company.
- (e) The Fund would also take a "hands-on" approach to adding non-financial value to the investee and would ideally have access to a certain amount of grant-based funding, outside the capital of the Fund, to draw on for additional business assistance for portfolio ICT-SMEs.
- (f) In a typical version of this scheme, the government would offer to match equity investment on a two-to-one basis with a low-cost loan.
- (g) The interest rate on the government loan would be well below commercial rates and even further below the anticipated return on the Fund's portfolio of investments.

VII. APPLICATIONS IN EDUCATION

A. E-LEARNING

Critical to the ability of Jordan to realize His Majesty's vision that "Jordan will be the IT hub for the region" is the preparation of the country's key advantage – its human resources. Immediate and significant investments must be made to reform the current education system. To reflect the new and emerging demand for individuals that can contribute to and participate in the knowledge-based economy of the future. Also to shift in the current approach to learning if the system is to succeed in preparing the knowledge workers of the future.

As one of the first steps in moving forward to realizing the vision, the Ministry of Education (MoE) has prepared a strategic framework that provides a comprehensive and strategic approach to accomplish the necessary reform of the educational system to prepare individuals for the new economy.

e-learning is a strategy for using technology to enhance the learning process and for delivering and accessing interactive and distance learning curricula. When implemented successfully, e-learning programs can transform the teaching process into a dynamic learning experience that stimulates students to develop their creative, critical, and innovative thinking skills. Basic training on how to use computers and the Internet represents just one step in the entire e-learning process.

With this in mind, the MoE developed a comprehensive e-learning strategy with technical assistance from CIDA, the Canada International Development Agency. To plan, guide, facilitate, and coordinate implementation of this strategy, the MoE established an e-Learning Coordination Unit in 2001. In addition, computer literacy has been introduced into school curriculums from grade three, a national syllabus for secondary IT education has been adopted, and IT coursework was added to the tawjihi, Jordan's national college entrance exam.

1. *Major components of MoE plan*

(a) Infrastructure

The goal is to equip all schools with computers in ratio of 1 computer to 10 students, and connect the school with Internet via Broad Band connectivity. The current situation is:

- (i) 2,100 schools out of 3,200 schools are equipped with computers (40 computers in each). The total Number of computers will be 45,000 out of 100,000 by the end of April 2003;

- (ii) 1,000 schools are connected with the Internet by ADSL technology. By the end of February this will increase each month by 200 schools;
- (iii) Broad Band connectivity will be established by the year 2005 for all schools.

(b) Curricula

The goal is to enhance the teaching and learning process by using ICT as a tool in deferent subjects. The current situation is:

- (a) e-learning portal was developed with partners from private sector to host all the learning content which will be developed according to a comprehensive plan and deliver it to all schools supported by a full learning management system, and different tools to encourage collaborative education;
- (b) A national team has been established to design a new framework for developing the current curricula by taking into consideration achievements of learning outcomes needed for knowledge workers;
- (c) Computer literacy is taught to grades 7-12;
- (d) Decision was made to open an MIS stream at the beginning of 2003/2004 for the secondary level;
- (e) A digital self-learning content is developed for physics subject in 11th grade with JICA support;
- (f) English language is being taught by using ICT in grades 1-4;
- (g) More subjects like Math and Arabic are under consideration to be developed with collaboration with private sector.

(c) Teacher training

The goal is to provide teachers with skills (technical & pedagogical) needed to use technology to enhance teaching & learning in the classroom and to be the facilitator, guide and negotiator of learning, rather than main source of knowledge. The current situation is:

- (a) ICDL program was conducted for 7,000 teachers and supervisors, 2,500 now have the license. The target group for this program are all employees in MoE;
- (b) A CISCO program was conducted for a group of students, teachers, technicians and engineers, and is targeting 250 for this year;
- (c) Microsoft program was conducted for a group of teachers, technicians and engineers, and is targeting 125 for this year;
- (d) "Intel Teach To The Future" program was conducted for a group of teachers and supervisors and is targeting 3,000 teachers this year;
- (e) Cyber learning program was conducted for a group of teachers, supervisors, technicians and engineers and is targeting 150 for this year;
- (f) Word Links project is under consideration, and is targeting 500 teachers this year.

