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**TRADE FACILITATION AND E-COMMERCE  
IN THE ESCWA REGION**

**PROMOTING EFFECTIVE PARTICIPATION IN ELECTRONIC COMMERCE:  
THE CASES OF EGYPT, JORDAN, LEBANON AND  
THE UNITED ARAB EMIRATES**



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1

## **Preface**

This study is part of the biennium 2000-2001 work programme of the Economic Development Issues and Policies Division of ESCWA, activity no. 3M22FD407, "Trade facilitation and e-commerce in the ESCWA region, promoting effective participation in electronic commerce: the cases of Egypt, Jordan, Lebanon and the United Arab Emirates", and is related to the expert group meeting on the subject that was organized by ESCWA in November 2000. The case-studies for Egypt and Lebanon were prepared by Ms. Magda Ismail and Mr. Antoine Feghali, respectively. We would like to thank them for their contribution.



## EXECUTIVE SUMMARY

Internet trade is increasing at an exponential rate, making way for unprecedented opportunities. Individuals, enterprises and governments around the world are using this technological revolution to conduct trade transactions. So far, e-commerce has been mainly active among the countries of the Organisation for Economic Cooperation and Development (OECD), headed by the United States of America. In these countries, new programmes and online security software are being invented and legal measures are being adopted, all contributing to the increase in the volume of electronic trading.

Developing countries have been relatively absent from the active e-commerce market, one of the main reasons being that many of them lack the basic requirements for e-commerce trading. Engaging in e-commerce increasingly ceases to be an option. Most trading of the future will be conducted electronically. Consequently, developing countries will have to double their efforts in laying the ground to facilitate e-commerce trading. Moreover, e-commerce economizes on time and money and is far more efficient than any other means of trading. If developing countries do not migrate their businesses to the Internet, they will risk becoming marginalized, while those among them who get in early will reap the benefits of participation in the global market.

E-commerce can help boost the economies of developing countries. It provides great opportunity for small and medium enterprises (SMEs) to expose their products to new markets. It also allows governments to buy capital and other goods more effectively and economically. Thus, e-commerce could help reduce import bills and increase export returns for developing countries. For this to happen, however, individuals, governments and the private sector will have to collaborate in creating the right environment for e-commerce to thrive.

In the ESCWA region, e-commerce practice is minimal and is mostly unsophisticated. It is also often confined to individual initiatives that are undertaken in the absence of the infrastructure required for the operations of e-commerce. A number of prerequisites are necessary. They include awareness, computer skills and technological support systems (telecommunications, Internet service and online security), as well as the relevant legal and financial instruments.

The Economic and Social Commission for Western Asia (ESCWA), in recognition of these needs, has included in its work programme the preparation of a study on "Trade facilitation and e-commerce in the ESCWA region, promoting effective participation in electronic commerce: the case-studies of Egypt, Jordan, Lebanon and the United Arab Emirates". This study is in line with the developmental issues that constitute the activities of the Trade Section of ESCWA, which concerns itself with the region's trade issues and their economic development characteristics.

The study examines the status of e-commerce in four selected ESCWA member countries: Egypt, Jordan, Lebanon and the United Arab Emirates. The four case-studies rely on information compiled from the survey of some 15 enterprises that migrated their businesses to the Internet. The survey in Egypt and Lebanon was conducted by national experts on the subject, while that in Jordan and the United Arab Emirates was conducted through fact-finding missions undertaken in those countries by ESCWA staff.

The provision of telecommunications and Internet service, a necessary prerequisite for e-commerce, was found to have advanced considerably in Egypt, where several governmental and non-governmental organizations (NGOs) have been focusing on promoting interest in e-commerce. These organizations include investment companies that have injected funds into Internet start-ups. Moreover, the Ministry of Communications and Information Technology has integrated a robust e-commerce plan within its national information and communications technology (ICT) programme for the coming five years. Nevertheless, there are still many challenges ahead for the growth of e-commerce in Egypt. The technical, legal and financial infrastructures will require further development; Internet services will need to be expanded and made more accessible; and the low computer literacy rate per capita will have to be raised.

The case-study on Jordan revealed that there is very little e-commerce awareness and online trading in Jordan and that efforts to increase that awareness have been sporadic and dispersed. However, the REACH

Initiative launched by the Government in 2000, which is intended to develop Jordan's software and ICT industry and set the country on an e-commerce track, has generated some optimism. Meanwhile, a number of the essential prerequisites for the growth of online trading are still lacking. As in Egypt, the infrastructure needs to be enhanced and the legal and financial components of e-commerce need to be established. Moreover, Jordan's population is small, computer literacy is low and Internet penetration is limited.

E-commerce in Lebanon is still in the early stages of development. Many initiatives, such as business-to-business (B-to-B) and business-to-consumer (B-to-C) start-ups, have been recorded, but there is a lack of public endorsement from consumers. The e-commerce technical and financial infrastructures were found to be average, although they need to be enhanced, while the legal infrastructure was still being considered. Lebanon enjoys the privilege of having excellent human resources, well qualified to meet the demands of e-commerce. In this respect, Lebanon's human resources could cater to the entire region, especially to the ICT hubs in the Gulf.

The fourth case-study, the United Arab Emirates, indicates that the country is a fertile ground for the growth of e-commerce. It possesses the best technical infrastructure in the region, has one of the best credit card coverages and payment gateways and has developed one of the most efficient and advanced delivery systems. Notwithstanding these facts, little e-commerce is taking place. This is due to several factors. The United Arab Emirates is a small country, where both consumers and businesses lack trust and sufficient awareness about e-commerce. This is coupled with a shortage of manpower with ICT skills. In addition, laws and regulations to protect Internet users have not yet been put in place. Most importantly, the Emirates Government does not have a specific strategy on e-commerce. Among the seven emirates, only Dubai has shown some initiative in planning projects geared to its development as an ICT and e-commerce centre.

Finally, the study recommends that Governments and the private sector in the region should collaborate to create the right environment for e-commerce. This will entail raising awareness; encouraging computer and Internet literacy; developing human resources; and providing adequate telecommunications facilities, Internet services, online security infrastructure and payment gateways. Most importantly, Governments will have to draft laws and regulations that recognize electronic evidence, as well as protect consumers and producers from computer fraud and violations of intellectual property rights.

## CONTENTS

	<i>Page</i>
Preface.....	iii
Executive summary.....	v
Abbreviations.....	ix
Introduction.....	1
<i>Chapter</i>	
<b>I. E-COMMERCE: AN OVERVIEW .....</b>	<b>3</b>
A. What is e-commerce?.....	3
B. The evolution of e-commerce .....	3
C. The status of e-commerce .....	4
<b>II. E-COMMERCE AND ECONOMIC GROWTH IN DEVELOPING COUNTRIES.....</b>	<b>7</b>
A. Why opt for e-commerce?.....	7
B. E-commerce and development: SMEs .....	7
C. Information revolution and development.....	8
D. What should be done.....	9
E. ESCWA member countries and development.....	9
<b>III. THE PILLARS OF E-COMMERCE .....</b>	<b>11</b>
A. Awareness: enhancing the market size of Internet users .....	11
B. Telecommunications infrastructure: adequate access.....	12
C. Online security .....	15
D. Legal issues in e-commerce .....	16
E. Financial services for e-commerce: banking and online payments .....	19
F. Human resources.....	21
G. Government endorsement .....	22
<b>IV. E-COMMERCE IN LEBANON.....</b>	<b>23</b>
A. Telecommunications infrastructure .....	23
B. Software development.....	26
C. Human resources.....	27
D. Banking .....	28
E. Project funding.....	29
F. Internet security.....	30
G. Legal issues .....	30
H. Markets.....	31
I. Shipping and export .....	33
J. E-marketing.....	33
K. Creating e-awareness .....	34
L. Conclusions and recommendations.....	34
<b>V. E-COMMERCE IN JORDAN.....</b>	<b>36</b>
A. The general e-commerce environment in Jordan.....	36
B. Technical e-commerce infrastructure.....	37
C. Financial infrastructure: lack of electronic payment facilities .....	40
D. Legal infrastructure: absence of a regulatory system .....	41

## CONTENTS (continued)

	Page
E. High potential in human resources.....	41
F. The need to raise awareness.....	42
G. Little experience in electronic transactions .....	42
H. Role of Government, private sector and international organizations .....	43
I. Conclusions and recommendations.....	45
<b>VI. E-COMMERCE IN EGYPT.....</b>	<b>46</b>
A. Egypt's business environment: a spawning ground for e-commerce.....	46
B. Egypt's rationale for e-commerce.....	46
C. Internet and the telecommunications environment .....	47
D. Challenges and issues.....	50
E. Recommendations .....	59
<b>VII. E-COMMERCE IN THE UNITED ARAB EMIRATES.....</b>	<b>61</b>
A. The general e-commerce environment.....	61
B. Technical e-commerce infrastructure.....	62
C. Banking aspects of e-commerce.....	64
D. Legislation governing e-commerce .....	64
E. Logistics: delivery of goods.....	65
F. The demand for human resources and ICT skills .....	65
G. The role of the Government and the private sector.....	65
H. Dubai Internet City.....	67
I. Summary, conclusions and recommendations .....	68
<b>VIII. CONCLUSION AND RECOMMENDATIONS.....</b>	<b>70</b>
<i>Bibliography.....</i>	<i>74</i>

## LIST OF TABLES

1. Internet commerce .....	5
2. Telecommunications, personal computers and internet data in the ESCWA region.....	11

## LIST OF BOXES

1. UNCITRAL Model Law on e-commerce .....	20
2. Problem areas facing e-commerce in Jordan .....	40
3. WTO and e-commerce .....	44



## ABBREVIATIONS

ACC	Amman Chamber of Commerce
ACI	Amman Chamber of Industry
ADCCI	Abu Dhabi Chamber of Commerce
ADSL	Asymmetric Digital Subscriber Line
ARENTO	Arab Republic of Egypt's Telecommunications Organization
ASYCUDA	automated system for customs data (developed by UNCTAD)
ATM	automatic teller machine
B-to-B	business-to-business
B-to-C	business-to-consumer
B-to-G	business-to-government
CA	certification authority
CIB	Commercial International Bank
CNN	Cable News Network
DCCI	Dubai Chamber of Commerce
DIC	Dubai Internet City
DPA	Dubai Ports Authority
DSL	digital subscriber line
EBI	Emirates Bank International
EDI	electronic data interface
EMIX	Emirates Internet Exchange
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FDI	Foreign direct investment
FLAG	Fiber Line Around the Globe
FTP	file transfer protocol
GATS	General Agreement on Trade in Services
GCC	Gulf Cooperation Council
GSM	Global System for Mobile Communication
HS	Harmonized System
HTTP	hyper text transfer protocol
ICT	information and communications technology
IDSC	Information and Decision Support Center
IMBSA	Infrastructure, Messages, Basic rules, Sectoral rules and Applications
INTAJ	Information Technology Association of Jordan
ISDN	integrated services digital network
ISP	Internet service provider
IT	information technology
ITI	Information Technology Institute
ITU	International Telecommunication Union
IVR	interactive voice response
JCS	Jordanian Computer Society
JEDCO	Jordan Export Development and Commercial Centers Corporation
JTC	Jordan Telecommunications Corporation
Kbps	Kilo bits per second
LE	Egyptian pound
M/bits	Mega bits
Mb/s	Mega bits per second
MPT	Ministry of Post and Telecommunications
MSDP	Marketing, Sales/Contract, Delivery and Invoice/Payment
NGOs	non-governmental organizations
OECD	Organisation for Economic Cooperation and Development
PKI	Public key infrastructure
PSTN	Public Switching Telephone Network

## **ABBREVIATIONS** *(continued)*

RITI	Regional Information Technology Institute
RITSEC	Regional Information Technology and Software Engineering Center
SET	secure electronic transactions
SET	secured electronic transactions
SMEs	small and medium enterprises
SMS	Short Messaging Services
TCP/IP	Transmission Control Protocol/Internet Protocol
UNCITRAL	United Nations Conference on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WAP	Wireless Application Protocol
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

## INTRODUCTION

Buying and selling on the Internet is increasing at an exponential rate, making way for unprecedented opportunities. Individuals, enterprises and governments around the world are using this technological revolution to conduct their transactions. So far, e-commerce has been active mainly among the countries of the Organisation for Economic Cooperation and Development (OECD), headed by the United States. In those countries, new programmes and protocols are being invented and security and legal measures are being adopted, all contributing to the increase in the volume of electronic trading.

Trading on the Internet is most notable in the United States, followed by the European Union (EU). E-commerce in those countries has expanded so quickly that it is expected to account for somewhere between 10 and 25 per cent of world trade by 2003, thus becoming a major component in cross-border trade flows.<sup>1</sup> This indicates the importance of e-commerce in conducting efficient trade, while also immensely reducing its transaction costs.

E-commerce, however, ranks at the top of the hierarchy of Web applications in terms of complexity, impact and future implications.<sup>2</sup> It is associated with a number of problems, including security on the Internet, where e-commerce is still subject to fraud, human misconduct and theft; and application performance, which is very important when using multimedia catalogues and product displays. Bandwidth requirements in e-commerce have to be adequate enough to support transactions that start with the display of products and end with their delivery. Large businesses practicing e-commerce do not usually have a problem in this respect, but small and medium enterprises (SMEs) and consumers cannot afford the cost of the bandwidth needed for heavy traffic. Therefore, it is important that telecommunications facilities be upgraded to support such transactions. Moreover, laws and regulations should reflect this new technological medium by recognizing electronic signatures, certificates and documents.

Policy makers are being challenged by the rapid advance of digital business transactions and communications. The wide availability and use of the Internet has ushered in a new age of communications that demands a change in governance, especially with respect to trade. Developing countries cannot afford to remain outside the online global market provided by the Internet or else they will risk being marginalized. Consequently, it is most important that they do everything possible to embrace this new wave of change and capitalize on its opportunities.

E-commerce can provide opportunities for developing countries to increase their exports and achieve more growth. Knowing that most trading in the future will be conducted electronically, developing countries will have to apply more effort to laying the ground for facilitating this mode of trading. E-commerce can help SMEs expose their products cheaply to new markets. At the same time, it can allow governments to buy capital and other goods more effectively and economically, as well as help them to reduce import bills and increase export returns. This will only happen, however, if individuals, governments and the private sector collaborate to create the right environment for e-commerce to thrive.

Most developing countries are interested in joining the global market and have taken steps towards becoming part of the ongoing communications and information revolution. Some have begun upgrading their telecommunications infrastructure and have licensed Internet service providers (ISPs). Commerce on the Internet should follow, but in order to prepare the ground for effective operations, policy change will be required in many of the sectors of the economy, and governments and the private sector will have to cooperate in adjusting to the new reality.

The ESCWA member countries have been taking steps towards providing the facilities needed to accommodate e-commerce operations. They have been connected to the Internet for the past several years

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<sup>1</sup> United National Conference on Trade and Development (UNCTAD), *Building Confidence: Electronic Commerce and Development*, Geneva, 2000, p. 7.

<sup>2</sup> J. Cashin, *Web Commerce: Developing and Implementing Effective Business Solutions*, Computer Technology Research Corporation, 1999, p. 179.

now, with online connections per capita varying in number from country to country. Although the number of Internet subscribers in the region is still comparatively small, many are involved in commercial activities. This is expected to increase, as more and more people subscribe to the Internet. So far, most of the transactions in the ESCWA region are conducted by individuals and businesses that tend to favour the importation of products, even though the Internet also provides opportunities for the sale of products abroad. Therefore, in order to reduce the gap between imports and exports, a number of measures should be taken by governments and businesses in the private sector, as well as by individuals, to gain a central role in global e-commerce. Banks and financial institutions should also be ready to embrace the transaction payments related to online trading.

This study will look at the experience of e-commerce in the ESCWA member countries. How much have the private sector, the governments and non-governmental organizations (NGOs) done to bring about this change? What steps have already been taken to bring e-commerce into operation in these countries? In addition, it will discuss the factors that need to be put in place to assure a successful e-commerce experience.

Chapter I of the study presents an overview of e-commerce, including its definition, evolution and current status in the world. Chapter II discusses the importance of e-commerce for developing countries, and chapter III dwells on the different elements needed to launch e-commerce, with special focus on what is happening in the ESCWA member countries. Each of the next four chapters deals with the status of e-commerce in four countries: Lebanon, Jordan, Egypt and the United Arab Emirates. Finally, chapter VIII draws conclusions and advances recommendations for the ESCWA member countries to consider in the pursuit of electronic commerce.

## I. E-COMMERCE: AN OVERVIEW

### A. WHAT IS E-COMMERCE?

It will be useful to bear in mind that, for statistical purposes, the definition of e-commerce is focused and confined, since it has to be directly measurable. For policy-making, however, e-commerce is defined in its broader sense, because of the need to assess the impact of e-commerce transactions on the economy of a country.<sup>3</sup> For the purpose of this study, which is geared to supporting sound policy-making, the broad definition of e-commerce as the buying and selling of goods and services on the Internet will be used.

Since the purpose of defining e-commerce is to determine the framework required to assist developing countries in designing and implementing successful strategies for their engagement in the global electronic market, it is also useful to note the three trends that are inherent in the growth of e-commerce—namely, business-to-business (B-to-B); business-to-consumer (B-to-C); and business-to-government (B-to-G). B-to-B is likely to flourish in developing countries once their e-commerce practice begins, since enterprises in those countries possess the means to operate electronically in an effective manner. The second trend, B-to-C, which has been followed lately by companies such as Amazon.com and eBay.com, could also become a trend in developing countries. While local B-to-C is possible in developing countries, selling to consumers abroad is more difficult. In order to establish a B-to-C export market, enterprises in developing countries will have to improve product quality to develop competitive advantage; they can also target their expatriates for the sale of homemade products. The third trend, B-to-G, allows for more efficiency in public procurement once governments in developing countries participate directly in e-commerce transactions.

However, these descriptive trends and definitions of e-commerce may not be enough. An operational definition may be more practical for developing countries to formulate strategies and take action in pursuing e-commerce. In fact, two operational definitions of e-commerce have been developed by the United Nations Conference on Trade and Development (UNCTAD). The first definition, labelled as the “Horizontal” definition, revolves around enterprise concerns. When enterprises decide to operate electronically, they will have to check their e-commerce supply chain through a sequence of business functions—namely, Marketing, Sales/Contract, Delivery and Invoice/Payment (MSDP model). This definition provides enterprises with a practical checklist to identify obstacles and opportunities.

The second operational definition, labelled as “Vertical”, takes into account the concerns of governments. It provides a quick checklist to the strategic choices governments have to make to create an adequate environment for e-commerce to grow. The Vertical definition entails Infrastructure (telecommunications); Messages (harmonization and standardization of e-messages); Basic rules (World Trade Organization [WTO], intellectual property rights); Sectoral rules (banking and security, music and movies traded online, education and health); and Applications (designing effective web sites and implementing adequate corporate strategy). This IMBSA model also highlights the areas to which international organizations such as UNCTAD, WTO, the International Telecommunications Union (ITU) and the World Intellectual Property Organization (WIPO) could contribute in helping governments put in place the necessary rules, regulations and standards required for these countries to engage in global e-commerce.<sup>4</sup>

### B. THE EVOLUTION OF E-COMMERCE

While electronic transactions have been common practice among large enterprises for more than two decades through electronic data interface (EDI), e-commerce only began some ten years ago when the Web was developed as a generalized tool. In fact, the Web is currently the Internet application most popular with

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<sup>3</sup> Organisation for Economic Cooperation and Development (OECD), “Defining and measuring e-commerce: a status report”, 1999.

<sup>4</sup> UNCTAD, *Building Confidence*, op. cit., pp. 14-16.

individuals who want to have online sites 24 hours a day, either to disseminate information, advertise or sell and provide goods and services.<sup>5</sup>

A quick look at the evolution of the Internet and the Web would also help in understanding the evolution of e-commerce. The Internet was launched almost three decades ago as an experimental network of the Advanced Research Projects Agency of the United States Department of Defense and ran under a Transmission Control Protocol/Internet Protocol (TCP/IP). Gradually, Internet access moved from the military to public institutions and the academic community. In the late 1980s, Berners-Lee, a researcher at the European Laboratory for Particle Physics in Geneva, created the Web as a hypertext groupware that allowed physicists to post information online. Hypertext allowed documents to reference one another so that "the Web, with its adaptable structure, could more adequately describe real life than a rigid database." Moreover, the Web could span hardware platforms and front-end the majority of Internet applications. Consequently, Berners-Lee further developed the Web as a generalized tool and slowly began to introduce it to the Internet. However, the Web only surged after the first browser, "Mosaic", was publicized. Currently, the Web is estimated to be growing at 50 per cent per month, with the number of sites doubling every 53 days.<sup>6</sup>

The Web allows any user to access information simply by using the mouse. In addition to its easy-to-use interface, the Web spans hardware platforms, allowing any browser at any platform to look at any site on the Web. This has made the Web very popular, to the extent that in 1995 J. P. Morgan estimated that 20 per cent of Web traffic comprised 40 per cent of total Internet traffic.<sup>7</sup> Consequently, this study will use the term Web to mean the Internet. With the surge in the number of Internet users and the transformation of the Web into a virtual forum where people spent hours visiting sites, corporations saw and grasped the opportunity of using this forum for enhancing business. They moved online, created their web sites and offered good reason for users to visit them.

