ICT Investment and Trade Promotion Strategy

AMIR II Achievement of Market-Friendly Initiatives and Results

March 2005
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JORDAN AMIR II

Achievement of Market-Friendly Initiatives and Results

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ABSTRACT

This report provides an analysis of Jordan's ICT sector within a local, regional, and global context. It conducts a SWOT analysis of the sector, highlighting Jordan's competitiveness vis-à-vis other global and regional Industry players. Based on this analysis the report addresses current constraints to the sector's growth and recommends remedies. It then devises a three-year investment and trade promotion strategy, including promotional approaches, target markets and investors, annual investment targets, and promotional efforts requirements.

ABBREVIATIONS AND ACRONYMS

AMIR	Achievement of Market-friendly Initiatives and Results Program
B2B	Business to Business
BPO	Business Process Outsourcing
CEO	Chief Executive Officer
CIO	Chief Information Officer
CMS	Content Management Systems
CRM	Customer Relations Management
ERP	Enterprise Resource Planning
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GAFTA	Greater Arab Free Trade Agreement
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GNP	Gross National Product
ICT	Information and Communication Technology
IDC	International Data Corporation
Int@j	Information Technology Association of Jordan
IP	Internet Protocol
IPL	Investment Promotion Law
IPR	Intellectual Property Rights
IS	Information Systems
ISIC	International Standard Industry Classification
ISO/CMM	Capability Maturity Model
ISP	Internet Service Provider
JAFZ	Jabal Ali Free Zone
JEI	Jordan Education Initiative
JIB	Jordan Investment Board
MENA	Middle East and North Africa
MOICT	Ministry of Information and Communication Technology
MTC	Mobile Telecommunication Company
NGO	Non-Government Organization
OECD	Organization of Economic Co-operation and Development
PKI	public key infrastructure
PR	Public Relations
R&D	Research and Development
ROI	Return on Investment
SIC	Standard Industry Classification
SME	Small and Medium Enterprises
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TRC	Telecommunication Regulatory Commission
USAID	United States Agency for International Development
WEF	World Economic Forum
WTO	World Trade Organization

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EXECUTIVE SUMMARY

Introduction

Over the past several years, the Government of Jordan, driven in part by the interest and commitment of H.M. King Abdullah II, has identified the IT sector as one of its central economic development priorities. Efforts to date, however, have not been satisfactory, though successful.

Jordan ICT investment promotional efforts have been uncoordinated and unfocused. Efforts by JIB, MOICT, and Int@j have generally been pursued on an *ad hoc* basis, in the absence of any strategy.

The AMIR Program has accordingly initiated the development of a three-year national investment promotion strategy for the Jordan's ICT sector.

The main findings and conclusions of the assignment are summarized below.

Target markets and sub-sectors

While some ICT market participants have heard of Jordan's ICT efforts, many are not aware the Jordanian ICT value proposition (Value proposition is a clear statement of the tangible results a customer gets from using certain products or services). At the same time, potential investors and partners are attracted to business franchises demonstrating growth and business momentum. As a relatively new market entrant, Jordan has the advantage that expectations have not been well established, which should provide for significant flexibility in targeting business opportunities and positioning the investment promotion case.

Potential interest was found among ICT companies in the US and Europe, which are already seeking lower-cost operations through outsourcing. It is believed that long-term outsourcing relations between these companies and local Jordanian companies will eventually generate solid business relations that are characterized by dependency and trust. Ultimately, this will yield partnerships, enhanced exports and finally investment into the local Jordanian partner.

A concentrated and well-focused marketing program is absolutely essential. Findings of the strategy highlighted the importance of targeting the following sub sectors and niches: number portability and carrier pre-selection, public wireless internet service provision, e-learning, e-government, e-banking, wireless content, and ICT outsourcing services including business process outsourcing.

Investment Location Criteria

The criteria used by international companies in evaluating potential investment locations are listed and discussed in Section 3. Jordan's performance against these criteria is mixed.

While Jordan performed well when measured against certain factors (such as value proposition, human resource, legal and regulatory environment, reliability of the communications infrastructure, and strong leadership support), it exhibited a worse performance under other criteria (such as, perceived instability, market size and access, business facilitation services, cost of the communications infrastructure, etc.).

Building on Strengths

Government support for ICT efforts remains strong. While initial Jordanian growth targets for the sector are recognized as aggressive, a strong willingness to deliver on the promise and the vision of the Government's ICT promotional activities continues. Led by H.M. King Abdullah II, Jordan remains focused on the ICT sector as a driver for economic

development. This process, which began in 1999, has resulted in technology focused educational initiatives, regulatory reform along with high profile contact with major technology firms and investors globally.

The Challenge – The Differentiator: Articulating the value proposition. Globally, many organizations pursuing the ICT opportunity have difficulty clearly presenting their value proposition to prospective customers, investors and partners. Jordanian ICT firms can differentiate themselves at the local, regional and global level, by presenting their value proposition to the market in a clear and consistent manner. The potential to attract investment and partnership opportunities can be enhanced by providing a business context that is easily understood. Presenting the investment case within a framework that investors are familiar with can reduce perceived risk and increase the likelihood of investment.

Momentum is building, but must be sustained. Many countries pursuing the ICT business opportunity leverage a technically skilled workforce developed over several decades. In a short time span, Jordan has cultivated a strong ICT focus in both its public and private sectors. However, concern exists that a near term gap between the ICT promise and Jordan's capacity to execute against the market opportunity is developing. As ICT initiatives continue, Jordan must be cognizant of this concern and moderate expectations as it builds its ICT franchise.

The Jordanian ICT platform: The foundation for promotional strategies. Jordanian ICT firms are establishing a local, regional and global presence. Jordan as an ICT Platform: is enabled by its people, its regulatory reforms, its leadership support, and its technology infrastructure. Promotional strategies should leverage these key attributes while adapting to emerging Jordanian ICT capabilities and market trends. Success will require a persistent, often relentless pursuit of sales, partnering and investment opportunities supported by clear and concise marketing messages.

A major promotional effort must be launched to capitalize on these strengths. With the "end in mind" goal to generate investors site visits, promotional efforts should leverage the internet, databases, and any other tools for research and profiling to target potential investors. Other identified tools/activities in this strategy include: the use of web-casting technologies, the development of public-private sector case studies (e.g. JEI), the development of business success stories (e.g. Rubicon), and attendance at ICT Road Shows and engagement in ICT industry events

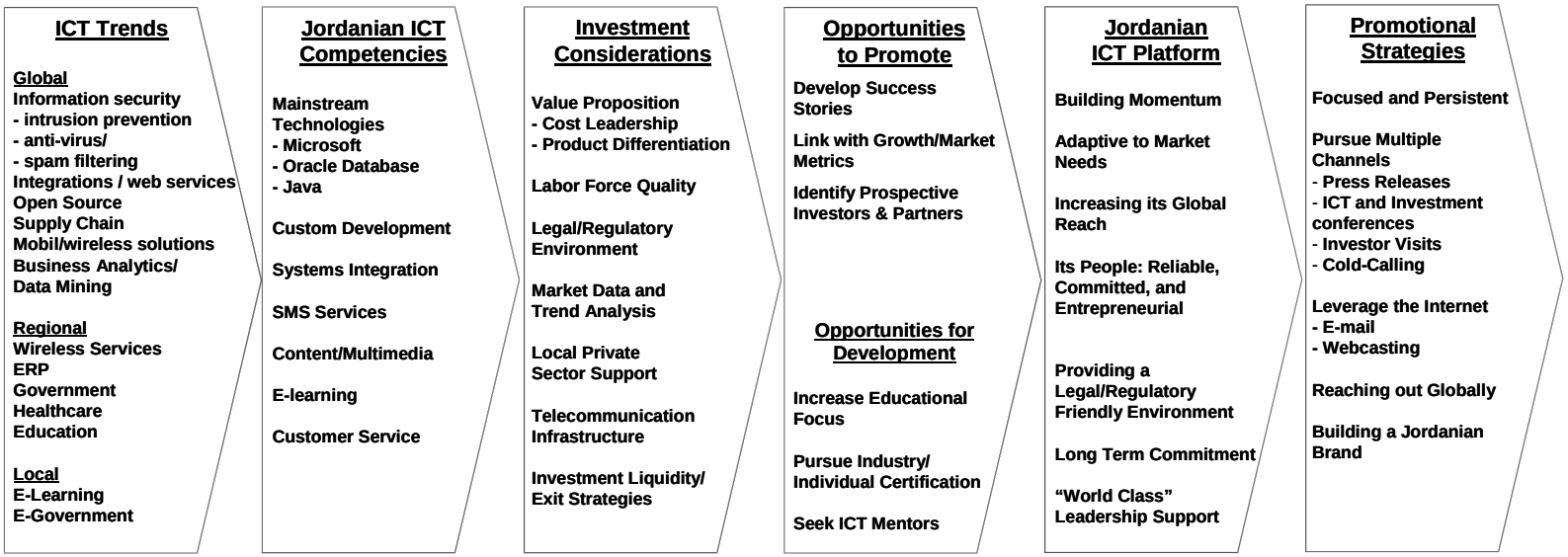
Well-developed ICT Infrastructure that is further enhanced through the National Broadband Network.

Annual Investment Targets

It is hoped that one "joint venture" project valued at USD 5 million and creating 50 new direct jobs and one "financial-investors" project (i.e. venture capital fund, institutional investors) valued at USD 5 million and creation 50 new direct jobs will be generated annually as a result of the implementation of this marketing strategy.

The following diagram summarizes the promotional road map as resulted from this strategy.

Promotional Road Map - ICT Sector



- **Jordanian ICT Platform: Enabled by its people, regulatory reform and technology infrastructure.**
- **Promotional Strategies: Adaptive to emerging Jordanian ICT capabilities, clearly presenting the value proposition.**
- **Success: Requiring a persistent, often relentless, pursuit of sales, partnering and investment opportunities.**

CHAPTER 1: INTRODUCTION

1.1 Background

The global ICT sector is a large, diverse and rapidly growing multi-billion dollar industry dominated by American, European and Japanese companies. It is an innovation-based industry characterized by dynamism and change. The growth and development of the ICT sector over the past fifteen years has been phenomenal: the telecommunications revolution of the past fifteen years has rendered the world a global village, while information technology has invaded almost every aspect of daily human life.

Over the past few years, the ICT sector in Jordan has been growing fast in terms of domestic market size, and has seen its regulatory environment undergo a complete overhaul to make it up to par with the best international practices. However, it has so far failed to live up to the high-level expectations penned on its ability to deliver jobs and exports and investments to the Jordanian economy. These expectations were further boosted by the hype, high profile and exposure that the sector has enjoyed over the past five years, which arguably dwarfs that of any other sector.

In addressing this shortcoming, this study was commissioned by AMIR to highlight the importance of attracting further investment (especially foreign investment) into Jordanian ICT companies and the Jordanian ICT sector and to devise a three year promotional strategy to do so (refer to appendix A for the Scope of Work). Such investment will help in: transferring knowledge and expertise into Jordan's ICT sector; developing new products and services; and strengthening entry into new markets in North America and Europe, thereby shifting dependence away from Jordan's traditional export markets.

1.2 Objective

The objective of this consultancy is to produce a practical three-year plan for promotional efforts to use in attracting FDI into Jordan based on an evaluation of Jordan’s competitive position in the ICT sector, especially given the trends and changes that are influencing the industry, and to develop an appropriate three-year inward investment promotion strategy. In order to achieve their objectives, this strategy is written from a strict investment point of view for the benefit of and use by promotional efforts.

1.3 Report Organization and Methodology

The methodology used to perform this study includes the following:

- Interviews with selected stakeholders in the local market, along with potential investors and partners in the US market,
- Interviews with CEOs and executives of leading corporations and investment banks in the region (Saudi Arabia, Lebanon, Qatar, Kuwait]
- Research of global and regional ICT industry trends,
- Skills/Industry survey among Jordan’s ICT community,
- SWOT analysis of the ICT industry in Jordan,
- Review of literature on the topic from industry sources and Jordanian government sponsored studies.

The focus of this study is to identify niche products and markets for FDI attraction, as well as to provide a practical promotional plan to approach potential investors. The study is not meant to be a sectoral study. Therefore, the sectoral analysis component of this study serves

only as a means to identify target markets and provide profiles of potential investors who may be attracted to invest in Jordan.

Starting with an overview of the sector in Jordan, the study identifies existing trends in investment and trade, existing market access agreements, major players in the local market, current operational costs and efficiency issues, and available technology and technical expertise. The purpose of this overview is to determine the main features of the sector in Jordan.

Then, a review of the global ICT industry is performed to determine trends in the global industry and to identify major importers and exporters. It is followed by a brief discussion on the regional ICT industry, including its main characteristics and major regional players in this industry with the aim of identifying the potential for FDI in Jordan by the regional players too.

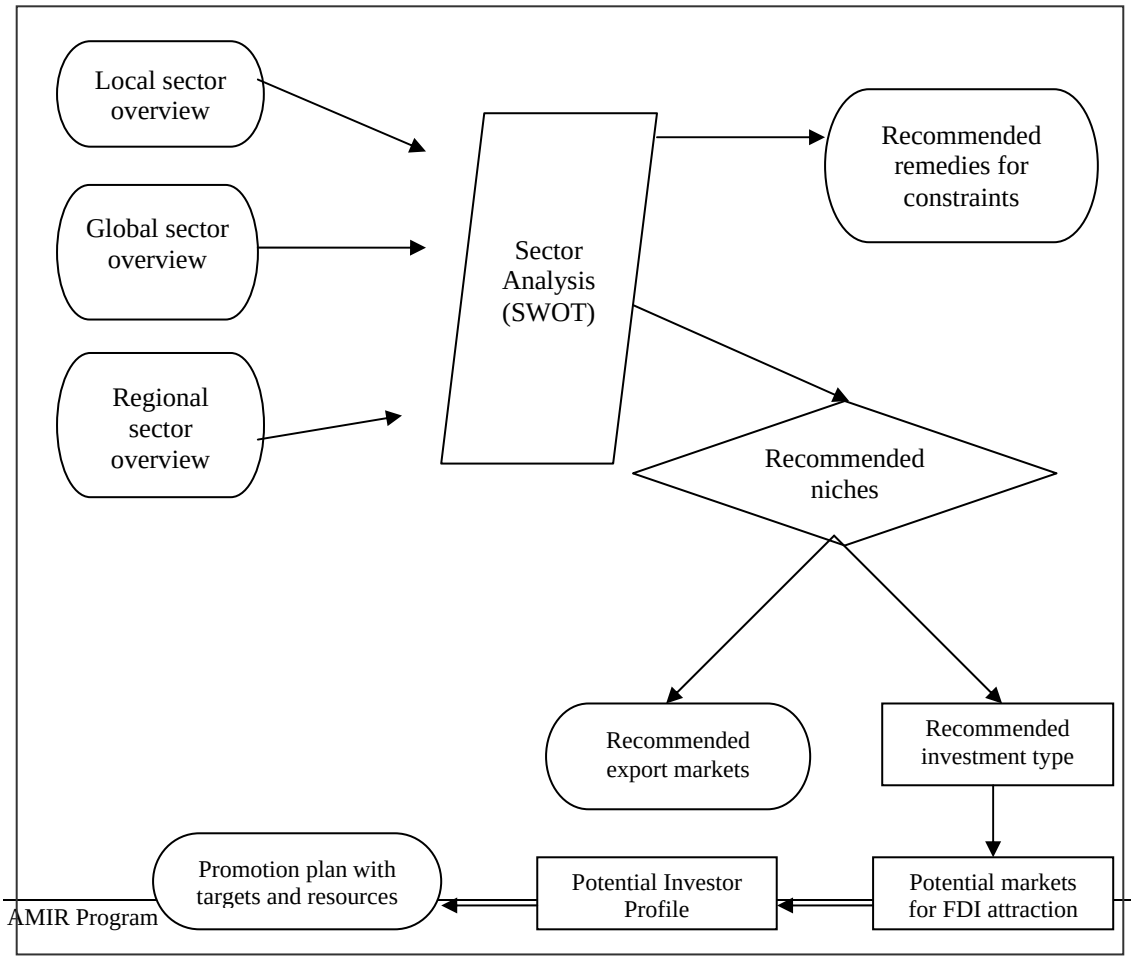
The local, global and regional overviews are then used as basis for a SWOT analysis of the sector in Jordan, and how it fares in comparison to other competing locations in the global market. From such analysis product and market niches in which Jordan has comparative advantages over its competitors are identified, and recommendations are made on product types that Jordan should focus on in its targeting efforts.

Finally, a three-year promotional strategy is provided that includes the following.

- Core message and selling points
- Identification of target markets and profiles of target investors
- Promotional approaches to follow in targeting efforts
- Annual investment targets
- Resource requirements to prepare and execute promotional plans

The following diagram explains the methodology used to compile these strategies:

Figure 1.1: Methodology for Investment



1.4 Industry Definition and classification

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In addressing this shortcoming, the study highlights the importance of attracting further investment (especially foreign investment) into Jordanian ICT companies and the Jordanian ICT sector. Such investment will help in: transferring knowledge and expertise into Jordan's ICT sector; developing new products and services; and strengthening entry into new markets in North America and Europe, thereby shifting dependence away from Jordan's traditional export markets.

Industry Definition

Companies in the Information and Communication Technologies sector (ICT) are grouped around technologies, solutions, or business verticals. As a result, the ICT sector does not fit very comfortably within the common industry classification definitions. Furthermore, the boundaries for the sector are in a continuous flux as ICT firms become more pervasive in the economy.

The main challenge is defining the ICT sector is that there is no international standard definition or classification of the ICT sector and sub-sectors. The Organization of Economic Co-operation and Development (OECD) is attempting to define the ICT sector; however, there has not been an agreement on an up-to-date definition of the sector. The one definition for the ICT sector that the OECD agreed upon referred to the sector as: *"The industries that produce the products (goods and services) that support the electronic display, processing, storage, and transmission of information."* The Standard Industry Classifications (SIC) in the US were last revised in 1992 and do not reflect the newer ICT sub-sectors that have developed since then1. Furthermore, the government of Jordan does not use or comply with any international classification model in its registration process of new firms.

In an attempt to develop a more accurate classification for the sector in Jordan, a more integrated approach had to be used. IMI, a Jordanian IT firm, in cooperation with the Information Technology Association of Jordan (INTAJ) and the Ministry of Information and Communication Technology (MOICT) has developed a sector classification based on the International Standard Industry Classification (ISIC-3) system. Table 1.1 below lists the newly suggested classification, which is expected to come into force by early 2005 and covers all activities related to the ICT sector:

[1] It should be noted however, that the North American Industry Classification System (NAISC) was last revised in 2002, while the UK Standard Industry Classification was last updated in 2003.

Table 1.1: ICT Sector ISIC Description

Code	ISIC-3 Details / Description
3000	Manufacture of manual or electric typewriters
3000	Manufacture of word-processing machines
3000	Manufacture of hectograph or stencil duplicating machines, addressing machines and sheet-fed office-type offset printing machines
3000	Manufacture of automatic data processing machines, including microcomputers: digital machines
3000	Manufacture of automatic data processing machines, including microcomputers: analog machines
3000	Manufacture of automatic data processing machines, including microcomputers: hybrid machines
3000	Manufacture of peripheral units: terminals, printers, plotters etc.
3000	Manufacture of peripheral units: input devices: keyboards, mice, joysticks, pens and graphic tablets etc.
3000	Manufacture of peripheral units: magnetic or optical readers and writers
3000	Manufacture of peripheral units: computer storage devices
5151	Wholesale of computers and computer peripheral equipment
5151	Wholesale of software
5152	Wholesale of electronic valves and tubes
5152	Wholesale of semiconductor devices
5152	Wholesale of microchips and integrated circuits
5152	Wholesale of printed circuits
5152	Wholesale of blank audio and video tapes and diskettes, magnetic and optical disks
5152	Wholesale of telephone and communications equipment
6420	Transmission of sound, images, data or other information via cables, broadcasting, relay or satellite
6420	Telephone, telegraph and telex communication
6420	Transmission (transport) of radio and television programmers
6420	Maintenance of the network
6420	Internet access provision
6420	Public pay-telephone services
7210	Consultancy on type and configuration of hardware with or without associated software applications by analyzing the users' needs and problems and presenting the best solution
7221	Production, supply and documentation of ready-made (non-customized) software: · Operating systems, Business and other applications, Computer games for all platforms
7229	Analysis, design and programming of custom software, including: analysis of the user's needs and problems, consultancy on the best solution, production of custom software to realize this solution
7229	Development, production, supply and documentation of made-to-order software based on orders from specific users
7229	Writing of software of any kind following directives of the user
7229	Software maintenance
7229	Web page design
7230	Processing of data employing either the customer's or a proprietary program: complete processing of data supplied by the customer, data entry services, scanning of documents
7230	Management and operation on a continuing basis of data-processing facilities belonging to others

7230	Timeshare computer services
7230	Web-hosting
7240	Assembly of compilations of data from one or more sources
7240	Provision of online access to proprietary databases
7240	Online database publishing
7240	Online directory and mailing list publishing
7240	Other online publishing, including e-books
7240	Web search portals
7240	Internet search sites, Internet game sites, Internet entertainment sites
7250	Maintenance and repair of computer and computer peripheral equipment
7250	Maintenance and repair of typewriters, manual or electric
7250	Maintenance and repair of photocopy and thermo-copy machines
7250	Maintenance and repair of electronic calculating machines, hand-held or desktop
7250	Maintenance and repair of cash registers
7290	Computer disaster recovery
7290	Software installation services
7290	Other computer-related services n.e.c.

Another attempt at industry classification, based on the UK SIC was undertaken, whereby the UK SIC was linked with existing data sources describing the Jordanian ICT sector (see appendices B and C).

These proposed classifications should present a good tool and a starting point for analyzing the ICT sector in Jordan in the future. However, for the purposes of this report, and taking into consideration the sector's existing activities, the above-listed activities were mapped into the following larger sub-sectors, which offer a broader gauge of the ICT cluster in Jordan and its various components:

Manufacturing / Electronics:

- Computer Hardware and peripherals
- Telecommunications Equipment

Services:

- IT Professional Services (including custom software application development, Hardware and Software consultancy, online content and services, and maintenance)
- Computer Software (packaged software products – cross industry and vertical market applications)
- Telecommunications Services / Multimedia and Content

Table 1.2 below describes the corresponding SIC descriptions for each suggested main sub-sector.

Table 1.2: Jordan's main ICT sub-sectors

Jordan's Main ICT Sub-Sectors	**SIC Definition Description**
Manufacturing / Electronics	
Computer Hardware and peripherals	• Wholesale and retail of computers, computer peripheral equipment and software
Telecommunications Equipment	• Telecommunication • Call Center Activities
Services	

IT Professional Services	• Software Outsourcing, Integration and Consultancy	• Hardware Consultancy • Data Processing
Software Solution Development (Package Development and Implementation)	• Wholesale and retail of computers, computer peripheral equipment and **software**	• Software Outsourcing, **Integration**, and **Consultancy**
Telecommunication Services (Multimedia and Content)	• On-line Commerce • Call Center Activities	• On-line Content • Telecommunication

The SWOT analysis in later sections in the report will determine the niches within the selected sub-sectors in which Jordan has a better chance to attract FDI.

CHAPTER 2: SECTOR OVERVIEW

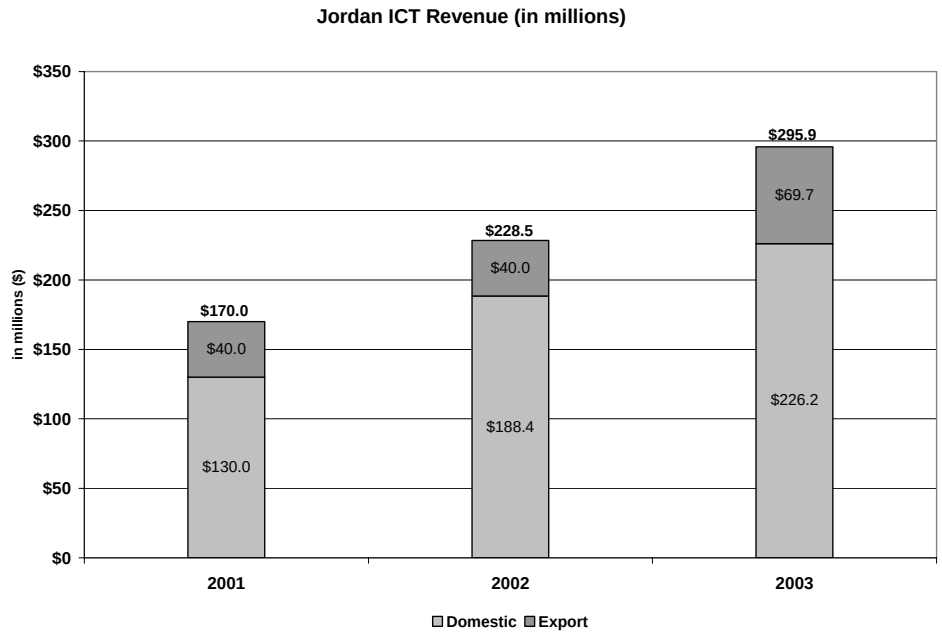
2.1 Sector in Jordan

Demand and Investment Conditions in the Local Market

Jordan has one of the more developed and advanced ICT sectors in the region. The sector enjoys strong support from the Government and His Majesty King Abdullah.

According to survey results compiled by industry trade association, Int@j, 2003 ICT revenue totaled US$295 million representing 30% growth over 2002.

Figure 2.1: Jordan ICT Revenues



Source: 2003 ICT Industry Statistics - int@j

While both domestic and export ICT revenues witnessed growth in 2003, export growth was around 75%, compared to a stagnant 2002. Around a quarter (24%) of total ICT revenues in 2003 came from exports, which went primarily to Arab countries (77%).

Table 2.1: Jordanian ICT exports by region in 2003

Rank	Region	Exports (US$)	Share (in %)
1	Other Arab	28,059,000	40
2	Gulf countries	26,098,000	37
3	The Americas	13,053,000	19
4	Europe	2,323,000	3
6	South East Asia	118,000	1
7	Africa	77,000	0
	Total	**69,728,000**	**100**

Source: 2003 ICT Industry Statistics – Int@j

As could be noted from table 2.2 below, 73% of domestic ($165 million) and 53% of export ($37 million) revenue in 2003 consisted of resale of hardware and prepackaged software (likely products from Cisco, Microsoft, Oracle and Intel based systems).

Table 2.2: 2003 ICT Revenue (in '000 US$)2

Segment	Domestic		Export		Total	
IT Consulting	5,810	3%	2,820	4%	8,630	3%
Software Development	30,826	14%	25,829	37%	56,655	19%
Comm./Internet Services	23,797	11%	4,203	6%	28,000	9%
Hardware Sales	129,942	56%	25,920	37%	155,862	53%
Licensing	35,808	16%	10,956	16%	46,764	16%
Total	**$226,183**	**100%**	**$69,728**	**100%**	**$295,911**	**100%**

Source: 2003 ICT Industry Statistics - int@j

Local demand for ICT in Jordan is driven by three groups. ***Government*** organizations (or quasi-government such as ASEZA) are the main drivers for ICT demand in Jordan. This is done through regular government contracts as well as a large number of contracts driven by government reforms covering e-government and e-learning services. These government contracts are either donor supported or directly financed by the government itself. These typically cover solution implementations and hardware sales. Little or no outsourcing work is generated by the government.

The second group that is driving ICT demand in Jordan is the ***Internet and wireless users***. Over the past few years, Jordan has become home to a relatively sophisticated base of users that are driving telecom companies to constantly provide new and innovative services. In the past two years alone, Internet speed has quadrupled, the number of value added serviced offered by telecoms has mushroomed, payment methods have expanded and went online, as well as many other services. This has created a lot of demand on local companies to provide and support such services.

The final group is the ***banking sector***. With around 22 local and foreign banks, Jordan is "over-banked" for its size, which is driving the players in this sector to engage in fierce competition. The result is that most banks are using and investing in top line ICT services and products in order to remain in the game and differentiate themselves. This provides for a very fertile and relatively large target sector for ICT services and products in the form of Internet banking, ATM Networks, Call centers, online payment systems, and secure networks.

Given that the Intaj survey of the Jordan ICT sector in 2002 used a different and more detailed segmentation than the 2003 one, a time-series analysis of the same segments is not readily available.

On the other hand, the Department of Statistics provides data about the gross output and gross value-added of the ICT sector in Jordan, according to the ISIC code. Unlike int@j data, this data doesn't include the manufacture and/or the wholesale/retail sale of computer hardware, while it includes telecommunications data. The most striking observation about this data (see table 2.3 below) is the small value-added but big number of companies in the IT sub-sector, versus the small number of firms but high value-added in the telecommunications sub-sector.

[2] This does not include revenues of Jordan's telecom providers: Fastlink, MobileCom, Xpress Telecom, and Jordan Telecom.

Table 2.3: Most Important Characteristics of Selected ICT Activities

Broad Category	ISIC Description	ISIC Code	Year	No. of Enterprises	No. of Employees	Gross Output (JD '000)	Gross Value Added (JD '000)
IT Services	Maintenance and repair of office, accounting and computing machinery	7250	1998	43	114	531.2	391.7
			1999	123	-	1,207.30	831.9
			2000	155	-	1,277.40	447.9
			2001	-	-	1,061.60	693.1
			2002	-	-	876	655.9
	Other computer related activities	7290	1999	9	-	321.9	152
			2000	6	-	228.7	186.2
			2001	-	-	227.8	108.7
			2002	-	-	48.5	38.7
	Software Consultancy and Supply	7220	1998	33	277	2,131.20	1,464.10
			1999	82	-	6,769.60	5,133.80
			2000	120	-	12,370.00	9,167.10
			2001	-	-	10,090.90	7,232.80
			2002	-	-	14,394.20	11,501.70
	Total		1998	76	391	2,662.4	1,855.8
			1999	214	-	8,298.80	6,117.70
			2000	281	-	13,876.10	9,801.20
			2001	-	-	11,380.30	8,034.60
			2002	-	-	15,318.70	12,196.30
Telecom.	Telecommunication	6420	1998	5	5,423	252,151.70	218,610.40
			1999	5	5,431	278,556.90	218,946.70
			2000	6	5,989	344,145.90	248,361.80
			2001	-	6,312	434,223.40	311,099.50
			2002	-	5,947	536,758.60	393,975.50
Totals			1998	81	5,814	254,814.1	220,466.2
			1999	219	5,431	286,855.7	225,064.4
			2000	287	5,989	358,022.0	258,163.0
			2001		6,312	445,603.7	319,134.1
			2002		5,947	552,077.3	406,171.8

Source: Department of Statistics

Based on this data, the contribution of the ICT sector to the country's GDP can be measured. Between 1998 and 2002, that contribution increased by 1.6 times, to almost 8% of GDP, driven by an almost doubling of the telecommunications gross output.

Table 2.4: ICT Sector Contribution to GDP

1998	1999	2000	2001	2002
4.9%	5.1%	5.6%	6.6%	7.95%

Source: Department of Statistics

The Jordanian ICT sector has registered by far the most rapid growth in FDI of any sector, averaging over 300% per year (1997 through 2002); but this growth rate reflects the small size of the sector relative to the total economy (1% of total FDI since 1997).

International investment to date has included France Telecom's acquisition of 40% of Jordan Telecom (and through that share, its stake in Mobilecom), Orascom (Egypt) investing in the first mobile telephony network–Fastlink, and Microsoft's investment in Estarta Solutions, a joint venture involving One World Jordan and a regional venture capital group. Intel and Sun Microsystems have expressed interest in Jordan, but have stopped short of investing. Until this time, they have only participated in training and incubator programs in collaboration with local institutions.

Since 1999, the Jordan Investment Board (JIB) has approved about US$ 25 million for investment in the ICT sector, with about US$ 20 million of funding from foreign sources. The amount of these funds which have lead to actual investment is unknown. However, it is likely that some projects were cancelled because of political turmoil in the region.

Table 2.5 lists estimates of FDI flows into Jordan's IT sector since 2000 (based on input from industry sources, which is not substantiated). Evidently, the original REACH initiative goal of US$ 150 million in FDI by end of 2004 has not been attained by a large margin.