(d) Management Information Systems (MIS)

The goal is to provide decision makers with accurate & up-to-date information at the exact time they need it. The current situation is:

- (a) A computerized school mapping system has been implemented that allows decision makers to identify best approaches to provide local communities with the required schools, and optimizing their usage.

B. E-SCHOOL PROJECTS

1. *Intel i-Lab*

Shortly after President and CEO of Intel, Craig Barret's visit to Jordan in June 2001 Intel established the first Internet laboratory (i-Lab) in the Arab world at Jordan University's King Abdullah II College of Information Technology. The lab, just opened in September 2002, is designed to serve as an incubator for Internet and e-business start-ups in Jordan. The lab will test and evaluate new entrepreneurial business models, and assist in their technical realization through the Intel network.

Research programs will be carried out by a team of international students under the guidance of university professors and experts from the ICT industry, developing new technology projects that can be implemented on a commercial basis. int@j will support the i-Lab by providing a continuous flow of ideas and projects from the private sector. It will also market finished projects and help launch newly incubated companies. In this way, the i-Lab will serve as a unique model for higher education-private sector cooperation in the Arab World.

2. *Sun Microsystems*

As a result of their participation in the Dead Sea IT Forum in 1999, Sun Microsystems decided to initiate a number of programs in Jordan. The first is a business incubator. In this program, selected ICT start-ups receive free access to a development environment equipped with Sun hardware and software for a six-month period. The second is a "train-the-trainers" program for Sun technologies. The third was a two-week e-commerce training program carried out in London by 15 academics from nine Jordanian universities. Finally, in March 2001 Sun Microsystems launched the region's first authorized Java certification program at the Princess Sumaya University for Technology. This program was created to help meet the high demand for Java programmers worldwide.

C. VIRTUAL UNIVERSITIES

Jordan's higher education system consists of: Community Colleges, offering one to three years post secondary education in various fields and universities; undergraduate studies, where Jordan has 21 four year colleges and universities nine of which are government (public) universities. Post-graduate studies are offered only at public universities, in addition to two private institutes that only offer under-graduate studies.

Higher education in Jordan stands out in the Middle East and North Africa region for its high enrolment rates, high-female participation rate, cost recovery, and the presence of dynamic private sector activity.

1. *Jordan Higher Education Development Project*

A major project that will be implemented over five years from 2001-2005. Its objective is to initiate improvements in the quality, relevance, and efficiency of Jordan's higher education, and it is directed towards public universities. However, it is hoped that in the long run the project will give an incentive to private universities. The project will establish system-wide modern information technology, management information system (MIS), and library infrastructure for higher education; support a Higher Education Development Fund that would provide grants for public universities for innovative projects. initiate reform of higher education governance.

Improving the quality and relevance of higher education is expected to enhance Jordan's human capital and increase economic productivity, thereby increasing the country's capacity to compete in the global economy. The short-term beneficiaries of the project are students in the public universities and community colleges. In the medium-and long term, employers as well as students enrolled in the private universities will also benefit.

2. The Regional Distance Learning Center at the University of Jordan

The University of Jordan was chosen by the World Bank to be one of the centers of the Regional Distance Learning Network. This project establishes a distance-learning network for IT and facilitates information technology education for World Bank member countries in the Middle East and North Africa.

King Abdullah II opened the Center on July, 5th 2001. The Center has two studios that are equipped with advanced audio and visual aids. It will offer distance-learning courses and will provide opportunities to get in contact with research Centers and universities worldwide. Both the public and private sectors will benefit from this Center.