### C. THE STATUS OF E-COMMERCE

Although there are various estimates as to the volume of electronic transactions, all agree that the flow of goods and services traded on the Internet will increase at an exponential rate.

According to Forrester Research, Inc., world B-to-B and B-to-C e-commerce will have totalled US\$ 657 billion in 2000, surging to US\$ 6.8 trillion in 2004 (see table 1). North America's e-commerce is expected to top the list of regions in both 2000 and 2004, registering \$US 509.3 billion and \$US 3.5 trillion, respectively. Western Europe is expected to come second as a region in 2000, with US\$ 87.4 billion in sales, followed by the Asia Pacific region with US\$ 53.7 billion for the same year. However, Asia Pacific will move to second place in 2004, leaving Western Europe in third place, with electronic transactions amounting to US\$ 1.6 trillion and US\$ 1.5 trillion, respectively.

The Middle East and Africa are not included in the table and could be considered as part of the "rest of the world." Forrester's estimations in 2000 for the rest of world amounts to US\$ 3.2 billion, while in 2004 the figure is estimated at US\$ 68.6 billion. This reflects the need for developing countries, including the ESCWA member countries, to devise a strategy to enhance their position in the global economy, especially since e-commerce in Western Europe, the ESCWA region's first trading partner, is increasing exponentially.

At the country level, projections for United States e-commerce sales put it in the first place, with the highest sales in the world all through the period 2000-2004. Internet commerce in the United States is expected to amount to US\$ 488.7 billion and US\$ 3.2 trillion in 2000 and 2004, respectively, followed by Japan where electronic transactions are expected to increase from US\$ 31.9 billion in 2000 to US\$ 880.3 billion in 2004. Germany's e-commerce sales, which are expected to earn it third place, will amount to US\$

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<sup>5</sup> D. Cameron, *The World Wide Web: Strategies and Opportunities for Business*, Computer Technology Research Corporation, 1996, p. 16.

<sup>6</sup> Ibid., pp. 8-16.

<sup>7</sup> Ibid., p. 17.

20.6 billion and US\$ 386.5 billion in 2000 and 2004, respectively. These figures indicate that the three trading giants are going to conduct more and more of their business electronically. The 2004 e-commerce sales as a percentage of total sales are expected to reach 13.3 per cent in the United States, 8.4 per cent in Japan and 6.5 per cent in Germany. This trend will probably drive the rest of the world into increasing their e-commerce activities. Businesses will probably deal with other businesses that are also e-business, and businesses that are outside the electronic chain might probably be left aside. These figures should compel developing countries to undertake serious preparations for effective engagement in e-commerce.

Clearly, the proliferation of the Internet is the basic factor behind the progress of e-commerce. The speed of its proliferation is also behind the speed with which e-commerce is progressing. In fact, the Internet's expansion is taking place at an unprecedented pace in comparison with other telecommunications media. It took the radio 35 years, the personal computer 16 years and the television 13 years to reach 50 million users, while it took the Internet only 4 years to reach 50 million people.<sup>8</sup>

TABLE 1. INTERNET COMMERCE  
(In billions of US dollars)

	2000	2001	2002	2003	2004	Percentage of total sales in 2004
<b>Total</b>	<b>657.0</b>	<b>1 233.6</b>	<b>2 231.2</b>	<b>3 979.7</b>	<b>6 789.8</b>	<b>8.6</b>
<b>North America</b>	<b>509.3</b>	<b>908.6</b>	<b>1 495.2</b>	<b>2 339.0</b>	<b>3 456.4</b>	<b>12.8</b>
United States	488.7	864.1	1 411.3	2 817.2	3 189.0	13.3
Canada	17.4	38.0	68.0	109.6	160.3	9.2
<b>Asia Pacific</b>	<b>53.7</b>	<b>117.2</b>	<b>286.6</b>	<b>724.2</b>	<b>1 649.8</b>	<b>8.0</b>
Japan	31.9	64.4	146.8	363.6	880.3	8.4
Australia	5.6	14.0	36.9	96.7	207.6	16.4
<b>Western Europe</b>	<b>87.4</b>	<b>194.8</b>	<b>422.1</b>	<b>853.3</b>	<b>1 533.2</b>	<b>6.0</b>
Germany	20.6	46.4	102.0	211.1	386.5	6.5
United Kingdom	17.2	38.5	83.2	165.6	288.8	7.1
France	9.9	22.1	49.1	104.8	206.4	5.0
<b>Latin America</b>	<b>3.6</b>	<b>6.8</b>	<b>13.7</b>	<b>31.8</b>	<b>81.8</b>	<b>2.4</b>
<b>Rest of world</b>	<b>3.2</b>	<b>6.2</b>	<b>13.5</b>	<b>31.5</b>	<b>68.6</b>	<b>2.4</b>

Source: Forrester Research, Inc.

Note: Totals may not equal sums in the grey rows due to rounding of figures.

Despite this euphoria in information and communications technology (ICT), e-commerce has not developed in full. It was estimated that in 1999, worldwide Internet users had reached 260 million. This figure could have expanded exponentially, allowing for a bigger volume of e-commerce, had it not been for a number of impediments, in particular with regard to B-to-C trade. One of the factors that have precluded online trading from proceeding full blast is the lack of awareness of e-commerce, especially in developing countries. In addition, the lack of secured online payments, cumbersome and hard-to-use web sites, delays in delivery, lack of confidence in transaction procedures and fear of contract repudiation have all contributed to the could-have-been-better performance of e-commerce. In sum, with more awareness of e-commerce operations, coupled with solutions for payment security, privacy and non-repudiation of contracts, e-commerce would surge in an unprecedented manner. With the exception of the United States, e-commerce worldwide is still in its nascent stage, even in the OECD countries.

<sup>8</sup> Al-Iktisad Wa Al-A'mal, Special Issue, October 1999, p. 27.

The fact remains that, while it may be a matter of time before e-commerce begins to change the global economy; it is here to stay and developing countries will have to be prepared. Although e-commerce is proceeding at an accelerated speed, the electronic market is relatively small and has not realized its full capacity. It is expected to reach only about 8.6 per cent of world total sales in 2004, owing to the reluctance of the developing world to pursue e-commerce. For the same year, the United States ratio of e-commerce sales to total sales is projected at 13.3 per cent. The United States will continue to be the leader in e-commerce, with B-to-B transactions accounting for most of its electronic trading. This is contrary to what has been propagated by the media—that online B-to-C trading, such as selling books, wines and computers, is accounting for a large portion of e-commerce. Figures have revealed that most online trading has been taking place between businesses supplying other businesses. In fact, the value of B-to-B transactions exceeds all estimates of the value of B-to-C transactions.<sup>9</sup>

In sum, e-commerce is increasing and has become another force of globalization reaching almost every country in the world. Although it is still in its primary stages, e-commerce is expected to surge once its quick and easy approach to doing business becomes popular. The United States is leading the world in electronic trading and will continue to do so, with its B-to-B market accounting for most of the trading. Europe and Asia Pacific will alternate in holding the second place in e-commerce, while the rest of the world still has a lot to catch up with.

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<sup>9</sup> OECD, "Dismantling the Barriers to Global Electronic Commerce", p. 2. [www.oecd.org/dsti/it/ec/prod/dismantl.htm](http://www.oecd.org/dsti/it/ec/prod/dismantl.htm).



## **II. E-COMMERCE AND ECONOMIC GROWTH IN DEVELOPING COUNTRIES**

### **A. WHY OPT FOR E-COMMERCE?**

Developing countries lag behind in e-commerce for a number of reasons, among them limited Internet connectivity, the small number of personal computers per capita, low computer literacy and, most importantly, the lack of awareness on e-commerce issues by both consumers and businesses (especially SMEs).

Despite these facts and although the infrastructure for adequate e-commerce operations is still lacking, some private e-commerce initiatives have appeared in many developing countries. Why are these initiatives emerging, and why do most Governments announce interest in e-commerce and are preparing the ground to embrace this new means of doing business? In answering these questions, we have to clarify that e-commerce is just a new way of trading, with the exception that it makes geographical factors irrelevant and diminishes distances, bringing consumers directly to producers and vice versa. Moreover, e-commerce has the capability of delivering products electronically without moving them across borders or delivering them in a conventional manner.

E-commerce has become another force of globalization, like investment and telecommunications. It is poised to help the progressive growth of developing countries. Small enterprises exposed on the Internet may become players in global markets and find wider opportunities for doing business. If developing countries undertake e-commerce operations properly, they will have a better chance to integrate into international trade.

For the past decade, e-commerce has asserted itself as the future method of trading. Already the major trading giants, the United States, the European Union (EU) and Japan, have taken an enormous step into online trading, especially in B-to-B e-commerce, and all indications are that they will increasingly use this efficient means of doing business. Enterprises in the developed countries will prefer to trade with partners who are online and are easily accessible. Therefore, businesses that are not easily accessible, in both developed and developing countries, will risk being marginalized in the global marketplace.

E-commerce is becoming increasingly popular, because it is a cheaper, easier, more efficient and faster way of trading; it is preferred by businesses as well as by consumers. However, the right environment is needed to support e-commerce—the right technology, adequate telecommunications services, the necessary legal environment and secured banking and Internet operations, as well as the development of human resources in the area of ICT.

### **B. E-COMMERCE AND DEVELOPMENT: SMEs**

Consumers and businesses connected to the Internet around the world have access to all business sites 24 hours a day; with a mouse click they can browse through a myriad of products produced anywhere in the world. They have multiple choices from which they can select the most suitable. Many merchants in developing countries, especially SMEs, are not aware of the benefit of being online, where they can compete with multinationals and other more established businesses in the developed world. The Internet facility creates new opportunities for large-scale multinational companies and small businesses alike. In fact, SMEs are the greatest beneficiaries of e-commerce. By being connected to the Internet, SMEs have access to new markets, which they could never afford otherwise. With a few thousand dollars, anybody can start an e-commerce business. It is not only that merchants can market their products cheaply and globally but also that the cost of electronic transactions is less than the cost of transactions undertaken in a conventional way. Moreover, SMEs can process contracts and payments and deliver products to consumers without intermediaries.

The Internet allows SMEs in developing countries to access markets with high purchasing power, such as those in North America and Europe. Through their web sites, they could easily reach the many expatriates who live there and would have a demand for products from their home country. Moreover, doing business on the Internet provides enterprises with convenient access to the best in raw materials and capital goods.

While SMEs reap advantage from e-commerce, consumers enjoy equal benefits. Consumers can shop for better prices from a greater choice of products. They can also break away from the physical constraints of the neighbourhood or town shop and purchase goods and services from around the world via the Internet. With such power of choice, consumers can have more influence on the quality and price of the goods they purchase. One example of e-commerce advantage to customers is Internet auctions, virtual marketplaces that bring together a countless number of buyers and sellers. Auctions are very efficient price-regulating tools; buyers bid to reach an acceptable price, which is usually as close as possible to the true market price of the item.

At the national level, e-commerce affects a country's competitiveness, enterprise mobility and consumer behaviour. Today, most businesses located in developing countries do not have the ability to expand, due to limited markets. E-commerce will immediately create new markets for them by expanding their reach and, consequently, their turnover. Moreover, national integration into the global electronic marketplace will enable local consumers to access international markets and find better and cheaper products than those available at home. As a result, both consumers and small businesses alike will be able to break away from the monopolistic pressures characteristic of large corporations in small local markets. E-commerce will also allow SMEs to benefit from access to affluent international markets that were otherwise accessible only to multinational companies and, hence, to decrease the gap between international corporations and SMEs in developed countries.

At the same time, by opening up to global markets, SMEs face the serious challenge of competition with foreign goods and services. Companies producing locally will have to raise their manufacturing and service standards to produce better products for local and international markets. Otherwise, they will lose their local markets to foreign e-commerce ventures that provide better quality products for a cheaper price. Even though this fact presents local businesses with a major challenge, it also creates greater long-term benefits for companies as they become more flexible to change, forcing them to raise their product quality and management standards to international levels.

### C. INFORMATION REVOLUTION AND DEVELOPMENT

One area in which electronic commerce can enhance the competitiveness of developing countries in global trade is through the exchange of experiences among countries, both developed and developing. Through such an exchange, countries could help each other identify reasons for success, enabling them to devise better strategies to develop the right climate for the growth of their e-commerce operations. In fact, e-commerce has led to a redistribution of resources. It has led to changes in the capital and labour markets and to the allocation of capital and human resources to the upgrade of technology in certain industries. The development of adequate skills in human resources would allow developing countries to capitalize more on the benefits of e-commerce.<sup>10</sup>

The rise of information, as a major factor in development, has led to global strategies that are centred on information-intensive activities, and new power relations have emerged in the process.<sup>11</sup> This information revolution, labelled the "new economy", has human resources as central to its development and continuity. It has actually brought the human factor to the forefront in the mechanism of competitiveness. This can be to the advantage of developing countries possessing human resources that can be trained, educated and prepared in skills to benefit from this technological revolution. We have come to live in a world where investment buys new concepts to create rather than new machines.<sup>12</sup>

Since the "new economy"<sup>13</sup> is an economy based on information, knowledge, education and culture, it may help developing countries participate more effectively in a global economy.<sup>14</sup> Developing countries

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<sup>10</sup> UNCTAD, *Building Confidence*, op. cit., p. 123.

<sup>11</sup> UNCTAD, "Can electronic commerce be an engine of global growth?", 1 June 1999, p. 7.

<sup>12</sup> UNCTAD, "Training in the area of electronic commerce: needs and possibilities", 16 April 1996, p. 3.

<sup>13</sup> When talking about the "new economy", we talk about a world in which people work with their brains rather than their hands.

<sup>14</sup> UNCTAD, "Can electronic commerce be an engine of global growth?", 1 June 1999, p. 6.

could choose to work on delivering services that are culture specific and in which they have comparative advantage. They can, for example, translate into their languages a number of digitalized services, such as books, health consulting and educational packages. They can also disseminate their music and cultural habits and promote tourism.

#### D. WHAT SHOULD BE DONE

The literature on e-commerce shows that for developing countries and their businesses to have a meaningful participation in e-commerce, they have to address in a serious manner three basic areas: access, know-how and trust. Telecommunications and Internet availability at affordable prices to their citizens are basic necessities that the governments of developing countries should work hard to provide. Proper and affordable access to telecommunications should be expedited and spread as widely as possible to avoid one of the negative consequences of e-commerce today, known as “the digital divide”. If the issue of Internet access for all is not addressed properly, the danger of widening the gap between the “knows” and the “know nots” in a society, as well as between countries, will increase.

Another area that should be addressed is know-how. This refers to proper knowledge and experience in computers and Internet use, which should be spread among the largest mass of citizens possible. Governments should add computer literacy and Internet courses to the curriculum in all schools in order to nurture the future professionals of their countries.

A third area to be addressed is trust on the Internet (which will be dealt with in more depth in the next chapter). This area includes security, privacy, intellectual property rights and consumer protection. These issues were found to be of more concern than access and know-how to businesses and consumers in the developed countries, while the e-commerce issues that mattered most for developing countries were affordability and adequate access<sup>15</sup> and know-how. In conclusion, e-commerce could be an engine of growth for developing countries if they know how to capture the opportunity and prepare for it.

#### E. ESCWA MEMBER COUNTRIES AND DEVELOPMENT

Comparing ESCWA member countries with developed countries, the main concern lies in preventing the widening of the digital divide.<sup>16</sup> This gap exists and may increase rapidly if societies do not act to prevent it. Most of the ESCWA member countries, to varying degrees, have little or no Internet proliferation. They lack the adequate infrastructure for the development of e-commerce. Laws are still burdened by outdated bureaucratic procedures. More importantly, businesses in the ESCWA member countries lack awareness of the benefits of e-commerce and the skills needed to take advantage of them. Some of the ESCWA member countries are burdened by economic, financial and social problems, leaving little resources to devote to the development of the Internet and e-commerce. Developed countries tend to work with countries that can act fast, countries that are Internet-enabled and are using the latest technologies and logistic systems to conduct business. Developed countries prefer to deal with markets they can reach rapidly, markets from which they can buy goods and from which they can clear goods from customs quickly and efficiently.

If the situation does not change in the near future, the ESCWA member countries will not only be unable to integrate into worldwide markets and reap the benefits of globalization, they will also find their traditional customers migrating their businesses to countries with a more efficient business chain.

To be able to integrate smoothly into the global marketplace, ESCWA member countries will have to become part of the virtual market. This will demand a major leap in the standards, procedures and skills of both local businesses and governments. To achieve this, coordinated efforts on the part of government, businesses and non-governmental organizations (NGOs) will be required. To sell online, local businesses

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<sup>15</sup> WTO, Seminar on Electronic Commerce and Development, Summary Report, 23 March 1999, p. 13.

<sup>16</sup> Digital divide is a term used to define the difference between the countries that are embracing the digital revolution and those that are lagging behind.

will have to increase their efficiency and the quality of their products and services and decrease overhead costs in their business operations. They must also begin establishing an online presence and learn the skills necessary to enter the global electronic marketplace. Businesses should overcome fear of change and start investing seriously in e-commerce and new technologies.

Governments, on their part, will have to reduce taxes and simplify custom regulations that add external cost to products. They will have to get rid of bureaucratic establishments and streamline all procedures that interfere with the business chain. They will also have to attract the investment in infrastructure necessary for the development of e-commerce. Governments should encourage local businesses to embrace e-commerce and stress the necessity of being prepared for globalization, the sure way to economic survival. Otherwise, they will increasingly find themselves marginalized in the global markets.

ESCWA member countries possess attributes in common that should assist them in creating successful e-commerce in the region. They all share the same culture and speak the same language. They have to capitalize on these facts in order to boost e-commerce among them. Entertainment, education, advertising, health and tourism services are in big demand in the region. Targeting the region and expatriates around the world should be a good start for the ESCWA member countries in e-commerce.

### III. THE PILLARS OF E-COMMERCE

To arrive at successful e-commerce transactions will require some prior key preparations. Governments have a central role in constructing the basic pillars of e-commerce, which range from raising awareness and expanding know-how to upgrading the technical requirements of Internet access and drafting the laws and regulations required. In short, the pillars of e-commerce are: a modern telecommunications infrastructure with a full complement of rapid and efficient dial-up facilities; adequate and affordable Internet service providers (ISPs); human resources skilled in computer and Internet operations; guarantees of user security and privacy; legislation and regulations covering the various aspects of e-commerce practice; banking and credit facilities to handle the financial component of online trading; and, finally, the availability of efficient shipping and cross-border facilities to ensure the smooth and reliable delivery of goods.

Construction of these pillars will require the existence of a governmental body or a programme charged with planning, managing and coordinating the different components to ensure development of an optimum environment for e-commerce. In the ESCWA region, for example, Egypt now has a Ministry of Communications and Information Technology, precisely created to enhance the environment for ICT interests in general and e-commerce in particular.

#### A. AWARENESS: ENHANCING THE MARKET SIZE OF INTERNET USERS

One of the impediments to e-commerce is the small number of Internet users. This is caused mainly by lack of computer skills and Internet awareness. Most of the developing countries have low per capita possession of personal computers and some even have a low rate of fixed telephone lines per capita (see table 2). This, in itself, hinders the progress of e-commerce, even when the private sector appears enthusiastic about online trading. Most of those countries record a low number of Internet penetrations, which indicates a small electronic market potential.

TABLE 2. TELECOMMUNICATIONS, PERSONAL COMPUTERS AND INTERNET DATA IN THE ESCWA REGION

Country	Internet users per 10,000 inhabitants		Estimated PCs per 100 inhabitants		Cellular mobile subscribers per 100 inhabitants		Main telephone lines per 100 inhabitants
	1998	1999	1998	1999	1998	1999	1998
Egypt	15.16	29.75	0.91	1.12	0.14	0.14	6.02
Bahrain	311.45	526.32	9.34	10.53	14.34	20.07	24.55
Iraq	..	..	..	..	..	..	3.10
Jordan	99.24	123.42	1.26	1.39	1.15	1.15	8.34
Kuwait	331.31	527.20	10.49	12.13	13.8	15.82	23.59
Lebanon	313.38	618.07	3.92	4.64	15.67	19.56	19.43
Oman	83.96	203.21	2.10	2.64	4.33	4.92	9.23
Qatar	345.42	763.76	12.09	13.58	11.36	14.26	25.99
Saudi Arabia	9.91	143.55	4.96	5.74	3.11	3.11	14.26
Syrian Arab Republic	6.52	12.72	1.30	1.46	..	0.03	9.54
United Arab Emirates	849.98	1668.26	10.62	12.51	20.96	34.71	38.90
Yemen	2.37	5.72	0.12	0.17	0.11	0.15	1.48
World	260.77	439.77	6.11	6.78	5.39	8.05	14.27

Source: International Telecommunications Union. [www.itu.org](http://www.itu.org).

Note: Two dots (..) indicate data not available.

The lack of Internet and computer awareness affects businesses, especially SMEs, which lack awareness and are not cognitive of the benefits that Internet trading can offer them. Awareness is specifically lacking in the domain of e-commerce. Although some businesses and consumers are familiar with access to the Internet, they lack knowledge of and trust in e-commerce transactions. They are not aware of the different security mechanisms that are available to protect them against fraud on the Internet. Some

lack knowledge about the latest methods for authentication, integrity and non-repudiation. Others lack the knowledge concerning secured banking facilities that are put in place to facilitate e-commerce transactions.