Table 2.5: FDI into Jordan's ICT Sector 2000-2004

Year	Company	Investors	Estimated Investment (in US$ million)
2000	Arabia Online	Undisclosed	12.0
	Maktoob	EFG Hermes (Egypt)	1.0
	Syntax	EFG Hermes (Egypt)	0.2
	ONEWORLD	Undisclosed	12.0
	Info2cell	AcoTel (Italy)	2.0
		Total	**18.6**
2001	Sidco	Undisclosed	2.0
	Rubicon	Undisclosed	1.0
	Nets / FirstNet	Batelco (Bahrain)	2.0
	ONEWORLD	Undisclosed	4.0
	Info2cell	AcoTel (Italy), Belhasa Group (UAE)	3.0
		Total	**21.0**
2002	Arabia Online[3]	Undisclosed	10.0
	Estarta	Undisclosed	4.0
		Total	**14.0**
2003	Rubicon	Cisco (USA)	1.0
	STS	Injazat (Dubai)	2.0
		Total	**3.0**
2004	Minhaj	Microsoft (USA)	1.0
	Estarta	Cisco (USA)	1.0
	Rubicon	Injazat (Dubai)	1.0
	Open Text + others	Integrated Vision (Saudi Arabia)	2.0
		Total	**5.0**
		Grand Total	**54.6**

[3] That investment took place while Arabia.com was located in the DIC

Market Access Agreements

Since Jordan's market size is small, it has attempted in recent years to enhance its market access potential by acceding to the WTO and entering into several free trade agreements such as the Jordan-U.S. FTA, the Jordan-E.U. Association Agreement, the Greater Arab Free Trade Agreement (GAFTA), and bi-lateral free trade agreements with various Arab countries (e.g., Egypt, Saudi Arabia, United Arab Emirates, Syria, and Tunisia).

While signing these bilateral and multi-lateral treaties opens doors for Jordanian businessmen, and increases the credibility and visibility of Jordan among foreign investors, it doesn't have much direct bearing on the ICT sector, since ICT products, and especially services enter most countries, including such important export markets for Jordan as the U.S., the E.U., and other Middle Eastern countries, duty-free or a subject to minimal tariffs. For this reason, duty-free access to such markets does not have as much bearing on Jordan's ability to attract FDI in this sector as the existence of favorable laws (which Jordan has) or the existence of incubators, and large scale ICT parks (which Jordan doesn't have).

Still, accession to the WTO, and compliance with the Jordan-US FTA involved strict adherence to IRP laws that have a potential to attract investors who demand patent protection and will feel safer about investing their intellectual property. In addition, the REACH process has involved modernizing some 75% of the laws that have bearing on the ICT sector, thereby helping business owners, investors and ICT firms in general.

Firm Structure and Competition in Jordan's ICT Market

Other than the four main telecom providers mentioned earlier (Jordan Telecom, Fastlink, Mobilecom, and Xpress Telecom), the ICT landscape in Jordan is fragmented, with islands of relatively small firms (30 people or less) engaged in competition over specific services and solutions. According to INT@J there are around 375 ICT firms operating in Jordan, most of which are local firms (see table 2.6).

The small size of ICT companies reflects on their financial muscle, their ability to sustain large cash flows, and their capacity to scale up for big implementation. It is hindering these firms' ability to take on larger projects in the region, as well as in Jordan. It is likely that business collaboration, joint ventures and mergers will be required to drive future growth. There is a desire for government and int@j to provide leadership in bringing companies together based on identified opportunities.

Table 2.6: Number of ICT firms in Jordan

Year	Number of ICT companies	Growth
2001	285	-
2002	334	18%
2003	373	12%

Source: 2003 ICT Industry Statistics - int@j

According to a recent survey that was conducted by AMIR "ICT Sector Baseline Industry Survey AMIR 2.0", ICT companies in Jordan are characterized by following:

- The companies are mostly small- to medium- sized in regional terms. Most companies had between 10-40 employees, with the most common size being 12-25 employees.
- Most companies are relatively young: 66% of the surveyed companies were established in the last ten years.

- Intaj members represent approximately 36% of the ICT in Jordan. It is expected however that the Intaj members include the largest and the exporting companies, and represent an expected 80% of the ICT income in Jordan.
- The most prevalent areas of activity for these firms are: custom software development, product development, and systems integration.
- Other activities include: offshore development, outsourcing, B2B sales operation, and call centers, as well as specialized players in: e-learning, Islamic financial software development, and an Internet media portal.
- The majority of the companies in the sector are limited liability enterprises (around 80% of the total surveyed). However, an increasing number of companies were moving towards the newly introduced legal form of private shareholding companies. Unlike other sectors in Jordan, the ICT does not have a large number of family-owned businesses. It also appears to be the one most approaching modern organizational formats in terms of career advancement potential.
- Most companies had annual revenues in 2003 ranging between US $500,000 and US$ 4 million.
- The sector seems to be growing: 46% of surveyed companies reported 30% average annual revenue increase over the last three years, and 50% reported that they project a growth rate of more than 30% for 2005. Some companies communicated that they had growth of over 100%!
- The sector seems to have a decent level of profitability and no company is losing money. The distribution is almost normal distribution with companies making acceptable net margins, 10% and more.
- The average project size for most companies was in the US$100,000 range, followed by US$10,000 range. Only 2 companies had an average transaction size in the million in e-learning and electronic transactions.
- The majority of interviewed companies have a good presence in the Gulf, specifically, and in the MENA region in general.
- There were 43 Jordanian ICT offices identified outside Jordan. Most of the offices are in UAE, followed by Saudi Arabia, Qatar, Iraq, Palestine, and the US.
- Companies also pursued other MENA and non-MENA markets through partners and agents, with the majority pursuing this kind of business relations in the MENA through Saudi Arabia, followed by the Qatar, UAE, and USA from the non-MENA countries.
- Other export markets included: Libya, Oman, Palestine, Iraq, and Germany.
- Only 17% of the surveyed companies have ISO/CMM (Capability Maturity Model) certification, 49% are planning to certify, and the rest have no plans to have certification.

Jordanian firms tend to engage in fierce competition, both at the local and regional levels. Although this is healthy and encourages innovation especially in software product development and content creation (portals); it does get in the way of effective cluster interactions.

Besides being engaged in competition for business accounts, there is a fierce competition for qualified resources, especially at the IT professional services sub-sector. This rivalry is pushing the cost of IT resources up, creating a high attrition rates, and in return hurting the competitiveness of the IT professional services sub-sector.

On the structural level, most of the ICT firms in Jordan are not institutionalized, i.e. they tend to have young management and ownership. This has proven to limit companies' access to capital due to lack of experience. On the other hand, it is this type of structure and personal

relationship between the different ICT firms that drives cluster interactions, however limited they may be.

Regulatory reform in Jordan's ICT sector is adaptive, ongoing and has been well received in the market**:** This view is driven by the government's commitment to the World Trade Organization (WTO), protection of intellectual property, telecommunication deregulation efforts and tax reform.

According to the World Economic Forum, Jordan's network readiness has been improving as it ranked 46th out of 102 countries evaluated in 2003-2004. The Networked Readiness Index measures the market, political, regulatory and infrastructure environment for ICT, as well as individual, business, and government readiness and usage of ICT within each country.

Table 2.7: Networked Readiness Index Rank [4]

Year	Jordan's Rank	Total no. of countries
2001-2002	49	75
2002-2003	51	82
2003-2004	46	102

Jordan scored particularly well in the Political/Regulatory Environment component. With the telecom and postal sectors liberalization, and the regulatory reform, investors should find value in both the status of change and the positive direction of change, Enforcement of regulatory changes could be stronger, and registering new companies remains lengthy and cumbersome, with border control and customs presenting obstacles for the flow of goods into Jordan (impacting ICT hardware dependant firms).

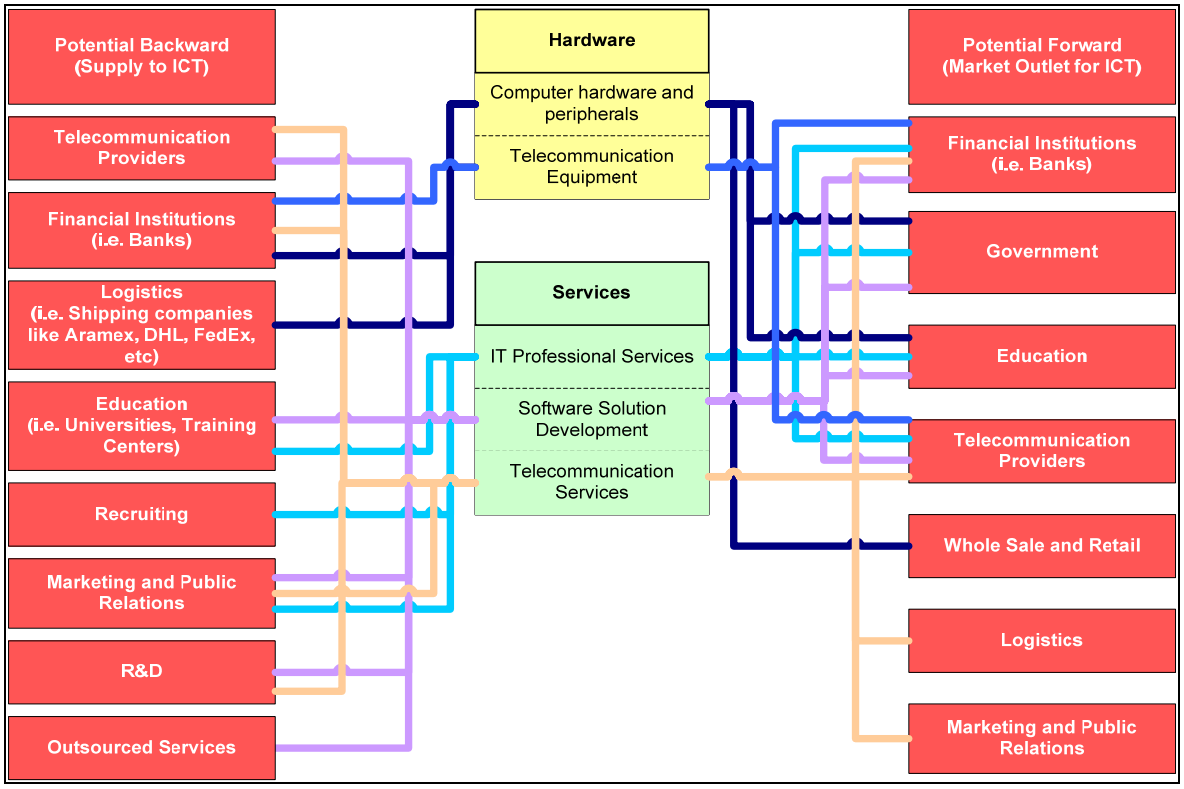
In January 2002, an Electronic Transaction Law was passed to support the development of e-banking and e-commerce. Based on the United Nation Commission on International Trade (UNCITRAL)'s model law, Jordan's Electronic Transactions Law recognizes electronic signatures, documents, data, and transactions as having the same legal status as original documents/versions. However, the law still lacks the supporting regulations required to implement it. Among the key components of the infrastructure that are required to enact the law and allow for an effective e-contracts and e-transactions environment in Jordan are key certification bodies and a secure public key infrastructure (PKI).

Linkages, Related and Supporting Industries

Based on the sector classification outlined in section 1.4, figure 2.2 below attempts to map-out the forward and backward linkages into Jordan's ICT sector.

[4] World Economic Forum's "Global Information Technology Report," 2003-2004

Figure 2.2: Jordan's ICT Cluster[5] Map



A thorough observation makes it possible to conclude that the convergence process is relatively intensive between the IT professional services sub-sector, on one hand, and Telecom providers, financial institutions, and government on the other hand. Significant linkages can also be detected between telecommunication services and financial, logistics and Marketing and Public relations sectors. Both of these sub-sectors sit at the center of the ICT cluster in Jordan.

Yet, the performance of Jordan's ICT cluster is based to a large extent on the developments in telecom, government, education, and banking. These four sectors play the twin roles of enablers for the ICT sector (in terms of infrastructure, regulation, human resources and financial resources) as well as consumers of ICT products and services (telecom services, e-government, e-learning, and e-banking).

The banking sector, in particular could even be considered a core player since banks host their own IT departments, which supply majority of necessary solutions in-house, and which could dwarf in size most of the independent ICT player. Telecoms provides substantial input to several ICT sub-sectors; while education is fueling many sub-sectors by introducing niche market opportunities and by being a consumer of ICT services itself. Another important role in Jordan's ICT cluster's development can be associated with governmental and donor agency structures, which are target groups for several ICT sub-sectors such as ICT professional services and computer hardware.

In conclusion, the different linkages within the ICT sector and other sectors in the economy demonstrate considerable interdependency, and provide insight into the overall development

[5] An industry cluster is defined as a geographically bounded concentration of similar, related or complementary businesses, with active channels for business transactions, communications and dialogue, that also may share specialized infrastructure, labor markets and services, and that are faced with common opportunities and threats.

prospects and potential for the whole ICT cluster. Certain dominating segments such as telecom providers, education, government, and banks will act as drivers for further development, and problems within one of these areas might affect the proper functioning of the whole cluster.

Factor Conditions

Factor Conditions are the inputs to a particular sector (in this case, the ICT sector) that enable the sector or sub-sector in question to compete. In the Jordanian ICT sector, these conditions are comprised of human capital, physical and information infrastructure, financial resources and knowledge resources (research and development).

Human Resources play a fundamental role in the development of the ICT sector. Jordan ranks first among Arab counties in education expenditure as a percentage of GNP[6]. Jordan's eight public universities, twelve private universities, and 21 community colleges house more than 120,000 students and graduate an around 4,000 ICT graduates a year. Most universities and educational academies in Jordan employ MS and Java technologies as part of its curriculum and graduation projects, while most courses taught at training institutes also reflect the dominance of certain technologies, mainly Oracle, MS and Java.

Unfortunately, there exists a gap between the graduate's skill sets and those required by the industry leaders in Jordan. The pool of industry ready and competitive graduates capable of taking on high-tech ICT jobs in Jordan varies in size and perception, but it only averages around 5% of the graduate population. So, from the approximate 4,000 ICT graduates, only 200 people are skilled enough and competitive enough to hold high-tech positions in the Software Development and IT professional service sub-sectors. They also happen to be quite productive (up to 60% of US productivity).[7]

For less technical ICT positions such as Call Center operators and Data entry, Jordan has a considerably wider base of resources that are ready. Most ICT graduates and a large number of non-ICT graduates are qualified to take on posts in ICT relevant services such as call centers and data entry.

As reported by the Arab Bank, Fastlink, and Mobilecom, the following table illustrates which technical skills and functionalities are lacking in Jordan's ICT sector.

Table 2.8: Lacking skills in the Jordanian ICT sector

Technologies identified as important but not available	Functionalities Identified as important but not available
DB2	Senior data base architects
Cisco	Senior system architects
AS 400	Quality assurance and control
CRM	Technical writers
	Security
	Network Administrators (mixed results)

[6] Vision Forum for Higher Education, 9/12/2002

[7] This estimate is based on feedback from the industry and expert observation

	Project managers (mixed results)

In terms of non-technical skills, the main shortages are in financial management, business development, PR and marketing, sales, and advanced human resource management.

Jordanian ICT organizations continue to emphasize the need to upgrade skills of local ICT workers and managers so as to attract further foreign investment into Jordan. This process needs to incorporate both technical and general business skills, along with the development of specific vertical industry knowledge.

Based on the results of the survey conducted by Int@j, it is estimated that Int@j IT member companies, which represent nearly 35% of the ICT sector, employed a total of 3,550 employees at the end of 2003. These employees were divided by function as follows:

Table 2.9: Jordanian ICT Industry Employment

Functional Area		**IT Firms**			**Telecom Firms**			**Total**	
Technical		2,033	57%		2,076	45%		4,109	51%
Sales/Marketing		552	16%		1,819	40%		2,371	29%
Administration		598	17%		505	11%		1,103	14%
Management		367	10%		167	4%		534	7%
Total		**3,550**	**100%**		**4,567**	**100%**		**8,117**	**100%**

Source: 2003 ICT Industry Statistics - int@j

Research and Development (R&D) both in general and in the ICT sector is significantly under developed in Jordan. R&D is primarily concentrated at a few Software Development firms, and still very limited. University-based research is still lagging behind market needs. University professors spend very little time and effort conducting effective and relevant industry R&D. R&D resources at both private sector and universities are limited and lack proper incentives.

The exception to the above is the telecommunication services. Telecom providers and telecom focused ICT firms are establishing stronger ties with universities through innovative incubators and programs. There is an increasing number of Jordanian telecom-specific products that are introduced to the ICT market.

Physical resources and Infrastructure are well developed in Jordan. With more than 430,000 internet users (7.8% penetration), 1.3 Million mobile phone users (24% penetration)[8], and an infrastructure capable of supporting an even larger user base; Jordan boasts a favorable and well-rounded communication infrastructure. Universities are connected together through a broadband network as well as with universities all around the globe. Similar efforts are taking place with schools.

According to Jordan Telecom, more than 99% of homes in Jordan have access to broadband internet infrastructure. ISDN connections are growing at a rate of 20% per annum, while ADSL penetration into homes is growing at an average of 15% a year. This growth is expected to increase considerably with the new "PC for every home" initiative launched at the Jordan ICT forum 2004. Under this initiative, the government, along with leading private sector partners, will facilitate and make it affordable for every home to have a PC and an ADSL connection.

This well-developed infrastructure is further enhanced through the National Broadband Network. Broadband is the capacity to deliver internet access with continuous "always on" connection and the ability to both receive and transmit digital content or services at high

[8] Madar Research

speeds. As such, GOJ started to clear out roadblocks to broadband deployment and adopt policies that foster demand for the benefit of the citizen and industry. These policies are laying the groundwork for the next generation infrastructure that should drive technological and economic growth, and improve quality of life. Such policies should promote competition, investment and innovation, through open and creative use of technology, be it new or existing. Currently, the broadband network part that is linking universities is under implementation while the planning of the schools network one is taking place gradually.

Businesses increasingly rely on broadband to stay connected to company operations, suppliers, customers and employees who telecommute. For them broadband availability will comprise an important component of company location decisions.

Implementation of other features allowed by broadband networks includes: real time video and audio, voice over IP, video conferencing, rapid data downloads, cable.

Table 2.10: Overview of Jordan's Telecom infrastructure

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Population	4,756	4,900	5,039	5,182	5,329	5,477	5,627	5,779	5,933	6,092
Fixed Line operators	1	1	1	1	1	1	1	2	2	2
Landlines (000s)	511	565	614	668	674	632	632	657	682	707
Landlines Penetration (%)	11%	12%	12%	13%	13%	12%	11%	11%	12%	12%
Cellular Operators	1	1	2	2	2	2	3*	4	4	4
Cellular Subscribers (000s)	82	95	351	813	1,191	1,346	1,596	1,896	2,196	2,446
Cellular Penetration (%)	1.7%	1.9%	7%	16%	22%	24%	28%	33%	37%	40%
ISDN lines / Broadband (000s)		.525	.891	1.812	2.110	2.530	2.830	3.130	3.430	3.730
ISDN lines / Broadband Growth (%)			70%	103%	16%	20%	12%	11%	10%	9%
Internet Users (000s)					307	430				
Internet Penetration (%)						8%				
PC Penetration (%)						6%				

Source: Madar Research 2003 and Arab Advisors Group 2003

In addition, increased competition, as well as vigilant monitoring by the Jordan Telecommunication Regulatory Commission (TRC), continue to drive prices down. Average telecom prices today are 25% of what they were in 2000, and they continue to drop. In the wireless market, four operators compete to provide infrastructure and services that have driven prices down and increased wireless penetration rates (which should reach 40% by 2007). The expiration of the fixed line monopoly at the end of 2004 is expected to open the door for competition in this sub-sector and encourage the development and introduction of new services while reducing international voice and data costs. Such a development should be key in determining whether the desire to cultivate the call center industry in Jordan will kick-off or not. A study commissioned by the Ministry of Planning has concluded that, despite Jordan's large pool of English-speaking, educated and low-cost work-force, the telecom costs were such that Jordan was rendered less competitive in this domain[9].

Similarly, Jordan's postal sector was liberalized with the privatization of the Jordan Post Company (JPC) and the opening up of the sector for competition. This is expected to attract investments in the postal service as part of a "bundle of services" rather than as a stand alone

[9] "Jordan off-shore contract center industry (OCCI) assessment," by Dimension Data, June 2004.

investment in the traditional postal sector. These additional services may include: delivery services, tax collection, logistics, e-commerce, etc.

In the realm of e-banking and e-commerce, among the key components of the infrastructure required to allow for an effective e-contracts and e-transactions environment in Jordan are key certification bodies and a secure public key infrastructure (PKI).

Financial Resources: Jordan has one of the region's oldest and most developed stock exchanges (the Amman Stock Exchange), which has been growing rapidly in the past two years and now stands at US$ 8.4 billion market capitalization or 120% of GDP.[10]

However, funding for start-ups and new companies is still very limited and restricted to bank funding which is subject to heavy collateral.

Available Technology and Technical Expertise

The availability of knowledge resources (in the form of technology and technical expertise at both the company and individual levels) merits special attention, since it affects the sub-sectors that investors might be attracted to, and determines the magnitude of the investment in training and knowledge transfer that the investor will undertake. This sub-section includes a brief description of the available technology in the ICT sector in Jordan, as well as an assessment of the level of the technical expertise.

Jordanian ICT expertise spans many sectors, with most expertise addressing business support functions rather than "core" business processes. Local IT leaders in the telecom, banking, and logistics sectors rely on international solutions providers for critical core business IT needs, and leverage local ICT providers for other IT functions. For example, few Jordanian companies develop or implement "core" banking solutions, but will provide support for banks in the areas of SMS, e-Banking, custom code development, and system integration.

The list of technologies and technical expertise existent and practiced at Jordanian ICT firms can be summarized as follows[11]:

- Applications (which are the computer languages used to develop the applications): Microsoft and JAVA technologies dominated the application development landscape, with little companies declaring expertise in open source.
- Databases (which are the core backend that store and process information methodically): Most of the competencies are focused on the Microsoft and Oracle.
- Networking (which are the technical skills in technologies used to establish and manage computer networks): Technical skills in networking are few, available mainly in relatively large-size companies (40+ employees).
- Operating Systems (which are the technical skills used to manage operating systems that are core to any computer-based setup). Available expertise is mainly in MS Windows. However, if all the UNIX "editions" are considered, including LINUX, then the market will show a split (with LINUX being the most popular among the other UNIX(s)).
- Multimedia (which are the technical skills needed to create multimedia -audio, video, animation, and graphics- applications): Multimedia expertise is limited and seems to be available in companies with e-learning solutions/products, and companies specializing in offering web-based applications to end users.
- Other technical skills included Content Management Systems (CMS) such as ERP.

Therefore, the following can be concluded concerning Jordanian ICT technical skills:

[10] Amman Stack Market Web site (http://www.ammanstockex.com)
[11] AMIR ICT Sector Baseline Survey, October 2004.

1) The technical skills in the Jordanian ICT sector are mostly mainstream "building blocks"-type technologies due to the major vendors support (Microsoft and Oracle) as well as traditional and conventional educational systems that rally behind mainstream technologies.
2) There is no evidence of "cutting-edge" technologies such as: artificial intelligence, pattern recognition, encryption, etc. despite the fact that these concepts are being taught in universities.
3) The technical capabilities are "market-driven" and not "R&D" driven. Meaning, that companies will employ technical skills that are most probable to find a market, as opposed to going after niche and specialized technical skills that will drive a market, or support special needs.
4) Certifications of high-end roles such as project management and security are sill limited. Employee certification is generally on the low side, as only 25% of technical people are certified in technologies they are working on. Skill areas requiring additional development include:
    1) senior technical leaders, such as technical architects,
    2) subject matter expertise, and
    3) experience with large-scale systems development and implementation.

Thus, Jordanian ICT firms are essentially addressing mainstream development and implementation projects. Technical skills provide support for Microsoft, Oracle and Java technologies, with some promising skills in open source. There is no major evidence of skills in areas such as artificial intelligence, or major systems support such as IBM Web Sphere. Deep core business knowledge is not a core differentiator.

ICT Competencies and Niche Offerings: many Jordanian ICT companies have their own branded solutions, some are patented, while the majority are trademarked and protected in the MENA region. These solutions address numerous market segments, with the highest recognition including e-Learning, e-payment, electronic check clearance, auto dealer management system, hospital management system, university management systems, Arabic search engines, SME ERP, call monitoring systems, adaptive skill testing, and user interface components.

Largely, however, the ICT sector remains an emerging sector that has yet has to find its niche and develop strong competencies that will ensure its growth and sustainability locally, regionally and internationally. Most of the products aimed at the small/medium market, with the exception of e-Payment and cheque clearing solutions. These products are also susceptible to global competition

In terms of ICT capabilities/sub-sectors themselves, Jordanian ICT firms are focused on the areas of call centers, e-learning, Arabization/Arabic-language content, business process re-engineering, back-office solutions and animation. In addition, expertise in solutions such as customer care and billing, wireless applications, data warehousing, electronic payment, image-based check clearing and signature verification, workflow and systems integration have some root in Jordan's ICT sector.

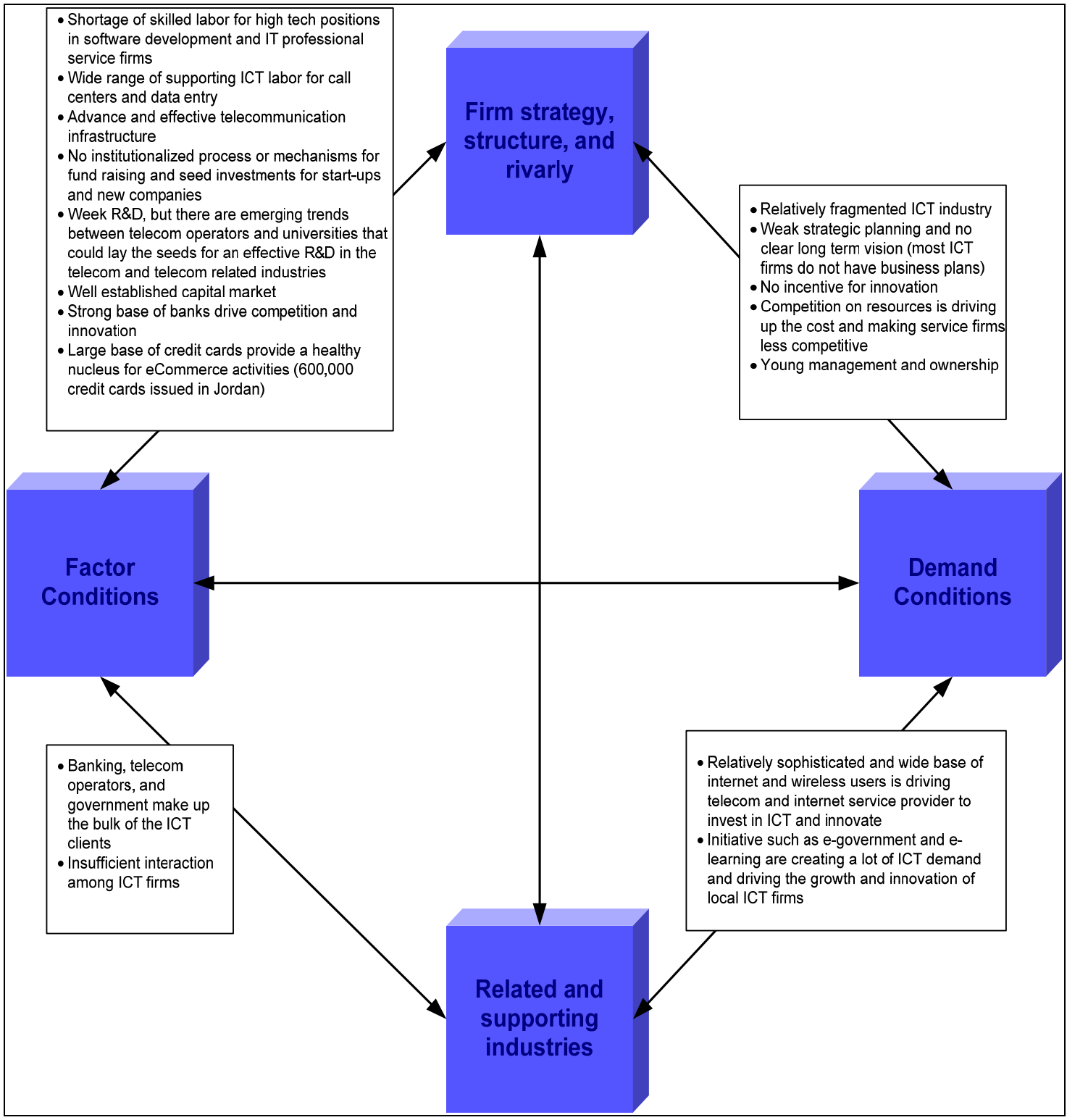
Certain competencies in *e-government e-learning*, along with *animation skills* supporting varied multimedia applications have had success in the public sector and seem to have substantial potential. As Jordanian ICT capabilities evolve, it is important to leverage these franchises toward private sector needs as well.

Jordan is a regional leader in reform initiatives, especially in education and government:

The e-Government started relatively early in 2001, with the support of organizations such as the USAID / AMIR Program and the World Bank, and the heavy involvement of the local ICT sector alongside international companies. This allowed a good number of Jordanian ICT companies to develop the skills needed and the references required addressing other markets.

The Jordan Education Initiative (JEI) supported by the World Economic Forum (WEF) is a long-term program aimed at accelerating Jordan's educational reform through a public-private-partnership model that drives innovation and capacity. The JEI has generated strong interest from global players such as CISCO, Microsoft, INTEL and others, induced local ICT companies like Rubicon, Menhaj, and ITG, to create a niche with unique offerings that can address global as well as local and regional needs. Since its inception in 2003, the JEI has attracted more than $15 million of FDI and business deals.

Figure 2.3: Jordan ICT Cluster competitiveness



2.2 Global Industry and Trade in the Sector

The global ICT sector is a heterogeneous industry comprised of competencies in software, hardware, communications (both wired and wireless) and varied professional services. Significant competition, convergence, and innovation have shaped the ICT industry for several decades. Business models and solutions supporting this market are broad and address wide array of needs.

The objective of this section is to provide the investment promotion effort with background information about global industry and trade trends in the ICT sector, which serves as reference material, as well as the basis for identifying potential threats and opportunities for use in the sector analysis in Section 3. In addition, this section identifies the main players in the global market place in order to assess the potential for attracting investment for these players.

Market Trends in IT

The global IT industry is large, diverse and dynamic. International Data Corporation, an IT research firm, estimated that Global spending on IT services will grow from US$ 439 billion in 2001 to US$ 700.3 billion by 2005. The United States will still be leading all other nations in this respect, spending US$ 335 billion in 2005, up from US$ 206.9 billion in 2001. Western Europe will see its IT spending rise to US$192.4 billion in 2005, from US$127.5 billion in 2001. Meanwhile, spending in Japan will grow from US$53.2 billion in 2001 to US$75.2 billion.

Table 2.11: Worldwide IT services Spending (in US$ Billion)

Region	2001	2005
Worldwide	439.9	700.3
USA	206.9	335.0
Western Europe	127.5	192.4
Japan	53.2	75.2
Rest of world	52.5	97.7

Source: IDC[12]

IT services in Europe, defined to include IT consulting, infrastructure outsourcing, business process outsourcing, and systems integration, are expected to grow at a rate of 7-11% per year in the five years from 2004. This contrasts with the slow growth the sector experienced in 2001-2003, and offers various export opportunities, and results form the shift in focus of global IT firms from achieving fast growth to enhancing productivity and e-enabling core business processes. Corporations began concentrating on the visible impact of and measurable return on their investments in ICT.