3. Information Technology in Higher Education

This Project will assist Jordan in developing its information technology as related to education. It aims at developing a long-range national strategy for information technology in higher education, building capacity in basic Web technology skills for courseware development, and introducing well-respected international standards for certification of basic computer skills

VIII. APPLICATIONS IN COMMERCE AND BUSINESS

A. EXTENT AND MATURITY OF E-COMMERCE AND E-BUSINESS APPLICATIONS

In Jordan Business-to-Business is more mature and usage is spreading more such as Commerce One & TEJARI, with some government entities as beneficiaries such as: General Supplies Department.

As for e-Commerce for Business-to-Customer, its still not widely spread as tools and software are still somehow expensive, for implementation cost is high.

Of the problems that face e-Commerce, the registry in developments and transactions (payments), lacking a payment gateway, another obstacle would be the security of Internet shopping cards.

Two proprietary cards in the market, with Visa is the predominant card then Master card. Other cards such as Diners / Discovery / JCB are not presented locally. Regional gateways on the other hand are weak and low in maturity, so far there is no SMS world solution.

B. AVAILABILITY AND QUALITY OF E-BANKING

There are 22 banks in Jordan, three of which have Internet banking (Arab Bank, Housing Bank and Jordan-Kuwait Bank) still they don't offer all services. Upcoming are Jordan Bank & Arab Banking Corporation.

Most banks have already implemented ATM Networks, 8 of the 22 banks share a common network for ATM's called JONET. Banks are very cautious in security issues where e-banking should enjoy a high level of security, still businesses have not adopted e-banking successfully with volumes, because there is almost no trust on the Internet payments.

WAP services have failed in the Jordanian market despite the good quality of services offered. Other services are currently under way: Call center for banking (where 2 banks already have this quality), IVR system for account inquiry & Bank transfers.

The Central Bank of Jordan (CBJ) plays the role of a clearing house between banks but not at retail account level. Quality of e-banking in Jordan is high with secure network(s) in place. Over 600,000 credit cards deployed of which over than 500,000 Visa electron Cards, around 50,000 – 60,000 charged cards and 20,000 – 30,000 credit cards.

IX. APPLICATIONS IN HEALTHCARE

A. DATABASE FOR NATIONAL HEALTHCARE

There have been attempts by private sector companies to develop an online portal for healthcare services, namely in managing health insurance. Currently, there are government attempts to develop a national database for all healthcare services, drugs and physicians.

B. TELEMEDICINE AND MEDICAL USE OF TELECONFERENCING

In December 2000, The Center For Business Innovation (TCBI) recognized outstanding health care solutions with the eHealth Innovation Awards during the Health Internet Congress, which took place in San Jose, Calif., on December 11-12, 2000. The awards recognize eHealth companies that are best positioned to thrive in a highly competitive environment from an investor's perspective. The criteria for the awards include a practical and compelling business model, technologic innovation, customer satisfaction and the ability to forge critical partnerships.

This award was won by a Jordanian company for a Jordanian solution that has been in place since then, with more Smart cards for members of health insurance plans, and more electronic claim for doctors and insurance companies is installed.

1. *Mayo Clinic in Jordan*

The late King Hussein has been a long-time patient of the Mayo Clinic, Rochester, Minn., and like many foreign dignitaries who travel to Mayo for specialized care, he was impressed by the facility and its state-of-the art medical equipment. A tour he took of the telemedicine department sparked what is now an active telemedicine relationship between Mayo and two hospitals in Jordan's capital, Amman.

The King wanted to provide his citizens access to the world's best medical care, without sending critically ill patients all the way to Rochester. Mayo is now coming to Jordan, through an ongoing, satellite-based, live and interactive continuing medical education (CME) program. Since the program began in 1996, Jordanian physicians have chosen the topics for Mayo to develop into CME sessions.

A full-motion, interactive video satellite system was also installed, but because they are so expensive, just a few clinical consultations have occurred, according to Marvin Mitchell, head of video communications and visual services and administrator of Mayo's telehealthcare center. Since Jordan's government pays for the country's healthcare, it must pay for the equipment, transmission costs and Mayo's clinical fee--a heavy burden for a country poor in comparison to its oil-rich neighbors.