Governments, trade promotion organizations and NGOs, as well as international organizations, should make a concentrated effort to raise awareness about e-commerce transactions. Universities and educational institutions should offer or strengthen courses on e-commerce practice and management, in order to prepare a new breed of professionals in this area as soon as possible.

In the ESCWA region, as shown in table 2, we find that not all the member countries fall into the typical "developing" pattern of low Internet connectivity and a small number of PCs per capita. In 1999, Lebanon and most of the Gulf States (namely, Bahrain, Kuwait, Qatar and the United Arab Emirates) recorded the number of Internet users per 10,000 inhabitants at more than the world average, while the rest of the ESCWA member countries recorded figures much less than the world average. Thus, while the United Arab Emirates had 1668.2 Internet users per 10,000 inhabitants in 1999, Yemen had only 5.7 Internet users. Similarly, the number of PCs in the ESCWA member countries also varies. Bahrain, Kuwait, Qatar and the United Arab Emirates have almost twice the number of PCs per hundred inhabitants than the world average, while the rest of the ESCWA member countries show figures lower than that of the world.

The Governments of the ESCWA region should adopt a strategy that aims at increasing computer skills and Internet awareness. They should also make PCs available at affordable prices in order to enable a critical mass of the population to become computer literate. Governments could also establish centres in rural areas to help increase computer and Internet literacy among the rural population.

## B. TELECOMMUNICATIONS INFRASTRUCTURE: ADEQUATE ACCESS

### 1. *Tele-density infrastructure*

One of the most important pillars of e-commerce is the availability of an adequate telecommunications infrastructure that will enable the people of a country to connect to the Internet and thus reach new markets and proceed with online trading. To access the Internet, telephone lines are the minimum requirement; they should be made available to everyone, at affordable prices and with adequate capacity. The majority of developing countries, so far, do not have much more than simple telephone networks that are, in most cases, inadequate for e-commerce transactions, although many of them have recently been working to upgrade their telecommunications system in preparation for Internet use. These efforts, however, have been mainly directed towards enabling citizens to access the Internet for the purposes of e-mail, chatting and research and not for e-commerce operations.

To create an enabling e-commerce environment, telecommunications facilities should support multimedia services (voice, data and image), since most e-commerce sites and applications are sophisticated and present their products through videos and state-of-the-art cataloguing that require high bandwidth and advanced telecommunications capabilities. Basic facilities could be upgraded in several ways to ensure efficient, rapid Internet connections. New technologies, such as fibre optics, microwave and cable connections, have become available at varying costs. There is also the technology known as Integrated Services Digital Network (ISDN), which can support high-speed multimedia traffic and has become available for use by developing countries. With ISDN, the same telephone line can be used simultaneously for multimedia communication and as an access line for the Internet. It is worth mentioning that, in developed countries, ISDN is a common feature and is now regarded as rather old in comparison with the many new and advanced technologies that are now available.

The fact remains that most developing countries do not have widespread telephone connections, even for simple, fixed telephone service, although those same countries have introduced mobile phones. The latter, however, are not widely used owing to the fact that only the affluent can afford them. Therefore, the first problem that developing countries have to address is how to make fixed lines more available and affordable to the maximum number of inhabitants. The second problem to be addressed is how to upgrade the telecommunications system appropriately to create an enabling e-commerce environment. Many of the

telecommunications systems in developing countries are government-owned, and serious efforts should be made to privatize that sector.

As for the ESCWA region, most of the member countries have taken steps towards upgrading their telecommunications infrastructure. Some, like Jordan, have even privatized the telecommunications sector. However, with the exception of the Gulf States, the number of fixed telephone lines per 100 inhabitants in the ESCWA region still falls short of that of developed countries. While Bahrain, Lebanon, Qatar, the United Arab Emirates and Saudi Arabia have higher rates of fixed telephone lines than the world rate, Egypt, Iraq, Jordan, Oman, the Syrian Arab Republic and Yemen have rates that are lower than the world average. The Yemeni Government has a big job ahead of it to raise the country's low rate of 1.48 fixed lines per 100 inhabitants to the world rate of 14.27 (see table 2).

As for mobile phones, only Bahrain, Lebanon, Kuwait, Qatar and the United Arab Emirates record rates that are higher than the world rate, while those of the rest of the ESCWA member countries are lower. During the past few years, the use of mobile telephones has multiplied in most of the ESCWA member countries. In Egypt, for example, it is expected that the number of mobile phones in 2000 will have doubled that of 1999.

## *2. Internet services*

Internet access is provided by what are commonly known as Internet service providers (ISPs). These providers bring the Internet to any computer, allowing its user to reach and explore a vast global expanse of information and services. Through an ISP, anybody with a computer, a modem and a telephone line can have access to the Internet and establish a presence in the cyber world. ISPs also provide services that are essential for smooth and consistent network access, which requires a team of skilled technicians to control and ensure that Internet connections remain problem-free.

In general, individuals accessing the Internet have less complex needs than businesses. Businesses therefore need to subscribe to ISPs whose services are highly competent technically and are well connected to the entire Internet world. The ISP systems, their brands and communication hardware are good indicators of whether an ISP is equipped to provide all the services entrepreneurs need to conduct their online business operations.

Moreover, the size of the bandwidth connecting the ISP with the Internet is an important factor. This determines how fast a business or an individual can get connected to the Internet. If an ISP is operating on a bandwidth connection of 56 kilo bits per second (Kbps) or 64 Kbps to the Internet, it would only take a few 28.8 Kbps or 14.4 Kbps modem dial-ins to create a serious congestion problem for users. In order to handle today's Internet traffic, it is believed necessary (at least, in the United States) for an ISP to have a full T1 (1,544 mega bits per second [Mbps]) line to the Internet.<sup>17</sup>

Another indicator of the adequacy of an ISP is the distance of its connection to the closest Internet backbone. Some ISPs are linked to network providers who are themselves connected to the Internet via several other poorly maintained providers. The competency of its staff, however, is one of the most important elements in the smooth running of an ISP. With competent and technically qualified staff, most of the sophisticated hardware requirements need not be an issue.

ISPs also provide leased lines, which are open high bandwidth connections to the Internet that host web sites and also sometimes design sites. ISPs can also provide web site owners with important statistics on the number and the source of hits on their sites.

ISPs in the ESCWA region receive their lines from the telecommunications authorities, which are mainly government-owned. In Jordan and Lebanon, ISPs are similar; they provide the same services and have the same problems of competition over a small number of Internet users. The low Internet penetration

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<sup>17</sup> "A critical look at Internet service providers". [www.pageland.com/isp/frames/frmain](http://www.pageland.com/isp/frames/frmain).

in the region makes it unfeasible for ISPs to provide better services, especially since the fees they have to pay to lease their lines are high compared to those in developed countries. As a result, they are unable to reduce their prices and also cannot afford to upgrade their services. This drives affluent Internet users in most of the ESCWA region to connect with international ISPs.

In Egypt, although per capita Internet use is lower than in Jordan and Lebanon, the market is larger, since the population of Egypt is almost 15 times higher. ISPs there benefit from a large market of Internet users and from the fact that Telecom Egypt has totally liberalized Internet service provision. There are currently more than 60 ISPs operating in Egypt, and Telecom Egypt primarily controls access to the international gateway through Internet backbones in the United States and France. The total number of Internet subscribers in Egypt amounts to 250,000, which is still a small percentage of a population that exceeds 66 million. Services and prices are expected to improve now that a contract has been signed with a private company to establish an Internet backbone in Egypt, and tariffs have been reduced by 50 per cent, bringing prices close to international averages.

In the Gulf States, in general, telephone density is high and telecommunications facilities are advanced and available at competitive prices. The United Arab Emirates has one sole ISP, Etisalat, which is owned by the Government. Although Etisalat is performing well, many think that it is time for another ISP, in order to generate the competition that could lead to better services and reduced prices. Plans are under way in Dubai to contract ISPs other than Etisalat to service Internet connections in the forthcoming Dubai Internet City.

### *3. Web site design and content*

One area that could be listed under Internet services is web site design and development. In order to enable SMEs to venture into the vast world of Internet trading, the design and content of sites are important factors in attracting Internet surfers. A web site must promote the image of a company and present its products or services; it must reflect quality and effectiveness. Site creation, therefore, should be given serious attention in order to attract and keep customers. Creating an effective site involves careful planning, strong management support, choice of the right technology and adequate funding.

One important part of web site creation is the Web storefront, which should load quickly and be simple to navigate. It should convey credibility and provide ample information about the business. Web sites should also register with a number of different search engines (such as Yahoo, Netscape and others). They should also advertise their Internet presence in magazines, books and online newsgroups. Browsers visiting the site should be able to find products easily and quickly, and also be able to have their orders processed quickly and securely. The site, in turn, should produce and send a receipt quickly, as well as follow through on speedy delivery of the product.<sup>18</sup>

SMEs that can't afford expensive web site creation can visit resources on the Internet and research magazines and other literature to help them in planning the design of their site. Businesses can design the site themselves, since they are familiar with the details that will project the company's image and products. However, the negative side of designing one's own web site is the fact that effective site design requires a level of experience and expertise that is often unavailable in-house. This is an issue that should be given serious consideration. One solution is to have a trade promotion organization assist SMEs in designing their sites or create a cooperative set-up for a number of SMEs in which the costs of Web site designs and advertising are shared by all the members.

In the ESCWA member countries, large companies generally outsource their Web designs to international firms. The web sites of SMEs are usually slow and cumbersome to browse through and lack information, which leads customers to look for alternative sites. Moreover, most of the sites are not made for actual online selling, but are made instead for presence and cataloguing. Because web site designs for

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<sup>18</sup> Lebanese American University, working paper for the Seminar on Electronic Commerce, 5-6 May 2000, Beirut, pp. 20-23.



e-commerce purposes are important, governmental and non-governmental organizations should address the need for building capacity and providing training for SMEs in this regard.

### C. ONLINE SECURITY

Open networks are increasingly being used as a platform for communications in society today. The Internet is merely the beginning of a new worldwide information infrastructure, alternately described as the “information superhighway” or “global information infrastructure”. New forms of business configurations are emerging—“virtual” enterprise, work collaboration across the globe, electronic banking, private communications (e-mail) and organization of public services (electronic government, tax declarations).

The insecurities typical to open networks, however, accompany such developments. Although electronic communications offer commercial opportunities, insecurity arises from the fact that communicating parties are remote and, most of the time, do not know each other. For Internet and its global information infrastructure to carry out communications effectively and with security, it is important to be able to identify the individual communicating over the open network, without regard to the physical location from which he or she communicates or the means of communication used.

Technologies and services have been applied in addressing the two fundamental concerns of security and trust as related to transactions via electronic communications. Many network authentication technologies are now available. Almost all of them use cryptographic techniques (most widely adopted) to verify the origin and integrity of users, files, messages, software modules, resource requests and network modes. These security programmes use a logon procedure involving at least two authentication steps. The first is the submission of a password, while the second involves the use of a secure token, a smart card, biometrics, or a digital signature.<sup>19</sup> Cryptography basically has two important applications: “electronic signature” and “encryption”.

Although electronic signature and digital signature are terms that are sometimes used interchangeably, they are not identical. Electronic signature generally refers to an identifier that is attached to an electronic message and whose purpose implies the legal concept of a “signature” applied in an electronic world. Digital signature, on the other hand, is a type of electronic signature based on a method called “cryptography”, “public key cryptography” or “asymmetric cryptography”.

Electronic signature has two main functions: authentication and integrity. Authentication helps to prove the origin of the data message. Integrity verifies whether data has been altered. As for digital signature—one of the most adopted technologies for electronic authentication—it is an application in which a private key is used to “sign” a message, while a corresponding public key is used to verify the “signed” message. It is essential to know that a digital signature also ensures “non-repudiation”, a function that prevents the signatory from denying that he or she actually sent the message.

Encryption helps keep data confidential by disguising a message in such a way as to hide its contents. Encryption directly affects and enforces the right to privacy. However, it may cause a threat to the national security, since it can serve to facilitate crime and terrorism activities.

Technically speaking, digital signatures and encryption are usually created and verified by similar techniques of asymmetric cryptography. Two complementary keys are generated and assigned to a user. One of them is kept private (*private key*), whereas another is published (*public key*). Moreover, the private key cannot be computed from the public key. In order to verify the authenticity and integrity of the incoming message signed with a digital signature, the recipient must have access to the signer’s public key. Unlike a written signature, a digital signature has no intrinsic association with anyone: it is only a numerical sequence.

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<sup>19</sup> J. Cashin, *Web Commerce: Developing and Implementing Effective Business Solutions*, Computer Technology Research Corporation, 1999, pp. 157-158.

For this reason, an additional service or mechanism is needed to associate a particular person or entity, physical or legal, with a digital signature.<sup>20</sup>

Intermediaries<sup>21</sup> in electronic communications, known as certification authorities (CAs), are specialized in providing this service. Once a CA authenticates the ownership and the characteristics of a public key, it issues a digital certificate<sup>22</sup> containing this key and other relevant details.<sup>23</sup> Digital signatures, therefore, are linked to the trustworthiness of CAs.

Awareness about online security in the ESCWA region is lacking, especially among SMEs. It is necessary to have knowledge about the different security needs applicable to the different levels of e-commerce transactions. Raising awareness about what is available is important to both the entrepreneurs and customers of e-commerce—they only hear the exaggerated stories of online fraud, but know little about how to protect their electronic transactions.

Banks in the ESCWA region should also expedite installing security products to protect their transactions. Banks are central for e-commerce payments and need to ensure secured payment systems. Without bank security, it would be difficult, if not impossible, to have efficient and thriving e-commerce. Few banks in the region have installed the secured socket layers that are necessary for preventing fraud and building the confidence of businesses and consumers.

Online security products are available in most of the member countries of the ESCWA region, with the exception of Iraq and the Syrian Arab Republic (where the Internet was only recently introduced). Public Key Infrastructure (PKI) is available in the Gulf Cooperation Council (GCC) countries, as well as in Jordan and Lebanon. PKI technology requires the existence of CAs, or trusted third parties. In the United Arab Emirates, Comtrust is the only CA that issues public keys. Other existing CAs in the region are VeriSign (of the United States), which has an affiliate in Kuwait; Globalsign (of Belgium), which has an affiliate in Lebanon; and Baltimore and Identrus, which have agents in Jordan. It is worth noting that although Egypt still does not have a CA, the Ministry of Communications and Information is consulting with the private sector to create a federation of information technology companies, which will have a certification authority to serve as a trusted third party in online payment disputes.

#### D. LEGAL ISSUES IN E-COMMERCE

Today's digital world demands reconsideration of the basic concepts of law, in order to apply them to electronic communications. The transposition of paper-world communication to the virtual world leads laws to assume certain characteristics that distinguish them from the legal concepts defined in the legislation that governs the real world. Consequently, there is an imperative need to draft new legislation specifically applicable to the virtual world of computers and informatics, in general, and to electronic commerce, in particular. The sections below outline the most important legal issues that have to be considered in drafting those laws and regulations.

##### 1. *Electronic evidence*

Documents signed with digital signatures and linked to the trustworthiness of CAs have different characteristics and different ways of being endowed with a legality equal to that of conventional paper-based

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<sup>20</sup> European Trusted Services, *Results of 1995 TTPS Projects, Final Report*, by Ake Nilson, Marinade Limited, p. 26.

<sup>21</sup> An "intermediary", with respect to a particular data message, means "a person who, on behalf of another person, sends, receives or stores the data message or provides other services with respect to that data message...", Article 2 of the United Nations Conference on International Trade Law (UNCITRAL), Model Law on Electronic Commerce (1996).

<sup>22</sup> A digital certificate is an electronic document attached to a public key by the certification authority, which provides proof that the public key belongs to the legitimate owner and has not been compromised.

<sup>23</sup> "Towards a European framework for digital signatures and encryption", European Commission, COM(97)503. [www.isop.cec.be/eit/policy](http://www.isop.cec.be/eit/policy).

documents. The starting point for developing legal electronic transactions, therefore, is the establishment of legal equivalence between electronic and paper documents, based on the recognition of electronic documents as evidence in legal proceedings; the recognition of an electronic document as the equivalent of one in written form; and the recognition of electronic signatures for all legal and commercial purposes.

## *2. Intellectual property rights*

Intellectual property considerations involve copyright, patent, trademark and trade secret laws, to one extent or another. Probably the most misunderstood intellectual property rights risk with regard to the Internet concerns copyright laws, since copying is inherent in the nature of the electronic medium and pervades virtually every Net activity, such as browsing, linking, accessing information and operating an online service. It will be necessary to expand legal copyright protection nationally and internationally to cover Internet operations, including e-commerce, encompassing the vast new areas of interest and commercial activity it has introduced.

## *3. Competition issues*

There are a number of issues related to competition that have particular significance in connection with Internet and e-commerce practices. They include the following:

- (a) Distribution. Internet and e-commerce are having a profound effect on distribution channels and business models;
- (b) Electronic B-to-B and B-to-C marketplaces;
- (c) Meta-tags and other anti-competitive practices;
- (d) Intellectual property rights. For instance, e-commerce patents are an integral part of many business interests;
- (e) Market power, which will not be eliminated by the growth of the Internet.

Restraints on competition still require antitrust compliance and vigilance. Competition laws and policies are certain to be tested by the new business models, new distribution channels and the increased competition in cyberspace.<sup>24</sup>

## *4. Privacy*

Privacy concerns are widely regarded as one of the main issues hindering wider use of the Internet and e-commerce. Potential e-commerce customers fear that their personal information will be misused. Privacy concerns have grown in part because personal data has been collected and marketed directly to other parties and also because the development of automatic data processing has enabled vast quantities of data to be transmitted within seconds across borders. Privacy protection laws will have to be introduced to prevent what are considered to be violations of fundamental human rights, such as the unlawful storage of personal data, the storage of inaccurate personal data, or the abuse or unauthorized disclosure of such data.

## *5. Consumer protection laws*

There are numerous advertising and consumer protection laws and statutes applicable to e-commerce. The significant issues are those related to dispute resolution of a consumer's right to cancel the purchase of a commodity or a service. The question here is which consumer laws shall apply to e-commerce transactions.

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<sup>24</sup> Piper Marbury Rudnick & Wolfe, *E-Commerce: the Future is Now, The E-Commerce Legal Survival Kit*, 2000. [www.piperrudnick.com](http://www.piperrudnick.com).

## 6. Domain names

Domain names become the main identifier used by e-commerce vendors to steer traffic to the site. Not recognized as trademarks *per se*, domain names can be protected through trademark and unfair competition laws if the proper steps are taken in implementing their use. There are two types of domain name conflicts. The legitimate conflict occurs when two trademark registrants from different jurisdictions have in good faith registered identical domain names and both want to assert them on the Internet. The resolution of such problems remains to be seen.<sup>25</sup> In contrast, traditional cyber squatters engage in bad faith registration of domain names in order to take advantage of applicants who may have a legitimate interest in owning a domain name but were slow in registering it under the "first come first serve" system. The resolution of such problems also remains to be seen. Currently, WIPO and other international organizations are in the process of developing a resolution regime dealing with domain names.

## 7. Computer crime

Substantive offences in new technologies are either traditional offences or new ones, such as hacking. Computer technology itself can be a tool or a means for committing traditional offences and crimes, such as using particular software to disconnect an alarm system in a building. On the other hand, a computer system itself can be subject to unlawful access or attack (manipulation of a computer programme and its content). Traditional criminal law does not cover crimes that utilize new technologies. Hence, the law should be amended to cover situations arising from the use of new technologies for criminal purposes.

## 8. Jurisdiction and applicable law

As Internet subscription increases, disagreements are expected to arise. Online contracts will be breached and online crimes will be perpetrated. Although many of these disputes will be settled informally, others may require formal mechanisms for dispute resolution. Since there are no laws or borders on the Internet, the questions are: Which laws can be applied to electronic commerce transactions? And which national law should apply? Moreover, which consumer laws, privacy laws, advertising laws, tax laws, export/import laws and other laws would apply to Internet-based transactions? Jurisdiction is fundamental to these concerns. So far, different courts have reached different conclusions as to how far their jurisdiction extends in cases involving the Internet.<sup>26</sup>

## 9. The lack of legislation in the ESCWA region

Laws and regulations that govern electronic evidence are almost non-existent in the ESCWA member countries. Only Lebanon has prepared a draft law that recognizes electronic signatures and documents (it is currently being reviewed in the Parliament for final adoption). Laws and regulations that address computer crimes and fraud are also lacking in the region. Other laws such as intellectual property rights, consumer protection and privacy may exist in one country and not in another. The ESCWA member countries that are World Trade Organization (WTO) members have intellectual property rights laws (namely, Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar and the United Arab Emirates).

It has been indicated that most consumers and businesses in the ESCWA region that are aware of e-commerce are wary of undertaking heavy online trading, owing to the lack of a predictable legal environment to govern contract enforcement, consumer protection, intellectual property rights, privacy and liability.<sup>27</sup>

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<sup>25</sup> John Beardwood and Daniel Duthil, "Domain names and addresses", IFCLA Conference on Computer Law in the Millennium Perspective, Paris, 14-16 June 2000.

<sup>26</sup> Younis K. Arab, "E-commerce disputes jurisdiction and applicable law", paper submitted in Arabic at the ESCWA Expert Group Meeting on Trade Facilitation and Electronic Commerce in the ESCWA Region, held in Beirut, 8-10 November 2000.