Table 2.12: Expected Growth of spending on IT Services in Europe

	2002	2003	2004	2005	2006	2007	2008
Growth Rate		2.5%	10.9%	10.6%	8.6%	7.4%	7.4%
Spending (in euro billion)	82.4	84.4	93.6	103.5	112.4	120.7	129.6

Source: Forrester Research, OneSource Business Intelligence Database

Table 2.13 below shows that hardware/software support constituted the largest share of worldwide spending on IT in 2001 (out of US$ 439.9 billion), followed by system

[12] International Data Corporation (IDC) is a mass-based IT research firm. www.idc.com

integration, processing services, and IS outsourcing.

Table 2.13: Worldwide IT spending by Service in 2001

IT training and education	6%
Application development and outsourcing	7%
Network integration and management	10%
IS outsourcing	15%
Processing services	18%
Systems integration	18%
Hardware/software support	21%
IT consulting	5%

Source: OneSource Business Intelligence Database

In the enterprise/corporate ICT market, growth areas include services and enabling technologies supporting:

- Information security: intrusion prevention, anti-virus/spam filtering, etc.
- web services,
- open source,
- supply chain,
- mobile/wireless solutions
- business analysis / data mining

Newly emerging growth areas include support for technologies such as RFID and utility/on-demand computing.

Market Trends in Telecom

According to IDC, spending on telecommunications services worldwide is expected to top a record US$1 trillion in 2004. Worldwide telecom spending in 2004 is forecasted to be 4.4 percent higher than in 2003, and to sustain a compound annual growth rate of 4.7 percent through 2007. This increase is expected to re-establish the momentum that the industry lost during the last several years of slow growth. IDC also reported that services based on Internet protocol, such as broadband access and IP virtual private networks, are expected to play an important role in driving telecom growth.

Major international manufacturers of telecommunications equipment include Siemens (Germany), Alcatel (France), Nortel (Canada), Motorola (USA), and Sony/Ericsson (Sweden/Japan), and Nokia (Finland).

Telecommunications in the US

The US is dominating the telecommunication sector, followed by Japan, and Germany. Telecommunication service revenues in the US totaled US$ 296 billion in 2003, where the leading providers of telecommunication services to the market were Version Communications, SBC Communications and AT&T. According to Freedonia Group Inc., US telecommunication service imports totaled US$4 billion, while its exports amounted to US$ 3.9 billion in 2003. The leading exports destinations were Mexico, India, UK, and Canada, while the major sources of imports were from the UK, Canada, Mexico, and Japan.

Telecommunications in Germany and Japan

Germany has one of the most modern telecommunications infrastructures in the world, and is considered the third biggest telecom market in the world, and the first in Western Europe.

The total German telecommunications market was valued at Euro 64.5 billion in 2002 (Source: US Department of State, Industry Sector Analysis).

The Japanese telecommunications market is the second largest in the world and the largest in Asia. It is undergoing liberalization and expansion. The powerful local operator, NTT which held a near monopoly and developed Japan-specific equipment standards with its favored vendors is no longer the single player in Japan's market. After a period of deregulation and some consolidation a large number of companies are currently competing in the Japanese market.

Table 2.14: Key Telecom Indicators of Selected Countries

Country	Population, 2002	Telephone line in operation, 2002	Growth 1999-2002	mobile subscribers, 2002	Growth 1999-2002	Personal computers, 2001	Growth 1999-2001	Internet users estimates, 2002	Growth 1999-2002
US	288,368,700	190,000,000	4%	140,766,800	64%	178,000,000	26%	155,000,000	52%
Japan	127,530,000	71,149,000	1%	81,118,000	43%	48,700,000	34%	57,200,000	111%
India	1,041,846,000	41,420,000	56%	12,687,640	573%	6,000,000	82%	15,580,000	492%
UK	59,088,000	35,145,000	3%	49,921,000	84%	22,000,000	22%	24,000,000	92%
Germany	82,600,000	53,720,000	11%	59,200,000	1852%	35,920,940	47%	35,000,000	105%
France	59,637,000	33,928,740	0%	38,585,300	80%	20,700,000	32%	18,716,000	249%
China	1,284,530,000	214,420,000	97%	206,620,000	377%	25,000,000	61%	59,100,000	564%
Israel	6,635,600	3,100,000	8%	6,334,000	120%	1,600,000	18%	2,000,000	150%
Egypt	65,643,000	7,430,000	59%	4,494,700	834%	1,120,000	49%	1,500,000	650%
Jordan	5,329,000	687,598	22%	1,219,597	930%	200,000	122%	307,000	156%

Source: Global Information Technology Report 2003-2004, World Economic Forum

Investment and Technology Trends in the Global ICT Market

- **Integration/Web Services: An emerging global ICT need**

At the Jordan ICT Forum 2004, representatives for Intel, Sun Microsystems and Cisco System noted the need for services and integration component technologies (Cisco stated that 40% of an estimated US$ 2 trillion in global ICT spending will address this market need). Globally, enterprises/corporations are increasingly challenged by the need to integrate the varied software components they have acquired to support their organizational needs. Firms are concentrating on developing and implementing enterprise ICT architectures, rather than on how to deal with specific hardware or software components.

Market Background: Each successive wave of technology (mainframes, client/server, ERP, Internet/Web) has introduced new applications. Each presents new business process challenges while creating a need for integration with one or more existing "legacy" applications. Chief Information Officers (CIO's) are focused on tying together Web and legacy applications, as well as managing the continuing impact of the Internet on their organization.

Web-service initiatives, by their nature, require integration with disparate systems located throughout an organization. During the mid to late 1990s, many organizations implemented Web applications seeking to take advantage of the Internet's low cost and ubiquitous access to information. Today, implementing Web services and coping with the continuing impact of the Internet are top priorities for IT leaders in many organizations. Interest in web services is high among CIOs, with 85% of respondents to a recent Forrester Research survey stating intentions to implement Web services in the near future, and participants in a recent Yankee Group survey indicated that Web services integration was their number 1 priority.

The expectation for Web services is not on the technology per se, but the impact it can have on an organizations computing environment. Web services offer a way for applications to communicate with each other without relying on expensive expertise to develop and maintain programs addressing specific business situations. Two-thirds of the technology decision makers responding to Yankee Group's 2004 Integration Demand Survey said that Web services would affect their success in the coming year and ranked it as the top integration priority.

The Major Market Players: Technology such as SAP, IBM, Microsoft, Sun, BEA, Peoplesoft and Oracle offer Web-service integration products and services. Recently, Microsoft and SAP announced a Web-services alliance in which Microsoft's .NET development software and SAP's NetWeaver integration server will be more closely integrated. In addition, an IDC survey (Dec. 2003 – Feb. 2004) noted that eight global IT services organizations are offering an array of options such as consulting, integration, training, support and management in support of this market.

The Opportunity: the trends supporting Web Services should favor firms with systems integration expertise, competencies in numerous ICT skill areas and increasingly vertical industry business knowledge. Opportunities for providing business value to customers include 1) the integration of internal applications and customer data within a company, and 2) the integration of existing systems with business partners and key customers. Because this industry is at an early stage of development, there are opportunities for business franchises which provide software components to support this market and services organizations which provide strategy and implementation expertise.

- **Outsourced services**

According to IDC, *application outsourcing, network consulting and infrastructure management* will be the fastest-growing segments of the market through 2005. The definition of outsourcing continues to broaden, with call centers providing more structured and commodity-like services and business process outsourcing represents a higher-value added service requiring greater industry knowledge and adaptation to specific customer and industry requirements.

Outsourcing services 1) perform work normally handled internally by a company, 2) can help customers reduce capital and labor costs while increasing their focus on more strategic initiatives and 3) generally target non-core business processes.

With more organizations entering the market, money spent on offshore IT services will continue to enjoy double-digit gains during the next several years as businesses look for ways to cut technology costs.

The worldwide market for offshore IT services will grow to US$17 billion in 2008 from $7 billion in 2003, achieving a compound annual growth rate of 20%, according to a study released by IDC. The study only tracks IT services sales won by offshore-based companies such as India's Wipro Technologies and Infosys Technologies, and does not include the value of work being placed offshore by American service providers such as IBM and EDS. The growth is being driven in part by the fact that some IT-related work that has been relatively immune to off-shoring. According to Forrester, the number of European outsourcing deals worth a total of 50 million Euros or more has risen by 87% 2003 from the previous year.

As a result, positioning capabilities and building business relationships is of critical importance to effective competition. Successful outsourcers should have demonstrable

industry vertical skills supported by up-to-date (and redundant) telecommunications infrastructures.

Business functional areas often outsourced include: finance, payroll processing, accounting, tele-marketing, documents processing, IT support, maintenance and R&D and manufacturing.

- **Supply Chain**

For supply professionals to keep up with the rapidly changing procurement and supply environment, supply chain execution software market is becoming more important. The supply chain execution software market is expected to grow at a compound annual growth rate of 9.7% during the next five years, rising from US$3.3 billion in 2003 to US$ 5.2 billion in 2008, according to ARC Advisory Group.

- **Mobile and wireless communications sector**

Software products are in demand to operate wireless products and to securely transfer data over wireless networks. PalmOne, for example, has recently licensed Microsoft's Exchange Server ActiveSync protocol to enable secure wireless synchronization between Microsoft Exchange Server 2003 (part of the Windows Server System) and future Treo smart-phones.

- **Security technologies are leading demand**

Information systems security is one of priorities of IT investment. According to the US & Foreign Commercial Services and US Department of State, experts estimated that during 2003, roughly 10% of IT budget was spent on IT security. Security issues also include: *intrusion prevention, anti-virus, and spam filtering.*

- **Data Mining**

Most enterprises achieve sub-optimal results when analyzing their customer base by segmenting those customers that provide a reasonable ROI (return over investment). Data mining tools provide large and midsize enterprises with detailed classifications to group customers into a variety of easily actionable segments. Such analytics will be able to infuse "actionable" decision-making capabilities throughout the touch points of enterprise CRM solutions.

Structure of the Sector

The US has the lion’s share of the ICT marketplace, followed by Japan and Germany. US information technologies are viewed as reliable and effective and US IT firms have an advantage over their European counterparts due to a faster time to market cycle and a reputation for efficiently meeting the needs of clients. US firms have advantages specific to the Internet and e-commerce market segments. Almost all technologies associated with the Internet, including IP and the Java programming language, were invented in the US, and thus US firms are viewed as being at the forefront of Internet technology developments.

Table 2.15 below shows the major players with their market share in the US ICT marketplace.

Table 2.15: Share of US Market Players, 2003

Major Players	Market Share (%)
Dell	31.5%
HP	19.1%

IBM	5.7%
Gateway	4%
Apple	3.8%
Other	35.9%

Source: OneSource Business Intelligence Database

Germany has the single largest ICT market in Western Europe, and is the third largest in the world, after the United States and Japan. Germany's ICT market – including telecommunications equipment and services, computer hardware, packages software, and IT services – is valued at 136.1 billion Euros in 2002, representing approximately 24% of the total western European ICT market.[13]

As is evident from table 2.16, although Japan is the second major player in the ICT marketplace, and Germany has the largest IT market in Western Europe, they lag behind the United States in IT investments allowing the ICT global market to be dominated by American companies that operate at a multinational level. Other important countries that make it to the list are the UK, India, Australia, and Ireland.

The list of top ICT global players is grouped by four main types of ICT activities: Computer Hardware, Computer Networks, Computer Services, and Software and Programming.

Table 2.16: Major Global ICT Players in 2003/2004

	Company Name	Country	Brief Description	Sales (US$ min.)	Total Assets (US$ min.)	Employees	Market Cap (US$ min.)
Software & Programming	Microsoft Corporation	US	Microsoft Corporation develops, manufactures, licenses and supports a wide range of software products for various computing devices. The Company's software products include scalable operating systems for servers, personal computers (PCs) and intelligent devices; server applications for client/server environments; information worker productivity applications; business solutions applications; software development tools, and mobile and embedded devices. Microsoft provides consulting services and product support services and trains and certifies system integrators and developers.	36,835	92,389	57,000	301,395
	Oracle Corporation	US	Oracle Corporation is an enterprise software company that develops, manufactures, market, distributes and services database software and infrastructure software, including application server, collaborative software and development tools that help its customers manage and grow their businesses and operations	10,156	12,763	41,658	63,131

[13] US & Foreign Commercial Service and US Department of State, 2004. Industry Sector Analysis Report. August 2003.

	Company Name	Country	Brief Description	Sales (US$ min.)	Total Assets (US$ min.)	Employees	Market Cap (US$ min.)
	SAP AG	Germany	SAP Aktiengesellschaft Systems is a developer and provider of business software solutions. The Company's activities are the development, marketing, sales and support of a variety of software solutions, primarily enterprise application software products for organizations including corporations, governmental agencies and educational institutions.	7,935	7,979	30,945	50,340
	Microsoft Ireland Ltd	Ireland	Production of computer software	6,208	n/a	2,000	n/a
	International Business Machines Corp.	US	IBM’s portfolio of capabilities ranges from services that include business transformation consulting to software, hardware, fundamental research, financing and the component technologies used to build larger systems. Organizationally, the Company's major operations consist of a Global Services segment; three hardware product segments: Systems Group, Personal Systems Group and Technology Group; a Software segment; a Global Financing segment, and an Enterprise Investments segment.	89,131	104,457	319,273	146,395
	Dell Inc.	US	Dell Inc. designs, develops, manufactures, markets, sells and supports a range of computer systems and services that are customized to customer requirements. These include enterprise systems (servers, storage and networking products, and workstations), client systems (notebooks and desktops), software and peripherals, and service and support programs.	41,444	19,311	47,800	87,407
	Hewlett-Packard International Sarl	Australia	Wholesales computers, peripherals, and software.	30,290	39,244	643	n/a
	Ingram Micro Inc.	US	Ingram Micro Inc. is a distributor of information technology (IT) products and services worldwide. It distributes and markets IT products from computer hardware suppliers, networking equipment suppliers and software publishers worldwide	22,613	5,474	11,300	2,578
Computer Hardware	Tech Data Corporation	US	Tech Data Corporation is a distributor of information technology products, logistics management and other value-added services worldwide. It distributes microcomputer hardware and software products to value-added resellers, corporate resellers, retailers, direct marketers and Internet resellers	17,406	4,168	8,400	2,298

	Company Name	Country	Brief Description	Sales (US$ min.)	Total Assets (US$ min.)	Employees	Market Cap (US$ min.)
	Toshiba Corporation	Japan	Toshiba Corporation is a diversified manufacturer and marketer of advanced electronic and electrical products. The Company's line of information and communications equipment and systems include personal computers and other computer systems, storage devices, telecommunications equipment, social automation systems, medical electronics equipment and space-related products.	50,673	42,891	161,286	12,495
	Computer Sciences Corporation	US	Computer Sciences Corporation is a provider of information technology (IT) and professional services. The Company specializes in the application of complex IT, enabling its customers to achieve their strategic objectives. Outsourcing involves operating all or a portion of a customer's technical infrastructure and also includes business process outsourcing. IT and professional services include systems integration, consulting and other professional services, as well as product sales and related services.	14,768	11,804	90,000	8,983
	NTT Data Corporation	Japan	NTT Data Corporation is an information technology (IT) company in Japan. The Company's main business activities include the development, maintenance, sale and leasing of data communication systems and related software and hardware; the provision of information processing, information brokering and content for the Internet, cable television networks, communication satellite networks and other networks; multimedia content creation and sales, and the provision of back-office services.	7,491	10,242	17,389	7,624
	Unisys Corporation	US	Unisys Corporation is a worldwide information technology (IT) services and solutions company that combines expertise in systems integration and consulting, outsourcing, infrastructure and high-end server technology to help clients achieve competitive advantage	5,911	5,475	37,300	3,419
Computer Networks	Computacenter plc	UK	Computacenter plc is an independent provider of information technology (IT) infrastructure services in Europe. The Company offers services at every stage of infrastructure investment. It can advise customers on their IT strategies, implement appropriate technologies via a wide range of vendors and manage elements of their technology infrastructures on their behalf	4,054	1,413	9,729	1,059

	Company Name	Country	Brief Description	Sales (US$ min.)	Total Assets (US$ min.)	Employees	Market Cap (US$ min.)
	Fujitsu Limited	Japan	Fujitsu Limited is a provider of customer-focused information technology and communications solutions for the global marketplace. Fujitsu operates through three business segments: Software and Services, Platforms and Electronic Devices.	42,176	37,157	156,169	11,609
	Electronic Data Systems	US	Electronic Data Systems Corporation (EDS) is a provider of IT (information technology) and business process outsourcing services. It has delivered infrastructure, application and business process outsourcing services to clients in the manufacturing, financial services, healthcare, communications, energy, transportation, consumer and retail industries, as well as governments around the world.	21,476	18,280	132,000	10,053
	IBM United Kingdom Ltd	UK	Manufacture, marketing and servicing of information handling systems, equipment and services.	10,203	n/a	20,545	n/a
	First Data Corporation	US	First Data Corporation (FDC) provides electronic commerce and payment services solutions for approximately 3.1 million merchant locations, 1,400 card issuers and millions of consumers.	8,400	25,586	27,550	33,553
Computer Services	Automatic Data Processing	US	Automatic Data Processing, Inc. (ADP), together with its subsidiaries, is a provider of computerized transaction processing, data communication and information services.	7,755	21,121	42,000	23,323

Source: OneSource Business Intelligence Database

2.3 Regional Industry and Trade in the Sector

The objective of this section is to provide the investment promotion effort with background information about regional investment and trade trends in the ICT sector, mainly in order to determine existing or potential regional competition (in FDI attraction), as well as to highlight possible regional investment opportunities for Jordan's sector. These findings are essential for both the SWOT analysis in Section 3, as well as the identification of potential markets and investors in section 5.

The Middle East is a region where – in addition to trade, investment, and demand trends, demographic trends and political factors also have substantial implications on the growth, development, and outlook of most industries and sectors.

The ICT sector in the Middle East is growing rapidly. During 2004, ICT spending in the region (excluding Turkey and Israel) is expected to amount to US$6 billion according to the US Department of Commerce, with Saudi Arabia accounting for approximately 50% of the total. Industry sectors driving this spending are financial services (estimated at around US$1billion for 2003), government, construction and mining, communication, retail and healthcare. Similar to other global markets, Oracle, IBM, and Microsoft are the leading ICT market players, with SAP-technology dominating in certain key areas despite the fact that there is a lack of SAP resources in the region.

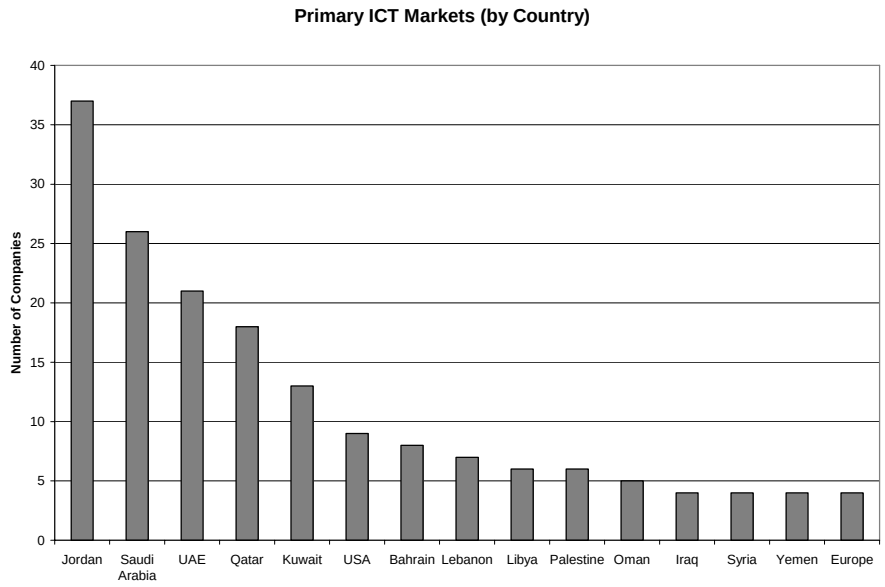
Table 2.17: MENA Region ICT Market Sizes

COUNTRY	2001	2002	GROWTH RATE
Israel	3,273	3,424	4.6%
Turkey	1158	1530	32.2%
Egypt	659	637	-3.3%
Saudi Arabia	1532	1836	20.0%
Other Gulf Countries	756	863	14.1%
Maghreb/North Africa	818	914	11.8%
United Arab Emirates	690	771	11.8%
Rest of Middle East	599	712	18.9%

Note: Monetary values are in USD million.
Source: OneSource Business Intelligence Database

Jordan relies heavily on the regional markets for its ICT exports, due to its small size. According to the ICT Baseline Survey, of the top five markets pursued by Jordanian ICT companies, Jordan was the primary market (50% of respondents), followed by Saudi Arabia, UAE, and USA. Libya, Oman, Palestine, Iraq, and Germany were each the primary market number 1 for a company each.

Figure 2.4: Primary ICT markets for Jordanian companies



Source: AMIR ICT Industry Survey - 2004

As is evident from the chart above, the most important regional market for Jordan's ICT sector is the Gulf countries. The ICT markets in these countries are vibrant and growing rapidly. They constitute the primary market for Jordan's ICT exports, as well as the source of certain investments into Jordan's ICT sector (such as Bahraini investment in Batelco Jordan, and Kuwaiti investment in Fastlink). Therefore, a closer look at the industries that are driving ICT demand within the Gulf markets is necessary:

- **Financial Services:** Factors driving IT spending in this sector include 1) the continued liberalization of Gulf financial markets which increases the participation of international financial institutions in the region and places pressure on regional banks to upgrade their operations and enhance customer service, 2) regional economic growth is a catalyst for new services and 3) since 9/11 many banks in the region, and in Saudi Arabia in specific, are overhauling their financial infrastructure in order to improve the monitoring of financial transactions.
- **Government:** Government reform initiatives involve streamlining and automating government operations. These efforts are increasing government procurement of IT services covering several disciplines including Process Re-engineering, Process Manufacturing, Project Management, Software Packages, and Solution Implementation and Integration Services.
- **Construction and Mining:** Businesses engaged in construction and mining have IT needs to manage their workforce, vendors, finance, and supply chain. Construction activity in the Gulf States is estimated at approximately US$60 billion a year. Local firms are investing in IT so as to compete with larger international construction groups.
- **Communications:** Demand for telecommunication services in Gulf countries has been expanding at a similar and sometimes higher rate to that of IT services (10-20% per annum). While many existing and planned telecom offerings will depend on

international vendors for core infrastructure systems, it is likely that value added services, custom development and configuration can be provided by regional players.

- **Retail:** An expanding population, economic growth and continued deregulation are fostering a diversified retail industry spanning electronics, supermarkets, restaurants and clothing markets. The increased complexity and competitiveness of the sector requires IT investment by regional players to better manage their supply chain and resources with Enterprise Resource Planning (ERP) systems and understand customer behavior with Customer Relationship Management (CRM) and Business Intelligence/Data mining systems.
- **Healthcare:** Throughout the different Gulf States, more private hospitals and being developed, more government hospitals are being privatized, and legislation pertaining to mandatory insurance is being issued. This is pushing hospitals to invest into IT to streamline their internal operations, manage claims, and attract more consumers to their wellness and family programs.

Based on the above review of the main industrial drivers of ICT demand in the Gulf region, as well as an analysis of the development in the regional ICT markets, the following main trends in ICT demand can be inferred:

- **Security Solutions:** With all the commotion about security issues at airports, government agencies, financial institutions, and other major establishment through out the region and the rest of the world, there is a great demand for turnkey security solutions.
- **Wireless Services:** related to telecommunications and GSM technologies have boomed remarkably in the MENA region throughout the last decade, and are expected to continue their growth driven by large investments in that sector and the large profits of telecom operators. .
- **ERP:** ERP implementation is estimated to exceed US$110 million by end of 2004 within the region, with strong growth over the coming years. According to Madaar research group, ERP is expected to be a US$270 million market in the region by 2008.
- Fixed to mobile telecommunications switching: the **PSTN**[14] market in the region is starting to face threats from mobile operators, which can already be detected in countries such as Morocco, Lebanon, and Jordan.
- **E-learning**: Educational reform programs are now underway in earnest in many countries in the MENA region. They emphasize the use of IT in education, which requires the understanding and development of e-learning concepts, and drives the demand for related tools and methods.

The Regional Telecommunication Sector

Regional telecom operators, in particular in the Gulf, have been posting strong results in the past few years. However, one should bear in mind that most of these operators operate as monopolies, duopolies or in small markets, or both. Most Gulf governments have been hesitant to liberalize and have allowed very limited, if any, competition in their mobile markets.

[14] ***P**ublic **S**witched **T**elephone **N**etwork*, which refers to the international telephone system based on copper wires carrying analog voice data. This is in contrast to newer telephone networks base on digital technologies, such as ISDN and FDDI

Outside the GCC, the picture is different. The middle and low-income countries in the Arab world had little option but to liberalize, in an attempt to raise private investment, especially FDI, for the much-needed upgrade and expansion of their telecommunications infrastructures. Regulatory bodies have been set up in countries such as Algeria, Morocco, Egypt and Jordan, and second GSM licenses have been awarded. The two tables below list the fixed and mobile operators in the MENA region.

Table 2.18: Regional Fixed Line Operators, 2002

Country	Fixed Operator	% of regional revenues	% of regional subscribers
Algeria	Algerie Telecom	4%	9%
Bahrain	Batelco	2%	1%
Egypt	Telecom Egypt	14%	37%
Jordan	Jordan Telecom	5%	3%
Kuwait	Ministry of Communications (MOC)	5%	2%
Lebanon	Ogero	6%	4%
Morocco	Maroc Telecom	6%	5%
Qatar	Q-Tel	2%	2%
Saudi Arabia	Saudi Telecom Company (STC)	36%	16%
Syria	Syria Telecommunication Establishment (STE)	5%	10%
Tunisia	Tunisie Telecom	6%	6%
UAE	Etisalat	9%	5%

Table 2.19: Regional Mobile Operators in 2002

Country	Mobile Operators	Market Share	% of regional subscribers	% of regional revenues
Algeria	Algerie Telecom Mobile	30%	1%	NA
Algeria	OTA Djezzy GSM*	70%	NA	3%
Bahrain	Batelco	100%	2%	3%
Egypt	MobiNil	53%	10%	8%
Egypt	Vodafone Egypt	47%	9%	NA
Jordan	Fastlink	73%	4%	4%
Jordan	MobileCom	27%	1%	1%
Morocco	Maroc Telecom	72%	18%	NA
Morocco	MediTel	28%	7%	3%
Palestine	Jawwal	46%	1%	1%
Qatar	Q-TEL	100%	1%	NA
Saudi Arabia	Saudi Telecommunications Company (STC)	100%	22%	46%
Syria	Space Tel Syria***	50%	1%	2%
Syria	Syria Tel***	50%	1%	2%
Tunisia	Tunicell	96%	2%	NA
Tunisia	Tunisiana**	4%	0.1%	0.03%
UAE	Etisilat	100%	11%	15%
Kuwait	Wataniya Telecom	47%	3%	4%
Kuwait	MTC Vodafone	53%	3%	6%

*OTA Djezzy GSM's revenues are for ten months ending 2002
**Tunisiana's revenues are for the last week of 2002

***Arab Advisors Group estimates.*"A Key Performance Indicators Scorecard of Arab Telecom Operators." June 2003.*

Major Regional Players

Below is a list of top ICT regional players, grouped by four main types of ICT activities: Computer Hardware, Computer Networks, Computer Services, and Software and Programming. When compiling data on top five players for each activity type, it was evident that Israel was the country that hosted , almost always, the top five players in each category. For the purpose of this study, Israel was excluded from the country column, allowing other regional players to appear on the list.

Table 2.20: Major Regional Players sorted by sales volume, 2003

	Company Name	Country	Brief Description	Sales (US$ million)	Total Assets (US$ million)	Employees	Market Cap(US$ min.)
Software & Programming	Nahil Computer Company	Saudi Arabia	Hardware integration, software development and maintenance, distributors of computers, accessories & peripherals, and networking equipment	21	n/a	300	n/a
	International Systems Engine	Saudi Arabia	Industrial, commercial and civil engineering services; specializing in computers and computer software	15	n/a	140	n/a
	Al Faisaliah Group	Saudi Arabia	Sale, installation and maintenance of electrical and electronic equipment and computers, communications and broadcast products;	677	n/a	2,650	n/a
Computer Hardware	Aggad Investment Co	Saudi Arabia	Establishing, managing and investing in industrial, commercial and other business enterprises; the company has interests in the manufacture of aluminum and the production of confectionery and medicines; wholesale trade in computers and motor vehicles.	293	n/a	3,000	n/a
	Al Bayan Group	Saudi Arabia	Distribution of electrical and electronic equipment, computers, medical and surgical equipment and heavy machinery	221	n/a	462	n/a
	Al Alamiah Electronics Co	Saudi Arabia	Distribution of computers and computer software, communications equipment and electronic goods; provision of Internet and Intranet solutions	93	n/a	375	n/a
	Saudi Business Machines Ltd	Saudi Arabia	Software and IT consultancy, together with services in networking, business recovery and operations support, marketing of IBM products, tailored maintenance services support for IBM and non-IBM products	85	n/a	400	n/a
Computer Networks	Saudi Development Maintenance	Saudi Arabia	Information technology and telecommunications services	29	n/a	255	n/a
	NTC	Kuwait	Sale of computers and accessories, sale and installation of computer software, and computer consultancy services	6	n/a	70	n/a

	Company Name	Country	Brief Description	Sales (US$ million)	Total Assets (US$ million)	Employees	Market Cap(US$ min.)
Computer Services	Arabic Computer Systems	Saudi Arabia	Import and distribution of computer systems, computer accessories and peripherals and other computer business related products including web-centric and internet enterprises.	185	n/a	460	n/a
	Modern Electronics	Saudi Arabia	Sole distribution of Hewlett Packard products and their accessories; networking and support services	168	n/a	700	n/a
	Automated Systems Co	Kuwait	Information technology consultants; software design; supply of hardware and communication systems	20	n/a	350	n/a
	FAST Telecommunications	Kuwait	Provision of telecommunication, data, internet and voice carrier services.	18	n/a	100	n/a
	Al Kurdi Trading and Contracting	Saudi Arabia	Computer and communications site preparation; installation of LAN and WAN cabling, DC power systems, fire fighting and security systems, gas detection systems, electro-mechanical works, building management systems	17	n/a	200	n/a

Source: OneSource Business Intelligence Database

Selected Country Overviews

Based on desk research, conversations with CEOs, company directors, and investors in the region, the following provides perspectives on ICT dynamics within selected countries.

Egypt: The formation of Egypt's new Ministry of Communication and Information Technology (MCIT) in October 1999 marked the beginning of a new era for Egypt's telecommunication and information technology sector characterized by a new regulatory framework and a more liberalized market. At end of 2003, there were ten telecom service providers licensed to do business in Egypt: Telecom Egypt, the government entity that operates the traditional fixed land line network, 3 GSM (mobile telephone) companies, 2 providers of payphone services, and 4 low earth orbital (LEO) satellite systems operators: VSAT Service, Anmar-Sat, Al-Soraya, and Global-Sat.

Egyptian fixed line telecommunication services are among the fastest growing in the Middle East and North Africa (MENA), Arab, and African regions. By the end of 2000, Egypt's telecom revenue from the fixed line network alone amounted to over $2.5 billion, representing 2% of Egypt's total GDP (this ranked Egypt second after Saudi Arabia in the Arab region). In 2001, Egypt's revenue from all telecom services exceeded $3.3 billion. The rapid growth of the GSM market in Egypt is largely responsible for the high overall growth in revenues, accounting for an estimated 40% of total telecom revenues.

Egypt's telecommunications master plan consists of the modernization of the backbone of the sector by both expanding the capacity of the network and upgrading the current circuit switching technology to the more efficient packet switching technology. As a result, there will continue to be many export

opportunities in Egypt for companies as Egypt upgrades and expands its telecommunications infrastructure to meet the growing demands of business and residential customers.

Dubai, United Arab Emirate: Dubai continues to build out its infrastructure in support of its vision to establish itself as the regional platform for internet, media and financial services (through the establishment of the internet, media, knowledge and financial "cities" in Dubai, which function as well developed clusters). This effort is supported by the Jabal Ali Free Zones (JAFZ) which as a distribution and assembly center for the region already hosts 2,200 international firms (ISO-9002 certified). The JAFZ has zero (0) duties on all imports, 100% foreign ownership, 100% repatriation of capital and profits and guaranteed 50 year exemption from corporate and personal income tax.