Mayo plans on an evolving program of clinical consultations there, made financially possible by the new technology which will transmit voice, data and radiology images to Mayo in one file over ISDN lines, at a high resolution but using low bandwidth.

In the past, Hashem One Satellite Station were used (on rental basis) for medical teleconferencing, only two hospitals optimized this service back then (until 2000). Now, many hospitals optimize this service through their own internet connectivity or through special connections to conduct online surgeries or conferences.

X. DIGITAL ARABIC CONTENT

A. ARABIC VS. ENGLISH CONTENT ON THE WEB FOR NATIONAL USE

Most users in Jordan use English it demands on Arabic interface (KSA mostly use Arabic). Some companies have developed an Arabized solutions that can be sold and added to a customized solutions such as IBM mainframes. Those users who do use the Arabic Web, they prefer it for: e-mails, news, politics and education.

Currently all portables are Arabized, where JSP pages take Arabic. In the past there were problems on Microsoft Explorer, but currently databases & interface in Arabic is available. Having UTF-8 (Unicode pages)

The problem is in the tools and not in the content. Therefore, no problem in the presentation of the content, it depends on the database. Nevertheless, not all browsers read Arabic... even for mobile internet, while Nokia supports Arabic, Siemens doesn't.

Jordan is one of the first countries in the field of e-Learning applications, where Jordan exports multimedia to other countries like Japan, Philippine, America and Arabic countries.

Among the commercial business applications, Jordanian firms are specialized in:

- (a) Arabization and localization;
- (b) Accounting Packages;
- (c) Imaging and Workflow applications
- (d) Health insurance packages;
- (e) Religious software;
- (f) Hardware and software integrated packages;
- (g) Software conversion from 3rd to 4th generation languages;
- (h) System integration;
- (i) Logistics and military software and computer based training;
- (j) WEB enabled application development;
- (k) Multimedia and games.

B. OBSTACLES FOR ITS DEVELOPMENT AND WAYS FOR REMOVING THEM

Some of the Obstacles that Arabic content is still facing are:

- (a) Software & Support;
- (b) Voice is not yet identified to perform automated typing;
- (c) Spell Checks are not widely used;
- (d) Mapping between characters set;
- (e) Lack of talented professional people;
- (f) Copyrights are expensive.

Ways for removing these obstacles:

- (a) Create User Awareness;
- (b) Enforce Copyrights Laws;
- (c) Adoption of e-Learning Programs for High Education Programs.

Annex I

INFORMATION SOCIETY INDICATORS

Indicator	Y2000	Y2001	Y2002
1. Basic Background Indicators			
1.1. Population		5,182,1000	
1.2. Area	89,342 km ²	89,342 km ²	89,342 km ²
1.3. Density (Person/km ²)		58	
1.4. Urban population		21.3	
1.5. Adult literacy		10.9%	
1.6. Poverty		30%	
1.7. GNI per capita			4,300 US\$
1.8. GDP growth			3.5%
2. Telecom Infrastructure			
2.1. Fixed lines (total)	620,000	660,000	
2.2. Domestic (lines per household)	869,000		
2.3. Urban (%)	78%		
2.4. Waiting list (total number)			
2.5. Waiting time (average)			
2.6. Revenue per line (\$)			
2.7. Cost of local call (\$ per 1 minutes)			
2.8. Cost of call within region (\$ per 1 minutes)			
2.9. Cost of call to US (\$ per 3 minutes)			
2.10. Number of fixed line operators	1	1	1
2.11. ISDN lines			
2.11.1. Initial cost (\$)			
2.11.2. Monthly charge (\$)			
2.12. DSL lines			
2.12.1. Initial cost (\$)			
2.12.2. Monthly charge (\$)			
2.13. Leased lines			
2.13.1. Initial cost (\$)			
2.13.2. Monthly charge (\$)			
2.14. Cable			
2.14.1. Initial cost (\$)			
2.14.2. Monthly charge (\$)			
2.15. Outgoing traffic (minutes per subscriber)			
2.16. Incoming traffic (minutes per subscriber)			
2.17. Mobile lines	389,000	866,000	
2.18. Number of mobile operators	1	2	2
3. Media infrastructure			
3.1. Radios	2	2	2
3.2. Televisions	1	1	1
3.3. Satellites			
3.4. Daily Newspapers			
4. Computers and the Internet			
4.1. Personal computers			