<sup>27</sup> *On the Internet*, November/December 1999, pp. 24-25.

Information technology (IT) and e-commerce issues are still novel to many lawyers and judges in the ESCWA region, and existing laws have not yet been amended to address those issues. The legal environment, therefore, is still not IT-enabled and there is a need to expedite efforts towards creating that environment. It is worth noting, however, that over the past year or two many lawyers and judges all over the ESCWA region have come to realize the importance of legislation in furthering the progress of IT and e-commerce and have undertaken studies and conducted seminars urging legal authorities to put in place the set of laws needed to govern the new IT and e-commerce environment.

What is needed in the ESCWA member countries is a comprehensive review of the impact of information technology on the legislative system in all branches of law, including criminal, financial and executive. Once such a review has been made, the legislative bodies can formulate a set of laws that can meet the legal needs of IT and e-commerce. Much benefit could be gained from the formation of a regional task force to undertake the necessary review and drafting of laws, with the aim of arriving at harmonized laws for the region, taking into consideration the regional development of e-commerce. One other benefit could be gained from taking the UNCITRAL Model Law as a basis for electronic evidence laws (see box 1).

#### E. FINANCIAL SERVICES FOR E-COMMERCE: BANKING AND ONLINE PAYMENTS

Once a business has moved its operations onto the Internet, which entails the establishment of a storefront and product availability, the next step is to ensure electronic payments by customers. To ensure payment, businessmen need merchant accounts and transaction processing systems that allow payment electronically against the consumer's credit or debit card. Such processing systems provide a gateway to tie in Internet merchants with the existing payment system. A merchant account allows sellers to accept and process credit card transactions. To accept credit card payment securely, online-merchants need a secure and encrypted line, usually using the secured socket layers that are standard in Microsoft and Netscape browsers.

There are four basic methods for online payments—electronic currency, credit cards, debit cards and smart cards. Electronic currency is online cash, such as electronic funds transfer. Credit and debit cards, however, require the user to have an account with some server or an issuing bank “equipped with the proper network via the Internet.”<sup>28</sup> Smart cards are cards with an input/output system that can handle a variety of applications. Smart cards contain programmable chips with the ability to store information, making the card “smart”. A smart card can make purchases and be refilled for digital cash at a bank. It also supports cryptographic functions, such as digital signatures, and can store digital keys and certificates. Although the smart card is being utilized for online payment, its main uses are for pay phones, pay TV, wireless telephony and Internet access.

Credit cards are the most favoured way of making online payments, although they remain a highly insecure form of payment. With credit card online payments there is no signature to verify, nor is there face-to-face interaction between the seller and the buyer. Because they are still the most popular means of online payment, banks and other financial institutions continue to seek ways to curb online fraud. The second most popular method of online payment is the debit card, which is an upgraded ATM (automatic teller machine) card branded with a familiar credit card company logo (VISA, MasterCard). Debit cards differ from credit cards in that they tap one's checking account every time one makes a purchase or a withdrawal. Debit cards also are unsecured, although they are becoming increasingly widespread.

In summary, smooth operations of Internet payment require the availability of adequate credit and debit card payment gateways or transaction processing systems. Banks and other financial institutions have an important role to play in this regard. Issuing credit/debit cards that allow for Internet payment is a must. Ensuring secure transactions, one of the bank's prerogatives, requires installing the necessary applications and protocols, such as secured socket layers and secured electronic transactions (SET).

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<sup>28</sup> Lebanese American University, “Payment systems”, Seminar on Electronic Commerce, Beirut, 5-6 May 2000, p. 11.

### Box 1. UNCITRAL Model Law on e-commerce

The United Nations Conference on International Trade Law (UNCITRAL) began working on e-commerce in the mid-1980s. At that time, international trade transactions had already been carried out by means of electronic data interchange and other means of communication. By that time, two problem areas emerged from the use of alternatives to paper-based methods of communication and storage of information. The first was the mandatory paper-based documentation requirements in the major laws of most countries, and the second was the incompatibility of domestic contractual frameworks in international trade requirements.

UNCITRAL decided then to develop uniform rules that encompassed both problems, which led to the UNCITRAL Model Law on e-commerce being formulated in 1996. The purpose of the Model Law was to harmonize and unify the law on international trade, taking into account particular national circumstances, to facilitate the use of e-commerce and to develop harmonious international economic relations.

At the national level, the Model Law offers legislators a set of internationally acceptable rules on how to remove legal obstacles to the communication of legally significant information in the form of paperless messages, and how to create a secure legal environment for e-commerce. At the international level, the Model Law may be useful in certain cases as a tool for interpreting existing international conventions and other international instruments.

The design of the Model Law allowed it to cover both commercial and non-commercial transactions. Some countries that adopted it were also using it within the sphere of government activities such as government procurement, filing of returns and government service matters. In addition to general norms, the Model Law also contains rules for electronic commerce in specific areas, such as the carriage of goods.

The Model Law establishes equivalence between electronic and paper transactions. This has been achieved through a process of functional equivalence in defining the characteristics of a valid electronic *writing* and an *original* document, and in providing for the acceptability of *electronic signatures* for legal and commercial purposes. "Functional Equivalence" approach is based on the analysis of the purposes and the functions of traditional paper-based requirements. It determines how those purposes and functions could be fulfilled through electronic commerce techniques. For instance, the function of a signature is to identify the signatory and confirm the consent of the signatory to the content of a document. Any electronic message, which fulfils both these functions, ought to be regarded as legally acceptable.

On the other hand, the Model Law establishes rules and norms that validate and recognize contracts formed through *electronic means*. It embodies the fundamental principle that data messages should not be discriminated against; that is, there shall not be disparity of treatment between data messages and paper documents. Furthermore, it supports the admission of computer *evidence* in courts and arbitration proceedings, which implies that data messages shall not be denied evidential value on the sole ground that they are in electronic form.

Finally, the Model Law is not intended to cover every aspect of the use of e-commerce. But it provides essential procedures and principles for facilitating the use of modern techniques for recording and communicating information in various types of possibly changing circumstances. It sets default rules for contract formation and governance of electronic contract performance. These rules concern formation and validity of contracts, attribution of data messages, time and place of dispatch and receipt of data messages. Parties may use them as a basis for concluding agreements or to supplement the terms of agreements in cases of gaps or omissions in contractual stipulations. In addition, those rules may be regarded as setting a basic standard for situations where data messages are exchanged without a previous agreement being entered into by the communicating parties, as in the case of open network communications.

So far, the Model Law has been adopted in Singapore and the State of Illinois. Other countries are seriously considering it, namely Mexico, New Zealand, India and Thailand.

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Source: Jennifer Clift, UNCITRAL Legal Officer, at the WTO Seminar on Electronic Commerce and Development, held 19 February 1999.

A strong financial services infrastructure is imperative for the growth of efficient and secured e-commerce. Financial services in developing countries, which are mainly clustered around banks, have one

feature in common—they are inadequate for a viable e-commerce practice. The banking infrastructure in developing countries suffers from lack of coordination among banks, to the extent that some banks do not support branch banking. Another feature often common to developing countries is that different banks in one country have different proprietary cards, each of which only functions on its own ATM machines.<sup>29</sup> Other impediments include low credit/debit card holdings, the lack of SET compliance mechanisms and the lack of local payment gateways.

The ESCWA member countries are typical of developing countries; their financial services are characterized by a lack of coordination and generally those services are not ready for e-commerce. This compels businesses and customers to use banks that are located abroad for the settlement of payments and for credit card validation. With the exception of the Gulf States, the ESCWA member countries have low credit card holdings. For example, Egypt has only around 250,000 credit card holders among a population of 65 million.

However, Lebanon and Jordan are taking some steps towards facilitating online payments. The Lebanese central bank, Banque du Liban, has taken charge of regulating online payments, while other Lebanese banks have become Internet banks providing payment gateways. In Jordan, a few banks have announced e-banking, but those banks still do not accept online financial settlements and Jordanians, therefore, are obliged to use the services of foreign banks. However, a couple of Jordanian banks have issued debit cards valid for limited Internet transactions. It is also worth mentioning that banks in Jordan have not yet applied the SET mechanism, which means that the process of online payment remains unsecured.

Banks in the ESCWA region should promote credit and debit card holdings. Central banks should take charge of credit card settlements and regulate online payments. Banks should act as trusted third parties and provide payment gateways. They should cooperate and coordinate among each other to facilitate e-commerce transactions.

#### F. HUMAN RESOURCES

Along with installing the technical pillars of e-commerce (telecommunications infrastructure, Internet, web design, online security and financial services) and the legal pillars (contract enforcement, consumer and privacy protection, intellectual property rights and liability assignment), one of the most important pillars—human resources—needs to be prepared to efficiently manage and run the e-commerce operations of a country. Computer (hardware and software) and Internet skills have to be developed and disseminated at the widest scale possible, to reach even the most remote areas. This will allow the largest number of people to get connected to sources of information and e-commerce, thus mitigating the effects of an eventual digital divide, which could happen within a nation as well as between different nations.

In developing countries, it is necessary that a concerted effort be made by the ministries of education, academia, NGOs and international organizations to enhance hardware, software and Internet literacy. Ministries of education can play a most important catalytic role in this regard. IT and Internet courses should be introduced in the curricula of public schools in order to prepare a new generation with the basics of digital knowledge. At the same time, universities should offer a whole range of courses designed especially to equip their students with the skills they will need to meet the challenges of the ICT revolution.

In recent years, international development agencies and NGOs have introduced the Internet to some low-income developing countries, and NGOs have been instrumental in promoting computer skills in remote, isolated communities. For example, NGOs have assisted in disseminating knowledge of the technology needed to link rural artisans to the Web. NGOs could also concentrate on cultivating skills in developing countries for certain e-commerce support services, such as web design.<sup>30</sup>

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<sup>29</sup> I-Ways, "Overcoming deterrents and impediments to e-commerce: Egypt case study", Second Quarter 1999, p. 38.

<sup>30</sup> A. Goldstein and D. O'Connor, *E-commerce for Development: Prospects and Policy Issues*, OECD Development Centre, Paris, 2000, p. 18.

The ESCWA member countries are increasingly becoming aware of the need to develop human resources skilled in ICT and e-commerce practice. They are recognizing the need to educate professionals in the broad field of electronic communications and transactions, including the financial, legal and business management skills involved. The public and private sectors, universities, NGOs and international development agencies in the ESCWA member countries should collaborate in this respect. A number of the ESCWA member countries have decided to include Internet and computer classes in their public schools. Jordan and Lebanon, for example, have declared their intention to introduce computer training to students as early as the elementary level. Egypt, meanwhile, has established centres in remote areas, where computers and Internet access are available for use by the citizens. Dubai has announced the construction of an Internet university that will specialize in preparing young men and women students with the ICT and e-commerce skills that are needed to fill demand at the newly constructed Dubai Internet City. Despite these constructive initiatives, the ESCWA member countries will have to do much more to achieve the level of ICT and e-commerce professionalism to which they aspire. Serious strategies, on both the national and regional level, should be drawn up for the rapid implementation of projects that will enhance the ICT, Internet and e-commerce environment in the region. These strategies should promote policies that will allow all citizens to have access to computers and the Internet. Taxes on both software and hardware should be removed, Internet and telephone fees should be reduced, and the promotion of computer and Internet literacy should penetrate all levels of society and especially in schools and universities.

#### G. GOVERNMENT ENDORSEMENT

It is clear that Government endorsement and support is crucial for the installation of each and every pillar of e-commerce. There is a need in the member countries of the ESCWA region for a well-defined governmental plan that can be translated into a set of strategies supporting the different tracks of ICT and e-commerce. Such a plan would coordinate strategies designed for the different ministries (trade, justice, education and telecommunications), as well as for the central bank of each country. It would also facilitate the logistics of customs and transportation, enforcing policy reforms to render these domains conducive to effective e-commerce.

Complicated and unclear business rules form one of the most critical barriers to the development of international trade in most developing countries. Vital components of the e-commerce business cycle are deeply embedded in government operations, but the information systems of those operations are still manual, bureaucratic and paper-based/dependent. Government endorsement of e-commerce will have to include the recognition, acceptance and facilitation of electronic communications (contracts, notarised documents, and the like). Coherence, transparency, coordination and avoidance of duplication should be the guiding principles of the Government in this endeavour.

Some Governments in the ESCWA region have recognized the importance of ICT and e-commerce for the promotion of their economies. Some of them have embarked on a number of initiatives that could be described as segments of unwritten strategies. Jordan has launched its REACH initiative, a national blueprint for promoting ICT and e-commerce in the Kingdom (which will be discussed in chapter V). Egypt has established the Ministry of Communications and Information Technology to coordinate the different tracks of promoting ICT and e-commerce. In one year, the Government of Dubai was able to construct its Dubai Internet City, where about 190 companies are now operating in a state-of-the-art ICT environment created especially for the enhancement of Internet access and e-commerce in the Emirate. It is to be concluded that without the endorsement of governments, e-commerce will be lacking focus and be slow to develop. The Lebanese Government, realizing this imperative, recently announced its support for all policies and projects that are central to the promotion of ICT in Lebanon.

Most of the ESCWA member countries are seriously considering enhancing customs procedures and installing advanced electronic communications in their government offices. Many are working to achieve harmonized systems and some countries, such as Lebanon and Jordan, are using an Arabized version of ASYCUDA, the automated system for customs data developed by UNCTAD. Dubai, meanwhile, has developed its own online customs-clearing programme, known as E-Mirsal, which will soon be used in other Gulf countries. In this context, it should be mentioned that the Government of Dubai represents an impressive model of government endorsement for the promotion of ICT and e-commerce; it has created for its citizens an environment fully equipped with the means of conducting communications, commerce, education and governance compatible to the demands of an emerging globalized world.



#### IV. E-COMMERCE IN LEBANON

E-commerce is still in its early stages in Lebanon, although serious attempts have been made to promote it as the new way of doing business. Some private enterprises have ventured into establishing online shops, malls and auctions. There have also been a few ventures in preparation for m-commerce.<sup>31</sup> However, e-commerce still lacks the endorsement and confidence of consumers to give it the thrust it needs for growth. The Lebanese are still apprehensive about the security of online trading; there are no consumer protection laws in the country; support on the part of the Government, banks and the private sector is meagre; and, most significant of all, computer illiteracy and lack of e-commerce awareness seriously restricts the use of Internet and e-commerce development.

Few people are aware of the benefits and the importance of embracing e-commerce to enhance future competitiveness. The base of Internet users is limited and the Lebanese market is relatively small in size, which does not encourage large investment in e-commerce ventures targeted to the local market. Hence, there has been no mass migration of businesses to e-commerce. Moreover, offsetting the failure of both businesses and consumers to perceive the full promise of e-commerce is the rapidly increasing number of Internet users. Given this increase in connectivity and the stiff competition between Lebanese businesses in the local market, one would have expected business-to-consumer e-commerce to take off with ease.

Nevertheless, e-commerce is progressing in Lebanon. B-to-B e-commerce ventures aimed at export sales rather than the domestic market have been appearing. Despite the absence of an adequate infrastructure and a set of governing regulations, these companies have succeeded in launching e-commerce operations, although few have yet to reap the profits they expected.

Meanwhile, support services required for e-commerce operations are being introduced. For example, in preparation for the boom in Internet banking that is expected in the near future, major banks in Lebanon have started planting the seeds by providing various forms of electronic banking services for their individual and corporate customers. Established companies, seeking to expand their business operations, are undertaking e-commerce ventures directed to export and business-to-business activities.

At this stage, e-commerce in Lebanon, as well as in the ESCWA region, does not contribute much to the economy. With few exceptions, companies are still doing business the traditional way and are very reluctant to accept changes in the system. This is due to a variety of reasons that include cultural and sociological influences, a general lack of awareness and the absence of governmental programmes to promote the benefits of e-commerce. The growth of e-commerce in Lebanon is hindered by a number of obstacles, major among them is the lack of an efficient and adequate infrastructure, a scarcity of venture capital and funding, and the non-existence of laws and regulations to create an attractive environment for e-commerce in the country. Despite these problems, e-business start-ups in Lebanon can be regarded as pioneers holding much promise for the future. Owing to the availability of a highly qualified workforce, plus the diverse skills and entrepreneurship of its people, Lebanon should reach great heights in the domain of e-commerce.

##### A. TELECOMMUNICATIONS INFRASTRUCTURE

###### 1. *Faster access and more affordable fees*

During the 1990s, the Lebanese Government installed an excellent telephone network infrastructure throughout most of the country. The network, which is extremely reliable and exceeds one million land lines, is adequate for the initial stages of e-commerce, but it will soon be outdated. Today, most Internet users in Lebanon use a low-speed dial-up connection, which may be moderately adequate for households, but is inadequate for businesses. To support a higher number of subscribers on their current infrastructure, ISPs

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<sup>31</sup> M-commerce (mobile commerce) is a term used to describe e-commerce conducted over cellular phones.

reduce the load per user on their outgoing connections. Users connect at speeds no greater than 33.6 Kbps.<sup>32</sup> In reality, the Lebanese telecommunications infrastructure can sustain a higher dial-up bandwidth; the Public Switching Telephone Network (PSTN) can support connections of 56 Kbps, using V.90 protocol. However, even 56 Kbps dial-up would be inadequate for serious e-commerce applications.

New high bandwidth technologies will have to be introduced in Lebanon, such as the Digital Subscriber Line (DSL) and cable. The recently introduced Integrated Services Digital Network (ISDN) should also be promoted and made widely available. DSL, for example, can support connection speeds of up to 1.5 Mbps on the existing telephone lines. The same telephone line can be used for both simultaneous voice communication and Internet access. The introduction of DSL in Lebanon would not require major modernization of the existing infrastructure.

At the beginning of 2000, companies in Lebanon began introducing cable connection to the Internet. However, the Government quickly banned it, on the grounds that those companies did not have appropriate licenses, despite the fact that the Ministry of Post and Telecommunications (MPT) has no regulations or licensing procedures governing permission for cable access to the Internet. In this case, the problem lies in connecting with the cable networks and not in the Internet connection. Clearly, regulations covering such services are highly needed. Meanwhile, the MPT recently introduced ISDN, at a time when that network is being replaced elsewhere by a new generation of technology.

The high cost of telecommunications is another major obstacle to e-commerce development in Lebanon. Better prices for Internet users (for both access and telephone services) must be introduced. Currently, even though it is possible to get unlimited dial-up access for as low as US\$ 10/month, the MPT telephone charges are very high. At US\$ 1.60/hour, some Internet users (especially businesses) pay as much as US\$ 500 a month for telephone use in connecting to the Internet. The cost of a leased line, which may be an alternative for businesses, amounts to over US\$ 1,000 per month, depending on the bandwidth requested.

The introduction of fast Internet connection, such as DSL or cable, would enable businesses to provide more extensive information about their products. For example, customers would be able to view video clips of products in action and businesses would be able to offer more sophisticated shopping tools for customers, such as product comparison and online product customization. A fast connection greatly decreases the time required for customers to search and shop for products over the Internet, thereby increasing the customer's willingness to shop online.

## *2. Government deregulation of the telecommunications industry*

Lebanon still maintains a government monopoly over the telecommunications sector—except for the mobile phone sector, which is currently facing problems with the Government. The government monopoly closes the doors on private investors interested in entering the Lebanese telecommunications industry. A good example of the obstacles that are hindering the development of e-commerce and use of the Internet in general is the government banning of cable connection providers and the MPT's refusal to license them. A second problem is the issuance of the high bandwidth mobile licenses. The introduction of a high-speed mobile connection would greatly increase the size of the Lebanese e-commerce market.

Privatization of the telecommunications industry, as is happening across the globe, increases the competitiveness of the market and thus reduces prices and provides better service to customers. Introducing open licensing for telecommunications operators attracts increased investment in the industry and its infrastructure. This results in higher quality services, better bandwidth and more affordable connections—all to the advantage of individual and business consumers. Increased investment also creates additional high-paying jobs, to the benefit of the local economy in general. The introduction of the two private mobile operators in Lebanon, for instance, created 6,000 jobs related to the mobile industry. It is estimated that deregulation of the telecommunications industry could create up to 10 times this number of jobs.

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<sup>32</sup> Kbps (Kilo bits per second) is used as a measure of information transfer on the Internet. The higher the Kbps or bandwidth, the faster the connection.

### *3. Internet service providers*

In 1999, Lebanese ISPs engaged in a price war, cutting rates to win more subscribers and launching new services to boost market shares. Although ISPs now make a smaller profit margin per subscriber, the increased number of users has helped offset the loss, especially since more subscribers attract more advertising revenue.

Another consequence is that an increase in the number of subscribers will mean an increase in cyber-traffic, which will require larger investments in hardware, bandwidth and personnel. In general, all operating ISPs in Lebanon provide very adequate service to consumers, although they are more expensive than their counterparts in the United States. The cyber war in Lebanon forced some ISPs to fold and others to merge to ensure quality of service and cheaper rates.