In addition, the Dubai Internet City provides the Middle East's biggest IT infrastructure, which accommodates 120 worldwide companies (incl. Microsoft, IBM, HP, Dell, Nixu, etc.) and boasts the largest commercial internet protocol telephony system in the region. It also provides the services and infrastructure to establish and to support business development of ICT companies. (visas, incorporations, etc.). The established market segments include: Consultancy, Marketing, Sales, Telecommunication, e-commerce, software, hardware, education training and business management. Dubai is appealing to multinationals who seek to establish regional offices, and it is also home to many of the region's call centers.

Saudi Arabia: The Saudi Information Technology (IT) industry maintains its position as one of the largest and fastest growing markets in the Arab world. During the past few years Saudi Arabia has embarked on a number of major projects aimed at expanding its IT infrastructure. Software is one of the major areas contributing to the growth of the IT Sector.

According to estimates of the US Foreign and Commercial Service and US Department of State and the UK Trade and Investment agency, Saudi Arabia's IT market is the largest in the Gulf constituting of about 50-60 percent of the entire GCC market and estimated at $3.7-3.9 billion (Computer equipment - $850million, Software - $1 billion, IT services - $1.3 billion and data communications - $550million); IT sector growth is expected to be around 8 percent annually for the next two years; The Saudi software market is estimated at US$ 1.1 billion by end of 2004; and Saudi Arabia's IT spending as a percentage of GDP stands at 1.99 percent. This ranks Saudi Arabia in second place among GCC nations compared with the Kingdom's fifth place ranking for per capita IT spending.

Most of the industry's largest software players are already active in the Kingdom. Microsoft has a US$800 million project to modernize the education sector. Oracle is very active and working on the e-government proposals. Saudi Aramco has moved its systems to SAP and is developing a network storage infrastructure that will allow Saudi Aramco's Exploration and Petroleum Engineering Center (EXPEC) to protect, manage and analyze exploration and field development activities. Other IT companies with a strong presence include EMC, IBM and Sun Microsystems both in the public and private sectors.

Internet users in Saudi Arabia by the end of 2003 were estimated to be over 2.4 million. Of these users 93 percent use dial up connections and the remaining seven percent use DSL and leased lines.[15]

The Saudi B2B and B2C e-Commerce will total some $1.5 billion and $170 million, respectively16. Both types of e-Transactions are expected to register unmatched growth over

[15] US & Foreign Commercial Service and US Department of State, 2004. Report Date: 8 August, 2004.

the next three years. However, regulation of Internet access, driven by security and moral concerns limits growth for e-commerce services.

Saudi Armaco is the biggest player in the market. It's hard to comprehend the scope of the IT infrastructure needed to tap into and manage a quarter of the world's oil resources. Saudi Aramco has constructed a global real-time computing environment to support its 10 million barrel per day production capacity. Saudi Aramco always seeks new technologies and to upgrade their existing systems in order to keep pace with technological developments. Saudi Aramco's consumption of IT will continue unabated as it faces the competitive challenges posed by other global oil producers.[17] A few key sectors driving demand for ICT services in the country are:

- **Healthcare**: A significant healthcare reform program should result in the establishment of 8-10 insurance firms over the next 12 months. These efforts will likely require considerable IT investment to support claim and payment management systems.
- **Education**: An educational reform program should both increase the understanding of e-learning concepts and drive the need for related tools, providing improved support for legacy learning methods and tools.
- **Telecom**: The sector's deregulation will likely result an additional wireless provider and data provider by the end of 2004. The size of this segment, and the catalytic effect it will have on the Saudi economy is expected to be large.
- **Financial Services**: The increased demand for financial transaction monitoring is reshaping the sector and requiring substantial investment in IT and IT security.
- **ERP systems:** Represent a large area of spending for Saudi Arabian firms increasing the need for local and international firms to provide qualified resources, with a noticeable shortage of SAP and Oracle expertise to support these implementations.
- **Security Consulting, Audit, and Tools** are of high demand. The local Saudi players are already considering Jordanian resources to execute on security related assignments.

Kuwait: Similar to its Gulf neighbors, Kuwait's economy has a significant dependence on oil. There is a focus on changing foreign investment laws and altering its tax regime to increase investor interest. Kuwaiti investments in Jordan include MTC's acquisition of Fastlink in 2003 for US$500 million. The government: is the largest procurer of IT services and is pursuing a significant automation project. Telecom is supported by two international providers, each with interests in Fastlink-Jordan, LibanCell-Lebanon, Batelco, and others.

Qatar: Significant construction and infrastructure development has taken place in Qatar over the past 3 years. In the process, several local conglomerates were unprepared to scale or take advantage of the boom due to their reliance on manual operations. Therefore, the Government has been the leading spender on IT services in Qatar. However, this situation is changing. ICT demand dynamics are influenced by the following:

- **Government reform:** The government is undergoing a major reform initiative, similar to that of other Gulf State. Over the next several years, spending in this sector

[16] ibid
[17] ibid

is expected to drive IT projects in the areas of back office processing, automation, and e-services.

- **Construction boom:** The government is building an excellent infrastructure. It is also providing aggressive facilities for private sector firms to embark on large construction projects. Due to the fast pace of development in this area, a lot of investment is going into IT systems to manage the large workforce engaged in these projects, as well as the supply chain and procurement processes. There is an approximately $60 billion worth of projects planned by year 2010
- **Oil/Gas:** To maintain is base of economic growth, Qatar is heavily investing in upgrading it oil/gas related facilities, and will require ample IT support in these areas.

A Key challenge: ICT growth across the region is not without challenges. However, one challenge stand-out, which is the increased risk profile of the region. This dynamic has negatively affected the region's attractiveness to investors and has at times limited access to external ICT resources. Security threats are driving many of the expatriates, especially in banks and large organizations out of the region and creating a serious shortage of project managers/leaders in ICT projects.

Table 2.21: Determinants of FDI attraction in the regional ICT sector

Country	*Market Size*	*Labor Costs*	*Skilled Labor Availability*	*Communication Infrastructure*	*Regulatory Environment*	*Presence of FDI*
UAE	Medium	High	Medium	V. good	V. good	High
Saudi Arabia	Large	High	Low	Good	Poor	High
Egypt	Large	Low	High	Average	Average	Medium
Israel	Large	High	High	V. good	V. good	High
Kuwait	Small	High	Low	Good	Average	Medium
Qatar	Small	High	Low	Good	Good	Medium

CHAPTER 3: SECTOR ANALYSIS

3.1 Investor Requirements for an ICT Investment Location

Investors make decisions to relocate their operations in new areas or expand their businesses based on a variety of reasons related to achieving company objectives. These objectives necessitate adherence of that location (whether a country or region or zone) to a certain set of criteria that investors in a selected sector take into consideration when deciding on a location for setting-up. The following are general investment considerations that investors in the ICT sector look for and take into account when deciding on their investment location:

- **The value proposition:** the level of specialized, differentiated products and services at the location. This includes: quality, adherence to clients'specifications and customization of services to the business/clients' needs.
- **Market potential:** This encompasses market size, market access, market penetration and competitiveness within the local, regional and global contexts.
- **Human Resources,** which are the backbone of the ICT sector, in terms of:
    1. Availability of skilled workforce (technical, R&D, management/operations, ...)
    2. Workers attitude (turnover, productivity, etc.)
    3. Type of available skills (in terms of areas of expertise as well as accreditation through technical certifications and the like)
    4. Labour costs.
- **The legal and regulatory environment:** this involves clarity and predictability of laws, as well as consistency in their application. This is especially true in relation to IPR protection (in terms of both its regulatory environment and quality standards), including the actual enforcement of these laws.
- **Cost and reliability of the communications infrastructure:** in areas such as Internet access, high-speed phone lines, satellite links and other communication infrastructure from a reliability and pricing perspective.
- **Taxation**
    1. Taxation rates/profit repatriation/double taxation agreements
    2. Fiscal incentives for ICT investments
- **Business Facilitation Services:** which includes company registration and licensing processes, where the length and level of complexity of registration and licensing procedures are deemed to be core investor considerations.
- **Investment liquidity and exit strategies:** which means the ease of access and exit into and from the market, including the regulatory issues and the transparency and clarity of processes supporting an investment access/exist strategy.
- **Perceived country stability:** This combines a broad range of country-specific business and political dynamics that affect the risk calculations of investors.
- **Local private sector support:** this indicates the level of coordination or fragmentation of the local private sector, and the ability of its companies to lobby for industry concerns, including the availability of effective industry associations.
- **Public sector support:** This relates to the level of commitment and interest of the government in promoting this sector.

The following section highlight the strengths, weaknesses, opportunities and threats of the ICT sector in Jordan, and how they relate to the above list of investment requirements set by the investors.

3.2 SWOT Analysis of Jordan's ICT Sector

SWOT analysis is one of the strategic analysis tools that help organizations/companies understand their competitiveness in the ever-changing business environment. It looks at internal factors (Strengths and Weaknesses) as well as at external factors (Opportunities and Threats) posed by the environment and the competition.

In the context of ICT promotion, the SWOT tool is useful to emphasize and support Jordan's ICT strengths, explain efforts that are underway to counter its weaknesses, offer the prospect of capitalizing on potential ICT opportunities, while attempting to mitigate perceived threats.

The following ICT sector SWOT analysis is clustered along five main areas of interest: 1) ICT companies (value proposition and market potential), 2) human resources, 3) infrastructure (Telecom, legal, regulatory, and real-estate), 4) knowledge and intellectual capital, and 5) environment support (taxation, business facilitation, financial support, public and private sector support). These five areas encompass most of the afore-mentioned investment location decision criteria.

ICT Companies

As was mentioned in the previous chapter, the IT sector in Jordan is young, fragmented, and characterized by small firms engaged in competition over specific services and solutions. Therefore, there is a lack of experience in implementing and developing solutions and products addressing large enterprise needs, which limit the ability of the Jordanian companies to take on large-sized projects (most companies have had an average project size of $100,000). In addition, collaborative bidding on larger projects (whether locally, regionally, or internationally) is low.

Jordan is the primary market for most Jordanian ICT followed by the region, especially the Gulf countries. Solutions and products developed by Jordanian companies are done with the region's needs in mind. The solutions and products tend to be bi-lingual and customized around the regions' business culture. Therefore, Jordanian companies have weak business relations with Europe and the US

Conversely, there is a strong support from the government and the King. Additionally, government initiatives such as e-learning, e-government, and telecom reform are pushing companies to innovate.

Table 3.1: SWOT Summery for Companies

Strengths	Weaknesses
• Solutions and products are developed with the region in mind • Strong cultural fit regionally and globally • Government initiatives such as e-learning, e-government, and telecom reform and helping catalyze the industry • High visibility regional and globally though HMK • Good regional presence and export base, as well as a good expatriate network in the Gulf. • Growing sector with 10-15% growth in the number of companies per annum	• Little collaboration among companies (Collaborative bidding is low). • Lack of expertise in implementing solutions for large businesses • Lack of specialized expertise on the firm level • Weak clustering within the sector • Small companies (12-25 people) make up the bulk of the sector. • Lack of financial cash flow required to take on large projects • Lack of strategic planning • Weak focus on exports. Most firms rely on Jordan as their primary market • Weak relations with Europe and the US. • Small market size
Opportunities	**Threats**
• Collaboration among firms in e-learning and e-	• Dependency on the government initiatives and

government will bring unique offering to the region • Building on the existing support of the government and HMK to send the right message and to establish a foothold in regional and global markets • Leveraging the existing surplus of funds in the region, along with the sector visibility toward developing of VC funds	donor agencies (foreign aid) • Regional political instability reflects on the industry in a number of ways. It drives investors away and creates fears from coming to the region or outsourcing projects to the region.

Human resources

Jordan leads among Arab counties in educational spending as a percentage of GDP. Jordan seeks to gain competitive advantage by leveraging its qualified and competitive human resources. Advantage in this area is articulated as 1) a young and highly educated population, 2) an 89% literacy rate, 3) 17% of Jordanians obtain a higher education 4) highly competitive wage rates, and 5) around 4,000 ICT university graduates each year.

However, there are several challenges, including: 1) ICT professionals lack project management, business planning, vertical industry knowledge, business presentation and resume writing skills, 2) IT curriculums at universities are too generic/boilerplate and 3) better quality control and human resource planning is required, along with an increased focus on business needs.

The most common technical competencies within the sector include Java (J2EE), Oracle, and SQLServer, C++, etc.. Most ICT graduates and many non-ICT graduates are qualified for services such as call centers and data entry. Yet, there is lack of qualified support for business solutions such as SAP, Oracle Financials, Websphere, other ERP, CRM, and middleware technologies. In addition, a gap exists between graduate skill sets and ICT industry needs. Project management skills are limited particularly in areas of specialization such as banking and Telecom, as well as other "soft skills" such as facilitation and communication.

An ICT "brain drain" to the region makes it difficult to retain qualified resources and affects the ability to leverage training investments. Competition over quality resources is creating pressure on resources costs and affecting the competitiveness of software development services.

Jordanian resources are perceived as having a good cultural fit and are well regarded regionally. It has mobile labor force capable of spending time at client sites outside of Jordan. Obtaining residencies and visas for some Gulf States, however, can be difficult.

Table 3.2: SWOT Summery for Human resources and IP

Strengths	Weaknesses
• Large number of universities and colleges housing more than 120,000 students of all disciplines • More than 4,000 ICT graduates a year • Competitive and qualified skill sets of call centers and data entry services • Knowledge in technologies such as Java, C++, Oracle. • Competitive wage rates • Labor mobility and cultural fit within the region • Several donor agencies working with government and international players to develop the ICT skills	• Quality of ICT graduates is not aligned with the ICT market requirements • Shortage of Project Management, business development and other soft skills • Weak knowledge and experience in industry solutions expertise such as SAP, Oracle Financials, etc. • Generic ICT curricula at universities • Dysfunctional relationship between the universities and the private sector. • Lack of accredited acknowledgment (certification) • Weak subject matter expertise in industries such as banking, logistics, ..etc
Opportunities	**Threats**
• Leveraging broadband infrastructure to provide people access to knowledge resources needed to increase competitiveness. • Life Long Learning Initiative (LLLI), which	• Increasing labor cost could impact competitiveness • Brain Drain to the gulf states

provides content covering a wide range of industries and develops training plans
- Solid content industry covering a wide base of industries such as e-learning and financial
- MIT business program can provide opportunities to help drive/promote innovative business ideas and encourage the introduction of similar programs.

Infrastructure

Telecom deregulation is creating opportunities for local companies to innovate and should increase Jordan's appeal for investments from abroad. In wireless telecom, four operators now compete to provide infrastructure and services, which has driven down prices and increased wireless devices penetration (which should reach 40% by 2007). The fixed line monopoly, which expires at the end of 2004, can drive competition and encourage the development and introduction of new services while reducing international voice and data costs.

Additionally, the GoJ took a firm decision to privatize Jordan Post Company (JPC) through attracting a strategic investor in order to encourage investment in the sector to drive the development of Jordan's and the region's postal and logistical capabilities and services, by using Jordan as a gateway to the rest of the region.

This also aims at increasing the scope and scale of the postal and logistical sectors through introducing new services, and supporting e-commerce related services and investments. Capitalizing on its experience in privatization, the GoJ will be hiring an international financial advisor to assist in developing and implementing the sales transaction to a strategic partner. The project is expected to start in Jul 2005, and the transaction is anticipated to be completed by Mid 2006. This should increase Jordan's appeal for foreign investors.

While broadband infrastructure reaches more than 99% of homes and businesses, the actual penetration of broadband connectivity into homes and business is still low. The government is taking an aggressive approach to increasing broadband penetration. Universities and schools are to be connected together through the National Broadband Network (see section 2.1 Sector in Jordan – Factor Conditions: Physical resources and Infrastructure), as well as with universities all around the globe. Similar efforts are taking place with schools.

Jordan's regulatory reform efforts have been well received in the market. This view is driven by the government's commitment to the WTO, protection of intellectual property, telecommunication deregulation efforts and tax reform. However, enforcement of regulations is still not up to par.

The legal framework supporting core infrastructural services such as e-commerce and e-banking is in place; however, it still lacks the supporting regulations to make it effective

Promotional efforts should focus on the ongoing and adaptive regulatory reform process in which investors and businesses can have input and make a positive impact.

There is a lack of technology parks and incubators. As of today, there are no technology parks and only a handful of incubators in Jordan. Most incubators are currently housed at universities, and one specialized incubator focused on wireless services

Real-estate costs are competitive relative to high standard real-estate options and there is a wide range of options available to companies.

Table 3.3: SWOT Summary for Infrastructure

Strengths	Weaknesses
• Comprehensive broadband infrastructure reaching more than 99% of homes and businesses • Very liberal telecom sector • Relatively advanced legal and regulatory framework • Abundance of bandwidth • Real-estate is very competitive and diversified	• Proper regulations required to enact certain e-commerce/e-banking laws not in place • Telecom costs are still not competitive enough to allow certain telecom-infrastructure-intensive services to proliferate such as call centers • Only one fixed line network; this is risk for communication intensive services due to the lack of redundancy • Lack of technology parks • Incubators are not focused on a particular sub-sector or a theme
Opportunities	**Threats**
• Government initiatives like a PC and ADSL for every home will encourage the create of many services • Telecom sector reform present a great opportunity to attract foreign investments and stimulate innovation in the local sector • Large penetration of wireless devices provides ripe grounds for new products and services • Take advantage of the integration of Jordan's telecom operators into the region (Fastlink owned by MTC and Jordan Telecom owned by France Telecom) to establish a foothold into the telecom market outside Jordan	• Telecom reforms are taking place through out the region, creating a lot of competition within the wireless operators for foreign investment • Inability of Jordanian officials and operators to enforce and implement the regulatory reform

Knowledge and intellectual capital

Jordan's educational reform efforts are generating globally recognized and innovative Intellectual Property. Developments on the knowledge and intellectual capital front include:

- Telecom providers and telecom focused ICT firms are establishing stronger ties with universities through innovative incubators and programs. There is an increasing number of telecom specific IP that is being developed in Jordan;
- Proven content is an area of strength. There is strong content creation in areas such as e-learning, financials, and many others through innovative companies such as Rubicon, Mehaj, Maktoob, Menafn, and many more;
- Increased number of global firms such as Microsoft, Cisco, and Computer Associates are helping in the transfer of knowledge and know-how into Jordanian ICT firms; however,
- R&D remains extremely low at both the private sector and universities. The limited R&D undertaken at universities is not industry driven; and hence presents little relevance to the private sector and does not always have practical application in the Jordan ICT industry;
- There are no technology parks in support of developing a solid R&D base.

Table 3.4 : SWOT summary of Knowledge and intellectual capital

Strengths	Weaknesses
• Large number of universities and community colleges • An Emerging strong relations between telecom operators and universities through the establishment of incubators and other joint programs • Solid content industry covering a wide base of industries such as e-learning and financial • Telecom specific IP that is being developed	• R&D remains weak and out of sync with the market needs • Most solutions are not sophisticated or ready for main-stream global markets • Lack of technology parks to support ICT R&D

Opportunities	Threats
• International players (Cisco, Microsoft and others) are transferring knowledge to Jordanian resources.	• Scattered ICT competencies may prevent the emergence of strong intellectual capital

Environment Support

The industry associations have cited taxation as a major issue in hindering their investment promotion efforts. This revolves around the lack of clarity about which taxation rate some ICT companies fall under (15% or 25%). While profit repatriation is free from any constraints, fiscal incentives for ICT investments are similar to those offered to a few other sectors under the Investment Promotion Law (IPL).

Company registration and licensing remain a relatively lengthy and cumbersome process in Jordan despite the improvements that took place over the past few years. There is strong support from the government and the King for the development of the sector, while the industry association is both active and persistent in presenting the sector's interests and concerns, despite the fragmentation of the sector. Finally, regional instability reflects negatively on Jordan's image and its attractiveness to foreign investors

While the capital market is well developed, it does not provide funding for start-ups. The latter rely on banks, which demand large collaterals. There are only two ICT venture capital funds (Foursan and JTG), despite and apparent demand for such funds, which is creating a base of supportive qualified professional services such as fund management services, legal and accounting services.

Mechanisms for reporting on the health and growth of the sector are lacking consistence in methodology, classification, and timing, making it difficult to compare the business dynamics over an extended period.

Table 3.5: SWOT summary of Environment Support

Strengths	Weaknesses
• Strong support by Government and King • Active and credible industry association • Vibrant stock market • Ease of capital flow and repatriation • Fiscal incentives under the IPL	• The Jordanian capital markets do not have a track record for funding start-ups and new companies. • Lack of VC funds • Lack of clarity about taxation rates • Registration of new businesses is still cumbersome, specially businesses that are heavily dependent on FDI or operating in the education field • Lack of consistent reporting on the sector's health
Opportunities	**Threats**
• Demand for VC and the private placements taking place in Jordan can create a solid base of supporting services.	• Lack of clear exit tools for investors may drive them to seek alternative markets • Regional instability

Table 3.6 below, summarizes the SWOT analysis across the various components of the Jordan ICT sector as follows:

Table 3.6: Summary of SWOT for the Jordan ICT Sector

Strengths	Weaknesses
• Solutions and products are developed with the region in mind • Strong cultural fit regionally and globally • Government initiatives such as e-learning, e-government, and telecom reform and helping catalyze the industry • High visibility regional and globally though HMK • Good regional presence and export base, as well as a good expatriate network in the Gulf. • Growing sector with 10-15% growth in the number of companies per annum • Large number of universities and colleges housing more than 120,000 students of all disciplines • More than 4,000 ICT graduates a year • Competitive and qualified skill sets of call centers and data entry services • Knowledge in technologies such as Java, C++, Oracle. • Competitive wage rates • Labor mobility and cultural fit within the region • Several donor agencies working with government and international players to develop the ICT skills • Comprehensive broadband infrastructure reaching more than 99% of homes and businesses • Very liberal telecom sector • Relatively advanced legal and regulatory framework • Abundance of bandwidth • Real-estate is very competitive and diversified • Large number of universities and community colleges • An Emerging strong relations between telecom operators and universities through the establishment of incubators and other joint programs • Solid content industry covering a wide base of industries such as e-learning and financial • Telecom specific IP that is being developed • Strong support by Government and King • Active and credible industry association • Vibrant stock market • Ease of capital flow and repatriation • Fiscal incentives under the IPL	• Little collaboration among companies (Collaborative bidding is low). • Lack of expertise in implementing solutions for large businesses • Lack of specialized expertise on the firm level • Weak clustering within the sector • Small companies (12-25 people) make up the bulk of the sector. • Lack of financial cash flow required to take on large projects • Lack of strategic planning • Weak focus on exports. Most firms rely on Jordan as their primary market • Weak relations with Europe and the US. • Lack of consistent reporting on the sector's health • Small market size • Quality of ICT graduates is not aligned with the ICT market requirements • Shortage of Project Management, business development and other soft skills • Weak knowledge and experience in industry solutions expertise such as SAP, Oracle Financials, etc. • Generic ICT curricula at universities • Dysfunctional relationship between the universities and the private sector. • Lack of accredited acknowledgment (certification) • Weak subject matter expertise in industries such as banking, logistics, ..etc • Proper regulations required to enact certain e-commerce/e-banking laws not in place • Telecom costs are still not competitive enough to allow certain telecom-infrastructure-intensive services to proliferate such as call centers • Only one fixed line network; this is risk for communication intensive services due to the lack of redundancy • Incubators are not focused on a particular sub-sector or a theme • R&D remains weak and out of sync with the market needs • Most solutions are not sophisticated or ready for main-stream global markets • Lack of technology parks to support ICT R&D • The Jordanian capital markets do not have a track record for funding start-ups and new companies. • Lack of VC funds • Lack of clarity about taxation rates • Registration of new businesses is still cumbersome, specially businesses that are heavily dependent on FDI or operating in the education field
Opportunities	**Threats**

• Collaboration among firms in e-learning and e-government will bring unique offering to the region • Building on the existing support of the government and HMK to send the right message and to establish a foothold in regional and global markets • Leveraging the existing surplus of funds in the region, along with the sector visibility toward developing of VC funds • Leveraging broadband infrastructure to provide people access to knowledge resources needed to increase competitiveness. • Life Long Learning Initiative (LLLI), which provides content covering a wide range of industries and develops training plans • MIT business program can provide opportunities to help drive/promote innovative business ideas and encourage the introduction of similar programs. • Solid content industry covering a wide base of industries such as e-learning and financial • Government initiatives like a PC and ADSL for every home will encourage the create of many services • Telecom sector reform present a great opportunity to attract foreign investments and stimulate innovation in the local sector • Large penetration of wireless devices provides ripe grounds for new products and services • Take advantage of the integration of Jordan's telecom operators into the region (Fastlink owned by MTC and Jordan Telecom owned by France Telecom) to establish a foothold into the telecom market outside Jordan • International players (Cisco, Microsoft and others) are transferring knowledge to Jordanian resources. • Demand for VC and the private placements taking place in Jordan can create a solid base of supporting services.	• Dependency on the government initiatives and donor agencies (foreign aid) • Regional political instability reflects on the industry in a number of ways. It drives investors away and creates fears from coming to the region or outsourcing projects to the region. • Increasing labor cost could impact competitiveness • Brain Drain to the gulf states • Telecom reforms are taking place through out the region, creating a lot of competition within the wireless operators for foreign investment • Inability of Jordanian officials and operators to enforce and implement the regulatory reform • Scattered ICT competencies may prevent the emergence of strong intellectual capital • Lack of clear exit tools for investors may drive them to seek alternative markets

3.3 Competitiveness of Jordan's ICT Sector

In order to further elaborate on Jordan's competitiveness (especially in terms of the value proposition) the findings of the ICT Sector Baseline Industry Survey, dated September 2004, are summarized below. These findings tackle Jordan's ICT competitiveness from the following five angles: product offerings, sectors, people, leadership support and technical skills.

Product Offerings: Most companies stated in the survey that they do possess specialized and niche services that differentiate Jordan's ICT services. Actually, "specialized (niche) service" was ranked as the most significant selling factor to the local and regional market.

Examples of those companies that have been able to show competitive product offerings are:

- E-learning solutions by Menhaj, Rubicon, and ITG
- E-Payment solution by PaymentCentric
- Electronic Cheque Clearing by ProgressSoft
- Small Banking Solutions by BusinessOne and Access2Arabica
- Hospital Management Systems by ATS
- University Management Systems by ATS
- Arabic Search Engine by Arabic Textware
- SME ERP by Delta Informatics and Eskadenia
- Call Monitoring System by Globitel
- Adaptive Skill Testing by Telaterra
- User Interface Components by Arcadia

The positioning of software products falls under:

1. *Large-scale implementation*: products under this category took years to develop and millions of dollars in spending to reach the maturity level. These large scale products are not restricted to the region, but compete on a global level.
2. *Small to Medium Businesses*: Products under this category emerged as a result of a company custom developing a solution for a client, and then ending up with a large amount of code that can be re-packaged and re-offered again for other clients. These products suit other small and medium markets, such as regional markets.

The competitiveness of these products may be due to: the product being developed with the local/regional needs in mind; the product being Arabic-based or fully bilingual; strong sales and marketing efforts regionally.

Sectors: Although Jordan has an advantage in providing specialized services, it lacks companies that implement core business IT needs. This is mainly due to: the scarcity of senior technical leaders; limited subject matter expertise; limited experience of large-scale systems development and implementation; and the fragmented local ICT market. However, this does not mean that there are no special experiences. The sectors that show promising distinction for Jordanian companies mainly are: e-learning, e-government, and national statistics for governments (consensus etc.). These sectors are also receiving tremendous international attention and funding.

People: Jordanian ICT human resources are respected regionally for their "reputation" of reliability, commitment, and entrepreneurship. The issue of "Brain Drain" to the Gulf decreases the risk of availability of skilled, qualified people and increases the risk of wasted costs of investing in people who will take better offers in the gulf. Add to this, that the

education system is exacerbating the problem by providing graduates that lack practical technical and non-technical skills.

Leadership Support: Appreciation is shown to the support of the Jordanian leadership to the ICT sector, however, the situation differs when talking about the support of the government agencies.

3. 3. 1. Competitive Selling Factors

In the survey, competitive selling factors were rated by significance according to three main geographical market groupings: Jordan, MENA, and USA/Europe (see Figure 3.1 below).

In the **MENA region**, the main competitive advantages for Jordan's companies were their niche specializations and solutions, often coupled with innovative features. Jordanian companies were not the lowest priced in the region but, provided they maintained a competitive price, they won projects because of their specializations, often differentiating themselves through the strong customer support and a very positive image on commitment and reliability. In particular,

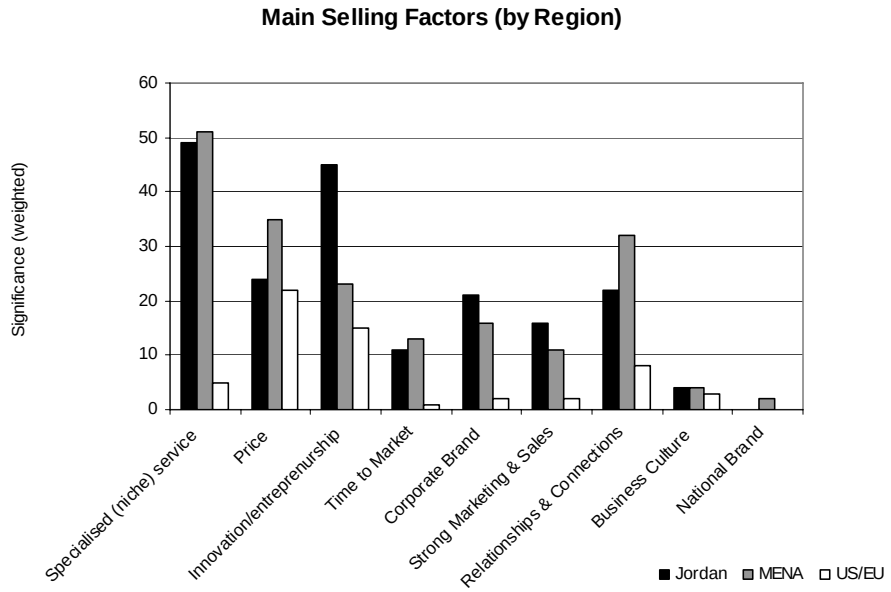
- The top three selling factors in the MENA are niche specialization (specialized solution provided), competitive price, and relationships and connections (the network of Jordanian expatriates, especially in the Gulf)
- In countries like Palestine and Iraq, the main selling factor was presence and availability on the ground.
- In terms of innovation, several companies mentioned that their products offered expanded product features, and solid technology platforms that tend to be usually provided at the higher priced versions of the solution.
- Other important factors cited were the strong customer support, responsiveness, flexibility to clients' demands and the professional approach.
- Finally, Jordanians, both as individual professionals and as IT companies are very much in demand and are a preferred service provider compared to other regional players or Indian companies.

In the **US and Europe**, the main advantages and selling factors were price, innovation, and relationships and connections. While Jordanian companies entered the MENA region using the network of Jordanian expatriates, in the USA and Europe it was done through connections and partnerships with international companies with which they managed to work previously. In particular, the survey uncovered the following selling factors:

- Specialization and niche with an edge, whether it was a product or a service (system integrators that developed middleware for international packages), such as:
  1. Menhaj and ITG: E learning solutions
  2. Digi Brokers: middleware and enterprise portals to integrate international packages in the region
  3. Arcadia: component development
  4. Telaterra: an award winning adaptive test engine
- Strong business connections and partnerships: the companies that were entrepreneurial and strong on PR and business connections, found one or few partners and developed work with them (based on previous experience in the US).

The main selling points **in Jordan** were perceived to be price, relationships and connections.