Annex I (continued)

Indicator	Y2000	Y2001	Y2002
4.2. Personal computers in education			
4.3. Percentage of computers that are networked			
4.4. Internet subscribers	31,960	35,000	
4.5. Internet users	127,300	234,000 (est. TRC)	
4.6. Internet hosts			
4.7. ISP's			
4.8. ISP monthly charges (\$)			
4.9. Telephone usage charges (\$)			0.08 JD
4.10. Available national bandwidth			
4.11. Hosting availability			
4.12. Secure servers			
5. ICT expenditures			
4.13. Telecom expenditure (million \$)			
4.14. IT expenditure (million \$)	4,408,000 (1998)		
4.15. Percentage of GDP (%)	5-6% (1998)		
4.16. ICT per capita (\$)			
5. Capacity building			
5.1. Scientists & engineers in R&D			
5.2. R&D expenditure (% of GNI)			
5.3. ICT related university graduates per year	1,499	1,468	1,431(est.)
6. ICT government and business environment			
6.1. e-readiness index			
6.2. e-government index			
6.3. IPR enforcement			Low
6.4. Compliance with WTO			
6.5. Basic telecom agreement			
6.6. Reference paper			
7. Laws and regulations			
7.1. Patent law			
7.2. Trademark law	Yes	Yes	Yes
7.3. Copyright law		Yes	Yes
7.4. IT agreement			
7.5. e-Commerce law	No	No	Yes
7.6. e-Signature law	No	No	Yes
7.7. Piracy rate	83% (1996)	67%	
8. ICT Policy			
8.1. ICT strategy			
8.2. ICT plan of action			
8.3. National initiatives			

Annex II

LIST OF MAIN STAKEHOLDERS

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Achievement of Market-Friendly Initiatives and Results Program (AMIR) www.AMIR-Jordan.org	Mr. John Mack ICT Component Leader jmack@AMIR-Jordan.org	P.O. Box 940503 Amman – 11194 Jordan	+962 (6) 550-3051 +962 (6) 550-3069
American Chamber of Commerce in Jordan (JABA) www.jaba.org.jo	Ms. Raghda Butros Executive Director rbutros@jaba.org.jo	P.O. Box 840817 Amman – 11184 Jordan	+962 (6) 565-1860 +962 (6) 565-1862 +962 (79) 557-0550
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Royal Court/Economic Unit www.kingabdullah.jo/royal_court/royal_court.html	Dr. Sima S. Bahous, Ph.D. Director, Communication and Information Division	The Royal Hashemite Court Amman - jordan	962 (6) 464-7204
Royal Scientific Society (RSS)	Dr. Saqer Abdel-Rahim Director saqer@rss.gov.jo	P.O. Box 1438 Amman – 11941 Jordan	[962] (6) 534-4701 [962] (6) 5340520

Annex II (continued)

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The Jordanian Association of Pharmaceutical Manufacturers www.japm.com		P.O. Box 941247 Amman - 11194 Jordan	[962] (6) 560-5634 [962] (6) 569-1116
United States Agency for International Development www.usembassy-amman.org.jo/USAID/Extamm.htm	Mr. Gregory Berry Deputy Chief of Mission BerryGL2@state.gov	P.O. Box 354 Amman – 11118 Jordan	[962] (6) 592-0101 [962] (6) 592-0143
United States Embassy- Amman, Jordan www.usembassy-amman.org.jo	Mr. Scott R. Wright Second Secretary	P.O. Box 354 Amman - 11118 Jordan	[962] (6) 592-0101 [962] (6) 592-7653
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