Cable modem systems can reach data transfer speeds 45 times more than what the best dial-up connection can provide. In Lebanon, in the absence of a cable network, surfers resort to more expensive microwave connections to acquire similar high speeds. The price of microwave modems, however, remains exorbitant and has discouraged potential subscribers. Clients must have a receiver/transmitter, leased by an ISP for US\$ 600/month, before they can make the great leap forward in speed, at a further US\$ 1,000/month. The price differential is huge, compared to the price of a cable modem connection in the United States, which ranges from US\$ 30 to US\$ 100 per month. Plans are under way to introduce cable modems in Lebanon. They will maintain the high speed of microwaves, while reducing the cost to a total of US\$ 100 to US\$ 200/month. However, the introduction will depend on MPT policies and its ability to follow a fair licensing procedure for cable modem providers.

ISPs in Lebanon charge very high prices for hosting services. Some ISPs charge up to three times as much as one would pay in the United State for similar services, but still do not provide the same services in terms of functionality or bandwidth. Therefore, many Lebanese sites prefer to be hosted in the United States. Other companies prefer to pay more for personal service not provided outside Lebanon and will pay whatever their ISP or consultants ask, without knowing better.

The fierce competition among ISPs and the entry of international ISPs into Lebanon signals the arrival of the highly awaited fast Internet connection. ISPs will now be forced to provide cheap and fast connections in order to gain advantage over the competition and grab a greater share of the market.

While hosting services is more lucrative than the provision of an Internet connection in North America and Europe, ISPs in Lebanon generally overlook such services. They plan no major promotions for hosting services and provide no special discounts or offers. Similarly, they provide no special services for e-commerce businesses. For example, e-commerce hosting accounts, which provide an all-in-one-package deal containing the search engines, database application, shopping cart and credit card billing services, are not available in Lebanon.

One problem related to the local ISP networks in Lebanon is that they do not have a direct local interconnection. In order for a user connected to one ISP to access a web site hosted<sup>33</sup> on another ISP network, one has to go through the United States or Europe to connect in Lebanon. In addition, some ISPs do not have redundancy on their network; in the event of network disruption on one path, no alternative path exists to sustain traffic. This makes the local networks unsuitable for critical applications, such as online banking, online brokerage or video conferencing. The interconnection between ISPs and the redundancy factor, therefore, is an important issue that must be addressed before critical online applications can be considered.

Another essential factor is the existence of a network operations centre to coordinate Internet traffic and avoid bottlenecks. Once the technical infrastructure is realized, the logistics of businesses using these services will require coordination. This operations centre would make sure that redundancy, interconnectivity and reliability in Lebanon's data networks are covered. To ensure a highly competitive

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<sup>33</sup> Housed on a server in order to make the information on that web site available to Internet users.

infrastructure, Lebanon will need excellent coordination, as well as serious money invested in the telecommunications sector and the ISPs. The lack of a reliable and efficient communications infrastructure and the lack of fast Internet access to individual consumers are two major problems of Internet infrastructure in Lebanon.

The ISP business in Lebanon is lucrative and yields high profits. However, given the relatively small size of the Lebanese market, some ISPs have expanded their operations regionally and teamed up with international giants. For a period of time, Lebanese ISPs were offering Syrian residents access to the Internet through the Lebanese telephone system. This has now changed, with the recent introduction of a new Internet policy by the Syrian Arab Republic. As one of the first countries in the Middle East to establish an online presence and acquire the knowledge related to Internet operations, Lebanon has become an exporter of expertise in ISP set-up, particularly in Saudi Arabia and Egypt.

#### *4. Introducing new technologies*

While access to Internet and e-commerce through personal computers is important, some companies in Lebanon are concentrating on preparing for the new wave of information access through mobile phones. Wireless Application Protocol (WAP) has become the standard for mobile information delivery, providing users with mobile telephony and information services, such as advertising, mobile banking and mobile shopping and payment. It is expected that the number of mobile phone users of the Internet will exceed the number of land-based line users within the next four years. Lebanese mobile operators did not wait for WAP to provide information services; they have been using the Short Messaging Service (SMS), an integral part of GSM standards, to deliver news, stock market quotations, advertising and other information to mobile phone users. With the advent of WAP, they will be able to expand their services and provide richer and more sophisticated applications.

One Lebanese mobile phone operator is studying the Internet market to align itself with the expansion strategy of its business clientele; it wants to provide mobile Internet access to the local market and expects to become a major player in online business activities by the end of the year. Moreover, this company is implementing a three-month pilot project to investigate the impact of m-commerce and evaluate consumer behaviour, while still bearing in mind that not too many mobiles are linked to WAP at present. It should be noted that the country's two mobile phone operators have been in dispute with the Lebanese Government on such issues as taxation and contract interpretation, consequently affecting the growth of m-commerce in Lebanon.

A WAP portal was launched in Lebanon in mid-2000 and has been offering the public a wide range of information and search engine services. It is estimated that approximately 2,000 WAP-enabled mobile phones exist in Lebanon at present and that all mobile phones will become WAP-enabled within three years. On average, the Lebanese replace their mobile phones every three years.

Given the 650,000 mobile lines in Lebanon and assuming that at least 50 per cent of these mobile phone customers will become WAP users, the potential m-commerce client base should easily reach 325,000 customers within three years, even if the number of mobile phone users does not increase. In contrast, computer Internet accounts have reached 100,000 since the inception of the Internet in 1995.

### **B. SOFTWARE DEVELOPMENT**

#### *1. From traditional to web-based applications*

Software development companies identify with the growing need to create and support software products that facilitate e-commerce. To extend their markets, some companies are migrating their existing applications to web-based applications, with the result that their clients are also migrating to the new platform, increasing e-commerce awareness and traffic. One accounting software production house that has migrated its applications to the Web is providing clients with 24-hour access to information and services.

Other newcomers, inspired with fresh concepts, are exclusively creating web-based applications, such as Internet malls, auction sites and pure content sites, clearly duplicating or adapting sites that have found success in developed countries. At the same time, duplication is helping local companies engage in reverse engineering, a process that results in better products and highly trained personnel.

Likewise, these software production houses are also positioning themselves for identification by large corporations, in the hope of being bought out or partnered in the region. The benefits of such potential partnerships are tremendous for SMEs, in terms of product and market expansion, as well as in continuous human resource training.

## *2. Web design houses*

Two kinds of web design houses exist in Lebanon: software development companies that switched to web development and fresh start-up companies that execute web projects only. Most of the companies are small, with limited resources, but are expected to grow as they undertake large-scale web projects in the region. Lebanese companies are the leaders of web development in the Middle East and are thoroughly professional in the production of software applications for the region. Their know-how has enabled them to expand aggressively to other Middle Eastern countries, as well as to Europe and the Americas.

## C. HUMAN RESOURCES

### *1. Expertise*

Even though Lebanon has a good base of information (IT) specialists, the sector is still in need of enhancement. While its IT specialists are technically very good, they lack management expertise, particularly on large-scale software development projects that call for the execution of a quality project on time and within budget. In undertaking an Internet project, planning, design and preparation should account for 40 per cent of project time and investment, another 40 per cent for development and the final 20 per cent for testing and debugging. If planning is on target, a typical e-commerce project should take no longer than eight months, from the business plan phase to the online launch, in order not to miss the market opportunity.

Another challenge facing Lebanon is how to keep skilled IT and e-commerce recruits on board for the long term. Because of the current depressed economic situation in Lebanon and the high demand for IT specialists in the United States and Europe, many skilled professionals are emigrating from Lebanon. The average annual salary for a computer-programming engineer in the United States is around US\$ 70,000, compared to US\$ 24,000 in Lebanon. To retain professionals, companies will have to pay higher wages and provide long-term benefits, including continuous training and the opportunity to work on challenging projects.

### *2. Education and training*

The low rate of computer literacy and lack of Internet awareness in Lebanon are major hindrances in the proliferation of Internet and e-commerce in Lebanon. A major effort should be made to educate upper-level business managers, who may have been denied the opportunity to continue their education, on the benefits of technology and the potential of e-commerce in expanding their business opportunities.

While the Government has introduced computer literacy courses in its new curriculum, from kindergarten up to grade 12, schools still lack the computer hardware needed to give the courses. However, an effort is currently under way to secure a minimum of 10 computers for each public school in Lebanon. The curriculum also lacks a clear plan to involve the educational sector in popularizing the Internet. It is suggested that the Government implement a national plan to decrease the digital divide between the “know” and “know-not” segments of the population. Part of this plan could involve engaging the public in competitions related to computer literacy and the Internet and encouraging the establishment of public libraries stocked with books on the subject. The Government should establish training centres to educate government employees on information technology and also encourage NGOs and other private organizations to do so.

While it is expected that the public sector should engage in creating public awareness regarding the benefits of online trading, it is equally important that private institutions, businesses and NGOs sponsor events and large-scale campaigns to promote e-commerce.

## D. BANKING

### 1. *Financing e-commerce projects*

E-commerce applications in Lebanon are relatively low in cost, as compared with developed countries, owing to the lower salaries of skilled professionals. There are, however, some financial challenges, including a scarcity of venture capital and third-party financing, the small size of the e-commerce market, the high risk involved, and the long incubation period required before a project becomes profitable. These factors combine to make the cost of investment in e-commerce very high for SMEs in particular. Banks could play a significant role in helping establishing e-commerce as a Lebanese industry by providing special e-commerce loans directly or by creating venture capital funds that, in turn, would finance Internet start-ups.

Some banks have launched their own online ventures, providing a great added-value banking service for Lebanese expatriates, in particular, who live abroad but want to keep their money in Lebanese banks. Through these services, people can manage their bank accounts and execute a variety of basic financial transactions electronically.

### 2. *Banking services for e-commerce*

Online banking has a very promising future in Lebanon, partly because of the large affluent expatriate market and also because banks have substantial cash flow to finance large-scale projects. Competition in this sector will oblige banks to enhance their services, not only to retain their existing clientele but also to attract new customers. The corporate sector is an important target; services to large companies will have to focus on streamlining the financial transactions involved in conducting business-to-business e-commerce.

In Lebanon, B-to-B e-commerce procedures are still bureaucratic. To better serve their clients, banks will have to create quick and efficient online systems and also streamline the processing of Letters of Credit and money transfers. They will also have to deploy secure electronic payment mechanisms that will provide reliable and convenient services with a minimum of delay.

Some banks are introducing escrow services to facilitate and guarantee e-commerce transactions. In such services, the procedure is as follows: (a) the buyer transfers payment to the bank, which then notifies the seller that it received the money; (b) the seller ships the merchandise to the buyer and presents the bank with proof of delivery; (c) upon receiving proof of delivery, the bank releases payment to the seller. In this way, the bank guarantees the rights of both seller and buyer and renders the transaction more secure and trustworthy.

Another service indispensable for e-commerce is the availability of online credit card processing systems. At present, a handful of specialized companies provide such services in Lebanon. A sound strategy would be to establish processing centres to handle such services in conjunction with special merchant accounts.

### 3. *Greater credit card base*

B-to-C e-commerce is directly proportional to the number of credit cards issued in the country. As of September 1999, the number of credit cards issued by Lebanese banks was 228,000,<sup>34</sup> or an increase of 53 per cent over the year before. Therefore, an estimate of 260,000 credit card holders in Lebanon is realistic. Until electronic cash becomes widespread and m-commerce increases, credit cards remain the most acceptable form of online payment.

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<sup>34</sup> Lebanon Invest.

Lebanon's small credit card base and the small number of online transactions oblige credit card processing companies to charge high commissions, which cuts into the profits of e-commerce companies. These processing fees can reach twice the rate charged by similar companies in the United States.

An increase in credit card holders and the reduction of credit card interest rates will generate more online payment transactions. Numerous initiatives have been undertaken to advertise credit card services and inform the public of the advantages of credit cards. Some banks have considerably helped popularize e-commerce by issuing Internet credit cards, with which consumers can execute online transactions in amounts not exceeding US\$ 200. Internet credit cards do not require a high credit rating with the bank; they are, instead, designed to help its customers build credit.

## E. PROJECT FUNDING

### 1. *Seed money and venture capital*

The basic concern of any business project is its economic viability. With an e-commerce project, the important concerns are how much investment is needed, when it will break even, how long it will take to become profitable and whether it will remain profitable in the long-term.

Most e-commerce ventures in Lebanon have very limited resources and many entrepreneurs are obliged to invest their personal savings. They do not have access to the large funding base available to e-commerce start-ups in the United States and in Europe. One of the main reasons for this situation is the high interest lending rates; most investment money in Lebanon is frozen in banks or in government bonds, which provide the investor with high interest/low risk rates, sometimes up to 18 per cent and even 20 per cent. Lower interest lending rates would release this investment capital for use in more productive sectors of the economy, including e-commerce.

Another reason is limited financing by the banks; the only funding services offered by most Lebanese banks are car and real estate loans. Banks seem reluctant to invest in more productive sectors of the economy, such as industry, agriculture and e-commerce. The annual interest rate on commercial loans in Lebanon can reach up to 20 per cent, compared with 6 per cent for car and real estate loans.

This situation is largely due to the lack of commercial loan insurance measures, which should be established by the Government. Large investments will have to be made to reap the economic benefits of e-commerce. Until measures are taken to release investment capital into the market and establish viable commercial investment mechanisms, e-commerce in Lebanon will be restricted to the initiatives of individual entrepreneurs and will not reach the massive scale witnessed in the West.

The banking sector can be the catalyst of e-commerce development in Lebanon. The investment money exists; all that is needed to stimulate investment in e-commerce are incentive and the establishment of appropriate regulations. Banks have a very important role to play in creating an online business boom in Lebanon, and some of them are now beginning to assume that role.

Moreover, Internet incubators are starting to appear in Lebanon. For example, an incubator venture capital project worth a total investment of US\$ 5 million would consist of 15 to 20 companies, each of which would contribute an average of US\$ 300,000. The capital invested by the companies, were it to be used individually, would not be sufficient for the large-scale funding required for big e-commerce projects. Lebanon is witnessing an enlivened interest in venture capital, but it will need more serious money to be able to launch large projects.

One way to accelerate the involvement of SMEs in e-commerce would be the establishment of Internet malls. Such malls provide a ready-made infrastructure, hosting space, adequate bandwidth connections, a user interface that can be customized, and a secure online transaction mechanism. The owner of an SME provides a rudimentary design that conforms to the corporate look of the mall and includes logo, font, graphics and colours. The SME should also provide information on the products and services it is offering for sale in the mall. Internet malls enable SMEs to establish an e-commerce presence at a fraction of the cost

that a full-featured in-house e-commerce system would require. Internet malls charge participating businesses either a monthly fee or a per transaction fee.

#### F. INTERNET SECURITY

The lack of confidence in e-commerce in Lebanon is reflected in the fear of non-delivery of goods, theft and credit card fraud. As long as the Government fails to establish e-commerce regulations and provide consumer security, the trust issue will remain a major hindrance to online shopping. Consumers must be able to depend on legal mechanisms through which they can raise claims against businesses for poor product quality and non-delivery of goods.

Security of financial transactions is essential. Banks and other credit card issuers should actively point out to customers that the risks involved in online credit card transactions are no greater than those involved in ordinary shops. In a similar vein, customers have concerns about the confidentiality of their transactions and the disclosure of their identity by e-commerce entities. The Government must also set rules in this regard, which would remove the doubts preventing Lebanese consumers from shopping online.

Some businesses involved in or planning to start an e-commerce venture believe that ISPs should implement mechanisms for security and confidentiality; but it is also the responsibility of the businesses themselves to make sure that those mechanisms are in place and properly functioning, since they bear full responsibility for the security and confidentiality of their customers. ISPs, on their part, must ensure that their networks and systems are completely secure and that they are using the latest available technologies to prevent fraud and unauthorized access to vital data involved in the e-commerce transactions. ISPs and e-businesses should cooperate closely to establish a secure environment for online business.

A law legalizing electronic signatures and electronic documents was recently introduced by the Council of Ministers in Lebanon and is awaiting ratification by the Parliament. To the same extent that the regulations and procedures governing transactions continue to require consideration and implementation by the Lebanese Government, so does establishment of mechanisms to verify the authenticity of electronic documents and signatures.

#### G. LEGAL ISSUES

A legal framework for e-commerce is necessary so that users will be assured of the validity of transactions and will be able to engage in secure and reliable electronic communications.

##### *1. Intellectual property rights in Lebanon*

Lebanon is a member of the World Intellectual Property Organization (WIPO) and is preparing for membership in the WTO. It is, therefore, making a special effort to enforce intellectual property protection in conformity with WTO and WIPO agreements.

Author's rights or copyright mainly involves e-commerce content, such as literary, musical, artistic, photographic and audiovisual works. The Lebanese Copyright Law of 3 May 1999 updated the national protection of copyright and neighbouring rights to new technologies, encompassing technological change and new areas of interest and concern. It essentially recognizes software as a copyright-protected work.

Industrial property rights deals principally with the protection of inventions, marks (trademarks and service marks), industrial designs and the repression of unfair competition. Draft legislation has been submitted to the Lebanese Parliament concerning inventions. However, as in many developing countries worldwide, there is still software and music piracy in Lebanon, although the Government is seriously trying to find a way to enforce its legislation governing intellectual property rights.



## *2. Trademark registries*

Lebanon has seven commercial registries that issue trademarks, but there is no examining entity to supervise them. If one does not contest a trademark within five days of its being published in the National Gazette, he or she has no reclaim against the person who has taken the trademark, except in court. Until a central agency is established to control the application of intellectual property rights and trademarks, players in the e-commerce market may experience violations of their business designs and trademarks.

To avoid confusion, protect consumers and facilitate e-commerce operations, the Lebanese Government should introduce changes to its existing commercial, financial and tax laws. Parliament has a major role in ratifying passing all the necessary legislations. The Government could assist in this regard by assigning a committee of legal professionals to study, formulate and draft the regulations needed. All types of contractual laws should include special articles related to e-commerce transactions.

## *3. Evidential law and electronic signature initiatives*

Draft legislation related to evidential law in Lebanon was submitted to the Council of Ministers on 12 July 2000. It amends some of the articles of the Lebanese Code of Civil Procedure that are related to evidence in legal proceedings. It recognizes electronic documents as equivalent to those in handwritten form and accepts them as evidence in legal proceedings. It also recognizes electronic signatures.

## *4. Authentication initiatives*

One of the main issues to be addressed is whether the Government should license or regulate authentication technology or authentication service providers. Initiatives are under way in the private sector to promote the trust of users in these technologies. A special interest group is working on a draft law to give official accreditation to Certification Authorities (CAs) and to give the government regulatory authority over them. This law would grant specific legal benefits to CAs and the electronic signatures they confirm.

## *5. Initiatives needed*

The implementation of laws to protect consumers, prevent and/or punish computer crime, protect intellectual property and the privacy of data, as well as regulations dealing with cryptography and exportation, are prerequisites for e-commerce operations. There is a need to design and deliver awareness programmes that will build trust and confidence among e-commerce operators and the general public once the appropriate legal framework is in place. Governmental backing of a global electronic community in which the rights and responsibilities of all individuals are equal to those that exist in the paper-based environment is an imperative.

## *6. Regulating ISPs*

Another area ripe for regulation is data traffic provision, in order to monitor the activities of ISPs and other businesses providing data transport services in Lebanon. Until today, this aspect of the Internet business is still unregulated. No standard document exists to define the requirements and rules governing ISPs and other Internet-related businesses; there is only a haphazard system of license granted/denied in place. Chambers of Commerce could play a more active role by lobbying for the necessary regulations and by creating a more favourable atmosphere in support of ISP regulations.

## **H. MARKETS**

### *1. Market access*

Because of the small number of Internet users in Lebanon, the Lebanese e-commerce market is very limited. Therefore, e-commerce projects should focus on exporting goods or services to markets abroad. In time, however, a wider base of Internet users and the introduction of the WAP will change the situation and

will create a bigger e-commerce market in Lebanon, especially since the WAP will enable e-businesses to tap into the large pool of Lebanon's mobile phone users who will be targeted for m-commerce.

The Lebanese, although they are good consumers of technology, are not sufficiently educated on the value and advantages of e-commerce. They should be able to apply the technologies available and use them to market Lebanese products worldwide as well as in the region. Because of the generally poor economic situation in the region, the better prospects for e-commerce lie in the direct export of locally manufactured goods to developed countries.

The service sector, especially the tourist industry, can also benefit from e-commerce. Business web sites providing online ticketing, hotel reservations and car rentals can be very prosperous in Lebanon. Another sector largely overlooked by Lebanese online entrepreneurs is Internet advertising. It is estimated that the Internet advertising of GCC countries grew 112 per cent in 1999, amounting to US\$ 3 billion.<sup>35</sup> The Lebanese should undertake more serious participation in this industry. They have the skills required and the demand for advertising services is soaring, especially in the Gulf States. At the local level, the food delivery and catering industry, which is very popular in Lebanon, can become a major e-commerce target.

## *2. B-to-B versus B-to-C*

B-to-B e-commerce in Lebanon is more active than B-to-C (business-to-consumer) e-commerce. Some companies, which have established themselves as infrastructure providers for electronic ordering and transaction processing in the B-to-B domain, link a number of large wholesalers to retailers. The systems in place are usually very similar. The retailer places an order online and the company transfers the order to the wholesaler; the wholesaler then delivers the merchandise to the retailer and collects payment upon delivery. Large wholesalers that cater to their own businesses establish most of these provider companies.

Manufacturers also engage in B-to-B e-commerce, especially those that export their products to the United States, Canada, France and Brazil, as well as to the Arab world. The food processing industry is one example. In cases where clients order products in large quantities, the manufacturer creates a web site to service its clients. This enables clients to select items and place orders online in a minimum of time, instead of the weeks it used to take to receive an order, draft an offer, wait for the response and, finally, place the order. The method of payment, however, remains the same: a Letter of Credit or the like.