Figure 3.1: Main Selling Factors for Jordanian Companies



Source: AMIR ICT Industry Survey - 2004

In view of the **S**trengths and **W**eaknesses analysis, Jordan's competitiveness is compared to a number of competitor countries, both regionally and globally. This comparison is made on the basis of the investment criteria deemed important by investors when considering relocating their operations and is summarized in a table 3.7, as follows:

Table 3.7: Competitiveness of Jordan's ICT Sector Regionally and Globally

		Global Competitors		Regional Competitors			
Investment Decision Factors	**Jordan**	**India**	**China**	**Egypt**	**UAE**	**Saudi Arabia**	**Israel**
The value proposition	Medium	High	High	Medium	Medium	Medium	High
Market potential (size, access)	Low	High	High	Medium	Medium	High	High
Human Resources availability	Medium	High	High	High	Medium	Low	Medium
Labour skills	Medium	High	High	Medium	High	Medium	High
Labour costs	Medium	High	High	High	Low	Low	Low
Local private sector support	Medium	High	Low	Medium	Medium	Low	High
The legal and regulatory environment	High	Medium	Low	Medium	Medium	Low	Medium
Tax rates	Medium	Medium	Medium	Medium	High	High	Low
Profit repatriation and other investment incentives	High	Medium	Medium	Medium	High	Medium	High
Business Facilitation Services	Low	Low	Low	Low	High	Medium	Medium
Pricing and reliability of the communications infrastructure	Medium	High	High	Medium	Medium	Medium	Medium
Perceived country stability	Medium	High	High	Medium	High	Medium	Medium

In light of the comparison, Jordan's relative position, comparative advantages and disadvantages, and main selling points regarding investment promotion can be determined. As a part of the promotional effort, emphasizing Jordan's strengths and countering inaccurate perceptions about its weaknesses is essential.

CHAPTER 4: RECOMMENDATIONS

4.1 Sub-sector and Niches

The sector overview and analysis undertaken in the previous chapters aimed at gauging Jordan's chances of attracting FDI into the ICT sector. This section identifies the specific ICT sub-sectors and niches in which Jordan has a clearer competitive advantage and which have a greater potential to attract FDI.

The identification of the targeted ICT niches is based on determining which niches are the ones that combine Jordan's ICT strengths and comparative advantage with an emerging global, local or regional ICT market opportunity. Table 4.1 summarizes these sub-sectors:

As shown below, target sub-sectors are more of business activities than sectors, which makes the traditional company targeting more difficult. Activities such as e-banking and outsourcing cut-across sectors and do not fit into standard business classification (i.e. ISIC Code).

Table 4.1: Recommended ICT Sub-Sectors for Targeting

Targeted ICT Sub-Sectors	ISIC Code
Public wireless Internet service provision (Internet access provision)	6420
E-learning (Analysis, design and programming of e-learning software, including: analysis of the user's needs and problems, consultancy on the best solution, production of e-learning software to realize this solution)	7229
E-government (Analysis, design and programming of e-government software, including: analysis of the user's needs and problems, consultancy on the best solution, production of e-government software to realize this solution)	7229
Banking ICT service (e-banking) (Analysis, design and programming of e-banking software, including: analysis of the user's needs and problems, consultancy on the best solution, production of e-banking software to realize this solution)	7229
Customization (Arabization and localization)	7229
Telecom Services – wireless content (Transmission of sound, images, data or other information via cables, broadcasting, relay or satellite wireless content)	6420
Outsourcing	NA

Telecom deregulation-related niches

The liberalization and opening up of the telecom market (both mobile and fixed line) makes Jordan a unique environment for future telecom investment and has already attracted substantial foreign investment. In particular, the ending of the fixed line monopoly at the end of 2004 will provide yet another opportunity to attract further foreign investments into this sector. In addition, telecom liberalization and market opening offers the following investment opportunities:

1. *Alternative international capacity and gateways for both Jordan and the region:* this will allow investors to establish in the Jordanian market to serve for both local and regional market. This can be an opportunity in both international voice and data traffic transmission. Since Jordan is the first country in the region to embark on such reform, Jordan will have the edge and be the pioneer in giving such alternative

international capacity to the operators in the region, and thus bargain with international providers on behalf of a whole region instead of small country-sized markets.

2. *Convergence of Services:* The legal framework in Jordan is ready to allow any operator for convergence in the services and technology provided. For example, voice data and image on both wire and wireless networks. As a result opportunities are available in the market. Furthermore, convergence between Mobile and Fixed line services is becoming as another opportunity for potential investors.

3. *Local and national fixed services:* The legal and regulatory environment in Jordan encourages both infrastructure operators and service provider operators to compete in the market. It is worth mentioning that unbundling the network and infrastructure sharing represent a very attractive opportunity for the service provider to invest and operate in Jordan.

4. *Public Wireless Internet service provision:* the liberalization of the telecom market allows companies to enter the market in order to provide publicly-available wireless internet access to provide broadband and other related services.

5. *Call Centers:* with affordable telecom costs, reliable network and educated citizens Jordan has the potential to attract investments into the call center industry.

E-Learning and E-government

The ICT sector in Jordan has achieved a high profile from successful ***e-learning and e-government*** efforts. The emerging expertise and competencies in these fields, as well as the increased credibility of the Jordanian ICT platform among potential investors and business partners, makes it likely that e-learning and e-government successes can be expected to attract potential investors in order to adapt it to regional and global markets as well.

There is a strong global partnership with Jordan on educational reform. Keen interest and substantial resources have been invested by global players to position Jordan as a pilot-project for educational reform. Additionally, the implementation of the National Broadband Network in Jordan will open up attractive opportunities for the e-learning sector. Currently, the university network is under implementation and the schools network is being planned in modules.

Based on the above, Jordan and the ICT investment community can benefit from the following opportunities:

- Integrating or extending the Jordan Educational Initiative into the region. This will provide the foundation for Jordanian and global organizations to take their innovations and experiences into other countries in the region and around the world
- Considerable amount of know-how has been transferred and continues to be transferred to Jordanian public and private sectors in the filed of e-learning. These can be re-packaged under a national umbrella and introduced to the rest of the region.
- The National Broadband Network will open the door for potential investment opportunities in the e-learning sector. Investment in advanced technology for the purpose of education may include, but is not limited to: video conferencing, development of e-curricula, and development of long-distance learning.

In addition, Jordanian ICT firms that focus on providing specialized niche ***e-government*** services, based on the pioneer current and future e-government effort that will take place in Jordan have the potential to consolidate around this sub-sector and attract investment into it in order to serve the emerging regional market.

These e-government services are also facilitated through the National Broadband, which enables them to function more efficiently and improve delivery of vital services.

In particular, the move to consolidate all ICT government operations centers and common services in a Government Ops Center and outsource its operation will create an investment opportunity, since local ICT firms don't have sufficient know-how to do it and will need international partners. This move, based on a restructuring of the National Information Technology Center (NITC) means that major servers are brought into a centrally secured location and hosted there. Thus, the scope of the investment is likely to be substantial. The proposed Government Ops Center will require investment to upgrade NITC's Ops Center facilities, regarding physical security, space and infrastructure and to implement ITIL-based processes to ensure service level management and business continuity. It should provide Internet connectivity via the Secure Government Network (SGN) under central management, and offer a connection to a reliable ISP.

Other areas where the e-government cluster is developing and in which Jordanian companies have excelled and can offer opportunities for foreign investors to partner with local companies in the move towards e-government are: *change management*, *project management*, *outsourcing*, and *systems integration*. Government tenders in all these areas are open for investors through a bidding process, which will test and develop these firms' strengths and expertise in these fields (G2B).

Change management, in the context of e-Government, is about steering the transition in the style of public sector administration from the traditional approaches to management to new ones that can handle the evolving environment of the ICT world. This transformation requires transparency, accountability and openness, which are crucial to the success of eGovernment implementation.

Usually, e-government practices tend to utilize private sector resources through outsourcing, which is expected to attract specialized firms engaged in e-government outsourcing activities.

Additionally, the use of project management approaches and techniques for achieving policy objectives more effectively and efficiently is becoming essential in the e-government context. Many of these approaches are used commonly by private sector organizations who are under commercial imperatives to deliver things on time, to budget and at an agreed quality. The development and implementation of eGovernment programs will require competent project management that can be extended by the private sector.

Because disseminating information and facilitating services to citizens are essential elements of e-government, systems integration practices are necessary to provide flexible, responsive solutions by working with government agencies. Systems integration strives to systematically integrate current products to deliver an automated service directly to constituents or indirectly in collaboration with government agencies.

Outsourcing

As mentioned in section 2.2, the global outsourcing market is growing rapidly, and the definition of outsourcing continues to broaden. Of a higher-value added outsourcing services, business process outsourcing (BPO) is of particular interest for its potential to attract FDI into Jordan's ICT industry. BPO requires greater industry knowledge and adaptation to specific customer and industry requirements.

As labor costs in Europe remain high, and the euro continues its record-breaking appreciation, BPO will continue to be important for European ICT firms. Jordan's experience in outsourcing, its emerging ICT competencies, its high ICT profile, its lower costs, as well

as its skilled workforce should position it to benefit from this trend. As a result, Jordanian firms should position their capabilities and build business relationships and partnerships with these firms in order to have their piece of the outsourcing pie.

Successful outsourcers should have demonstrable industry vertical skills supported by up-to-date (and redundant) telecommunications infrastructures. Business functional areas often outsourced include: finance, payroll processing, accounting, tele-marketing, documents processing, IT support, maintenance and R&D and manufacturing.

Jordan's competencies are emerging in the industry vertical skills, while the telecom deregulation should eventually allow for network redundancy. Both these trends should help make the outsourcing experience with European ICT firms successful and profitable over the medium term.

However, Jordan is not viewed as an outsourcing destination for low-end services such as call centers, customer care, etc. instead Jordan can market itself as an outsourcing destination for its niche competencies in areas as e-learning, e-government, e-banking, and multi-media (content management, animation, web design, etc.).

Although these high-end services can provided by lower cost producers (India, and China), Jordan, being an Arab speaking country and part of the Arab culture, can be chosen by American and European companies as a gateway to the regional market. Arabization and localization services in this regard can be an opportunity that should be promoted.

Outsourcing activities of American and European ICT companies are expected to eventually yield great trust and dependency on the local Jordanian "outsourced to" ICT-companies, which will eventually result in partnerships, enhanced exports and finally investment into the local Jordanian partner.

Arabization and Localization

Jordan's talented workforce, bilingual Arabic/English capabilities, cultural closeness to the region, extensive regional relationships, and time-zone location advantages, favorably position it with respect to providing Arabization and localization services.

Core-Business Emerging ICT Niches

One of the key areas of demand regionally and globally is that of specialized skills in business operations such as core banking expertise or specialized telecom expertise. This presents an opportunity for Jordanian firms to consolidate around existing competencies in core expertise areas, and attract FDI into these areas:

- Jordanian banks and ICT firms could cooperate to create entities that specialize in providing specialized niche ***banking ICT services (e-banking)***. The ICT firms bring the capacity and the project management; while banks bring and transfer the business knowledge. An example of this is taking place between Intracom, Estarta and the Arab Bank. This arrangement has the following benefits:
    1. Consolidate the industry around core business and technical needs
    2. Present an attractive investment opportunity to local, regional and possibly global partners
    3. Provide a key competitive advantage for ICT firms in the region and globally
- Telecom operators and ICT firms partner to create entities that specialize in providing specialized niche ***telecom services (especially wireless content)***. The ICT firms bring the capacity and the project management; while telecom operators bring and transfer the

business knowledge. An example of this is taking place between Info2sell and Fastlink. This arrangement has the following benefits:

1. Consolidate the industry around core business and technical needs
2. Present an attractive investment opportunity to local, regional and possibly global partners
3. Provide a key competitive advantage for ICT firms in the region and globally

Postal sector deregulation-related niches

Foreseen investment opportunities in the postal sector may include:

- JPC Privatization through attracting a strategic partner. JPC is the incumbent postal services provider in Jordan. It has a dominant market share over the letter market in Jordan and it has exclusive license to provide P.O. Box in Jordan
- Hybrid Mail: Jordan's larger mailers have their own in-house printing and enveloping facilities. The worldwide trend is to out-source this service to mail-houses where the monthly transactions are sent electronically from large mailers to mail-houses where it gets printed, sorted, inserted into envelops and distributed.
- Regional Postal Hubs: Investors can capitalize on Jordan's geographic location to build hubs that serve the Levant region and connects to (Africa and GCC countries). DHL has already started building a hub at Queen Alia Airport

4.2 Outlook for Future Investment and Trade

To be able to make a reasonable forecast of future FDI inflow into Jordan, a number of issues need to be taken into consideration like past trends, Jordan's strengths and weaknesses, and opportunities that arise from the changing environment in which the global ICT industry operates.

A review of investment trends in Jordan shows that most of the capital for ICT ventures in Jordan has been local, except for the telecom sub-sector.

Looking at the comparative advantages of Jordan based on the SWOT analysis discussed in the previous section; one would expect that future investments would come from these 5 main identified ***investor profiles***:

1. Local investors wishing to establish export-oriented ICT companies based on Jordan's skilled labor, central location, and reliable and affordable ICT infrastructure.
2. Regional investors wishing to establish export-oriented ICT companies based on Jordan's skilled labor, central location, niche specializations, and reliable and affordable ICT infrastructure (see table 2.1 above).
3. Financial investors from Europe. Those include venture capital funds, equity funds, and institutional investors. The table below shows a number of identified financial investors to be targeted.
4. Financial investors from the region. Those include venture capital funds, equity funds, and institutional investors.
5. American and European ICT companies:

5. A. Wishing to invest in the location where they outsource their ICT services due to a lower cost.

5. b. that focus on telecom services/wireless content, e-learning, e-banking, e-government, and outsourcing especially business process outsourcing (BPO).

5. c. that are mid-size firms

Listed below (in table 4.2) are selected mid-sized American and European ICT investors (which correspond to 5.c investor profile mentioned above). Identification of these firms have been based on the following selection criteria:

- Top 10>global company rank>top 20 (ranked by sales value)
- Positive profitability index
- Selected regions: Europe, US

As the analysis earlier and discussion with stakeholders showed, beyond Jordan and the region, American and European firms are the only ones likely to invest in Jordan (Asian ones would prefer China or India). Of these firms, targeting top-notch ones will not be very effective, since the Jordanian ICT market's competitive edge sited above is not what they are looking for, therefore, targeting mid-sized American and European firms is likely to bear more fruit.

Table 4.2: Mid-sized ICT Investors

	Company Name	Country	Brief Description	Sales	Total Assets	Employees	Financial Year End
Computer Hardware	IKON Office Solutions, Inc.	US	IKON Office Solutions, Inc. integrates imaging systems and services that help businesses manage document workflow and increase efficiency.	4,650	6,640	30,250	30-Sep-2004
	Gateway, Inc.	US	Gateway, Inc. is a direct marketer of personal computers (PCs), servers, PC-related products and services and consumer electronics products and services.	3,402	2,028	7,400	31-Dec-2003
	Ingram Micro Holding GmbH	Germany	Distribution of computer hardware and software; development, sale and service of measuring and testing equipment	2,806	n/a	1,500	n/a
	Esprinet S.p.A.	Italy	Esprinet S.p.A. is a distributor of information technology (IT) products.	1,494	681	545	31-Dec-2003
	ScanSource, Inc	US	ScanSource, Inc. is a wholesale distributor of specialty technology products, providing both value-added distribution sales to technology resellers and e-logistics services to specialty technology markets.	1,192	413	734	30-Jun-2004
	Atos Origin	France	Atos Origin is an international information technology services company and a global provider of business consulting and technology integration services.	3,428	3,118	45,576	31-Dec-2003
Computer Networks	Network Appliance, Inc.	US	Network Appliance, Inc. provides enterprise network storage and data management solutions.	1,170	1,877	2,844	30-Apr-2004
	priceline.com Incorporated	US	priceline.com Incorporated is the provider of an e-commerce pricing system, known as a demand collection system, which enables consumers to use the Internet to save money on a range of products and services, while enabling sellers to generate incremental revenue.	864	338	293	31-Dec-2003
	PinkRoccade NV	Netherlands	PinkRoccade NV supplies information technology (IT) services to the industry, banking, insurance, social security, healthcare, food and government sectors.	834	399	7,436	31-Dec-2003
	Morse plc	UK	Morse plc is a is a technology integrator and	677	407	1,302	30-Jun-2004

	Company Name	Country	Brief Description	Sales	Total Assets	Employees	Financial Year End
			information technology services company that primarily provides a one-stop service, designed to reduce the risks of deploying and managing complex applications and systems.				
	EDS International Ltd	UK	Regional headquarters for Europe, the Middle East and Africa. Company involved in the provision of information technology based services	3,597	n/a	17,210	n/a
	ECS SA	France	Computer rentals and data processing services	2,347	n/a	975	n/a
Computer Services	T-Online International AG	Germany	T-Online International AG is a European Internet service provider, headquartered in Germany. While principally a provider of Internet and broadband Internet access, the Company continues to expand its products, services and content.	2,091	7,500	2,904	31-Dec-2003
	Capgemini UK Plc	UK	Computer services and systems including consultancy, information systems, management, software and project services	1,309	n/a	6,375	n/a
	FIDUCIA IT AG	Germany	Manufacture of data processing software and hardware	884	n/a	3,590	n/a
	LogicaCMG PLC	UK	LogicaCMG PLC global is the provider of information technology services. Cortex is LogicaCMG's business management system. The Company supplies mobile messaging and intelligent charging solutions. It provides solutions to more than 250 financial services.	2,788	2,159	19,749	31-Dec-2003
Software & Programming	Symantec Corporation	US	Symantec Corporation is a provider of software, appliances and services designed to help individuals, small and mid-sized businesses and large enterprises secure and manage their information technology (IT) infrastructure.	1,870	4,456	5,300	31-Mar-2004
	Compuware Corporation	US	Compuware Corporation provides software products and professional services designed to increase the productivity of the information technology (IT) departments of businesses worldwide.	1,265	2,234	8,660	31-Mar-2004
	Gemplus GmbH	Germany	Development, manufacture and sale of microchip data	977	n/a	5,700	n/a

Company Name	Country	Brief Description	Sales	Total Assets	Employees	Financial Year End
		carriers and associated hard and software				
Keane, Inc.	US	Keane, Inc. is a provider of information technology (IT) and business consulting services. It helps clients plan, build and manage applications software through its Business Consulting, Application Development and Integration (AD&I) and Application Development and Management Outsourcing (Application Outsourcing) services.	805	798	7,381	31-Dec-2003

Note: All monetary values are in USD millions.
Source: OneSource Business Intelligence Database

In addition, table 4.3 below identifies investors as per the investor profile mentioned in point 5.b (American and European ICT companies that focus on telecom services/wireless content, e-learning, e-banking, e-government, and outsourcing especially business process outsourcing BPO).

Table 4.3: Targeted investors in selected ICT services

	Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
Software & Programming/E-learning	IBE Inc.	Japan	http://www.ibe.jp/	IBE Inc. is an information technology (IT) company. The Company has three business divisions: the System Integration division, the Product division and the Service division. The System Integration division is primarily engaged in the development and sale of digital video-related products. The Product division is involved in the development of the IBE EZ presenters, e-learning systems, supporting systems for program creation and the IBE broadband communication system. The Service division operates training centers and provides data input services.	NA	NA	NA
	SkillSoft plc	US	http://www.skillsoft.com	SkillSoft plc is a global provider of e-learning content and technology products for business and information technology (IT) professionals.	1,282	193.5	31-Jan-04
	NIIT Limited	India	http://www.niit.com	NIIT Limited consists of two business operations, NIIT Technologies and NIIT Education. NIIT Education offers a range of IT educational programs for individuals and organizations, including career programs, which are designed for individuals who seek to build a career in the IT field; IT skill enhancement programs, which are designed for individuals who seek to upgrade their knowledge in specific areas in the IT field; IT awareness programs, which are designed for individuals who seek basic computer knowledge, and e-learning.	NA	134.8	30-Sep-02
	Witness Systems, Inc.	US	http://www.witsys.com	Witness Systems, Inc. provides an integrated performance optimization software suite that enables enterprises to capture customer intelligence and optimize workforce performance. The Company's solution is comprised of multimedia recording, performance analysis and e-learning management applications that enhance the quality of customer interactions across multiple communications media, including the telephone, e-mail and the Internet, and are used primarily in the organization's contact center	267	108	31-Dec-03

	Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
IT Outsourcing Services	Xansa Plc	UK	http://www.xansa.com	Xansa Plc is an international business process management and information technology service company based in the United Kingdom. The Company is mainly engaged in creating and delivering process management and technology solutions to improve its clients' business performance. Its principal services include business and technology consulting, information technology implementation, information technology outsourcing and business process outsourcing.	5,189	716	30-Apr-04
	Wipro Technologies	India	http://www.wipro.com	Provision of high-end IT solutions to leading companies worldwide, including business process outsourcing (BPO)services.	31,474	619.7	NA
	Sykes Enterprises, Inc.	US	http://www.sykes.com	Sykes Enterprises, Inc. is engaged primarily in the provision of outsourced customer-contact management solutions and services in the business process outsourcing (BPO) arena.	17,800	480.4	31-Dec-03
	iGATE Corporation	US	http://www.igatecorp.com	iGATE Corporation through its operating subsidiaries, provides information technology (IT) and offshore outsourcing services primarily to large and medium-sized organizations.	5,100	287.8	31-Dec-03
	Capgemini España SALU	Spain	www.es.capgemini.com	A provider of consulting technology and outsourcing services.	48,000	229.7	NA
	Delta Singular S.A.	Greece	http://www.deltasingular.gr	Delta Singular S.A. is a group of companies in the information technology (IT) sector, formed by the 2001 merger of Singular S.A. and Delta Informatics S.A., which provides software products, as well as integrated systems and IT outsourcing services to the public and private sector.	578	128.5	31-Dec-03
E-banking and financial services	AZERTIA	Spain	http://www.azertia.es	he Company is a multinational Spanish information technology enterprise offering services and solutions in technological consulting orientated towards companies and organizations in the banking, insurance, public administration, industry/distribution, transport, telecommunications and utilities/energy sectors.	2918	190	n/a
	Computer Services, Inc.	US	http://www.csiweb.com	Computer Services, Inc. (CSI) provides technology products and services to nearly 500 banks across the United States and e-business solutions to organizations wherever they are located.	684	87.5	29-Feb-2004

	Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
	Comarch SA	Poland	http://www.comarch.pl	Comarch SA is a Poland-based independent software vendor and system integrator that specializes in the provision of information technology solutions to the banking and finance, telecommunication, industry, services and electronic commerce sectors.	1152	66	31-Dec-2003
	SLMsoft Inc.	Canada	http://www.slmsoft.com/	SLMsoft Inc. is primarily engaged in the design, development and distribution of electronic payment systems and transaction processing solutions, including e-commerce applications, focused on the financial services industry.	546	36.8	31-Dec-2001
	CPU Softwarehouse AG	Germany	http://www.cpu-ag.com	CPU Softwarehouse AG is a provider of software and software consultancy services for the finance sector.	43	6.3	31-Dec-2003
E-government	ePlus inc./ ePlus Government, inc.	US	http://www.eplus.com	The Company's offering includes Internet-based applications for the catalog content management, e-procurement, asset management, document imaging, document management and distribution, electronic bill presentment and payment and management of operating resources that can be integrated with financing and other asset services. It offers customers a choice of Internet products on a licensed basis or as a remotely hosted solution.	513	330.6	31-Mar-2004
	Tyler Technologies, Inc.	US	http://www.tylerworks.com	Tyler Technologies, Inc. is a provider of integrated information management solutions and services for local governments. The Company develops and markets a line of software products and services to address the information technology (IT) needs of cities, counties, schools and other local government entities.	1200	145.5	31-Dec-2003
	Beyond.com Corporation	US	http://www.beyond.com	Beyond.com Corporation is an e-commerce services provider operating two key businesses, eStores and Government Systems. The Government Systems Group provides digitally downloadable software to government agencies and manages software licenses on their behalf.	169	119.8	31-Dec-2000
	NIC, Inc.	US	http://www.nicusa.com	NIC, Inc. provides federal, state and local governments with a range of e-government services, including software and applications. NIC helps governments use the Internet by building Websites and applications that allow businesses and citizens to access government information and complete the government-based transactions online.	290	50.8	31-Dec-2003

	Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
Wireless Content	Autodesk, Inc.	US	http://www.autodesk.com/	Autodesk, Inc. is a design software and digital content company with two operating segments, Design Solutions and Discreet.	3,493	951.6	31-Jan-04
	RealNetworks, Inc	US	http://www.autodesk.com	RealNetworks, Inc. is a creator of digital media services and software. Consumers use the Company's services and software to find, play, purchase and manage free digital content, including music, video and games. Broadcasters, network operators, media companies and enterprises use its products and services to create and deliver digital media to personal computers (PCs), mobile phones and consumer electronics devices.	740	202.4	31-Dec-2003
	Wapme Systems AG	Germany	http://www.wapme-systems.de	Wapme Systems AG develops and provides software solutions and services for the integration of Internet content into mobile communication networks. The Company's solutions enable customers from different industries to provide their data and information on mobile end devices.	54	146	31-Dec-2003
	Stellent, Inc.	US	http://www.stellent.com	Stellent, Inc. is a global provider of content management software solutions that enable fast implementations and generate quick, broad user adoption.	500	75.8	31-Mar-2004
Public Wireless Internet Service Provision	International Fibercom	US	http://www.ifci.net	International FiberCom, Inc. is an end-to-end solutions provider serving the telecommunications industry. The Company delivers a broad range of solutions designed to enable, enhance and support voice, data and video communications through wired and wireless, proprietary and public networks operating inside and outside buildings (internal and external networks).	2338	315.7	31-Dec-2000
	EarthLink, Inc.	US	http://www.earthlink.net	EarthLink, Inc. is an Internet service provider that provides nationwide Internet access and related value-added service to its individual and business customers. The Company's primary service offerings include narrowband Internet access, including premium and value-priced dial-up access over traditional telephone lines and wireless access through a variety of handheld and laptop devices; high-speed or broadband access via digital subscriber line, cable modem, satellite and dedicated circuits; Web hosting; and advertising and related marketing services.	2040	1402	31-Dec-2003

	Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
	FASTNET Corporation	US	http://www.fast.net	FASTNET Corporation was historically a provider of Internet access services. The Company offered a comprehensive suite of Internet solutions to its customers, including dedicated Internet access, as well as enhanced products and services. Dedicated Internet access can be delivered through standard telephony circuits, such as T-1 through OC-3 digital circuits, dark and/or managed fiber-optic facilities, digital subscriber line (DSL) technology or fixed broadband wireless connections.	156	32.1	31-Dec-2002
Number portability and carrier pre-selection	Evolving Systems, Inc.	US	http://www.evolving.com	Evolving Systems, Inc. is a provider of mission critical and cost-effective software solutions to tier one telecommunications companies. The Company maintains long-standing relationships with wireline and wireless telecommunications providers in the United States. Customers rely on Evolving Systems to develop, deploy, enhance, maintain and integrate complex, reliable software solutions for a range of operations support systems (OSS) and enhanced services platforms. The Company offers software products and solutions that enable its customers to comply with government-mandate requirements regarding local number portability for wireline and wireless number portability.	100	28	31-Dec-2003

Source: OneSource Business Intelligence Database

Table 4.4 below identifies a number of potential financial investors from Europe and the region, as per investor profiles 3 and 4 mentioned earlier.

Table 4.4: List of financial investors

Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
AB Traction	Sweden	http://www.traction.se/	AB Traction is a venture capital company that invests in companies as an active and long-term owner. The Company's portfolio consists of 30 holdings.	467	53.8	31-Dec-2003
Siparex Croissance	France	http://www.siparex.com/	Siparex Croissance is an independent private equity investment and asset management company. The Company is primarily dedicated to growth capital and mid-market buy-out/buy-in financing.	25	19.1	31-Dec-2003

Company Name	Country	URL	Brief Description	No. of Employees	Sales (USD mil)	Financial Year End
Thompson Clive Investments plc (TCI)	UK	http://www.tcvc.com	Thompson Clive Investments plc (TCI) and its subsidiaries are investment companies principally taking up, in first instance, venture capital holdings in unquoted companies.	20	7.5	31-Dec-2003
Northern Venture Trust plc	UK	http://www.nvm.co.uk	Northern Venture Trust plc (the Trust) is a venture capital trust that invests mainly in unquoted venture capital situations.	NA	3.1	30-Sep-2003
Sigma Technology Group plc	UK	http://www.sigmatech.co.uk	Sigma Technology Group plc is an investment management and advisory group that invests in private equity in the technology sector.	14	1.9	31-Dec-2003
Technology Investment Fun	Australia	www.technologyinvestment.com.au	Technology Investment Fund is focused on investing in a diversified portfolio comprised of companies in different technology industries with high growth potential and attractive commercial opportunities, with different capitalization and maturity, across different geographical regions.	NA	0.2	30-Jun-2004
Alfred Berg Global	Denmark	http://www5.alfredberg.se	Alfred Berg Global is a Denmark-based investment fund engaged in making specialty investments in companies listed worldwide. The Company represents both private and institutional investors.	NA	0.3	31-Dec-2002
Kuwait Financial Centre S.A.K.C	Kuwait	http://www.markaz.com	Kuwait Financial Centre S.A.K.C. is an asset management and investment banking firm with operations in Kuwait and the Arabian Gulf region. It has three business units. Investment Services & Products provides a range of investment products, including private equities, quoted equities, fixed-income equities and money-market funds, on both domestic and international markets.	NA	19.6	31-Dec-2001

Source: OneSource Business Intelligence Database

Therefore, initially, a consolidation of the local industry and new Domestic Direct Investment (DDI) in Jordan are the most evident investment sources. Additionally, targeting regional ICT investors offers good potential, since Jordan already has well-established ICT business relations, as well as a good reputation on commitment, delivery, quality, and niche specializations. International venture capitalists, especially Europe-based financial investors also offers good potential to provide much needed financial support and resources. Finally, at a later stage, getting American and European ICT firms to outsource ICT services, as well as, actually investing in Jordan seems to be a very plausible course of action.

4.3 Constraints and Remedies

The objective of this section is to provide the promotion effort with answers to investor questions regarding the impact of Jordan's constraints on industry growth, prospects, and investment attraction potential.

Interviews with players in the market, and meetings with relevant staff in line ministries, in addition to conclusions arrived at from the SWOT analysis revealed a set of constraints that affect or may affect the growth of the ICT sector in Jordan, as well as the ability to attract DDI and FDI into the sector.

The main constraints that were identified are listed below along with their perceived level of impact on the industry - based on statements made by interviewees and relevance of each constraint to the investment considerations listed in section 3.1. Impact levels are divided into three categories A, B and C, with A denoting high impact on the growth of the industry.

Table 4.5: ICT Industry Growth Constraints

Constraint	Level of Impact
Small and fragmented local market	A
Inadequate managerial and business development skills	A
Inadequate financial resources (especially to SMEs), including the lack of venture capital funds	A
Inadequate core business specializations (e.g. ICT needs for core banking services)	A
Weak ICT cluster	A
Lack of reliable market data that allow forecasting and planning	A
Perceived regional instability	B
Competition from countries with favourable tax regimes and business environment (Dubai)	B
Insufficient local capabilities in R&D	B
Inadequate links to markets abroad (especially in the US and Europe)	B
High labor costs compared to Egypt, China, India	C
Brain Drain to the Gulf	C
High telecom costs	C
Lack of market data	C
Note: Category A denotes the highest impact on the growth of the industry.	

Constraints listed above, are categorized into five groups:

ICT Companies

1. Inadequate links to markets abroad (especially in the US and Europe) (Impact B)
2. Weak ICT cluster (Impact A)
3. Inadequate core business specializations (e.g. ICT needs for core banking services) (Impact A)
4. Small and fragmented local market (Impact A)

Human Resource

1. Brain Drain to the Gulf (Impact C)
2. High labour costs compared to Egypt, China, India (Impact C)
3. Inadequate managerial and business development skills (Impact A)
4. Inadequate core business specializations (e.g. ICT needs for core banking services) (Impact A)

Infrastructure

1. High telecom costs (Impact C)

Knowledge and intellectual capital

1. Insufficient local capabilities in R&D (Impact B)

Environment support

1. Inadequate financial resources (especially to SMEs), including the lack of venture capital funds (Impact A)
2. Lack of reliable market data that allow forecasting and planning (Impact A)
3. Perceived regional instability (Impact B)
4. Competition from countries with favourable tax regimes and business environment (Dubai) (Impact B)
5. Lack of market data (Impact C)

Remedies

In light of this, following are some suggested remedies which aim at addressing the constraints facing the growth of the ICT industry in Jordan and at improving the environment within which the industry operates. These remedies are also divided into the five categories of recommendations/remedies, namely: ICT companies, human resources, infrastructure, knowledge & intellectual capital, and environment support.