Another good example of the prospects offered by e-commerce is the major Lebanese winery that launched an information web site in 1998 and instituted e-commerce capabilities this year. Its export sales since 1999 have tripled to US\$ 30,000, and the site is currently selling 8 per cent of its total exports online. The company is aiming for its e-commerce trade to add up to 40 to 50 per cent of its total exports. Like the food processing plant, this wine maker used a B-to-B distribution partner in the United States. The partner sells to other distributors across the United States who in turn reaches the end-consumer.

The manufacturers mentioned above strictly target the B-to-B export sector. They do not use e-commerce to sell to the local market, for two reasons. The first is the lack of the infrastructure needed to enable local businesses to place online orders. The second reason is the monopolistic policy of the distributors of their products in Lebanon, who do not allow the manufacturer to sell directly to the local market. The latter reason restricts the manufacturer in developing B-to-C e-commerce capabilities.

These manufacturers also are not interested in selling directly to consumers overseas, especially when they are shipping their products from Lebanon. Weight, market size and cost do not justify B-to-C exports. As a marketing strategy, these companies have affiliated themselves with businesses in the United States, Canada and Europe, where products are supplied from Lebanon and distributed by partners to businesses and consumers alike.

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<sup>35</sup> An-Nahar, 30 August 2000, p. 10.

## I. SHIPPING AND EXPORT

### 1. *Better shipment services*

As noted above, a significant problem facing e-commerce businesses is the logistics of delivering orders within two to three business days, while also keeping track of retail and distribution costs. The prompt delivery of goods is imperative to building customer's confidence and trust in the seller. Customers should not experience a difference between buying from an e-business located in his home country and an e-business located abroad. Fast and timely delivery of goods is the cornerstone of e-commerce; without it, e-businesses will never succeed.

To overcome shipping and distribution delays, companies must team up with other companies in target countries to establish a physical presence. Merchandise is shipped in large quantities, stocked at the partner's warehouse or in affiliate locations, from where it is shipped to customers. Direct shipment from Lebanon to consumers abroad is not feasible, given the high shipping costs charged by fast courier companies for small shipments, as well as the lengthy bureaucratic export procedures involved.

Lebanon's export infrastructure is clearly inadequate for B-to-C e-commerce. Shipment services are expensive and inefficient, particularly for small volumes and parcels ranging from one to ten kilograms in weight. Shipment companies blame the country's poor infrastructure for the high costs and long delays. Even though the Beirut International Airport has been expanded and renovated, its shipment terminals are not operating at full capacity. One factor that could contribute to the development of e-commerce is the country's efficient national postal service. LibanPost is licensed to provide postal services in Lebanon; however, it remains to be seen whether the quality of its services will meet e-commerce requirements. Another obstacle is extensive Government control and bureaucratic clearing systems. To create a strong e-commerce market, low-cost and fast shipping services are a must.

### 2. *Lower export fees and simpler export procedures*

Lebanon has adequate shipping facilities, but one of the problems is the complex bureaucratic procedures involved in processing shipments, which can take several days to complete and cause serious delays. Bureaucracy should be cleared from export procedures and the export chain streamlined to facilitate direct export from Lebanon. Another measure needed is the reduction of export taxes and fees, which would help make e-commerce ventures more competitive.

## J. E-MARKETING

Internet advertising is almost absent from the Lebanese e-commerce market. In the advertising sector, which is one of the booming sectors in Lebanon, there are no major advertising companies selling and placing advertisements on the Internet. This raises questions, considering that advertising is one of the cash-generating components in e-commerce. Companies in developed countries consider it a major source of income. In fact, it enables most Internet projects to sustain themselves. Even in North America and Europe, most e-commerce projects are unable to achieve the level of sales required for profitability. To fill the gap, they use advertising as a secondary source of revenues, and sometimes revenues from advertising exceed those from sales.

A boost in online advertising in Lebanon would create an additional source of revenue for Internet ventures and help them reach profitability more quickly. Lebanese advertising agencies have large resources and many highly skilful professionals; their participation in the online market-place would be of much benefit to the growth of e-commerce.

## K. CREATING E-AWARENESS

### 1. *The need to highlight benefits*

E-commerce awareness could be described as inadequate among businesses in Lebanon. Some large companies and many SMEs are unaware of the benefits they can reap from e-commerce. Establishing an Internet presence does not only mean selling online; it also helps companies save money in the time spent on responding to inquiries for information. This is the case of a winery, for example, which uses its web site to disseminate educational information to students and researchers regarding wine production and the wine industry in general. An indirect function of this kind can lead to more efficient and higher quality service for customers and also expand the pool of potential customers.

Lack of confidence in technology has a direct impact on the perception of benefits. For example, local pharmaceutical retailers participating in B-to-B e-commerce generally refuse to use the automatic stock replenishment function, which places an order for a given product when the quantity of product units in stock reaches a given minimum. These retailers dislike the fact that the system will place an order automatically without referring to them; they fear releasing control to an automatic system they do not trust. In addition, many consumers continue to use the old method of ordering products by telephone or mail, despite being customers of an e-commerce company and receiving discounts on products they order electronically. As one pharmaceutical firm engaged in B-to-B e-commerce reports, only 2 per cent of the retailers that purchase from the firm place orders online on a daily basis, 10 per cent place online orders once or twice per week and up to 25 per cent use the system less than once a month.

### 2. *The need for basic hardware*

One problem e-commerce start-ups face is the low proliferation of computers in Lebanon. Many small businesses and households neither own nor think it necessary to own a computer system. Inherently, they are incapable of using an e-commerce system. Computers are still expensive in Lebanon, compared to the United States and Europe. However, with the recent removal of customs duties on computers and telecommunications, one can expect the number of computers and Internet access to increase in Lebanese households. The Government should target increasing the number of computer users in the country to one million in order to help create a more flourishing e-commerce market.

## L. CONCLUSIONS AND RECOMMENDATIONS

Among the countries of the ESCWA region, Lebanon was an early starter in e-commerce. On matters of know-how and private initiative, Lebanon is well advanced; in terms of infrastructure, human resources, banking and legal issues, the country is comparatively advanced in relation to its neighbouring countries. However, the funding available for strong Internet penetration is relatively small, especially in comparison with the Gulf region, and the country relies on cumulative individual effort in this regard. Lebanon's focus should be on the export of know-how, services and goods, as well as on creating new markets and solidifying e-commerce presence in niche markets. Lebanon's excellent start in online trading needs to be nurtured. The following are some recommendations for consideration by the Lebanese authorities and the private sector:

(a) The Government, the private sector, NGOs and international development organizations should cooperate in creating ICT and e-commerce awareness. They should increase computer literacy and promote basic hardware proliferation in society. They should also highlight the benefits of e-commerce through education and encourage the use of Arabic on the Internet;

(b) In telecommunications, Lebanon should introduce high bandwidth technologies such as DSL, cable and ISDN. It should lower both international and local phone rates. Moreover, it needs to improve and speed up regulations for telecommunications service applications and to privatize its land line system. There is also need for the creation of a local Internet node and a network operations centre, as well as for the promotion of new technologies, such as WAP;

(c) Software development in Lebanon could benefit from reverse engineering, from migrating applications to become web-enabled and from promoting software and web-design houses. Software companies should position themselves for regional and international alliances and target selling their services through those alliances;

(d) In human resources, Lebanon should invest in software management training; schools and universities should include ICT and e-commerce courses in their curricula; the private and public sectors should provide continuous training for employees, create long-term benefits to encourage local talent to stay in Lebanon and offer challenging projects for employees; and the private and public sectors, as well as NGOs and international organizations, should collaborate in building public awareness of e-commerce and in nurturing computer literacy;

(e) The banking sector should, first, implement comprehensive online banking services and, second, promote credit cards with no initial fees and lower interest rates. It should provide seed capital or loans to jump-start e-commerce projects and give merchants “e-commerce” loans. Most importantly, it should speed up B-to-B transactions;

(f) Online security will require the Government to give official recognition to third parties who offer security services, as well as establish procedures for consumer claims and establish a committee whose task would be to follow up on Internet security issues;

(g) The legal aspects of e-commerce are in urgent need of review and will call for the drafting of rules and regulations. The Lebanese Government should expedite ratification of the law that recognizes electronic signatures and the legislation related to evidential law. It should enforce the law on intellectual property rights, ratify the legislation concerning inventions and implement laws on consumer protection, computer crime and data protection. The Government should regulate cryptography, authentication and domain name registration. It should also regulate ISPs and establish quality standards for Internet service;

(h) The Lebanese Government should improve fiscal incentives with regard to custom duties and implement a tax reform to enhance e-commerce. It should encourage the export of goods and services in which Lebanon has a strong base and identify and tap into niche markets;

(i) Shipping and export procedures should be improved in order to meet the challenge of B-to-C e-commerce. The Lebanese Government could start by reducing export taxes and fees and simplifying the export process. It should also solve the dispute between the Government-sponsored courier and private sector carriers in order to reduce fees on the consumer;

(j) The Government and the private sector should work together towards promoting the creation of e-marketing and e-advertising companies;

(k) The Government should create an inviting environment for venture capital and Internet incubators. It should regulate the interest rates of government bonds and increase bank involvement by encouraging low-interest “e-commerce” loans.

## V. E-COMMERCE IN JORDAN

Jordan has for the past two decades attempted to open up its economy and pursue an export-oriented strategy. In 2000, Jordan became a member of the WTO. These are significant developments in Jordan's endeavour to embrace globalization. Recognizing the opportunities that globalization may offer, Jordan is also aware of the threats it may pose for some of its economic sectors.

At the moment, e-commerce activity in Jordan is minimal and what exists is rather unsophisticated. There have been, however, some individual initiatives in conducting transactions over the Internet, but these attempts have been made in the absence of the infrastructure required for the progress of e-commerce. Jordan needs to migrate its businesses onto the Internet to avoid the risk of being marginalized. Embracing e-commerce at this early stage will allow Jordan to reinforce its participation in the global market.

### A. THE GENERAL E-COMMERCE ENVIRONMENT IN JORDAN

Although e-commerce in Jordan is still in its very first stage and preparations for it are still basic, there is evidence of optimism. The Government has shown enthusiasm towards developing information technology, e-government and e-commerce. Recently, King Abdullah II requested leaders of the ICT industry to launch what has been named the REACH Initiative, which aims at developing an action plan for the development of the ICT sector in Jordan. Within this plan an e-commerce component was included, a venture with which entrepreneurs are increasingly coming to terms.

Since 1995, some positive steps have been taken to increase the prospects of online trading. The country introduced the Internet and, since then, the number of subscribers has rapidly multiplied. There are currently around 120,000 users and seven functional ISPs. The Jordan Telecommunications Corporation (JTC), which has been privatized, has adopted policies conducive to enhancing services and reducing prices. ICT skills, especially for computer and Internet services, have increased to meet the demand in Jordan and in neighbouring countries. These tangible improvements, however, do not provide a complete picture of what is required for e-commerce growth. Some impediments need to be removed and a number of preparations will have to be put in place in order to create an enabling environment.

Jordan is a small country of four million inhabitants, with only a limited number of citizens who are computer and Internet literates. Another problem is awareness; only a small percentage of the Jordanians, even among the Internet users, know what e-commerce is and what is needed to make it work. Those Jordanians that are connected online have been exposed only to the few web sites that advertise products and the few malls that attempt to sell online. Most of the commercial web sites in Jordan are more aimed at cataloguing and advertising products than selling them online and, so far, have not done much to enhance e-commerce in the country. The majority of these sites target the local Jordanian market, which is small and, by cultural inclination, distrusts using machines for doing business, especially with unfamiliar people. Moreover, many of these web sites are ineffective. These businesses need guidance in how to enhance their sites to become less cumbersome and more consumer friendly, as well as functional in terms of payment.

Another hindrance to e-commerce is the fact that the number of credit card holders in Jordan is small, and banks are not yet ready to handle Internet financial transactions. Finally, one of the most important tracks of e-commerce is absent in Jordan—the legal infrastructure, which is most needed to provide consumers and businesses with confidence and security about e-commerce. Laws and regulations that recognize electronic documents and signatures should be put in place. Other laws that address computer crimes and computer fraud should also be considered, along with legislation related to consumer protection and competition.

E-commerce operations in Jordan are minimal and consist mainly of transactions undertaken between a few Jordanian businesses with their non-Jordanian partners. Most of these transactions take place over web sites that are hosted outside Jordan, in countries where Internet services and telecommunications facilities are by far more developed. The transactions are also coupled with methods of payment that go through foreign banks that offer payment gateways usually located outside Jordan. Therefore, the few B-to-B transactions that are likely to thrive are processed by businesses that do not use Jordanian facilities.

These B-to-B activities tilt towards importing and not exporting. Some Jordanian enterprises, however, export through B-to-B transactions by selling to wholesalers outside Jordan. As for the few attempts at local B-to-C e-commerce within Jordan, this is not likely to thrive for the time being, as there is no critical mass of Jordanians to constitute a local e-market and also because of the cultural aversion to and distrust of online trading.

The points discussed above indicate that the e-commerce experience in Jordan is sporadic, modest and dependent on private initiatives, which could have been more successful had they been given proper guidance and support. This reveals that Jordan does not yet have a comprehensive strategy for the orientation and management of e-commerce. Such a strategy, which is decidedly needed, could be translated into a programme that would involve both the public and private sectors in identifying the problems and requirements of e-commerce development in the country.

## B. TECHNICAL E-COMMERCE INFRASTRUCTURE

### 1. *Information technology: the REACH Initiative*

Discussing e-commerce leads to addressing the wider topic of ICT. The fundamental requirements for constructing an e-commerce system include information technology, computers, telecommunications, information networks and network security.

The ICT industry in Jordan is at a very early stage of development. At present, there are some 50 companies primarily engaged in software, web site design and content development and related services. Of those, perhaps only a dozen may be considered software developers. These 50 firms together employ about 1,250 people, with an average of some 25 employees per firm.<sup>36</sup>

However, the new Jordanian monarch, King Abdullah II, in his concern over the high rate of unemployment among young Jordanians and, at the same time, recognizing the opportunities spawned by the ICT revolution, decided to embark on a plan to benefit from those opportunities. They could certainly offer ways to help create jobs, he reasoned, as well as further Jordan's economic growth and enable it to effectively participate in the global economy. Consequently, a core group of the Jordanian Computer Society (JCS) was assigned to formulate the REACH Initiative, a comprehensive proactive framework to develop the country's ICT industry in terms of strengthening its regulatory framework, creating an enabling environment (infrastructure), advancing the national ICT programme, providing capital and developing human resources.

To achieve those goals, an action plan was prepared. The role of the Government, the ICT sector and other stakeholders in the implementation of this plan were identified. Among the activities proposed are those related to e-commerce, such as improving and enhancing infrastructure, drafting e-commerce legislation and developing human resources. This will most likely spill over to advance e-commerce operations in Jordan.

The REACH Initiative, if translated into actions to enhance the ICT sector in Jordan would, at the same time, promote the development of e-commerce. The recent removal of customs duties on information technology software and hardware should encourage more Jordanians to become computer literate. Moreover, the inclusion of computer and Internet courses in the curricula of schools and universities will, in the long run, result in creating a critical mass of people interested in ICT and, consequently, in e-commerce.

### 2. *Telecommunications: work in progress*

In 1997, the Jordan Telecommunications Corporation was transformed from a public organization into a corporate enterprise operating on a commercial basis in accordance with the Jordanian law governing companies. At that time, JTC was 100 per cent owned by the Government, with a decision pending to

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<sup>36</sup> INTAJ (Information Technology Association of Jordan), "The REACH Initiative", Amman, March 2000, p. 17.

privatize 40 per cent of its equity into a telecommunications carrier. In the year 2000, a consortium led by France-Telecom won the bid and bought around 35 per cent of JTC, leaving around 5 per cent to the Arab Bank.

Currently, JTC has a monopoly for 5 years (until 2004) over fixed wire telecommunications services. It also holds a duopoly with Fast Link over mobile telephone services. Moreover, JTC has a monopoly over infrastructure; it leases lines to ISPs through satellites or submarine cables, thus providing them with national and international lines. Currently, none of the 12 licensed ISPs provide hosting; they actually connect customers to the United States for browsing and surfing.

To become internationally competitive, JTC reduced its rates around 35 to 40 per cent on international leased lines. As for capacity, the lines are digital and vary in speed from 64 Kbps up to 2 Mbps. However, work is under way to upgrade this speed by the end of 2000 to reach multiples of 2 Mbps, which will further encourage e-commerce transactions. JTC is also adopting the latest technology of fibre optic cables using SOH to build a data communication network, which will be completed in December 2000. By then, JTC will be able to provide higher bandwidth through a fibre optic network and using ISDN. This will enable JTC to provide end-to-end broadband width digital service, which will facilitate and encourage better Internet communications, including e-commerce. In addition, JTC will become the 13th licensed ISP and will be providing lines to Jordanian customers. At the same time, JTC will be able to provide international connectivity directly from Jordan to the United States via FLAG (Fiber Link Around the Globe) submarine cables and satellites. This will help connect Jordan's lines with global Internet backbones.

To encourage Internet connection, JTC reduced its telephone rates. However, many Jordanians complain that this reduction was not enough and that the dial-up connection cost is still high compared with other countries. The main five e-commerce requirements, as revealed by the survey and listed by order of importance, were: providing infrastructure and favourable price policies; drafting suitable legislation for the e-commerce environment; training and building skills; financing e-commerce projects through untraditional channels; and refraining from taxing e-commerce activities. The fact that infrastructure and pricing headed the list of requirements reflects the dissatisfaction of Jordanians with the existing speed and price of dial-up Internet connections.

According to the figures of the International Telecommunications Union (ITU) for 1998, Jordan had 8.4 main telephone lines per hundred inhabitants, well below the world average of 14.27 for the same year. As for mobile telephones, the figure was 1.15 mobiles per hundred inhabitants, also below the world figure of 5.39. This low telephone connectivity could be because of the relatively high telephone rates (including mobile phones) in a country where the unemployment rate is at the two-digit level.

### *3. Internet service providers: need for improvement*

Although there are 12 licensed ISPs in Jordan, only 7 are operational. Most of the ISPs complain about the excessive cost of lines. They also complain about the low speed of the lines, which in their opinion compels many e-commerce companies to connect with international ISPs. The high telecommunications cost is also hindering Jordanians from connecting to the Internet. It becomes, therefore, unfeasible for the ISPs to provide better services and reduce their fees further, since they only have a small number of customers. The Government should establish a clear strategy that will encourage connectivity and thus enhance ISP services and, consequently, e-commerce. The inadequacy of the telecommunications system has also had an impact on the foreign direct investment (FDI) inflow into Jordan; many companies give significant importance to the communications infrastructure as being central and conducive to the investment environment.

Many Internet subscribers complain about the Internet services provided by the existing ISPs. They complain about the speed, the frequent interruptions in connectivity and the small bandwidth that is insufficient for the proper transmission of multimedia (audio and video). These weaknesses, in their opinion, are a major hindrance to e-commerce, which demands quick and stable connectivity.



The 1999 figure for Internet users in Jordan, published by the ITU, were 123.43 users per 10,000 inhabitants, or more than three times lower than the world figure of 439.77. This low rate of Internet users in Jordan is due to the small volume of telephone subscriptions and also to the low number of people who own personal computers. The 1999 figure of PCs per 100 inhabitants amounted to 1.39, while the world figure for the same year was 6.78. It is necessary to increase the possession of PCs and Internet connectivity in Jordan in order to create the critical mass needed for online trading and thus reduce the risk of Jordan becoming marginalized globally in terms of the digital divide.

#### *4. Web site development*

There are a number of companies that develop web sites in Jordan. So far, the sites are primarily used to advertise and display products; very few of them are engaged in export sales. This can be explained by several reasons, among them the absence of security socket layers, the fact that the banking sector is not yet ready to handle e-commerce transactions and, most importantly, the lack of appropriate legislation to deal with the legal aspects of online trading. Some ISPs that are also web-site developers automatically put their sites on most search engines. ISPs hosting web sites also offer informational statistics, such as the number of hits, the time length of the connection and the source of hits by country. Web site development in Jordan is not expensive compared to other countries; a 10-page web site and one-year hosting costs around 1,000 Jordanian dinars (JD) or US\$ 1,400.

#### *5. Online security*

There is still very little comprehension in Jordan about security on the Internet. Information is lacking as to what is available to provide the various levels of security needed for different Internet transactions. However, there are some Jordanian establishments that are equipped to provide online security solutions for businesses engaged in e-commerce.

There are four main security concerns of importance to online trading. The first is privacy, which requires encryption solutions; the second is access control and authentication; the third is integrity, or what others are not allowed to change; and finally, there is non-repudiation (i.e., proof that a person has requested the transaction and cannot deny it). These security concerns require encryption, verification of digital signatures and certificates, key public and private infrastructure and the intervention of trusted third parties.

Security solutions that encourage companies to venture into e-commerce are available in Jordan to help enterprises build their own certification, validation and revocation authority and also provide the public and private keys required. Currently, these security services are available to banks, since they are the market leaders and, as such, are capable of preparing the ground for secured e-commerce transactions.

The online security solutions available in Jordan are provided by the local agents of international companies. They seek to solve the problem of anonymity that exists in Internet transactions, thus enabling enterprises to pursue a full range of practices on the Internet. Enterprises are obliged to meet certain conditions before they are approved. Once they comply, they become holders of PKI (public key infrastructure) and are deemed ready for e-commerce.

The main problem in Jordan is that not many people are aware of the different requirements entailed in launching an efficient and secured e-commerce operation. Those who may be familiar with e-commerce are deterred by stories of online violations, without having any knowledge of the security solutions that are available to help build trust in electronic transactions.

### C. FINANCIAL INFRASTRUCTURE: LACK OF ELECTRONIC PAYMENT FACILITIES

Two Jordanian banks—the Arab Bank and the Housing Bank—have announced that they will soon begin comprehensive e-banking.<sup>37</sup> Although the Arab Bank and the Jordan Kuwaiti Bank have announced that they are ready for e-banking, the actual fact is they have only moved their already-automated transactions onto the Internet. They have not yet provided the payment gateways that are a prerequisite for comprehensive e-banking. In addition, the Cairo-Amman Bank and the Housing Bank have issued debit cards that can only be used for limited Internet payments.

The Central Bank of Jordan has always pursued technological advancement. In 1994, it began with automatic cheque clearing, phone banking and automatic teller machines (ATMs). Now the Bank has plans to introduce electronic cheque clearing, but this will need a modification of laws before it can be put in place. The Central Bank has also embarked on a gross settlement system—an electronic payment system that can execute payments within seconds. This project, expected to be implemented in 2001, will facilitate more effective bank payments and could provide leverage for e-commerce. In addition, the Central Bank has initiated a project planned to unify the different ATMs in Jordan, which is expected to benefit the points of sale in the Kingdom.

One may conclude that, so far, Internet payment facilities are lacking in Jordan. The survey conducted for this study showed that almost all the companies considered “the lack of electronic payment and the small coverage of credit card holding” as the second most important problem hindering the growth of e-commerce in Jordan (see box 2).

#### **Box 2. Problem areas facing e-commerce in Jordan**

*(By order of importance, 1 being the most important)*

1. Lack of coordination between the private and public sectors to create and develop an e-commerce market in Jordan.
2. Lack of Internet payment solutions in Jordan, and the small number of credit cards of international nature.
3. Lack of awareness of the e-commerce concept.
4. Lack of trust about online payments and security and the lack of legal protection against online intrusion and fraud.
5. Inadequate infrastructure: computer and Internet literacy, telecommunications, Internet services, high telephone rates and low Internet connectivity.
6. Lack of e-commerce project funding and the absence of essential technical e-commerce specializations.
7. Absence of legislation concerning electronic evidence and other legal aspects of e-commerce.
8. Absence of standards and measures for e-commerce and the lack in developing Arabic sites for the ESCWA region.
9. Delivery problems.
10. The absence of an Arab stock market for ICT companies.

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<sup>37</sup> Comprehensive e-banking handles most of the ATM payments made on the Internet and also provides a payment gateway for the settlement of e-commerce transactions. This involves an electronic connection with credit card companies and other clearing houses.

#### D. LEGAL INFRASTRUCTURE: ABSENCE OF A REGULATORY SYSTEM

In order to move ahead with e-commerce, consumers and businesses must be assured that the new technology can make personal data secure and that the privacy of this data is recognized by law. In other words, it is essential that the security of transactions on the Internet be technologically insured. It is equally essential that laws be in place to protect the consumer or business from any fraud or intrusion that may occur. Without such security elements, e-commerce would not thrive.

Laws that recognize and validate electronic means of identification, certification or authenticity have not, so far, been put in place in Jordan, as is the case in all the Arab countries. One should bear in mind that in order to legally prove the validity of electronic documents, there has to be a connection between data security and legislative recognition. In Jordan, electronic documents and signatures are not recognized.

Some of the legal issues relevant to e-commerce operations that must be addressed include the validity and recognition of e-mails and e-contracts; the absence of legal protection for online data and information security; lack of a regulatory system defining the legal responsibilities of ISPs when failing to provide a service; the infringement of intellectual property rights related to the content of web sites (especially designs); the absence of legal protection for domain names; and the legal responsibilities of credit card and banking services used in online trading.

Prior to arriving at legal recognition of electronic evidence (documents and signatures), however, the Jordanian legislative body will also have to address other legal needs, as follows:

- (a) A computer crime law to protect Internet users against crimes, such as site intrusion, data theft and invasion of privacy and secrecy. Personal data saved in data banks, for instance, should be protected from being used for commercial, racial or terrorism purposes;
- (b) A law on intellectual property rights to protect software, databases and chips;
- (c) Modernizing investigative and judiciary procedures, as current procedures are too old and inadequate for dealing with computer crimes and fraud;
- (d) A law covering codes of conduct, to protect Internet browsers from exposure to indecent practices such as child pornography;
- (e) Regulations establishing legally acceptable standards and measures in electronic services.

What is actually needed, and this applies to all the Arab countries, is a comprehensive study of the impact of electronic information technology on the legislative system in all branches of law, whether it is criminal, financial, administrative or otherwise. Only then can the legislative body formulate a set of laws able to cope with the special needs of e-commerce.

#### E. HIGH POTENTIAL IN HUMAN RESOURCES

A highly skilled workforce is essential for ICT and e-commerce development. This, of course, requires an educational infrastructure geared to producing a new generation of skilled professionals qualified to meet the challenges of IT and e-commerce.

Jordan has one of the highest literacy rates in the region—87.5 per cent. More than 17 per cent of its workforce has higher education certificates and about 19,000 are holders of post-graduate degrees. During the 1990s, the return of expatriate workers from the Gulf further increased the skill base, which has continued to expand. This high quality of human resources has made Jordan one of the major suppliers of brainpower in the region.

Unemployment figures for the 960,000 Jordanians who constitute the Kingdom's workforce vary in estimation. The Jordanian Government estimates unemployment in Jordan to be around 15.2 per cent, while

other sources have come up with figures closer to 30 per cent. Whichever estimate may be correct, one reason for the unemployment is the mismatch between skills produced and the needs of the industry.

Seventeen universities in Jordan offer degrees in computer sciences, computer engineering and telecommunications, which has produced an abundance of highly qualified labour in the computer field. As for mid-level education in similar fields, this is provided by the intermediate colleges and vocational institutes that are owned by the Ministry of Higher Education. In recorded figures, the number of ICT students totals 8,000 at the university level and 5,300 at the two-year community college level. Each year, they graduate a total of 2,000 students ready to add their skills to the labour market.

Two advantages characterize Jordan's ICT industry—the low salaries in the industry and the relatively large supply of qualified graduates. The wages of ICT workers in Jordan are at a level comparable to the lowest international wages. A Jordanian programmer at starting level is paid around US\$ 12 per day, compared with US\$ 113-180 per day for workers in Ireland, for example. This means that Jordanian ICT companies can compete with other countries on a labour cost basis. However, low wages work to the disadvantage of the industry. Many experienced Jordanian professionals take jobs in other countries where the wages are far better and where the demand for ICT professionals is large. Notwithstanding this, low-cost skills remain an advantage to Jordan's ICT industry—an advantage that should spill over to help the growth of e-commerce, once awareness has been raised and the infrastructure has been put in place.

#### F. THE NEED TO RAISE AWARENESS

Raising awareness is essential for launching e-commerce in Jordan, at both the consumer and business levels, especially for SMEs that are insufficiently informed about online trading. There are around 120,000 Internet users in Jordan, who mainly use the Internet for e-mail, chats and research and not much for trading online. The remainder of the Jordanian population lack knowledge about computers and the Internet. There is, therefore, a need for the Government to establish computer and Internet centres in all the governorates and remote areas of the country to enable Jordanians to become computer literate, learn about and benefit from the Internet and gain a better understanding of the ICT revolution. Trade promotion organizations, such as the Amman Chamber of Commerce and the Amman Chamber of Industry, should raise awareness and encourage SMEs to become engaged in online trade, by helping them develop their own web sites or be hosted in malls especially designed for that purpose.

The survey conducted for this study showed that most of the 30 companies interviewed believed that there was lack of sufficient awareness by both consumers and businesses about the concepts of e-commerce. The survey also showed that the level of awareness was even lower with regard to e-commerce problems and solutions.

#### G. LITTLE EXPERIENCE IN ELECTRONIC TRANSACTIONS

Most of the large enterprises in Jordan are online. They have the state-of-the-art web sites that are mainly directed towards attracting customers and advertising, without actually selling their products online. Some SMEs have also developed web sites, also to assert their business presence in the e-market and to advertise their products, but falling short of using the Internet as a medium for sales. The SME representation on the Internet is weak and some of the SME web sites are unattractive and very cumbersome to use.

One can generalize that, so far, e-commerce in Jordan is moving in one direction. Enterprises and individuals are using the Internet mainly to import products into Jordan. However, there have been a few successful but minor experiences of firms actually exporting products through the Internet. One Arabic sweets enterprise and another that sells Dead Sea products have actually exported their products. However, they handled their transactions through foreign ISP lines and through foreign banks for settling payments. In addition, one Jordanian virtual mall has been constructed on the Internet, with a number of firms subscribing. However, it is not yet ready to accept payments and is mainly directed towards the Jordanian market. Another virtual mall is about to start operating in both Arabic and English and, according to its managers, it will be ready to export. This mall, once again, has contracted with a foreign ISP and a foreign bank for its Internet line and payment settlement respectively.

## H. ROLE OF GOVERNMENT, PRIVATE SECTOR AND INTERNATIONAL ORGANIZATIONS

### 1. *The role of the Government*

There is no comprehensive strategy by the Government to promote or manage e-commerce in Jordan. So far, the few e-commerce initiatives that have been launched were developed through private efforts or through foreign aid. The ESCWA survey shows that the first problem area that needs to be addressed is the lack of coordination of efforts between the public and the private sectors concerning the creation and development of e-commerce in Jordan (as indicated in box 3). Electronic commerce in Jordan could be developed within the framework of a committee charged with executing a programme that addresses the different aspects of e-commerce. Such a committee could include the Ministries of Telecommunications, Planning, Industry and Trade, Justice, and Education. It could also include telecommunications companies, ISPs, the chambers of commerce and industry, the Higher Council for Science and Technology, the Mutual Interaction Centre, computer and ICT societies, business development consultants and computer legal authorities. Such a committee could draft a work plan to implement activities aiming towards enhancement of online trading.

### 2. *Jordanian trade promotion organizations*

The Amman Chamber of Commerce (ACC), the Jordan Export Development and Commercial Centers Corporation (JEDCO) and the Amman Chamber of Industry (ACI) are the three important trade promotion organizations in Jordan. Although the issue of e-commerce has not been adequately addressed by these organizations, a few sporadic efforts have been made to promote e-commerce; all three have conducted or are in the process of conducting awareness seminars on e-commerce.

The activities of the ACC in the domain of e-commerce have been very minimal. One officer is preparing for the technological changes involved in conducting e-commerce; he has become well versed on e-commerce issues through attending international conferences on the subject and has a clear picture of e-commerce in Jordan and what is needed to enhance it. However, nothing has been done yet to educate the other members of the ACC on the economic implications of e-commerce. According to the officer mentioned, big merchants are aware of the technological change and have already established their position online, but SMEs still do not see the feasibility of moving into e-commerce and view it as a costly and risky venture, especially at a time when the adequate infrastructure to conduct such transactions is not yet in place. There is also the cultural problem, which deters Jordanian SMEs from trading with someone they don't know and have never met. In sum, the ACC has not been active in this respect, but there are plans to conduct awareness seminars, especially now that the REACH Initiative has been picking up momentum.

The ACI, however, has formulated a project consisting of three modules, to be implemented once it is approved by European Union sources of funding. The first module calls for an annual conference on ICT and e-commerce; the second module focuses on the training of trainers; and the third module is concerned with the establishment of an e-commerce research centre. ACI has an officer specialized in ICT issues and e-commerce who has ambitious plans to disseminate information to the members of ACI. ACI has already conducted awareness seminars for its members.

JEDCO is the most active of the three trade promotion organizations in Jordan. Noting that only 100 of the 1,300 registered companies in Jordan have web sites and that only 400 of them have e-mail, JEDCO recognized the need to raise awareness and has, so far, conducted four awareness seminars. Currently, it is helping SMEs develop their own web sites. JEDCO is also involved in a World Bank project, under which it has been charged with identifying the products of 20 Jordanian sectors and marketing them on the "elsouk.com" web site that was created by the World Bank to host and market products from Egypt, Jordan, Lebanon, Morocco and Tunisia. JEDCO, so far, has prepared for the marketing of Jordanian handicrafts and has already put them online. The process consisted of only two steps: first, a shipping company was commissioned to deliver the handicrafts; and second, arrangements were set up to handle the payment end, either by credit card or through a bank. The latter method of payment has been problematic, since Jordanian banks do not yet handle such Internet financial transactions, although there are indications that the Arab Bank is laying the infrastructure to do so.

### Box 3. WTO and e-commerce

In Geneva, at the second WTO Ministerial Conference in 1998, WTO member ministries agreed to launch a "comprehensive work programme to examine trade-related issues with respect to global e-commerce". The trade-related issues that affected e-commerce and were the concern of WTO members included: trade in services; trade in goods; intellectual property rights; government procurement; standards; and development issues.

As a result, a work programme was established in 1998. It is important to note that the statement of the declaration launching the work programme included that "WTO members will continue their current practice of not imposing customs duties on electronic commerce". WTO members identified three kinds of Internet transactions:

- (a) Transactions of goods that are digitized or transactions for a service which is completed entirely on the Internet, from selection to payment and delivery;
- (b) Transactions involving "distribution services" where products, whether a good or service, is purchased through the Internet but delivered through converted means;
- (c) Transactions involving telecommunications services and Internet service provision.

The above-mentioned categories of Internet transactions prompted the examination of electronic commerce by the Council for Trade in Services; the Council for Trade in Goods, the Council for TRIPS and the Committee for Trade and Development. After revising the WTO agreements and examining their relevance and applicability to e-commerce, a report was produced in 1999.

The report contained the general view of WTO member Governments that most of the transactions on the Internet are services governed by the GATS agreement. GATS, it is to be noted, does not distinguish between technological means of delivery. All GATS provisions therefore apply to trade in services through electronic means.

However, there was disagreement regarding whether or not some products (available on the Internet) were goods or services. Products such as books and software if delivered electronically were services, and if delivered in the conventional way constituted goods. Some members considered them services, others considered them goods that should be subject to customs and other provisions of the GATT agreement. A third group considered such products as neither services nor goods and called for new provisions to be devised for them.

Finally, until more information and analysis are carried out regarding the impact of e-commerce, the general belief of the ministers was that there is neither a need for new rules nor a reason to approach e-commerce as a separate subject in WTO. The existing agreements seemed to meet the minimum needs for regulations concerning e-commerce.

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*Sources:* WTO, "Work programme of electronic commerce", *Topics*, 25 September 1998; WTO, "Work programme reflects growing importance" <[www.wto.org/e-commerce](http://www.wto.org/e-commerce)>; UNCTAD, *Building Confidence*, op. cit., p. 124.

JEDCO has ambitious plans for the future. It has pioneered an e-commerce initiative to identify the impediments facing e-commerce in Jordan and has recommended that an institutional framework be put in place to implement the aims of the initiative. The institutional component will include establishing an e-commerce council and a national company for e-commerce services. The plan is to establish an e-commerce centre at JEDCO that can assist Jordanian companies interested in online trading. The centre will work to promote e-commerce in order to market Jordanian products online and extend technical assistance with regard to e-commerce applications and services as needed.

### 3. International organizations promoting e-commerce in Jordan

The EU, the World Bank and the United States Agency for International Development (USAID) have been quite active in promoting ICT and e-commerce in Jordan. They are helping fund projects formulated by Jordanian public and private organizations and are also providing expertise to Jordanian firms in their efforts to expose their products online and target new markets abroad. The EU, for example, has created a web site to help Jordanian merchants and industrialists find trading partners and investors internationally. It has also proposed funding in the amount of 7 million euro dollars to any project designed to promote e-commerce

among SMEs. In addition, the EU is expected to approve funding of the three-module e-commerce project proposed by the Amman Chamber of Industry (as described above).

The World Bank has established a virtual souk online that exposes Jordanian products, along with those of Lebanon, Morocco and Tunisia, on the world market. On its part, USAID has launched a Jordan-United States “business partnership”, a project that includes an ICT component.

## I. CONCLUSIONS AND RECOMMENDATIONS

As the foregoing has indicated, there is very little e-commerce awareness and online trading in Jordan. Efforts to educate the country on the imperatives of online trading are also dispersed. However, initiatives during the past year have brought some optimism and promise to set the country on an e-commerce track. The recent launching of the REACH Initiative by the Government of Jordan in collaboration with the private sector, which is aimed at the development of ICT and e-government, is expected to have a positive effect on e-commerce. However, while improving the ICT industry will help, it will not provide a magic wand for e-commerce. The country still lacks a number of essential prerequisites for online trading to grow and flourish. Jordan’s population is small, with small Internet penetration and low computer literacy. The infrastructure will need to be further enhanced and the legal and financial components of e-commerce need to be put in place. Therefore, the following recommendations are made:

- (a) Jordan should develop a comprehensive e-commerce strategy that addresses all aspects involved. This strategy should be translated into a programme. The management of the programme could be overseen by a committee that includes representatives of all concerned parties (such as telecommunications authorities, ISP companies, trade promotion organizations, banks, legislative bodies and others);
- (b) The Government, NGOs and international organizations should collaborate to increase computer and Internet literacy in the country. Computer centres in remote areas should be established in order to provide deprived people with computer and Internet access;
- (c) Universities and vocational schools should incorporate e-commerce and e-business management courses in their curricula;
- (d) The Government, NGOs and the private sector concerned with trade should campaign to raise awareness about e-commerce and provide Jordanians with a clear picture of the concept and its benefits. They should raise awareness of SMEs about online opportunities and should help and guide them in developing web sites to market and export their products;
- (e) Efforts should be made to enhance Jordanian knowledge with regard to the availability of online security solutions and the security requirements for each stage of a transaction. This should ease their apprehensions about buying and selling online, which has been to a certain extent exacerbated by exaggerated stories they hear about online fraud and insecurity;
- (f) Telecommunications enterprises should further reduce leased line fees for ISPs and dial-up telephone rates for subscribers, as well as provide better services to encourage connectivity and make it more feasible for ISPs to provide better services;
- (g) ISPs should enhance their services and their terms. They should recruit and train professionals in the field of Internet services, reduce interruptions in connectivity and help find solutions for other Internet problems;
- (h) The legal system should expedite the drafting of laws that recognize electronic evidence and protect consumer’s rights. It could start by studying the UNCITRAL Model Law and using it to draft the Jordanian law for electronic evidence;
- (i) Laws for computer crimes and fraud should also be put in place to protect those trading online and give them a sense of trust and security. Such laws should be harmonized with international laws, as computer crimes are international in nature;
- (j) The Central Bank and the major banks in Jordan should promote the use of credit cards. They should also facilitate Internet trading by handling online financial transactions and providing payment gateways for e-commerce.

## VI. E-COMMERCE IN EGYPT

### A. EGYPT'S BUSINESS ENVIRONMENT: A SPAWNING GROUND FOR E-COMMERCE

Over the past two decades, Egypt has witnessed a socio-economic development that has had a positive impact on the well-being of its people. As the economy became market-based and the liberalized process continued, the standard of living rose and unemployment rates fell. Meanwhile, Egypt has been exerting much effort to promote investment and create an attractive environment for investors. Having secured the required level of foreign reserves, it encourages investors to exploit the opportunities offered in Egypt. The Government has liberalized interest and exchange rates and reduced bureaucratic barriers and procedural restrictions, such as licensing for investment. The private sector is taking the lead in stimulating growth and endorsing employment in Egypt. Privatization is continuing, along with liberalization and deregulation.

### B. EGYPT'S RATIONALE FOR E-COMMERCE

Poised on the threshold of the twenty-first century, the world economy is characterized by a strong internationalization of markets, the globalization of corporate strategies and the increasing mobility of capital and know-how. The prime movers behind these developments are the new technologies of global communications and the processing of graphic and audiovisual data on worldwide information networks.

E-commerce has wide implications for international trade and business. With the promise of a cashless society, more facilities and closer communication, borderless marketing and trade and greater transparency in the business environment, the opportunities are extensive. There are, therefore, great prospects for e-commerce, although the issues of security and online financial transactions are still being addressed.

Against this background of a changing world, Egypt will have to give serious and immediate thought to two basic facts: the economic opportunities that e-commerce holds for Egypt and, equally importantly, the implications if the country fails to exploit them. This is a challenge equal in magnitude to that of shifting the economy from an agricultural base to an industrial base a hundred years ago.

E-commerce is a medium for foreign trade and a catalyst for export. It would have an indirect effect on the local economy, while also enabling Egypt to experience a more open economy and increase its competitive advantage worldwide.

Projections for the volume of e-commerce transactions indicate that world electronic-based trade can reach US\$ 1 trillion within the next decade. This will provide Egypt with expanded opportunities to penetrate international markets and, thus, become of major importance to the economic development of the country. This will be especially true for SMEs, which lack the resources to promote themselves globally.