Remedies for ICT companies

- Marketing Jordan's ICT industry in the US and Europe and establishing business relations with these regions needs a lot of effort in understanding the requirements for doing business in each such market. Therefore, setting up an entity that is the joint marketing arm for Jordanian ICT companies in Europe and the US, which is linked to specialized outsourcing/investment services firms would be cost effective and would provide the required market knowledge. It can also give recommendations on how to better package products for these markets.
- In an attempt to enhance the ICT cluster and improve core business specializations, the government of Jordan should devise tax incentives that favor the consolidation and merger of small and medium-sized ICT firms, especially those specialized in the same core business needs. Such mergers will help Jordanian ICT firms acquire the financial muscle to handle large scale regional/global projects in core business areas.

Remedies for Human Resource

- As the Jordanian ICT sector matures, companies should develop specializations in support of business solutions such as SAP, Oracle Financials, Websphere, other ERP, CRM, and middleware technologies. Initiatives supported by YEA, Injaz, Netcorp, and others aim to improve ICT skill levels should be encouraged.
- Another means for ICT market participants to validate their core competency and provide competitive differentiation is through industry certification, both at the individual and at the organizational level. Technical and non-technical Certification programs relevant to the Jordanian ICT industry as it builds its ICT franchise include Project Management Professional (PMP), Cisco Career Certifications (individual),

Call Center Industry Advisory Council (CIAC) (organizational), Customer Operations Performance Center, Inc. (COPC) (organizational), International Standard Organization ISO 9000 for quality management (organizational) and Microsoft Certified Professional (MCP) (individual)**.**

- Archive and capture resources moving to the gulf and other places; as well as, resources already working with global organizations around the world. This could have two distinct impacts on the sector: 1) Allow local firms access to top notch Jordanian resources on a need bases, which could in turn create more long term opportunities for people in Jordan. 2) Turn the brain drain into an opportunity in which we have access to Jordanian in important positions that could serve as emissaries, advocates, or marketers of Jordanian firms.

  Initiatives that are established to assist individuals or organizations to obtain certification, provide an opportunity for promotional initiatives to communicate to the market Jordan's continuing focus on the ICT opportunity.

- Brain Drain to the Gulf: the development of the ICT cluster and the consolidation of the sector around larger ICT companies, would allow those companies to have the resources to retain qualified local people with decent levels of compensation. Jordanian expatriates working in the Gulf will still prefer to work in their home country if they can obtain slightly lower but still decent compensation packages.

- Jordan should not compete head on with low cost producers such as India and China. Instead, Jordan should position its ICT services and products differently and reach out for market segments that have higher value-added.

Remedies for Infrastructure

- With the deregulation of the telecom market and the ending of the fixed line monopoly at the end of 2004, increased market competition should lower telecom costs as market forces determine the new prices.

Remedies for knowledge and intellectual capital

- The government of Jordan should support vigorously the development of technology parks and ICT R&D through partnering with international R&D efforts, as well as, providing fiscal and non-fiscal incentives to companies that invest in the development of R&D within their service/product specialization.

Remedies for environment support

- ICT firms should review their business propositions within a global context and ensure that provisional strategies both reach a global audience and seek to establish a message of Jordan as a global ICT player. Such a strategy can increase the profile of the ICT platform while minimizing its positioning as a “Middle East” regional franchise.

- The Government of Jordan's reform efforts should go the extra mile to clarify and streamline remaining issues related to taxation, business registration and facilitation in order to provide a business environment conducive to ICT industry investments.

- Attracting venture capital funds into Jordan can happen through highlighting investment opportunities in the Jordanian ICT market and especially the profitability of local firms. In addition, setting-up new ICT VC's by the government in partnership

with international VC's is a worthwhile investment of tax-payers money, in order to stimulate consolidation of the local market, while attracting FDI into it.

- Work with key vendors and large contractors to establish off-set programs
- Provide public access to up-to-date and reliable ICT market data: The MoICT, in its 2004-2006 strategic plan, states that int@j, TRC, and NTIC will provide procurement/growth trends at 6-month intervals during 2004-2006. Public access to this information can be an excellent resource to assist investors in their analysis process and help Jordanian firms to understand their position related to competitors at the local, regional, and global level. Firms can then refine and adapt their business model to the changing competitive landscape.

CHAPTER 5: THREE-YEAR PROMOTIONAL STRATEGY

5.1 Background

Historically, ICT promotional efforts have been driven by government ministries, industry associates and NGOs. Such efforts provide significant advantage to the ICT community. At the same time, individual firms should begin to build marketing skills and develop related promotional strategies in support of their business franchises.

As Jordan continues to evolve its ICT franchise, lessons can be learned from other countries that have engaged in similar pursuits. International experience in attracting Foreign Direct Investment in the ICT sector in India, China and Ireland is credited for being especially successful.

The Government of Ireland's efforts present numerous similarities with Jordan (population size, language, potential as a regional ICT platform), Infosys Technologies presents the evolution of India's leading ICT outsourcing firm and Ctrip.com, overviews a China-based firm combining call centers and ICT to address tourism needs in an emerging market. Much can be learned from these organizations in their pursuit of the ICT opportunity, in particular:

- **A long-term commitment is required**. A significant commitment of time, measures in years, often decades, is needed to establish strong sustainable ICT franchises.
- **Organizational scale is needed**. An ICT firm's organizational infrastructure, both depth of management, and breadth of staffing, is important. To address organization scale, many Jordanian ICT firms will have to consider the benefits of a merger or acquisition.
- **Large markets must be approached**. Jordanian firms will increasingly have to provide solutions beyond the local market and compete on a regional and increasingly on a global basis.
- **Adaptability and risk are parts of the equation**. The ICT market is dynamic and requires adaptation to changes in both technology and customer needs. The ICT is dynamics and as a result risky. Failures will be encountered and learning from mistakes is essential.

See appendix D for a more detailed review of the three cases of Ireland, India (Infosys Technologies), and China (Ctrip.com).

In addition, the lessons learned from the experiences of other countries can come at two levels: a strategic level and implementation level. Below is a description of some successful strategies at both these levels:

Lessons learned at the strategic level:

In this regard, experiences of counties like India, Brazil, and Costa Rica are examined (see case studies of Brazil, India, and Costa Rica in appendix E)[18]. The following tips can be concluded:

First: *although not all countries can benefit from a focus on developing ICT as a sector, all can benefit from using ICT as an enabler.* Countries that launched national policies to support ICT as a sector based their efforts on local comparative advantages that included relatively advanced technical and human capabilities, basic telecommunication infrastructure, and

[18] "Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative," published in 2001 by Markle Foundation, Accenture, and UNDP.

substantial R&D investment, in addition to which, they offered large incentives to national or foreign direct investors. In some cases, such as Brazil and India, it took over 10 years to create an internationally competitive ICT sector and the impact on development goals was not immediate or direct. *This suggests that promoting ICT as a sector might not be the best or most viable option for all developing countries*. However, by focusing on **ICT as an enabler**, all countries can, in principle, achieve a degree of success by directly incorporating ICT into their existing development strategies and goals—for example, to address poverty or health and education. If local conditions are suitable, within the context of an enabler strategy, countries can also try to develop a competitive ICT sector.

Second, *a focus on development goals places development at the core of the strategy and ensures a more broad-based diffusion of the benefits of ICT.* When ICT as a sector is taken as the focus of the ICT strategy, there are some development gains. Principally these take the form of an increase in jobs, gains to enterprise development, enhancement of domestic capabilities and some spillover to other sectors—such as demand for the products of other sectors and supply of ICT goods. The development gains are potentially higher when the focus is on building domestic capacity as opposed to an export focus. When ICT is used as an enabler, the gains for development are potentially higher still. An ICT as enabler strategy focused on global positioning does not directly address development imperatives, but it is necessary for countries to position themselves to leverage the social and economic development opportunities associated with the global economy. Making development goals the primary focus has greater impact than any of the other three strategies in isolation because it ensures that the latter are aligned with meeting development goals.

Lessons learned at the implementation level:

First: *A comprehensive and holistic approach is the most effective way to benefit from synergies and ensure the impact of ICT deployment is optimized.* Even with India's explicit software sector export focus in place since the 1970s, it became clear that a number of related factors needed to be addressed if the strategy was to be successful. Despite the abundant supply of English-speaking, skilled IT professionals, it was only when competitive international connectivity and enterprise incentives were put in place that software production could really take off.

Adopting an ICT as enabler strategy often demands a more comprehensive approach because there is a need to go beyond the requirements of a single sector and to facilitate a more general deployment of ICT. In the case of South Africa, development-focused ICT deployment could not go beyond micro-level initiatives until the central and state governments recognized the need to address infrastructure, access, local language content, SME support and e-government.

The main components that are important for an ICT strategy to address—with some variation in range and scope depending upon the focus of the strategy are:

- Human capacity specifically the creation of knowledge or technical workers—is important for both the production and use of ICT.
- Creating a favorable environment for enterprise such as through tax and trade policies is instrumental in stimulating foreign and local investment in ICT.
- Infrastructure development, particularly global connectivity, is a prerequisite to leveraging the benefits of the global economy, improving domestic productivity, and attracting foreign investment.
- A transparent, inclusive and open stance on policy, especially in telecommunications, is associated with increased enterprise activity, additional foreign direct investment, and improved infrastructure deployment.

- Content and applications that specifically address the development needs of the population generate greater demand and positive multiplier effects from ICT adoption.

Although each of these components produces benefits, because they are interrelated, they work better if addressed together as part of a coordinated strategic approach.

Second: *There is a need to recognize the roles played by different stakeholders and to support strategic partnerships.* The country studies indicate that success depends on the contributions of a number of different actors, especially in areas such as infrastructure and human capacity development. The ICT as enabler strategy requires coordination and involvement from a wide range of interested parties, a process facilitated by visionary leadership and mechanisms to promote broad-based participation. This can take the form of formal taskforces (South Africa) or public-private partnerships (Brazil), and should include the local level to ensure that initiatives are demand-driven and implementation incorporates bottom-up approaches.

Third: *Global, national and local linkages need to be leveraged.* The country studies demonstrate that national strategies are critical to using ICT effectively for development goals, but there are significant limitations to what a single country can accomplish on its own, even when it takes advantage of all the opportunities within its control. There needs to be coordination and partnerships, not just at the national level, but also at the global level to bring together developed and developing countries, multilateral institutions, civil society and the private sector to assist developing countries—particularly the least developed—in leveraging the potential of ICT to address development goals.

5.2 Core Messages

The most powerful elements of Jordan's comparative advantages in the ICT sector are: strong leadership support, available, well-educated, skilled and relatively cheap workforce with command of both the English and Arabic languages, good regional presence especially in the Gulf, niche specialization, strong IPR protection, affordable and reliable infrastructure. The following statement is one version of core promotional message that promotional efforts can build on to articulate its final core message

Jordan's readily available, well-educated, skilled and relatively cheap workforce, its strong leadership support and regional presence, high reputation for commitment, adherence to quality and clients needs, its affordable and reliable infrastructure, and its high standard of IPR protection, enable investors to locate relatively inexpensively in a growing local and regional market.

Jordan's exports in this sector already enjoy a reputation for good quality, niche specialization, reliability, and precise delivery times.

5.3 Principal Selling Points

Based on the SWOT analysis in Section 3.2, the main selling points for FDI attraction into Jordan's ICT sector are the following:

- **"World-Class" Leadership Support.** Feedback from ICT leaders, as well as others outside Jordan indicates a great appreciation for the support of the Leadership of Jordan. The strong attendance at the Jordan ICT Forum 2004 is the most recent evidence of the momentum created by these efforts. The linkage between HMK's confidence in the sector and ICT company's successful execution should be continually nurtured.

- **The People: Reliable, Committed, and Entrepreneurial**. Participants in the ICT sector, both providers of products and services are assessed on their ability to address customer needs and establish long-term business relationships. Most interviews conducted, both in Jordan with regional players believe that people are the real essence behind the sector. More specifically, Jordanians are respected regionally for their "reputation" as a reliable workforce, their commitment toward addressing customer needs and bringing an entrepreneurial spirit to the market.
- **High skill / competitive wage workforce**. ICT companies operating in the US and Europe are under pressure to reduce operating costs. A number of such companies have relocated/made the decision to relocate to less expensive locations in far-eastern countries.
- **Momentum for an emerging pool of technical skills.** A broad base of technical skills has been identified as a remaining requirement for a competitive Jordanian advantage rather than an existing competency that supports competitive advantage. Most Jordanian ICT skills address mainstream needs with minimal focus on emerging technologies or specialized high-end areas. Two points should be considered: 1) most global ICT service organizations have identified that mainstream skills will be in short supply in the coming years and 2) initiatives that broaden ICT skill set (incubators, teaching programs, ICT focused development labs, etc.) can be presented as a reaffirmation of Jordanian commitment to the sector and an opportunity to build upon the existing momentum.
- **Leadership in regulatory reform initiatives.** Jordan's efforts in education and government, aimed at transforming the society, have attracted the attention and commitment from international organizations such as the USAID/AMIR Program, the World Bank, the World Economic Forum, Cisco Systems, Microsoft, Intel, DHL and others. Continued promotion of these efforts presenting the successful skills transfer to and execution by local ICT companies should position Jordan as players with unique offerings that can address global as well as regional needs.
- **Regulatory reform is adaptive and on-going**. Promotional efforts should focus on the ongoing and adaptive regulatory reform process in which investors and businesses can have input and make a positive impact. Accession to the WTO, and compliance with the Jordan-US FTA involved strict adherence to IRP laws have the potential to attract investors requiring patent protection when pursuing intellectual property based investments. The REACH process has helped modernize approximately 75% of Jordanian laws that impact the ICT sector, thereby helping business owners, investors and ICT firms in general. Examples of successful interaction with this process should be provided, when available
- **Very liberal telecom sector**
- **Affordable and reliable infrastructure**
- **Ease of capital flow and repatriation** and other fiscal investment incentives offered under the Investment Promotion Law (IPL)
- **Growing ICT market and proximity to other large and growing regional markets (UAE, Saudi Arabia, Egypt, Israel)**
- **Good regional presence and export base**, as well as a good expatriate network in the Gulf.

- Regional favorable perception of Jordanian product quality, commitment, and niche specialization
- Government initiatives such as e-learning, e-government, and telecom reform are helping catalyze the industry

Other selling points that are dependant on target markets are:

- **Proximity to Europe**
- **Bi-lingual (English/Arabic) content for regional investors.**

The relative importance of the above points depends on the target market under consideration for a specific investment promotion effort. Thus, if the targeted investor is from Europe, highlighting the proximity to the European market is essential. For Saudi investors, Jordan's attraction compared to other locations in the Middle East would be the ability of its companies to juggle bilingual content in a smooth way.

5.4 Target Markets

In section 4.2, it was recommended that initial focus should be on consolidating the local ICT industry and attract DDI into it. This is to be followed by attempts to attract regional investors that are wishing to establish export-oriented ICT companies and then to attract outsourcing activities from American and European ICT companies. Outsourcing activities of American and European ICT companies are expected to eventually yield great trust and dependency on the ICT local "outsourced to" companies, which will eventually result in partnerships, enhanced exports and finally investment into the local Jordanian partner.

From the earlier analysis it is evident that a lot of house-keeping has to take place before the ICT industry could attract substantial FDI. Therefore, initially, a consolidation of the local industry and new Domestic Direct Investment (DDI) in Jordan are the most evident investment sources. Local investors wishing to establish export-oriented ICT companies based on Jordan's skilled labor, central location, and reliable and affordable ICT infrastructure could be attracted more quickly than others.

Furthermore, targeting financial investors (venture capital funds, equity funds, and institutional investors) from Europe and the region offers a good potential for FDI attraction.

In other words, the first year promotional strategy should include missions to potential local investors and regional and European financial investors while the second and third years would involve overseas missions to Region, Europe and the US.

The major target markets in the Region are Saudi Arabia, Kuwait. Kuwait and Bahrain are also target markets for financial investors. (refer to table 2.20 and table 4.4).

The major target markets in Europe are the UK and Germany, and France. Italy, Netherlands, and other Nordic countries although have a good ICT market, are not major outward investors and the Benelux and Nordic countries are relatively small markets. Therefore, missions to Germany, the UK, and France are the ones recommended for the second and the third year (refer to table 4.2 and 4.3). Target markets for bringing in venture capitalists include France, Sweden, Denmark, and the UK, with the later being the priority market for targeted financial investors. (refer to table 4.4)

In the USA, the ICT industry is firmly based in the States of California and Pennsylvania Therefore, Promotional efforts to the US should target the above-mentioned States in the second and third years of the investment promotion plan.

5.5 Target Investors

Jordan should seek investors that are familiar with the dynamics of the Middle East and business partners that can provide access to new markets, mentoring in ICT skills or provide complementary skills in support of common market opportunities.

While Jordan has attracted the resources of several large ICT organizations, it should also engage mid-size organizations as well. The rationale for this approach is that mid-size organizations can provide guidance in the challenge faced by organization of the scale of most of Jordan's ICT firms. Additionally, it is likely that such firms will present complementary opportunities with Jordanian ICT organizations. A typical potential investment of mid-sized ICT investors in the Jordanian ICT environment is a fifty- employee set-up with an average investment value of five million USD.

Section [4.2] identified potential investors, including details of their nationality, sales, business description, and specialization. This section takes the analysis a step further by compiling a profile of the targeted investors. This profile includes target projected investment size, expected employment, potential export markets, and specialization categories. This information is shown in table 5.1 below.

Table 5.1: Profile of Target Investors

Project Size (including buildings)	> USD 5,000,000
Employment	> 50 workers
Markets	Gulf countries especially SA and Kuwait; UK, Germany, and France from the EU; and the US.
Specialization categories	Public wireless Internet service provision, e-learning, e-government, e-banking, wireless content, and ICT outsourcing services including business process outsourcing.

5.6 Promotional Approaches

The dynamics of the ICT industry are such that participants and solutions can rapidly gain traction or lose their competitive edge. For this reason, we encourage a promotional approach that is adaptive, supported by a message of momentum and growth.

Jordanian ICT firms are establishing a local, regional and global presence. In the process, the relative strength of specific companies and sub-sector trends will be dynamic. Therefore, promotional strategies should focus on Jordan as an ICT Platform for investment and commerce: enabled by its government, its people, its regulatory reforms and its technology infrastructure. Promotional strategies should leverage these key attributes while adapting to emerging Jordanian ICT capabilities. Success will require a persistent, often relentless pursuit of sales, partnering and investment opportunities supported by clear and concise marketing messages.

5.6.1. Investment Promotion

Promotional efforts can take numerous forms such as press releases, attending and presenting at ICT and investment conferences, and most importantly investor site visits. These approaches have been pursued by the Jordan ICT industry and should be adapted based on experience and market feedback.

The ultimate promotional goal is INVETSOR SITE VISITS. Creating opportunities for site visits can be maximized by convincing the "RIGHT" investors of the comparative advantages Jordan has to offer. Identifying the right markets and profiles of investors likely to be interested in Jordan (described earlier in this section) is the first step in the focused promotional process - known in the industry as targeting. The rest of the steps are explained below.

Research and Profiling: Using industry and market/region specific databases, free and paid-for websites, and contacts with relevant industry organizations will enable the promotional efforts to generate LEADS, about potential investors. "Leads" is the critical term, as the objective at this stage is to start collecting as much information on different investors in selected markets/regions as possible, regardless of how sketchy this information seems to be to begin with.

The way to identify the main players in the target sectors it is by having a comprehensive information base that is updated on a regular basis. OneSource, Duns and Bradsheet (D&B), and the like are examples of such databases. Sector-specific and investment-focused databases are one of the most effective means to identify target companies. This identification is often based on factors such as the company profitability and performance of the company under each target sub-sector and country. This process may end up in thousands of companies, which can be narrowed down to hundreds by focusing on companies that are "active" investors with recent FDI projects and those with an explicit internationalization or globalization strategy.

The Internet provides a cost effective mechanism to initiate such efforts. In this regard, and as a preliminary step, it is recommended to develop e-mail distribution strategies as means of establishing a channel supporting global outreach.

Other sources of information to generate leads, and/or to build on leads obtained from initial research could be commercial attachés in target countries, chambers of industry, industry specific associations, and personal contacts with investors from the particular target country who are already operating in Jordan.

Promotional officers handling the ICT sector should familiarize themselves with the ICT sector activities, operations, and players. The following steps are suggested in particular:

- Promotion officers should read ICT industry articles, and familiarize oneself with each target market (as identified in section 5.4). A compilation of ICT internet sites and industry associations provides valuable research for promotion officers.
- Promotion officers should conduct visits to existing ICT companies in Jordan.

In addition, acquiring and going over ICT sector publications should be beneficial to promotion officers.

After identification of the main players in the target sectors, it is important to narrow down the list (of 'target' companies) to companies that are more likely to be interested in investing in Jordan when approached. A blind "shotgun" approach to companies is almost certain to fail. Also, it is highly unlikely that a company will be on the verge of an investment decision on the day it is contacted, therefore ongoing contact is necessary.

When a vital reason for relocation or expansion in other markets has been identified, the process of approaching the company can begin. Contact must be made with the right people at the targeted ICT companies. Although this sounds obvious, often the wrong person is approached, or the wrong person is selected by the targeted company when approached. Senior executives in the areas of business developments, tax/finance, CEOs are usually the persons that get to meet with delegations, trade representatives, promotion officers from oversees.

Targeted Marketing and Correspondence: The next step is preparing to contact potential investors, which could start by sending introductory letters, introduction through industry associations, or by invitation to attend functions hosted by the promotion officer in the target country. Although starting with introductory letters seems to be the most logical starting step, in real life a combination of these approaches take place in parallel, such as:

- Develop and produce investor-specific marketing materials: Presentations, brochures, introductory letters, sector fact sheets, etc.
- Develop a database and mailing list of potential investors.
- Identify key door-openers (such as INT@J members the minister of ICT and others who can sign the introductory letters) to initiate correspondence.
- Conduct follow-up phone calls with potential investors with immediate interest

Introductory letters and any other promotional material must: show credibility, highlight Jordan's advantages; address investors' potential concerns; and be concise – investors have little patience to read general mail, and constantly receive mail from similar agencies in other countries. Where possible, it would be very beneficial to mention the name of person/agency that furnished the investor's name to the promotion officer.

A typical introductory letter would include the following elements:

- Name (source) from whom name of contact person was obtained and the officer's relationship with that source.
- Mention of the benefits that the contacted company will gain by setting up in Jordan. The benefits should, at least, include the main selling points relevant to the country (see section 5.3) in which the company operates. More effective letters are ones that include specific remedies, for the particular organization by moving to Jordan – market access constraints, high operating costs, low profit margins, etc. Awareness of such specific constraints comes

from research via databases and other sources as stated above. It is also important to compile a list of relevant companies (along with their profiles, previous outsourcing experience, and contact information) with which target companies would likely initiate outsourcing/partnership agreements.
- Mention of other companies from the same market who had already outsourced part of their ICT-related functions to Jordanian ICT companies and/or invested in Jordan.
- Introduction to relevant industry and investment related stakeholders (JIB, MOICT, Int@j) and their roles as facilitators in the setup and operation processes.
- An indication of next steps – follow-up call by the promotion officer, invitation to an event planned by any of Jordanian ICT industry stakeholders.

By this stage in the process, the promotion officer is trying to build a relationship with the investor; therefore, any reply from the investor (in whatever form) must be responded to without delay, to build on the interest generated by the introductory letter. On most occasions, investors do not reply to introductory letters and following letters or phone calls must be made in the hope of instigating a reaction from the contacted investors. Follow-up letters could be about developments in the ICT industry affecting Jordan or the investor, or about events that are planned in Jordan, region or investors' markets. Suggestions on topics to be used in follow-up communications are:

- Developments on market access to regional and global countries
- Success stories of selected ICT companies operating in Jordan
- Stories of companies/investments who have located to Jordan (if any)
- Actions by Jordanian government to improve the investment environment in Jordan
- Events planned in Jordan or target market
- Developments in the performance of the specific company (if available)

Once a number of investors in a certain market have been identified/contacted, and/or relationships built with associations located in that market, then the time is ripe to execute a promotion mission and try to arrange a meeting, which will ultimately generate investors site visits to Jordan.

To help arrange for meetings with the right persons at the targeted company, personal contacts are usually very important. For a country like Jordan with very few descendants living and working as professionals in senior industry positions in the USA and Europe, one must look for other contacts to capitalize on like:

1. Leading figures in Industry, in the targeted country, who have links to Jordan. Craig Barrett's (CEO of Intel) is a good example. His recent visit to Jordan could have been capitalized on, by requesting from him to arrange for senior executives in associated companies to meet with senior officials of JIB within a few weeks of his visit.
2. Request assistance from the Big 4 accounting firms in Jordan to arrange for meetings, or even seminars, through their offices in targeted markets. Almost all the big players in the ICT sector are clients of Ernst &Young, PriceWaterhouseCoopers, KPMG and Deloitte & Touche.
3. Leading figures in Jordan.

These meetings can be made during the scoping and promotion missions:

Investor Targeting and Missions

ICT Road Shows and ICT industry events: Attendance at one ICT trade show is suggested during the course of each year. These should be scheduled at the discretion of the management. In particular, ICT industry events might be a good activity to engage in. Trade

shows and events should be staffed by two officers, who can simultaneously entertain inquiries from interested individuals and network with other show participants.

Scoping Mission: This strategy calls for a scoping mission to each target country during the first year of market penetration. These missions allow promotion officers to familiarize themselves with industry associations and dynamics of the ICT sector in each market. Suggested ICT scoping missions in the first year is to the Saudi Arabia, Kuwait, and Bahrain, followed by one to Germany, and the UK in the second year, and one to the US in the third year. These trips will require about one month planning and preparation. It is suggested that these scoping missions should be used to co-opt assistance from ICT associations or other organizations such as the Chambers of Commerce and Industry.

Promotion Mission: Promotion missions follow approximately four to six weeks after each scoping mission. In Year 1, outward promotion missions are suggested to Saudi Arabia, Kuwait, and Bahrain. In years two and three, similar outward missions to Germany, and the UK, as well as one to the USA are suggested. Outward promotion missions work well in countries with active and centralized ICT industry associations, where members are within relative proximity of the association location. For this reason, these types of promotions missions are typically easier to organize in European markets than in regional markets.

First time missions include sector specific seminar(s) conducted by the investment promotion officer (could be accompanied by industry expert for support), followed by introductions to the audience and exchange of business information – this typically takes place over dinner hosted by the promotion agency. One-to-one meetings are planned for the days that follow the seminar in which the promotion officer has the first real chance to meet with investors and convince them of the details of the benefits Jordan has to offer – this is a very critical function in the process, thus the promotion officer must acquire the necessary persuasion and presentation skills to channel the investor into finding real value in the Jordanian option. Follow-up missions might be required before any of the investors met on the first trip are convinced to visit Jordan.

Site Visits and Project Handling: When an investor decides to visit Jordan, little must be left to chance. Therefore, the promotion officer needs to accompany him/her through-out the trip making sure that all questions and concerns are answered and that a positive impression of Jordan is given. Not every investor who visits will ultimately invest, however this should be the goal of any promotion officer.

According to UNCTAD blue book on best practice in investment promotion and facilitation, it is best to

- Tailor the visit to the investor's specific needs and interests – The IPU at MOICT will need to identify the appropriate people in the public and private sectors who are relevant to the investor's project.
- Assign one officer to manage the entire visit (often referred to as the "account executive" approach), so that the prospective investor knows exactly who is handling the visit, can address all requests to that person, and there is clear accountability for the site visit.
- If the visiting company is a major one, a senior official from MOICT ought to manage the site visits to emphasize the importance of that particular investor.

The aim of project handling is to convert an investment enquiry into an actual investment.

The relationship between the investor and the officer continues even during the setup stage of the project, when the officer acts as facilitator to expedite the processing of all requirements on behalf of the investor.

In this regard, investors may require a lot of assistance from the IPU in facilitating the investment approval, getting the maximum incentives offered by the GOJ for their project, and working through the bureaucracy to complete the registration process and obtain the required permits and licenses. Failure to provide adequate assistance through the bureaucracy in getting the project established could cause the investor to back out of the commitment.

The IPU should be able to answer all the investors' questions that are related to the government regulations, taxes, incentives, customs, financing mechanism, etc.

Aftercare: After-care refers to the post-investment services that the investment promotion unit can offer both for new investment and upgrading the quality of existing projects over time. The objectives of after-care include:

- Supporting re-investment by existing investors.
- Generate new leads: by using existing investors as "ambassadors" who will influence other firms to consider the country as an investment site.

Once the investor's project is operating, the IPU's job in helping investors is still not over. It should be remembered that companies are extremely mobile these days and will quickly leave one location for another if they encounter severe constraints. Even after starting up, the investor might need additional or unforeseen assistance that the IPU can render.

Usually this function is downsized by investment promotion agencies; however, it is important to note that existing investors are one of the greatest sources of new investments in any particular location.

For all the above promotional approaches, refer to appendix F for a detailed implementation work-plan. In order to add content to the promotional material and build Jordan's case for attracting ICT investments, the promotional approached would be enhanced if the IPU at MOICT undertook the following activities:

Develop expertise in the use of web casting technologies that can enhance the communication experience and provide differentiation as well.

In a sense, web casting is similar to traditional television and radio broadcasts. Companies, trade groups and ministry may offer on-line overview of product offering, press releases, government initiatives and other newsworthy information in which the organization Web casts a pre-recorded or live message. A web cast can support and audio only transition, or include video and other multimedia content as well.

Web casting is becoming increasingly popular and can provide an effective means to reach an international audience.

Develop public – private sector case studies to establish credibility of Jordan's capabilities. There are few better means of doing so then with the development and promotion of business success stories illustrating the value proposition delivered. For example: The ICT sector has achieved a high profile from successful e-learning and e-government efforts. Increasing the profile of private sector successes which address private sector needs will increase the credibility of the Jordanian ICT platform among potential investors and business partners. It is likely that e-learning and e-government successes can be adapted to address local private sector enterprises as well. This affords the flexibility to highlight competitive niches, competitive companies, along with linkages to market opportunities as they emerge

A successful example of Jordan public-private sector partnership case study in e-learning is the Jordan Education Initiative (JEI). JEI's vision is being "a global capacity building model of effective public-private partnership that leverages reform to generate value through innovation," and a mission of "accelerating education reform through a public-private partnership model that drives innovation and capability." The following are the objectives of the JEI:

- Improve the development and delivery of education to Jordan's citizens through public-private partnerships, and in the process help the governments of Jordan achieve its vision for education as a catalyst for social and economic development.
- Encourage the development of an efficient public-private model for the acceleration of educational reforms in developing countries based on unleashing the innovation of teachers and students through the effective use of ICT
- Build the capacity of the local information technology industry for the development of innovative learning solutions in partnership with world class firms, creating economic value that will lead to mutually beneficial business opportunities
- Leverage an environment of national government commitment and corporate citizenship to build a model of reform that can be exported to and replicated in other countries (e.g. Jordan Education Initiative).

Organizations such as Cisco Systems, HP, Microsoft, and Intel have committed resources to Jordan's ICT efforts. The development of brief, concise case studies on these partnerships can be used to validate the commitment of the partners and present Jordanian ICT firm's ability to pursue the ICT market.

Case studies should include the following information:

- the type of opportunity addressed or problem solved by the partnership;
- skills acquired by or transferred to participants during the partnership;
- assessment of how the participants characterize the success of the investment;
- Lessons learned by Jordan and it partners from these partnerships; and
- Description of follow-on activities that demonstrate the sustainability of the project.

Develop business success stories. While government sponsored efforts has attracted potential investors and partners to consider Jordanian ICT capabilities, its people and businesses will be the focus of investment decisions. The process of investment review will examine many variables and fundamentally address the potential for cost leadership and/or product differentiation in ICT markets. The development of ICT business success stories should be clear and concise supporting the value proposition of their business franchise.

Cost leadership presents a firm's competence as a low cost producer of services and/or products at a particular quality level. Pursing a product differentiation strategy requires the development and delivery of solutions valued by customers and perceived to be better than those provided by competitors. This strategy should allow firms to maintain premium pricing. ICT solution providers are likely to approach their market with a hybrid strategy driven by customers seeking a combination of quality, convenience, and price.

Promotional efforts should be prepared to address the following topics with potential investors: 1) a firm's value proposition (cost leadership/product differentiation), 2) the size of

the market addressed, 3) the firm approach to its market, strategically (with a three-year plan) or tactical (opportunistic transactions) and 4) the firm's pricing power with clients and prospects.

The Jordan Training Technology Group (Rubicon) is a successful example in this regard. After two years of being incubated in Jordan Technology Group, in 1994 Rubicon became an independent firm of a small size employing only 3 people. Ten years down the road, Rubicon is now the leading multimedia software development company in Jordan, employing about 150 people. Over the years, the company has developed a range of state-of-the-art e-education and e-training products in an entertaining manner, so-called "edutainment" . Rubicon also provides its clients with a variety of services including custom-developed enterprise solutions, multimedia presentations, and animation services.

With this spectrum of niche services and products, Rubicon has developed substantial intellectual property and generated a list of reputable clients internationally.

In addition to Rubicon's growing relationship with regional networks such as the Arab Radio & Television (ART) network and Cartoon Channel, its partnership agreements have been expanded to include one of the biggest global players "Cisco," which in 2003 invested US$ 1 million in Rubicon to develop part of their "edutainment" program. Cisco approached Rubicon when (through the WEF) they realized that the latter were the region's only developers of animated-education programs.

In July 2002, Rubicon and the US-based Fat Rock Entertainment (FRE) company signed a partnership agreement to produce three dimensional cartoon and animated movies. According to this agreement FRE will outsource part of its animation work to Rubicon. FRE will also provide Rubicon's staff with the necessary training in California and will transfer to the company the know-how and best practice it needs to reach "bondable" studio production quality within less than two years. Achieving "bondable" studio quality is recognized in the industry as reaching the highest levels of quality in animation production, and allows studios to borrow against the value of future contracts without security deposits or guarantees. In order to diversify Rubicon's customer base, FRE is also committed to introducing Rubicon to at least three additional animation production studios in Europe and the US. Other technical partners include Charlie Webber (former president of LUCAS films, David Pritchard, winner of three Emmy awards and producer of the Simpsons, and Paula Sabella, former president of Hanna Barbera Animation and one of the world's leading animation directors.

Rubicon sponsors and major shareholders are Ms. Randa Ayoubi, CEO of Rubicon, and Jordan Technology Group, in addition to other private investors including, Injazat Technology Fund[19] and Utopia holding[20].

Realizing its wide client base in the Gulf and the US, Rubicon has recently set up two sales offices abroad, one in Dubai and the other in Washington. Rubicon now, is competing at global and regional levels in terms of quality, specialized, and innovative services and products that are usually set, relatively, at the high end of the pricing ladder.

5.6.2. Export Promotion

ICT Export promotion could be seen as part of the process of attracting outsourcing-related activities and partnerships. In section 4.2, it was recommended that initial focus should be on consolidating the local ICT industry and attract DDI into it. This is to be followed by attempts to attract regional investors that are wishing to establish export-oriented ICT

[19] Injazat Technology Fund is the premier venture capital firm in the MENA region.
[20] Utopia Holdings is a Gulf based investor that made an equity investment in Rubicon in 1998.

companies and then to attract outsourcing activities from American and European ICT companies. Outsourcing activities of American and European ICT companies are expected to eventually yield great trust and dependency on the ICT local "outsourced to" companies, which will eventually result in partnerships, enhanced exports and finally investment into the local Jordanian partner.

IT outsourcing continues to dominate in the industry; in particular, today's global marketplace is seeing an increasing number of companies, both multi-nationals and service providers, moving towards Business Process Outsourcing arena. Many business processes are being outsourced such as transaction processing, accounting, corporate identity design, promotional material, human resources, help desk support, call centers, multimedia and customer support.

Even though India has established itself as the undisputed leader in the global outsourcing market, many firms are choosing near-shore destinations due to proximity and cultural closeness.

As the global outsourcing market demand increases, there is a corresponding increase in the supply of outsourcing service providers. According to An outsourcing survey done by Trestle Group in 2004, the following are the top five selection factors that firms use when choosing a service provider: specific skills, references and/or reputation, price, geographic location, language/culture, ranked from the most important to the least important respectively.

In order to increase Jordan's exports, increasing Jordan's attractiveness as an outsourcing destination is essential. Therefore, promotion efforts should work on enhancing Jordan's position regarding the five selection factors mentioned above.

Jordan being positioned in a strategic location in the Middle East, in addition to its proximity to Europe, can be attractive as an outsourcing destination, especially with its labor force bi-lingual abilities and cultural closeness to the region that can position Jordan as an attractive destination. However, Jordan can enhance its competitiveness in the outsourcing market through:

Jordan ICT promotion efforts should approach organizations that play the role of intermediaries between outsourcers and service providers: To help current and prospective buyers of outsourcing services gain strategic intelligence about how they should expect Jordanian service providers to address their demands, promotional efforts should compile a list of Jordanian ICT firms with details on their field of specialization, costs, staffing, and contact information for buyers of outsourcing services to choose.

Examples of outsourcing intermediaries are:

- Trestle Group www.trestlegroup.com: Trestle Group is an international consulting firm providing the bridge between companies and outsourcing providers around the world.
- TPI www.tpi.net: TPI is a global sourcing advisory firm that helps corporations throughout the Americas, Europe and Asia Pacific make informed, lasting and substantial improvements in their performance through the use of sourcing. TPI help corporations to evaluate, negotiate, implement and manage their information technology and business process sourcing initiatives.

Participate in international outsourcing events: An example of such an event is OutsourceWorld outsourcing events www.outsourceworld.org.

Encourage off-shore-related labor force to enroll in intensive English speaking accent (American/British) courses: According to a survey conducted by Call Center Magazine and a sister publication, Managing Offshore, nearly two-thirds of consumers and nearly two-thirds of businesses polled cited difficulties with agents' accents as their top problems with call centers they thought were handling calls overseas. Another survey of American consumers by customer service research outfit BenchmarkPortal found that 65% of respondents would make different purchasing decisions if they knew or believed that the agents they were speaking with were answering calls offshore.

Build on Jordan's specialized skills and reputation in the region to reach a global recognition for the provision of outsourcing services: This can be achieved through a targeted marketing plan for the Jordan's ICT market, niche specializations, and the dissemination of clients' satisfaction statements and orchestrating outsourcing successes. This can be done through a multitude of marketing channels (ICT and business magazines, press releases in American and European newspapers, MOICT website, etc.)

More implementation details can be found in appendix F "Implementation work-plan"

5.6.3 Capacity Building Activities

In order to develop promotional activities of the IPU at MOICT, and given that this unit is newly established, the following capacity building activities are recommended:

Familiarization with the ICT 3-year investment and trade promotion strategy: The primary objective is to further familiarize the unit's team members with the ICT three-year Investment and Trade Promotion Strategy. This can be done through 2-3 working sessions attended by the IPU team members.

It is advised to go for less formal, more interactive sessions, aiming at familiarizing the team with the strategy document, with emphasis on the operational side of it.

Soft skills Training: in order to build the team's capacities in communication and other skills. As a subject, "communications" should be acknowledged to cover a spectrum of skills that are essential to conducting effective business sessions and meetings, in addition to delivering powerful presentations.

Utilization of recognized tools for effective investment promotion - Investor Tracking System (ITS): Effective selling requires a good investor leads tracking system that tracks prospects throughout the investment promotion cycle (from inquiry to investment lead to commitment to investment to actual investments, after-care and follow-up). Installing an ITS in the Investment Promotion Unit (IPU) will enable the unit to more effectively manage its relationship with contacts, potential investors, and established firms. This system allows staff to input, update and follow-up on target investors, investment leads, and existent investors. The ITS helps integrate business development activities (such as outward missions), customer service / care and customer information tools together in one package.

According to UNCTAD blue book on best practice in investment promotion and facilitation, effective Investment Promotion Agencies exhibit a:

- Demonstrated use of tracking software, including the follow-up and rekindling of leads;
- Good record of success in using the investor tracking system in a sustained and systematic manner; and
- The existence of a complete history of all investor leads and activities available to all officers and account executives in the agency.

Also, UNCTAD recommended to computerize this system, and listed the following key elements that any effective system should include:

- Investment project tracing – to accurately record the nature of the project being proposed and the major characteristics of the proposed investment;
- Contact management – monitoring the types and frequency of the contacts made with the investor to facilitate timely follow up and required actions;
- Work management – tracking the various work elements that the investment promotion officer needs to carry out in order to progress the investor through the investment promotion cycle. This includes correspondence, assisting with investor visits, etc;
- Investor servicing – recording the types of assistance that the investor requires both from the IPU and from other agencies such as customs, business consultants, lawyers, etc;
- Permits and authorization tracking – maintaining a comprehensive record of all the permits and licenses that the investor requires and the status of applications for those permits and licenses;
- Management reporting – providing the senior management of the investment promotion agency with accurate and timely information on the processing of an investment proposal, and permitting the monitoring and evaluation of the performance of investment promotion officers.

Based on the above the following are the action items that should be taken by the IPU:

- Design specification review of the needed system
- Identify and select an appropriate ITS according to unit's needs and required specifications.
- Install the system and customize it according to the units needs and specifications
- Train the users to operate the system and ensure accessibility to it to each member of the IPU's staff.
- Ensure that the system is in use in a sustainable manner.

Utilization of recognized tools for effective investment promotion – business intelligence database: In the selection process, it is important that the acquired database include detailed contact information, company profile, business description, business activities, subsidiaries, sub-lines of production, financial health, biographies of executives and their contacts. Additionally, availability of ICT-industry overview, macro-level perspective of analysts' reports, industry trends, market norms, and the like, can be of benefit.

Despite the effectiveness of this tool, it is important to keep in mind that the key to lead generation is relationship building, and identification of potential investors can be useful in providing an initial list of companies from which to begin the process.

As the IPU (according to this strategy) should be targeting activities as well as sectors, traditional company targeting becomes more difficult. Activities such as e-banking, outsourcing, e-government , etc. cut-across sectors and do not fit into standard business classification databases

5.7 Annual Investment Targets

A focused promotional plan starts by targeting ICT investments of around US$ 5 million each, employing some 50, and going after selected markets (as identified above). Annual investments are expected to increase. The following table summarizes the foreseen investment targets in year 1 from this targeting effort:

Table 5.2 : Suggested Targets (Year 1)

Type of Project	No. of projects	Value (US$) per project	Jobs created
Joint ventures	1	5 million	50
Financial investors	1	5 million	50
Outsourcing agreement	2-3	-	-

Using a management by objectives approach, it was assumed that 15% of the business meetings are translated to site visits. Of these, only 6% are likely to be translated into actual investments. These assumptions were drawn from a similar exercise that was applied for the Aqaba Special Economic Zone Authority (ASEZA) for their 3-year marketing strategy. Realization rates in that exercise averaged 20% of business meetings to site visits and ranged between 10%, at best, to 6%, at worst, of site visits to actual investment. Based on this conservative assumption of 15%, 6% (business meetings to site visits, and site visits to actual investments respectively), the following are year 1 investment and contacts targets:

Investment Projects: IPU staff must secure 1 ICT investment, 1 financial investment, and coordinate 2-3 outsourcing agreement(s).

Site Visits: IPU staff must generate at least 16-17 site visits to Jordan by ICT investors, and 16-17 by financial investors.

Business Meetings: IPU staff must conduct direct business meetings or promotion events that reach at least 115 ICT potential investors (an average of about 57 per target market), and 115 financial potential investors (an average of about 38 per target market).

Overseas Trips: at minimum, the IPU staff, collectively, must make 7 overseas trips to undertake scoping and promotion missions, and attend trade shows and relevant conferences, in addition to outsourcing events.

The following table details the contact goals for year 1.

Table 5.3: Year 1 – Contact Goals

Targeted Sector/Activity	Market	Number of Staff Trips	Business Meetings	Site Visits Generated	Investment Projects
ICT Investors	Saudi Arabia	2	57	17	1
	Kuwait	2	57		
	1 Trade Show	1			
	1 ICT Conference	1			

Financial Investors	Saudi Arabia	-	38	16	1
	Kuwait	-	38		
	Bahrain	2	38		
Outsourcing agreements	1 Outsourcing Event	1			2-3
Unspec.	Discretionary Trips	1			
ALL	Total	10	228	33	4

5.8 Resource Requirements

To achieve the above targets, the following resources should be in place:

Personnel: At least two ICT investment promotion officers dedicated to investment promotion functions directly related to the ICT and a researcher to use the necessary databases and other research tools to identify potential investors.

Tools:

a) a database of the ICT industry that provides information on trends, agreements and latest developments in the sector, as well as general information on public companies is required. Databases on selected regions that have more specific information on associations and companies operating in that region that include technical and market trend-related articles are also helpful. However, these are usually obtained through monthly subscriptions.

b) Investor Tracking System (ITS) to track all communications made with potential investors, responses, correspondence, meetings, etc. (see section 5.6.3 Capacity Building Activities)

Financial Resources: MOICT needs to allocate a set annual budget for ICT promotion activities and expenses. The budget should cover tickets and costs associated with three outward missions, subscriptions to databases, investor site visit expenses, and communication costs and associated marketing material. Budget associated with all promotional activities are estimated in the detailed 1-year implementation work-plan in appendix F.

Appendix A: Scope of Work

I. Specific Challenges Addressed by this Consultancy

Jordan's IT sector consists of approximately 100 value-adding companies employing about 3,000 technical staff out of total employment of about 5,000. Total domestic sales in 2002 was $26 million. While this represents a substantial increase over 2001 sales of less than $9 million, it is small when compared t to regions such as Egypt. Major areas of expertise include the development and support of accounting packages, web-based applications, arabization, CBT Banking, system integration, health, insurance packages, and software conversion. These efforts support the following sectors: banks, hospitals, hotels, insurance companies, universities, and Government.

Over the past several years, the Government of Jordan, driven in part by the interest and commitment of H.M. King Abdullah II, has identified the IT sector as one of its central economic development priorities. The REACH Initiative, launched in 1999 with royal support and placed under the tutelage of the Ministry of Information and Communications Technology (MOICT), set ambitious goals for development of Jordan's IT sector. Their 2004 targets included: $150 million in cumulative FDI, creation of 30,000 new jobs and $550 million in annual sector export. Jordanian organizations supporting the achieve of these goals include: MOICT, recently created to provide dedicated government support for IT issues; int@j, the dynamic business association of IT companies; the ongoing REACH Initiative, which stimulates rigorous collaboration between the public and private sectors in developing the IT sector; and the periodic ICT Forum, which regularly focuses international attention on Jordan's ICT sector.

Efforts to date, however, have not translated into a substantial inflow of FDI to the sector. The Jordanian ICT sector has registered by far the most rapid growth in FDI of any sector, averaging over 300% per year (1997 through 2002); but, this growth rate reflects the small size of the sector relative to the total economy (1% of total FDI since 1997).

International investment to date has included France Télécom's acquisition of 40% of Jordan Telecom, Orascom (Egypt) building the first mobile telephony network–Fastlink, and Microsoft's investment in Estarta Solutions, a joint venture involving One World Jordan and a regional venture capital group. (The amount of Microsoft's investment is not known.). Intel and Sun Microsystems, have expressed interest in Jordan, but have participated in training and incubator programs in collaboration with local institutions.

Since the REACH Initiative's launch in 1999, the Jordan Investment Board (JIB) has approved about $25 million for investment in the ICT sector, with about $20 million of funding from foreign sources. The amount of these funds which have lead to actual investment is unknown. However, it is believed that with the investment approvals being granted in 2002 (i.e., two-thirds of the dollar value of total investment and 80% of the foreign component), it is likely that some projects were cancelled because of political turmoil in the region. Even if all approvals result in actual investment, it is unlikely that Jordan will meet its stated target of $150 million in cumulative IT investment by 2004

In the third annual review of the REACH Initiative (September 2002), the Chairman of int@j admitted that this target is too ambitious. A number of factors may contribute to the shortfall.

First, a survey conducted by int@j in 2001 of domestic investors in Jordan's ICT sector provided a mixed picture of the investment climate. Issues identified included 1) excessive regulation, 2) limited skilled manpower (due largely to the brain drain to the Gulf countries), 3) lack of management and marketing skills, and 4) limited access to capital.

Second, Jordan's geographic neighbors provide competitive challenges: Israel has access to significant capital and advanced technology resources; Dubai, has vast capital resources, a more favorable tax regime, and the ability to attract almost limitless numbers of skilled workers; and Egypt has lower operating costs, a larger domestic market, and a larger pool of skilled workers.

Finally, Jordan ICT investment promote efforts have been uncoordinated and unfocused. While JIB has the legal mandate as the lead national investment promotion agency, its resources are limited and its performance has generally been poor. Entities, such as MOICT and int@j, have pursued their own initiatives to compensate. Efforts by these entities have generally been pursued on an ad hoc basis, in the absence of any strategy.

In the short term, Jordan's ICT sector may not become a mass employer, major source of FDI, or principal engine of economic advancement that Government envisions. It can however become an important source of investment and skills development. Development of the ICT sector can be a critical step in the country's economic evolution from low-margin, labor-intensive manufacturing toward knowledge-intensive and high value-added activities.

As Jordan develops its ICT sector, it must compete against well-funded and low-cost rivals. To realize its potential, it must identify areas where it provides advantage and develop a highly-focused strategy to attract investment in those areas. This strategy must be pursued in a coordinate manner.

II. Objective

The objective of this consultancy is to evaluate Jordan's competitive position in the ICT sector, identify the particular areas within that sector in which it enjoys advantage, and develop an appropriate three-year national export and investment promotion strategy.

III. Specific Tasks of the Consultant(s)

Under this Scope of Work, the Consultant(s) shall perform, but not be limited to, the tasks specified under the following categories.

A. Background Reading Related to Understanding the Work (Week 1)

Consultant shall read, but is not limited to, relevant sections of the following materials to fully understand the work specified under this consultancy.

JID

- AMIR Program. Lead consultant scope of work for "Investment Promotion Strategy: Information & Communications Technology" task
- AMIR Program. "Jordan Investor Targeting Strategy 2003" (May 2003)
- AMIR Program. "Investment Promotion Sectoral Strategy: Methodology" (April 2004)
- AMIR 2.0 Technical Proposal

B. Background Interviews Related to Understanding the Work (Weeks 2-3)

The Consultant shall contact following individuals to obtain input on the focus of the work specified under this consultancy. Contact will be a combination of e-mail, telephone or in-person meeting.

JID

	Organization	**Position**	**Contact**

1.	AMIR Program	PSPI Team Leader	Greta Boye
2.	AMIR Program	Investment Promotion Subcomponent Leader	Brad Fusco
3.	AMIR Program	Acting ICTI Team Leader	Abdelmajeed Shamlawi
4.	AMIR Program	e-Initiative Specialist	Razan Fasheh
5.	AMIR Program	Consultant	Paul Dravis
6.	AMIR Program	Consultant	Majied Al Qassim

C. Tasks Related to Achieving the Consultancy's Objectives

The Consultant shall use his education, considerable experience, and additional understanding gleaned from the tasks specified in A. and B. above to:

JID

1.0 Guide Application of Investment Promotion Strategy Development Methodology

Introduce consultants to the methodology for the formulation of investment promotion strategies that has been developed on behalf of the Jordan Investment Board. Guide the consultants in tailoring and applying that methodology to their consideration of the ICT sector.

Appendix B: Draft ICT Industry Specification

SIC Code				
Division	Group	Class / Subclass	Description	Specfic Service
22			Publishing, Printing and Reproduction of Recorded Media	
	22.3		Reproduction of recorded media	
		22.33	Reproduction of computer media	Computer media reproduction
				Software reproduction from master copies
30			Manufacture of Electrical and Optical Equipment	
	30.0		Manufacture of Office Machinery and Computers	
		30.02	Manufacture of computers and other information processing equipment	
	51.8		Wholesale of machinery, equipment and supplies	
		51.84	Wholesale of computers, computer peripheral equipment and software	Computers and peripheral equipment
	52.4		Other retail sale of new goods in specialised stores	
		52.48/2	Retail sale of photographic, optical and precision equipment, office supplies and equipment (including computers)	Computers
				Software (non-customised)
				Telecommunications equipment
	52.6		Retail sale not in stores	
		52.61	Retail sale via mail order house	Internet retail sales
		52.63	Other non-store retail sale	Internet auctions
	64.2		Telecommunications	
		64.20	Telecommunications	Cable service
				Data network management and support services
				Data transmission (via cables, broadcasting, relay or satellite)
				Dedicated business telephone network services
				Electronic bulletin board services
				Electronic mail services
				Electronic message and information services
				Image transmission via cables, broadcasting, relay or satellite
				Internet access providers
				Mobile telephone services
				Paging services
				Telecommunication network maintenance
				Teleconferencing services
				Telephone communication
				Telephone exchange
				Telephone service
				Telephone service operation of 0900 / 0800 numbers
72			Computer and Related Activities	
	72.1		Hardware consultancy	
		72.10	Hardware consultancy	Computer audit consultancy services
				Computer hardware acceptance testing services
				Computer site planning services
				Hardware disaster recovery services
				Hardware consultancy
				Hardware installation services
	72.2		Software consultancy and supply	
		72.21	Publishing of software	Ready-made software publishing
		72.22	Other software consultancy and supply	Data archiving and backup services
				Computer games design
				Custom software development
				Data analysis consultancy services
				Information systems strategic review and planning services
				Programming services
				Software disaster recovery services
				Software house
				Software systems maintenance services
				System maintenance and support services
				System software acceptance testing consultancy services
				Systems analysis (computer)
				Systems and technical consultancy services
				Web page design
	72.3		Data processing	
		72.30	Data processing	Batch processing
				Data conversion
				Data preparation services
				Data processing
				Tabulating service
				Time sharing services (computer)
				Web hosting
		72.40	Database activities	
		72.40	Database activities	Database activities
				On-line database publishing
				On-line directory publishing
				On-line mailing list publishing
				On-line publishing n.e.c.
				Web search portals
	72.5		Maintenance and repair of office, accounting and computing machinery	
		72.50	Maintenance and repair of office, accounting and computing machinery	Repair and maintenance of computing machinery
	72.6		Other computer related activities	
		72.60	Other computer related activities	
74			Other Business Activities	
		74.13	Market research and public opinion polling	
		74.14	Business and management consultancy activities	
		74.14/1	Public Relations activities	
		74.14/2	Financial management	
		74.14/3	General management consultancy activities	
		74.86	Call centre activities	

Appendix C: Proposed ICT sub-sectors as interpreted from UK SIC standard, and Jordan's ICT landscape

Sub-Sector	Description	Interpreted SIC Services	
Wholesale and retail of computers, computer peripheral equipment and software	PCs, Servers, Printers, associated accessories and parts, and other equipment	• Computers and peripheral equipment sales • Repair and maintenance of computing machinery	• Software (non-customized) • Networking equipment*
Telecommunication	This class includes transmission of sound, images, data or other information via cables, broadcasting, Wireless, or satellite: 1. Telephone, telegraph and telex communication 2. Maintenance of the network 3. Transmission (transport) of radio and television programs 4. Internet access provision	• Cable service • Data network management and support services • Data transmission (via cables, broadcasting, relay or satellite) • Dedicated business telephone network services • Electronic bulletin board services • Internet access providers • Mobile telephone services • Electronic message and information services	• Paging services • Telecommunication network maintenance • Teleconferencing services • Telephone communication • Telephone exchange • Telephone service • Telephone service operation of 0900 / 0800 numbers • Image transmission via cables, broadcasting, relay or satellite • Electronic mail services
Software Outsourcing, Integration, and Consultancy	Analysis, design and programming of systems ready to use: 1. Analysis of the user's needs and problems, consultancy on the best solution 2. Development, production, supply and documentation of made-to-order software based on orders from specific users 3. Writing of programs following directives of the user 4. Web page design	• Data archiving and backup services • Computer games design • Custom software development • Data analysis consultancy services • Information systems strategic review and planning services • Programming services • Software disaster recovery services • Web page design	• Software house • Software systems maintenance services • System maintenance and support services • System software acceptance testing consultancy services • Systems analysis (computer) • Systems and technical consultancy services
Hardware Consultancy	Consultancy on type and configuration of hardware and associated software application by analyzing the users' needs and problems and presenting the best solution	• Computer audit consultancy services • Computer hardware acceptance testing services • Computer site planning services	• Hardware disaster recovery services • Hardware consultancy • Hardware installation services
Data Processing	1. Processing of data employing either the customer's or a proprietary program: a. Complete processing of data b. Data entry services c. Scanning of documents 2. management and operation on a continuing basis of data processing facilities belonging to others 3. web hosting 4. database related activities: provision of data in a certain order or sequence, by on-line data retrieval or accessibility (computerized management) to everybody or to limited users, sorted on demand	• Batch processing • Data conversion • Data preparation services • Data processing	• Tabulating service • Time sharing services (computer) • Web hosting
On-line Content*	1. On-line database publishing 2. On-line directory and mailing list publishing 3. Other on-line publishing 4. Web search portals	• On-line database publishing • On-line directory publishing	• On-line mailing list publishing • On-line publishing • Web search portals

Call Center Activities		• Client relation and client service related technical intermediary services for the account of others • Telephone integration or interactive voice response systems: o placing orders o providing product information o dealing with complaints	• Inbound call centers answering calls from clients by using automatic call distribution, computer • Outbound call centers dealing with sales and marketing activities directed towards clients o market research o direct marketing o address verification
On-line Commerce*		• Internet retail sales • On-line payment	• Internet auctions
Support Services*		• Market research and public opinion polling • Public Relations activities • Financial management	• Business and management consultancy activities • General management consultancy activities

* These sub-sectors are not explicitly covered under the UK SIC. They are a hybrid of the UK SIC and Jordan existing ICT sub-sector classification

Appendix D: Selected Global ICT Case Studies

Ireland: The Evolution of their ICT Success

Ireland's economic success has attracted international attention. During the 1990s, rapid output and employment growth helped reduce the gap in living standards with the rest of the European Union and an inflow of foreign direct investment, primarily from the United States, reduced the dependence on agriculture and low-productivity industries.

Today, Ireland is considered an attractive location for investment in the ICT sector. Leading companies have operations that have expanded to take advantage of Ireland's competitive capabilities. Over 300 foreign ICT companies including Apple, IBM, Intel, Hewlett Packard, Dell and Microsoft employ 45,000 to develop, market, manufacture, and support a wide range of products in Ireland. Functions such as shared back office services, supply chain management, technical support, software development and R&D are increasingly included in the range of operations needs being addressed. In 2003, exports in the ICT sector exceeded €21 billion, representing 26% of all exports.

Background. After achieving independence in 1922, Ireland pursed an economic strategy that relied on small-scale agriculture, exports to the UK market, and manufacturing targeting needs in the domestic market. This strategy, coupled with high tariffs, resulted in economic stagnation and emigration.

Starting in 1958, policy changes were introduced, controls on foreign ownership were removed, foreign direct investment was encouraged and moves to promote free trade were initiated. These changes, along with an increased investment in education, a focus on internal investment based on low costs, and an efficient English-speaking workforce provided a foundation for the country's economic recovery.

A Period of Transition. In 1973, Ireland's membership in the EEC enhanced its economic development. From 1973 to 1981, foreign direct investment increased by more than 27% per year. At the same time, however, traditional businesses were impacted by severe competition and from 1973 to 1988, 75% of domestic textile and apparel firms and 50% of domestic metal and engineering organizations failed. The countries unemployment rate exceeded 17% in 1986, emigration rose, and from 1980-1985 there were large government deficits.

During this period, Ireland's mindset changed. By 1987, Ireland was committed to open markets, and understood that competitiveness required focus and discipline. At the same time, crisis management was pursued by a new government. Significant public spending cuts were introduced and The Program for National Recovery established national development priorities, committed to moderate wage increases, and introduced personal taxes reductions. These actions helped restore confidence in the management of the public finances, break a cycle of inflationary wage expectations, improve relationships with the commercial sector, and establish an on-going focus on economic development reform.

The Drivers of Foreign Direct Investment. During the 1990s, Ireland was positioned for growth and benefited from the following factors: 1) rapid technological advances in industries where Ireland could offer competitive advantages, 2) the US economy continued to surge and US businesses in high-growth sectors invested in the increasingly integrated EU market, 3) Ireland offered US firms a convenient platform from which to supply and support European customers, 4) Ireland provided the lowest corporate tax rate (12.5%) in the EU and 5) Ireland's industrial promotion agency, the Industrial Development Authority targeting of foreign investment with an emphasis on technology industries.

The current status. The FDI attractiveness of Ireland continues to be supported by its well-educated skilled workers, wages that are low compared with mainland Europe, and the benefits of a low corporate tax rate.

As the Irish government continues its commitment to encouraging foreign direct investment market, foreign firms have also identified the following business attributes that contribute to the Ireland success story:

- A competitive telecom and e-commerce infrastructure that can support the provision of logistics, call center and customer service needs in all countries in the EMEA region.
- Multi-functional skills across technical, engineering, business, financial and interpersonal areas.
- Management skills providing research and development, sales and marketing, distribution, manufacturing, treasury, operational and manufacturing expertise
- Access to multilingual skills for communicate with clients in German, French, Italian, Spanish, Dutch, Swedish and Finnish along with capabilities to support product localization in over 30 different languages worldwide
- Software skills supporting functions such as client development, localization tools, hosting, search engine technology, e-commerce and billing systems.

Infosys Technologies: Where India's ICT Franchise Started

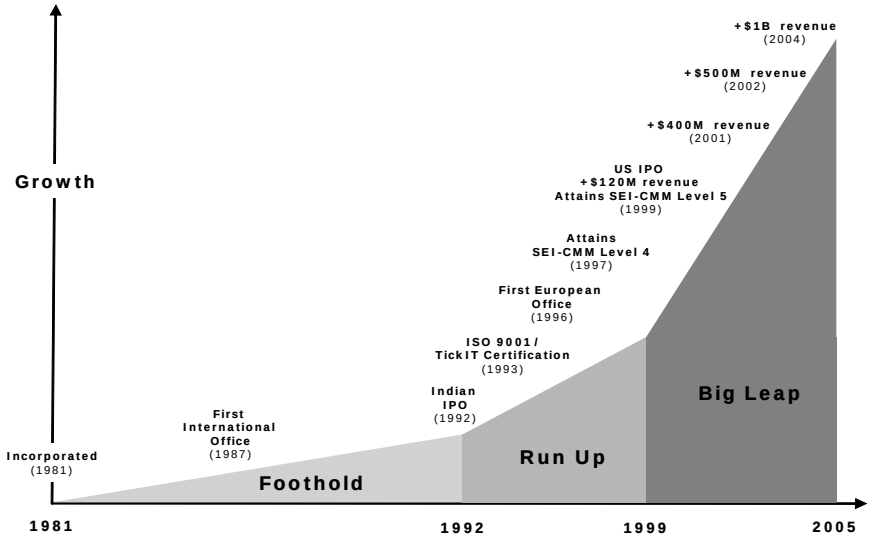
Business Overview. Infosys provides of a broad array of outsourced information technology services globally. Client needs driving demand include time-to-market considerations, internal resource shortage, cost control, and the increasing complexity of IT. The firm incorporated in 1981, completed an initial public offering of equity shares in India in 1992 and had an initial public offering of ADSs in the United States in 1999. The firm is headquartered in Bangalore, India with 31 offices in 16 countries. Their top customers are Aetna, American Express, Bank of America, Cisco Systems, DHL, Goldman Sachs, Ikon, and Northwest Mutual. Revenues grew from $121 million in fiscal 1999 to $1 billion in fiscal 2004.

The following table presents geographic and industry segmentation for fiscal 2004 revenue. Notably, repeat customer business contributed 94 % of revenue.

Geographic Segmentation		Industry Segmentation	
North America	71.2%	Financial Services	36.6%
Europe	19.2%	Manufacturing	14.8%
India	1.4%	Telecommunications	16.6%
Rest of the world	8.2%	Retail	11.6%
		Others (Utilities/Logistics)	20.4%

Source: Infosys Technologies SEC filing

The Infosys Story. Infosys is often highlighted as "the example" of a successful IT outsourcing organization, but this success did not occur overnight. The following overviews the evolution of the firm.



Source: Varied Infosys Company Reports

Getting a Foothold (1981-1992). During its early stage of development, Infosys faced the challenges confronted by many start-up organizations, including refining the business model, gaining market acceptance and establishing business sustainability. At the same time, the Indian marketplace presented additional challenges such as a "command and control" economy, import restrictions, punitive taxes, under-developed capital markets, capital shortage for infrastructure investments and a poor telecom infrastructure. During 1991, the

Indian government began to pursue varied economic reforms to support economic growth. During this period, the majority of Infosys' outsourced work addressed maintenance programming of customer applications.

The Run-Up (1992-1999). During this period, many things fell into place to help drive growth for the firm. Significantly, the government liberalized the economy by 1) abolishing of licenses, 2) rationalizing its tax and tariffs policies, and addressing foreign exchange reforms. Additionally, software technology parks were instituted supported by tax benefits, minimal customs duties and improved telecom facilities. Business catalysts during this period include increased acceptance of India for software outsourcing, the demand for IT resources to address the Y2K date problem in many legacy systems, and the growth of the Client/Server computing market.

The Big Leap (1999-2004). Leveraging a successful business model and its relationship with customers, business trends driving demand for Infosys' expanding portfolio of services include globalization, deregulation, consolidation, transformations in the financial markets and demand for low cost services. Also, corporate/enterprise customers are increasingly impacted by the need to adapt to new technology, business process standardization and integration requirements and reduce their time to market for new services and products.

Attributes of the Indian IT Market. Key factors contributing to the growth of India's IT market include 1) high quality resources: the majority of SEI-CMM Level 5 certified organizations are based in India. SEI-CMM is the Software Engineering Institute's Capability Maturity Model, which assesses an organizations' management system processes and methodologies, 2) significant cost benefits (a NASSCOM Strategic Review 2004 notes that overseas companies could realize savings of 30% to 60% by utilizing offshore processes and 3) abundant skilled resources with India graduating approximately 290,000 engineering students annually.

Recruiting from a Large Talent Pool. As of March 2004, the firm employed approximately 25,700 employees, including 22,100 IT professionals. Infosys builds its staff by recruiting new students from premier universities, colleges, and institutes in India (typically the top 20%). The firm selects from a large pool of qualified applicants. In fiscal 2004, approximately 908,500 applications were received, 18,200 were interviewed and 13,600 were extended job offers.

Providing Custom Application Development Services. Infosys teams can create new applications and enhance the functionalities existing software applications for customers... Projects vary in size and duration and increasingly performed on a fixed-price basis. Projects typically involve all aspects of the software development process, including defining, designing, prototyping, programming, module integration and installation of the custom application. These services span the entire range of mainframe, client server and Internet technologies. An increasing proportion of its applications development engagements is related to emerging platforms such as Microsoft's .NET or open platforms such J2EE.

Strategies for the Future. To enhance its position as a leading global IT services organization, Infosys plans to 1) focus on emerging business trends and new pervasive technologies, 2) leverage its existing client base to increase demand for services, 3) promote US-India success when pursuing new clients, 4) strengthen its presence in North America and Europe while establishing presence in China 5) broaden strategic alliances with best-in class providers with complementary skill sets and 6) expand into high-end consulting.

Comments on the Competitive Environment. The markets Infosys participates in are highly competitive and rapidly changing. Future competition may come from firms in

countries with lower personnel costs than those prevailing in India. While price competition is not to be ignored, Infosys management does not believe that cost represents a sustainable competitive advantage. Principal competitive factors include the ability to integrate onsite and offshore execution capabilities in a seamless fashion, provide one-stop solutions to clients, provide business industry expertise and attracting and retaining high quality IT professionals.

Ctrip.com: A Travel Services Platform within the China Market

Increasingly, many ICT franchises will consist of a mix of content, technology and customer service. Examples of this mixed platform are Amazon, EBay, Expedia, Microsoft's MSN service and Apple Computer's iTunes offering. Ctrip.com International, a provider of both on-line and off-line hotel and airline consolidator services, is an example of such as platform within China's market

The company completed a NASDAQ listing during December 2003. The transaction, which raised $76 million benefited from a limited float, high investor interest in the Chinese market and strong growth prospects for the firm. At the time, the company had 12-month trailing revenue of $12 million.

Company Background: Ctrip operates as an intermediary between travel suppliers and travelers, aggregating information from suppliers to enable travelers to make trip reservations. Nearly 70% of bookings are conducted off-line through the company's call center, with the remaining 30% placed through its website. As credit card use increases within Ctrip's market, it is likely that on-line use will expand as well.

Ctrip was founded in 1999 at the height of the Internet boom. Its original focus was as a travel content provider. Management believed that business synergy existed between their franchise and that of travel booking services. As a result, the company pursued the acquisition of off-line hotel reservation firm, Beijing Modern Express, in October 2000 and Beijing Hai'an, an air ticket booking company in February 2002. In 2003 the firm acquired Shanghai Cuiming, which holds a license to conduct both cross-border and domestic packaged-tour businesses.

Ctrip's operational headquarter is in Shanghai and supports a network to approximately 30 cities within China.

Their Competitive Strengths. The company bridges the gap between independent travelers and travel suppliers by assisting travelers plan and book their trips while helping travel suppliers such as hotels and airlines improve the efficiency of their marketing and distribution channel.

Management believes the following attributes contribute to their competitive position:

- A leading travel brand in China
- Large supplier network and nationwide coverage
- Scalable platform and flexible cost structure
- Superior customer service
- Advanced infrastructure and technology
- Experienced management team

A Growth Business Strategy The company intends to leverage the Ctrip brand to attract new travel suppliers and negotiate more favorable contractual terms with its existing suppliers, expand its hotel supplier network and room inventory, and expand air-ticketing and other travel product offerings. The company also intends to pursue selective strategic acquisitions and expand into Hong Kong, Macau and Taiwan.

Providing a Quality Customer Experience while leveraging a Technological Edge. The Ctrip team is focused on customer service, from products to call center staffing. This business emphasis is applied in activities such as the development of its user-friendly on-line

search site, professional staff training, integration of automatic customer identification in call processing and the development of an on-line travel community. The goal of this strategy is to provide a positive customer experience and increase customer retention.

Additionally, Ctrip has embedded its proprietary booking software technology into its business processes from product development to customer service, linking various operational processes together. Coupled with its customer service and new product development efforts, Ctrip's on-line travel booking engine and professionally trained call center staff are intended to be key differentiators for the firm.

At the time of their IPO, Ctrip's staffing levels were as follows:

Functional Area	Headcount	% of Total
Management/Administrative	114	8.9
Product Development	380	29.6
Customer Service/Call Center	441	34.3
Sales and Marketing	350	27.2
Total	1,287	100.0

Source: Merrill Lynch Equity Research

Appendix E: National ICT Approaches – Selected Case Studies

Costa Rica

Costa Rica is pursuing a strategy focused on using ICT as an export engine, and it attributes much of its current economic growth—8.3 percent of GNP in 1999, the highest in Latin America—to that strategy. The country's political stability, democratic tradition, and emphasis on the health and education of the population, have all contributed to relatively high standards of living. Costa Rica's experience demonstrates that when a country has the right mix of skills, infrastructure and enterprise; it can find attractive niches in the global economy. Costa Rica has developed itself into a viable location for high-tech industries by providing not only an educated population and prime geographical location, but also by demonstrating the success stories of Intel, Microsoft and others. To continue this ICT-led progress, the government is taking action to build technological skills in the population, develop strong partnerships between government and business, and further upgrade the already good telecommunications network.

Policy: Costa Rica's telecommunications policy has been to maintain a national regulated monopoly. The Instituto Costarricense de Electricidad (ICE) is responsible not only for electricity and basic phone services, but also for high-level Internet access. ICE has achieved great success in networking the whole country with telephone lines, converting Costa Rica into one of Latin America's most densely networked countries. The International Telecommunication Union reported that, in 1999, Costa Rica had the highest number of telephone lines per person in Latin America—with the exception of Uruguay—including the leader in market privatization, Chile. Costa Rica's telephone penetration rates are much higher than in neighbouring Central American countries.

ICE has performed well in providing basic telecommunications infrastructure and services, but it may not be the ideal arrangement for Costa Rica moving forward. ICE has lagged behind in the provision of adequate remote telecommunication services. Some indicators suggest that the deficit is approximately 100,000 phones, representing 50 percent of the total demand.

Other ICT and trade policies have helped Costa Rica to position itself in the high-tech industry. Incentive policies and programs include Free Trade Zone law and duty free export of products to the US, Mexico and Central America, and reduced duties to the European Union.

Infrastructure: Costa Rica has invested in establishing one of the most advanced network infrastructure in the Caribbean Basin, enabling easy access to ICT for the general population. This infrastructure provides a highly reliable electricity supply and a modern telecommunications network. The latter includes direct dialling to any part of the world, cellular telephone systems, data transmission and facsimile facilities, using both satellite and microwave links. In 1997, 684,600 telephone lines—18 lines per 100 inhabitants—and 65,471 cellular lines—1.7 cellular lines per 100 inhabitants—were in place. Currently, one in five people has a telephone line, which means that virtually every household owns a telephone. This is radical progress when compared with neighbouring Central American countries where, on average, one in 20 people has access to a phone line. Progress still needs to be made on Internet access—only approximately 100,000 Costa Ricans, or 2.8 percent of the overall population use the Internet—though this is still relatively high when compared to neighbouring countries.

Enterprise: Costa Rica has managed to create one of the most attractive investment environments in Latin America for the development of high-tech industries. According to the

Minister of Foreign Trade (COMEX), foreign direct investment in Costa Rica is currently US$530 million per annum, or roughly 5 percent of GNP, as compared with US$480 million in 1997. Success in attracting reputable enterprises and entering new global markets, particularly in high-tech, is the result of a concerted effort by Costa Rica to do so. Costa Rica's unique characteristics—its strategic location, political stability, business incentives (including free trade zones), supply of human capital—and its proactive promotion of these assets—have all contributed to investment by high-tech companies in the fields of power technologies, systems integration technologies and call centers. Since 1995, 32 foreign electronics firms have located plants in Costa Rica. These firms include Intel, Microsoft, Lucent Technologies and Siemens.

In 1999, computer microchips (mostly Intel) accounted for 37 percent of Costa Rica's exports, compared to bananas at 10 percent and coffee at 5 percent. The balance of trade turned positive due to the dramatic increase in exports (an increase of 20 percent per annum). In addition to the export revenues, Costa Rica has achieved generous pay and stock options for workers, and new standards of efficiency and safety that are being emulated by other local businesses.

There are also continuing opportunities for growth and expansion of franchising within Costa Rica. Entrepreneurs, both corporate and individual, appreciate the established business systems and proven track record that selective franchises offer. Franchising is viewed as a way of entering the free market without necessarily possessing extensive knowledge of an industry. The Internet is the primary source of information for local franchisees about potential new franchise opportunities. Approximately 4,000 Costa Ricans are employed by various franchises.

Human Capacity: Costa Rica has built on its legacy of supporting an educated population by continuing to build the educational system and emphasize the presence of IT in the curriculum. A tremendous effort has gone into ensuring that education facilities produce appropriately skilled knowledge workers and professionals to contribute to the development of Costa Rica. As early as 1974, the Costa Rican government used Inter-American Development Bank financing to expand the Costa Rican Technological Institute (ITCR) into what has become one of Latin America's most advanced computer science and software engineering schools. The government's dedication to an educated population is also exemplified in the redistribution of expenditures from defence funding to education funding. The results of this effort are easily discernible. In 1999, the illiteracy rate was below 3.5 percent and 18.5 percent of the active population had completed university, technical and para-university studies.

Content and Applications: To expand ICT use, the Costa Rican government is creating and providing relevant and up-to-date content on the Internet. One of the best examples of this effort is costaricense.com, the recently launched national portal, which made Costa Rica the first country in the world to offer all of its citizens their own email account in a centralized system. The portal also offers access to a wide range of government services, general information and e-commerce applications, including promotion of the eco-tourism industry.

Strategic Compact: Costa Rica attributes much of its recent economic growth to the widespread adoption of ICT. Among the reasons this has occurred are strong political vision, leadership and determination to allocate part of national budget to the development of ICT. Through presidential leadership, the country also actively courted and secured large-scale investments from several multinational corporations.

Brazil

Building on a legacy of technological capabilities and an early emphasis on ICT infrastructure, Brazil is positioning itself to participate more fully in the global network economy. The Brazilian Government has emphasized controlled privatisation and deregulation in order to provide the business sector with an environment in which it can grow and adapt quickly to the changing economic and business climate, while at the same time still be subject to competition. The recently-launched Information Society Program is a first step in making technology-based services and job creation available to every citizen. Public-private partnerships are helping to identify innovative solutions to overcome barriers to universal access, such as the high-cost of personal computers and lack of financing options for low-income citizens.

Policy: Brazil began its pioneering approach to leveraging ICT for development in the 1980s, when it began implementing policies to promote the development of national enterprises in selected segments of the computer industry. By the end of the decade, a set of diversified IT corporations with significant presence in the local market had been built.

In the 1980s, a so-called market reserve policy was established to create a "greenhouse" environment to nurture locally-owned companies and protect them from import competition attracted to Brazil's relatively large and fast-growing market. This policy initially focused on mini-computers and was later expanded to include micro-computers. By restricting technology transfer agreements, the government encouraged companies to undertake R&D locally. The government also restricted the importation of technology when local capabilities were available, so local firms developed their own products based on reverse-engineering or in-house design.

As the country proceeded to building on this strong base of technological capabilities and infrastructure, the 1990s brought accelerated growth in the ICT sector. The government began abandoning protectionist policies and opening its economy. The first step was a constitutional amendment abolishing the telecommunications monopoly, followed by legislation to allow private enterprise to bid for cellular licenses. This process of privatisation and deregulation resulted in dramatic improvements in the quality, service and price of phone services. In 1995, Brazil opened the telecommunications sector to private investment, and also announced a plan for achieving open Internet services in the country.

Infrastructure: Although the network infrastructure in Brazil has been developing rapidly in recent years, it is still very uneven in scale and scope. The relatively high levels of public sector investment in telecommunications undertaken by Telebras, a public holding company, during the 1960s and 1970s, had come to a standstill by the 1980s as the state reduced spending in order to meet payments associated with the debt crisis. This under-investment was reversed in the 1990s by privatisation and deregulation policies that led to rapid development of the ICT infrastructure. However, access to this infrastructure was not advancing at the same pace. Ehile, the Brazilian business triangle—that includes São Paulo, Rio de Janeiro, and Minas Gerais—has high-capacity fiber, virtual private networks, and bandwidth on par with that of the United States and Europe. Much of the countryside, on the other hand, has no access at all.

Through its Universal Access Plan, the government is seeking to subsidize the provision of infrastructure to geographically complex and low-income areas. Last year, Brazil's postal service also launched Porta Aberta, or Open Door, a project that gives the public free access to Internet kiosks, but only in selected post offices in São Paulo and Rio de Janeiro.

Enterprise: The establishment of open and free-market policies has contributed to the creation of a business-friendly environment. FDI reached a record US$30 billion in 1999 and was expected to climb by another US$30 billion in 2000. Most of the investment has been channelled into telecommunications. The attempt to influence ICT development through tax breaks has resulted in a five-fold increase in R&D in just two years. In addition, Brazil's participation in free trade agreements like MERCOSUR has opened up the country's access to other markets. Brazil is poised today to become a major production centre. It offers a large market, manufacturing capabilities, installed industrial base and access to other South American markets. Several major computer hardware firms have located regional production centers in Brazil, and this has slowly begun to attract component suppliers as well as major parts distributors and specialized contract manufacturers.

Human Capacity: Due to low levels of general literacy and the prohibitive cost of computers, computer literacy skills are below target levels. As such, technology training and skills development are priority areas for the Brazilian government. The Information Society Program allocates funding for the expansion of Internet infrastructure, the interconnection of all public libraries, and the creation of thousands of community access centers throughout the country. It is expected that the availability of ICT, in conjunction with relevant IT training programs and the availability of new low-cost computers will inevitably promote more technology users among the general population. The shortage of IT knowledge workers also poses a challenge, and is an area on which Brazil will need to concentrate further in order to continue its development progress.

Content and Applications: The private sector has played an important role—providing affordable Internet access and relevant Portuguese content to meet local needs. Brazil's biggest online service, UOL, boasts 5.1 million registered users accessing its 19 million pages from more than 100 Brazilian cities. UOL is the most visited Portuguese language site and enjoys an audience that establishes it as one of the most frequently visited sites in the world—surpassing sites like Disney and CNN.

Recent collaborative efforts have produced innovative and successful applications in electronic commerce and e-government. In December 1999, the first online coffee auction was held for 10 high-quality Brazilian coffees. While Brazilian coffees are normally sold at prices below the New York benchmark price, the auctioned coffees commanded an average price of 73 percent higher than the benchmark. A similar joint venture between a maker of household cleaning products and the country's leading free email company is offering web access through computer kiosks in supermarkets. Government has promoted Internet-based applications as well; eight out of ten people received income tax forms through the Internet in 2000.

Strategic Compact: Strategic collaboration between public and private sector organizations has been instrumental in Brazil's Information Society Program and other specific initiatives. For example, international computer manufacturers such as IBM, Hewlett-Packard, Compaq and Acer stand to gain substantially from a government program to increase PC penetration with the development of a prototype for low cost PCs (US$200-250 per PC). Indeed, the low-cost PC formula is a result of a study in which all the major computer companies participated on how to reduce the cost of PCs in Brazil. To support the program, the government will provide loans to lower income households to purchase the computers.

India

A spate of reforms—post-1991 economic crisis—have given impetus to the Indian economy, particularly to the ICT sector. As part of the reform agenda, the Indian Government has taken major steps to promote ICT including the creation in 1988 of a World Market Policy, with a focus on software development for export; telecommunications policy reform; privatisation of the national long-distance and mobile phone markets; and development of a more comprehensive approach to ICT. Although India's success is commanding increasing attention and investment, it has yet to result in the distribution of social and economic benefits across a broader base of the population. Challenges—including the perception of an unfavorable regulatory climate, an overloaded judicial system, poor infrastructure and costly access, and limited use of ICT—remain. The emerging shift in government strategy, toward knowledge-intensive services, has created a climate more conducive to addressing enterprise, domestic infrastructure, education and the use of ICT to meet development needs.

Policy: India's focus on self-reliant industrialization in the 1970s and 1980s has been replaced with reforms aimed at positioning India in the world economy: the foreign direct investment process has been streamlined, new sectors have been opened up to foreign direct investment and ownership, and the government has exempted the ICT industry from corporate income tax for five years. These reforms have helped India to become increasingly integrated into the global economy through growth in the export of software and skill-intensive software services, such as call-centers.

In 1986, the Indian government announced a new software policy designed to serve as a catalyst for the software industry. This was followed in 1988 with the World Market Policy and the establishment of the Software Technology Parks of India (STP) scheme. As a result, the Indian software industry grew from a mere US$150 million in 1991-1992 to a staggering US$5.7 billion (including over US$4 billion worth of software exports) in 1999-2000—representing an annual growth rate of over 50 percent.

The establishment of the Telecommunications Regulatory Authority of India (TRAI) was a key step towards effective implementation of telecommunications reforms. In 1992, the mobile phone market was opened up to private operators, in 1994 the fixed services market followed, and finally in 1999, national long distance operations were opened to private competition. Prior to these reforms, the Department of Telecommunications had been the sole provider of telecommunications services.

In addition, to attract foreign direct investment, the government permitted foreign equity of up to 100 percent and duty free import on all inputs. Government-created technology parks also offered professional labor services to clients, a cost-effective program for India since ICT labour is so inexpensive by global standards.

Infrastructure: Teledensity in India has reached 3.5 percent of the population. Approximately 1 percent of households have fixed line connections, compared to 10 percent in China. The mobile sector has approximately 3 million users, growing at 100 percent per annum, and is expected to outstrip the fixed line market in the near future. The number of Internet accounts is around 1.5 million, growing at 50 percent per annum. India also has very high penetration rates of terrestrial TV, cable and radio. Voice and data wireless solutions, for both domestic and export markets, are increasingly produced and used locally.

Access to telephones in Indian villages has improved in the last five to six years through the introduction of the Public Call Office (PCO) run by local shopkeepers. More than 60 percent of the villages in India have at least one phone. This also includes over 800,000 Village

Public Telephones (VPTs). Worldtel is undertaking a pilot in four states to secure financing to upgrade the Village Public Telephones so they will soon be Internet-accessible.

In some urban locations, India's Software Technology Parks (STPs) provide infrastructure, buildings, electricity, telecommunications facilities and high-speed satellite links to facilitate export processing of software.

India also has a number of progressive computerized networks in place, including a stock exchange, the Indian Railways Passenger Reservation System, and the National Informatics Centre Network (NICNET), which connects government agencies at the central, state and district levels.

Enterprise: India's well-established framework for protecting intellectual property rights has been an important inducement to business investment: well-known international trademarks have been protected by Indian laws, even when they were not registered in India. In 1999, major legislation was passed to protect intellectual property rights in harmony with international practices and in compliance with India's obligations under TRIPS.86

Much of the initial domestic demand stimulus for ICT and ICT services industries in India has come from government: 28 percent of total IT spending to date can be attributed to government and public sector expenditure. Major areas of government expenditure include: financial services, taxation, customs, telecommunications, education, defense and public infrastructure. As a result of the growth in ICT use in India, the ICT industry itself has also increased its domestic economic activity, for example, a number of ICT companies have developed accounting and word processing packages in Indian languages. The potential impact of this growth on the domestic economy is much broader than developing software for export only.

Human Capacity: In spite of relatively low literacy rates among the general population, India has several key advantages in human capital: a large English-speaking population and world-class education, research and management institutions—a direct result of investment in self-reliance in science and technology. In addition to establishing Indian Institutes of Technology in various cities around India to create a large pool of technical skills, the government has a computer policy to encourage R&D in personal computers. The IT training sector continues to grow at a rapid rate: total training revenues in 1998 were estimated at US$225 million, 30 percent up on the previous year. However, one of the biggest challenges to the Indian software industry remains the difficulty in attracting and retaining talented professionals.

Content and Applications: India has a large population with great linguistic diversity. Creating and maintaining locally relevant content for a country with 418 languages is a challenge. Nevertheless, local language content is slowly making ICT more relevant and accessible to a broader cross-section of the population. For example, India's Center for Development of Advanced Computing has recently launched a scheme called iLEAP-ISP to create a free multilingual word processor to be made available to all Internet subscribers. On other fronts, some states such as Tamil Nadu have launched their own initiatives to support the standardization of local language software through interface programs that can be adapted to word processors, dictionaries, and commercial keyboards for use in schools, colleges, government offices and homes.

An emphasis has also been placed on the development of relevant e-government applications in India. Some states such as Madhya Pradesh and Andhra Pradesh have started to introduce applications which allow citizens to have faster and more transparent access to government services—for example, the provision of information on laws and regulations, and the procuring of licenses and official documents online.

Strategic Compact: Public-private partnerships, catalyzed by the IT Ministry, have played a key role in India's ICT-related development. One of the positive results of this effort has been the IT Act of 2000, which was based on the recommendation of the National IT Task Force, and aims to set the overall strategy for the IT sector. In addition, the government and the private sector are starting to come together to foster ICT development. For example, a joint effort by the Computer Science Automation Department at the Indian Institute of Science and a Bangalore-based private company have developed Simputer—a cheap micro-computer that enables illiterate users to browse the Internet.

Appendix F: 1-year Implementation Work-plan

Work-plan to support the IPU in the Implementation of the 3-year ICT Investment and Trade Promotional Strategy

1-year detailed work-Plan

Period covered by the workplan: April 05 - April 06

Activity		Milestones	Budget	Staffing	Timeframe
Investment Promotion					
Research and Profiling	Identify and select ICT specific business intelligence database	Profiling a set of at least 700 ICT target investors, 200 financial investors	6,000	R&M Officer	May. 05
	Subscribe to business intelligence database			-	Jun. 05
	Research free and paid-for ICT related websites		-	R&M Officer	Apr. 05
	Initiate contacts with relevant industry organizations		-	IPO	Apr. 05
	Register on free ICT related websites and industry organizations' e-mail lists.		-	R&M Officer	May. 05
	Tap into key people in the ICT industry through the industry organizations, commercial attaches, etc.		-	IPO +R&M Officer	May. 05
	Initiate contacts with commercial attaches in target countries		-	IPO	May. 05
	Identify main players in the target markets		-	R&M Officer	Jun. 05
	Narrow down identified target investors (according to a pre-determined criteria)		-	IPO	Jun. 05
			6,000		

Activity		Milestones	Budget	Staffing	Timeframe
Targeted Marketing and Correspondence	Develop investor-specific marketing materials content: Presentations, brochures, introductory letters, sector fact sheets, etc.	Printing out 6,000 brochures tailored to 3 target investors, develop 3-investor specific presentations, develop standard introductory letter, and develop and produce 3,000 standard sector factsheet.	-	R&M Officer	Jun. 05
	Develop investor-specific marketing materials templates and design: presentation templates, brochures design, introductory letters templates, sector factsheets etc.)		-		Jun. 05
	Produce investor-specific marketing materials		12,000		Jul. 05
	Develop a database and mailing list of potential investors.	Database completed	1,500		May. 05
	Disseminate investor-specific marketing materials	-	1,500		Ongoing
	Identify key door-openers (such as INT@J members the minister of ICT and others who can sign the introductory letters)	Sending out 500 of the profiled potential investors	-	IPU Director	Jun. 05
	Initiate contacts with potential investors (sending out introductory letters)		-	IPO	Jun. 05
	Use pre-identified key door-openers to make phone calls to investors	-	-		Jul. 05
	Assess response rate and measure investor feedback	Feed back results	-		Jul. 05
	Conduct follow-up phone calls with potential investors with immediate interest	Conducting 300 follow-up phone calls	1,500	IPO	Jul. 05
	Develop a relationship with other investors by sending industry updates, periodic e-mails, invitations to Jordan's ICT-industry events)	Relationship building	1,400		Ongoing
	Review and update the investors' database	Finalize investors database and mailing list	-	IPO	Ongoing

Activity		Milestones	Budget	Staffing	Timeframe
Investor Targeting	Identify and select an ITS system	The ITS is up and running and is used in a sustainable manner	15,000	IPU Director	Jun. 05
	Install the ITS and customization of the system according to the unit's needs		-	Outsourced	Jul. 05
	Ensure the accessibility to the ITS by all staff members		-	IPU Director	Jul. 05
	Research and identify ICT road shows	Outreach for at least 57 potential investors in each event	750	R&M Officer	Apr. 05
	Attend 1 ICT road show (GITEX)		3,000	IPO	When scheduled
	Research and identify ICT industry events			R&M Officer	Apr. 05
	Engage in 1 ICT industry event		1,000	IPO	When scheduled
	Develop a final list of investors for aggressive targeting	Conduct 56-57 direct business meetings and reach out for at least 56-57 potential investors in industry events (these targets are for each type of investor, financial and ICT)	-		Jul. 05
	Schedule business meetings in the target markets		-		Jul. 05
	Handle all logistical issues for the smooth running of the scoping missions		-		Jul - Aug. 05
	Conduct 1 scoping Mission to each of Saudi Arabia, Kuwait, and Bahrain		6,000	IPO + IPU Director	Aug. 05
	Conduct 1 outward mission to each of Saudi Arabia, Kuwait, and Bahrain		6,000	IPO + IPU Director	Nov. 05
	Follow-up phone calls with visited investors (send any inquiries, information)	Feed back results	250		Nov. - Dec. 05
	Invite a set of potential investors for a site visit*	Translate the business meetings into 33 successful site visits.	-		Dec. 05-Jan. 06
Investors site visits	Prepare meetings with different relevant public officials and private sector representatives		-	IPO	Jan. - Apr 06
	Prepare site visit schedule and handle all associated logistical issues		10,000	IPO	Jan. - Apr 06

Activity		Milestones	Budget	Staffing	Timeframe
	Provide the investor with the required information	Translate the business meetings into 33 successful site visits.	-	IPO	Jan. - Apr 06
	Direct the investor to the responsible parties.		-	IPO	Jan. - Apr 06
	Accompany investors throughout their visits		500		Jan. - Apr 06
	Follow-up with the site visitors	Feed back results	140	IPO	Jan. - Apr 06
Project Handling	Facilitate and expedite the processing of all the requirements on behalf of the investor (esp. registration and licensing)	Converting the 33 investors' site visits into 2 actual investments (1 ICT and 1 financial)	-		Jan. - Apr 06
	Ensure the investor receives the maximum incentives offered by GOJ		-		Jan. - Apr 06
After-care	Survey investors feedback and satisfaction	Encourage re-investments (expansion) and generate new leads	-		Jan. - Apr 06
	Offer facilitation services throughout the life cycle of the project		-		Jan. - Apr 06
			60,540		
Export Promotion					
	Research and identify outsourcing intermediaries	Generate at least 2 outsourcing agreements	1,400		Apr. 05
	Initiate contacts with organizations that play the role of intermediaries between outsourcers and service providers.		-	IPO	May. 05
	Buid relationships with these intermediaries (send updates, invitations, include in e-mail distribution list, etc.		-	IPO	May. 05
	Develop success stories of Jordanian-European/American outsourcing agreements		750	R&M Officer	Jun. 05

Activity		Milestones	Budget	Staffing	Timeframe
	Research, Identify, and select international outsourcing events	Generate at least 2 outsourcing agreements	-	R&M Officer	Apr. 05
	Participate in international outsourcing events (e.g. Outsource World)		4,000	IPO	When scheduled
	Prepare press releases in Amercian/European newspapers on successful Jordanian-European/Amercian outsourcing agreements		1,000	R&M Officer	Every quarter
	Develop a list of ICT companies in Jordan, contact details, capacity, speciality, etc. to outsourcing intermediaries			R&M Officer	Jun. 05
	Post success stories and outsourcing agreements on MOICT website (contact details of ICT companies, fields of specialization, capacity, number of employees, projects, etc.)			R&M Officer	Ongoing
	Quote clients' satisfaction statements and disseminate in different brochures, articles, press releases, and the sort.			R&M Officer	Ongoing
			7,150		
Capacity Building Activities					
	Conduct 2-3 Familiarization Sesions on the 3-year ICT Investment and Trade Promotion Strategy**	Effective selling to potential investors	2,000	Outsourced	Apr. 05
	Identify international and local industry reviews, periodicals, publications		-	IPO + IPU Director	Apr. 05
	Purchase relevant international and local industry review, periodicals, publications, etc.		1,000	IPU Director	May. 05
	Highlight industry trends, ICT-related investment trends and update the three-year promotion strategy accordingly		-	IPO + IPU Director	Apr. 06
	Train the users on the customized ITS		1,000	Outsourced	Jul. 05

Activity		Milestones	Budget	Staffing	Timeframe
	Train the users on the functionalities of the purchased ICT specific business intelligence database	Effective selling to potential investors	-	R&M Officer	Jul. 05
	Train the investment promotion officers in areas of business development (communication skills, presentation skills, investment promotion techniques, etc.)		4,000	Outsourced	Jun. - Jul. 05
			8,000		
TOTAL BUDGET (1st year)			**81,690**		

Note: All monetary values are in USD.

* Site visits are on the investors own cost. Serious investors will pay for their visit to explore the location at which they are seriously considering. In this case, site visits can be viewed as a measure of success of the IPU efforts.

**Conduct an informal and interactive sessions that aim at familiarizing the IPU team with the strategy document, as well as, other relevant documents if need be.

Key:

R&M Officer: Research and Marketing Officer

IPO: Investment Promotion Officer