The advent of the Internet and e-commerce has reduced the costs of trading (i.e., travelling, marketing and advertising), as well as the time and space required to perform transactions. One can carry on B-to-B and B-to-C transactions from a distance without ever having to be in direct contact with the client.

Many economic activities will benefit from e-commerce. They include:

- (a) Financial services (insurance, banking, brokerage, currency trading);
- (b) Travel and ticketing;
- (c) Entertainment and music;
- (d) Advertising and marketing;
- (e) Information services (collecting and disseminating information);
- (f) Education and training;
- (g) Media (electronic books, newspapers, journals, news services);
- (h) Other services (medical, real estate, legal, architectural);
- (i) Retailing of a wide variety of products.

Therefore, e-commerce would bring in additional sources of revenues with very minimal overhead and investment costs. Finally, e-commerce opens up avenues for the rise of many hi-tech industries.



E-commerce carries strong socio-economic implications for the Egyptian citizen. On an individual level, Egyptians having access to the technology will be able to perform transactions worldwide, trading in products across national borders, while elevating their standard of living and “quality of life.” E-commerce has the potential to create many jobs. A middle-class Egyptian, for example, could have the opportunity to establish a small, medium or even micro-size enterprise with global market access. An Egyptian software developer working at home can write software for international customers; a maker of oriental rugs or artifacts can export to foreign markets from his small business in a remote village. Additionally, the many technical aspects involved in e-commerce operations will create working opportunities for professionals in many fields.

E-commerce offers much opportunity for growth in Egyptian exports. However, if Egyptian businesses do not respond in a timely manner to grasp this global opportunity and maximize its benefits, they might lose in the end. International companies might be able to replace the Egyptian companies, even in the local Egyptian market, especially with the onset of international trade agreements such as the WTO Agreement.

### C. INTERNET AND THE TELECOMMUNICATIONS ENVIRONMENT

#### 1. *The telecommunications structure*<sup>38</sup>

The telecommunications sector in Egypt is still characterized by a relatively traditional structure. The incumbent operator, Telecom Egypt, remains the dominant player. There are signs of change, however. Its current reform process positions Egypt as one of the more forward-looking economies in the Arab region. In particular, the corporatization of Telecom has already taken place, the separation of its regulatory and operational functions is under way, and its privatization has reached an advanced stage of planning. However, the most dramatic changes in the sector have been brought about by the competition in mobile communications and Internet service provision. Traditional assumptions about the level of demand for telecommunications services have been overturned by changes in the supply side of the industry. Indeed, private companies (such as Orascom Telecom) are now emerging as regional, not just national, powerhouses.

The same law that created Telecom Egypt also created the Telecommunications Regulatory Authority as an independent regulator. It is expected that the Authority’s independence will be confirmed by a new law, which is currently being drafted. The sector was further revamped in 1999 when responsibility for telecommunications, which had previously rested with the Ministry of Transport and Communications, was transferred to a newly created Ministry of Communications and Information Technology. The new Ministry is now championing a much more energetic approach to development of the sector, which is no longer perceived as a source of funds for cross-subsidy to other government projects. A new law, expected to be passed in either late 2000 or in early 2001, should put the sector on a sounder, more commercial footing and establish a timetable for further liberalization and the licensing of additional players. One of the features of drafting the new law is the fact that it has been a relatively open and inclusive consultative process.

#### 2. *Telecommunications industry players*

##### (a) *Telecom Egypt*

By far the biggest company in the Egyptian telecom market, Telecom Egypt was formally created as a joint-stock company in April 1998. Previously, it was known as the Arab Republic of Egypt’s Telecommunications Organization (ARENTO). Telecom Egypt is also the biggest telecommunications company in the Arab region, as measured by the number of fixed telephone lines in operation. At the start of the year 2000, Telecom Egypt had some 5.1 million subscribers and a tele-density of just under 7 lines per 100 inhabitants. This places it behind many of the Gulf States but marginally ahead of other North African States.

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<sup>38</sup> Tim Kelly, International Telecommunication Union, September 2000.

While the growth rate in the number of main telephone lines over the last five years has been some 13 per cent per year, this has not been sufficient to keep ahead of demand. The waiting list has remained fairly static, at around 1.2 million for most of the 1990s. The current rate of line growth (that converts to an average waiting time of just over two years) is not enough; the goal is to increase growth to some 1 million lines per year in the early years of this century. It is likely that the phenomenal growth of mobile communications may also reduce the level of the waiting list for fixed service.

Telecom Egypt enjoys a monopoly over all fixed-line domestic telephone services in the country and, crucially, over all international services (including data and Internet services and calls to and from mobiles). However, there are some signs of change. For instance, Telecom Egypt has now set up a marketing department, recognizing the need to sell its services in a progressively more competitive market. It has also established a "new services" department and is actively pursuing joint ventures with other companies in the field, such as data communications (with EGYNet) and Internet service provision (with GegaNet), through a franchise model. In addition, it has recently become more innovative in its approach to premium-rate Internet service.

(b) *Orascom Telecom*

Orascom Telecom is emerging as the major second player in the country. As part of a consortium, it owns part of MobiNil, the leading cellular operator in the country, which was acquired from Telecom Egypt in May 1998. In February 2000, Orascom acquired an 80 per cent stake in Telecel International. This was the largest-ever acquisition by an Egyptian company. In total, Orascom now has stakes in 18 GSM licenses, including those of Jordan, the Syrian Arab Republic, Yemen and Pakistan, in addition to those in Egypt. Orascom is also a shareholder in Minitel (with France Telecom International), which has a franchise from Telecom Egypt for the installation of a minimum of 20,000 public payphones over a ten-year period. Orascom is also the biggest player in the ISP market. In April 2000, it acquired the remaining 59 per cent of InTouch, the country's largest ISP, and has now combined it with Link Egypt (another leading ISP in which it acquired 50 per cent in July 1999) and merged the two into LinkdotNet.

Orascom Telecom is a subsidiary of Orascom Technologies that, in turn, is one of three companies run by Orascom, a company founded in 1950 and owned privately by the Sawyers family. It employs some 20,000 people in Egypt alone. Through its technologies subsidiary, Orascom is involved in computer hardware, software and services. It acts as a local agent for Hewlett-Packard and Lucent (a major supplier to Telecom Egypt). Orascom is also involved in tourism and construction.

(c) *MobiNil*

MobiNil is the leading cellular operator in Egypt. By September 2000, it had amassed some 1 million subscribers. At the time it was created, through the purchase of Telecom Egypt's GSM operations in 1998, it had only 83,500 subscribers. MobiNil's owners are a consortium comprised of Orascom Telecom, France Telecom International, Motorola and the local companies Systel and Raouf Abdel Messih (Alcatel's local agent). The price MobiNil paid—1.7 billion Egyptian pounds (LE)—was the same as that paid by Misrfone, which won a tender for a second license in March 1998. By acquiring the Telecom Egypt asset, MobiNil was able to gain a flying start in the market, which it has maintained to date.

Misrfone is the second cellular operator in Egypt and operates under the brand name of ClickGSM. It began operations in November 1998 and, within its first year of service, had gained some 332,000 subscribers. As of April 2000, it had over 600,000 subscribers, the majority of which are on pre-paid schemes.

### 3. *Internet infrastructure*<sup>39</sup>

As in many parts of the world, Internet in Egypt has developed outside the formal telecom sector. The first use of the Internet can be traced to a link started by the Egyptian Universities Network in 1993 via an initial 9.6 Kbps link to EARN. What makes the history of Internet in Egypt noteworthy is the degree of Government awareness and support from very early on. The Government's Information and Decision Support Center (IDSC) has played a key role in raising awareness about the Internet; it has provided a forum for dialogue between the ISPs and Telecom Egypt and has been active in encouraging the diffusion of Internet services outside of Cairo.

A landmark event that raised awareness within government circles of the potential of Internet was the International Conference on Population and Development, held in Cairo from 5 to 13 September 1994 and attended by some 20,000 participants. One of the conditions imposed by the United Nations was that the Egyptian Government should provide a 64 Kbps link to the Internet for the duration of the Conference. It is interesting to note that this link, established via a leased line to Montpellier, France, cost the Egyptian Government US\$ 450,000 for nine days.

Following this successful event, the Government decided to allow IDSC and the Regional Information Technology and Software Engineering Center (RITSEC) to offer free Internet accounts to government agencies, NGOs and private companies, as part of a long-term government-funded campaign. The objective of the initiative was to promote awareness of the Internet and boost the number of users in sectors such as trade, manufacturing, health care, tourism and social services.

Another landmark was the decision taken by Telecom Egypt to establish an open-door policy for commercial Internet services, stating that it would establish private and public Internet gateways and allow 12 ISPs to begin operating. Today, this sector is fully liberalized and now has 60 ISPs.

### 4. *National bandwidth providers*

#### (a) *Regional Information Technology and Software Engineering Center*

RITSEC, hosted by IDSC, is the main provider of national Internet bandwidth in Egypt. According to its director of communications, RITSEC/IDSC currently accounts for 70 per cent of national IP traffic and has an estimated total capacity of 14 Mega bits (M/bits). Telecom Egypt and GegaNet handle the remaining 30 per cent. By pooling bandwidth, RITSEC/IDSC is able to offer cheaper tariffs than those available from Telecom Egypt. However, capacity is often oversold, leading to congestion and poor quality of service.

Domestically, RITSEC/IDSC has installed digital multiplexers in the public switches, enabling the creation of a digital network in Egypt. The network, managed by Egypt Telecom, provides a high-speed distribution network for more than 50 nodes throughout the country.

#### (b) *Egyptian Universities Network*

Bandwidth to the academic sector is provided via the Egyptian Universities Network, which has been connected to the Internet since October 1993 through a 64 Kbps link. Subsequent upgrades brought speeds up to 256 Kbps in October 1996 and 512 Kbps in December 1997. Further capacity was added in April 1999, bringing speeds up to 2 Mb/s. The Network connects all the Egyptian universities, including Al-Azhar University and the American University in Cairo, and is responsible for providing connectivity for approximately 90 sites. It also provides service for some 4,000 dial-up subscribers comprised of university staff and postgraduate students.

#### (c) *Nile-On-Line*

A recent newcomer on the Egyptian Internet scene is Nile-On-Line which was recently granted a license to operate as the commercial Internet backbone in Egypt. Nile-On-Line is jointly owned by Telecom

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<sup>39</sup> Guy Girardet, International Telecommunication Union, September 2000.

Egypt and IT Invest and has US\$ 15 million in capital. Nile-on-Line is expected to replace RITSEC/IDSC as the main provider of Internet bandwidth to commercial ISPs. It is also expected to operate the international gateway in conjunction with Telecom Egypt. The Nile-On-Line.com domain name was registered in May 1999, but has no web site as yet. Access to the international gateway is primarily controlled by Egypt Telecom; however GegaNet and Internet Egypt have direct access to the United States backbone via cable, wireless and MCI.

#### D. CHALLENGES AND ISSUES

The advent of the twenty-first century has brought forth the restructuring of national and global economies, introducing non-traditional forms of trade coupled with non-traditional approaches in dealing with emerging technologies and global information infrastructures. E-commerce has definitely arrived, compelling business people, economists, politicians, lawyers, bankers and others to re-think and re-engineer trade and work methods, policies, laws and standards. It is still an infant technology, posing many issues that continue to be discussed in numerous international forums—issues that range from those related to market access and online financial transactions to the legal issues of security, privacy and intellectual property rights. At the same time, the Government in each country worldwide holds a critical role in the development of e-commerce on the national level. It must act as a facilitator and enabler in promoting the infiltration of e-commerce throughout the country and, more importantly, in providing the ICT infrastructure necessary for Internet connections and online trading.

To ensure e-commerce success, financial and regulatory issues must be tackled. Customs and taxation regulations must be altered and electronic payment systems must ensure inter-operability in a global environment. Standards must be developed and implemented on the national level, but must be compatible with the global level. There are also a number of important legal issues to be addressed—such as privacy, liability, jurisdiction, intellectual property rights protection and security—all of which are opening up new frontiers in traditional legislature. In this regard, a uniform legal framework that recognizes, facilitates and enforces electronic transactions worldwide is needed. Approaches to enforcement of contracts must be changed; Governments should establish a predictable and simple legal environment based on a decentralized contractual model of law, rather than one based on top-down regulation.

Market access issues must also be handled. The appropriate liberalized telecommunications and information infrastructure must exist to ensure proper and easy market access. Private sector investment, promoting and preserving competition, implementing independent flexible regulations and guaranteeing non-discriminatory user-access and open access must be encouraged. Technical standards need to be determined to guarantee inter-operability. Content is another issue that has to be tackled. There should be support for the broadest possible free flow of information across borders. Special focus should be placed on content development, on computer software and business information.

The Government has a critical role in paving the way for the practical implementation and utilization of the new technology—it must be convinced of the value of this technology to the business environment. Moreover, the Government must have a non-regulatory, but supervisory, role as needed, such as intervening to insure consumer protection and providing a transparent and predictable legal environment. Governance should be bottom-up. The Government should act as a coordinator and facilitator between the private and public sectors, while giving the private sector “the upper hand”, so to speak. Finally, awareness of and confidence in e-commerce on the part of consumer, user and business must be established. The position of Egypt in these key areas is discussed in the following sections.

##### 1. *Promotion and awareness*

Awareness is one of the most critical barriers to the growth of e-commerce in developing countries. Other impediments identified in other sections of this paper can be traced back to this root factor.

One of the strongest indicators of lack of e-commerce awareness in Egypt is the small market size of 35,000 to 40,000 paying customers. This is the largest single deterrent for business; hence little business-to-

consumer e-commerce is possible.<sup>40</sup> Furthermore, the number of Internet users in Egypt doubles once every 10 to 12 months, which is half the global rate,<sup>41</sup> and this rate of increase is unfortunately becoming less. In general, the number of Internet users (and potential consumer base) discourages businesses from creating online venues for marketing their products or undertaking any other commercial transactions. A solution could be not to wait for the demand (the pull), but to provide the supply (push) instead, consisting of viable e-commerce sites in the local language—Arabic. Simply breaking down the language barrier, in itself, would attract more potential consumers (as well as corporate customers) to transact over the Internet. The market is at the “early majority” stage of consumer adoption, but the curve is rising slowly. By catalysing awareness, the rate of adoption can be accelerated.

The private sector alone cannot carry the burden of building e-commerce awareness. Governments, NGOs and international organizations should work together to raise awareness across all segments of society.

## *2. Human resource and skills development*

There is strong need for human resource development in the area of ICT in the ESCWA region. This need spreads across different sectors: legal, financial (including customs and tax authorities), health and education. Professionals in these areas have not been adequately trained to deal with the rising needs of ICT. The number of people who are working in information technology in Egypt is estimated to be around 5,000, who produce around US\$ 45 million in software. Those figures are drastically lower than those of Israel, which has a 20,000 IT workforce that produces US\$ 1.5 billion in software.

Moreover, the ICT revolution worldwide raises strong implications for the potential brain drain of human resources in the developing world. In 1998, there were 300,000 available IT jobs in North America and it is forecast that it will have 1.8 million IT jobs available there in 2004. This high demand implies the flocking of ICT brainpower to the North American region and a further depletion of human resources in the Arab and African regions. There is a large discrepancy in salaries offered locally and internationally. A fresh graduate in a developing country would earn within the range of US\$ 400 to US\$ 700 per month, as compared with US\$ 5,000 per month in the United States. There has been a recent migration of technical expertise to the United States. This continuing brain drain could pose a serious threat to the availability of ICT-trained human resources in the region.

The Egyptian Ministry of Communications and Information Technology has included in its projected five-year plan an ambitious programme to graduate 5,000 ICT professionals every year, who will be utilized to provide an adequate supply for local demand. A sample survey indicated a severe lack in the quality and quantity of human resources possessing appropriate ICT skills. Another dire scarcity is in the lack of middle management resources that have the appropriate combination of ICT and managerial skills.

Several institutions contribute to the labour pool of Egypt. In addition to the national universities, which have their own ICT programmes, the Information Technology Institute (ITI), under the IDSC umbrella, provides a nine-month postgraduate programme to sharpen students’ skills in technical areas. The ITI recently launched a Masters programme in e-commerce, in collaboration with the University of Nottingham. A similar programme is being launched by the Regional Information Technology Institute (RITI).

There is a need for the integration of ICT skills in all university curricula, along with an equal need to introduce courses in computer literacy and Internet in all primary and secondary schools. Moreover, skills in the legal, financial, logistics, taxation, customs and business management domains of e-commerce need to be enhanced in order to develop an enabling environment for the growth and success of online trading.

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<sup>40</sup> “An Internet user profile in the Middle East”, presented at Comdex ’98 by Intouch Communication Services, Cairo.

<sup>41</sup> Ibid.

### 3. Internet and the telecommunications infrastructure environment

Egypt's Internet and telecommunications environment has improved tremendously in recent years. The quality of service has been greatly enhanced with fibre optic technology and automatic and digital exchanges. Telecom Egypt, the nation's provider of local and international telecommunications, is undergoing a strong privatization process and will be making an initial public offering of 5 to 10 per cent of its stock by the end of 2000. The Ministry of Communications and Information Technology determines market regulation through the Regulatory Board for Telecommunications, whose mission is to regulate pricing, standard of services and develop and implement a national telecommunications policy.<sup>42</sup>

The current total number of paying Internet subscribers is between 35,000 to 40,000. Using a ratio of 2.5 to 4.5 users per subscribed account, there are over 250,000 Internet users, which is equal to 0.26 per cent of Egypt's population of over 66 million.

The new Ministry of Communications and Information Technology has brought new promise to the nation in the form of opening the doors to the private sector to invest in telecommunications and Internet development. Recently a contract was signed with a private company to establish an Internet backbone in Egypt and rates were reduced by 50 per cent, bringing prices down to international averages. The need still exists for better quality and affordable connectivity to more bandwidth. This is only the beginning of the road towards a better telecommunications and Internet environment.

### 4. National endorsement

So far, recognition and facilitation of intra-governmental electronic communications has been pervasive only at the top level of policy makers. True liberalization and dissemination of e-communications to all sectors of the Government and the society is still lacking. A move by the Government to initiate a few effective national projects (for example, government procurement or electronic government services) could be of significant help in furthering private sector efforts to develop e-commerce in the country. It is important to point out that the lack of national support (including financial support) for the development of a national e-commerce system will end up with international e-commerce taking over, to the detriment of Egypt's economy.<sup>43</sup>

Nevertheless, there are strong signs to indicate that the country is strategically moving into the ICT environment. At a national ICT conference held in September 1999, President Hosni Mubarak declared that he would be directly overseeing and chairing a national committee for high technology, which will determine the nation's ICT strategy. This change in focus indicates high-level recognition of the importance of ICT as an enabler of economic and social growth. A month after the 1999 presidential elections and the creation of a new cabinet of ministers, the Ministry of Communications and Information Technology was established. Almost immediately, the Ministry produced a national five-year ICT plan.<sup>44</sup> In the plan, the Ministry laid out its objectives for e-commerce over the next three years (starting 1999), the most important of which are the following:<sup>45</sup>

(a) Build awareness on the importance of electronic commerce and implement training programmes for the business sector;

(b) Develop the telecommunications infrastructure to accommodate the growing demand for electronic commerce applications;

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<sup>42</sup> "Telecommunications development in Egypt", American Chamber of Commerce in Egypt, Business Studies and Analysis Center, August 1998.

<sup>43</sup> Abdel Kader El Kamly, *Internet Arab World*. [www.iawmag.com/jul\\_98/inside.html](http://www.iawmag.com/jul_98/inside.html).

<sup>44</sup> National Plan for Communication and Information, Arab Republic of Egypt, Ministry of Communication and Information, December 1999.

<sup>45</sup> Ibid.

(c) Establish technology incubators. Technology incubators represent one of the modern tools in the development of industry; they encourage youth to enter industry through the establishment of new companies that are incubated for a limited period of time and are provided with financial, technical and administrative support in marketing their products. The plan aims to construct incubators that can accommodate 100 new companies simultaneously;

(d) Establish a Certification Authority to organize and authenticate electronic transactions, to serve as a trusted third party in case of disputes, and to delineate security, confidentiality, privacy measures and copyright protection;

(e) Amend Egyptian business law to include the necessary provisions for e-commerce cyberlaws;

(f) Plan and execute a governmental project to adapt current customs and taxation systems to electronic commerce logistics;

(g) Execute a government project that utilizes electronic commerce in government purchasing, tenders and financial payments;

(h) Plan and execute a joint public/private project that implements the application of electronic commerce in the banking and financial sector;

(i) Plan and execute a joint project with the Ministry of Economy and Foreign Trade, investor associations and other organizations involved in foreign trade to construct an electronic commerce network for Egypt.

A joint electronic commerce task force has been formed by the Ministry of Economy, the Ministry of Communications and Information Technology and the Ministry of Finance, which also includes United States officials. The task force will focus on six areas: regulations and laws; telecommunications infrastructure; encryption and payment security; procedures for establishing e-commerce companies; SME incentive programmes; and public awareness.

The Ministry is currently consulting with industry to create a federation of information technology companies, which will include a certification authority that will serve as a trusted third party in online payment disputes. The establishment of this authority, however, will have to await the existence of a sound legal framework for e-commerce, which has yet to be established. The overall function of the certification authority will be to provide the necessary technical, organizational and regulatory framework for the effective and accountable implementation of e-commerce in Egypt.<sup>46</sup>

## *5. Financial services*

A strong financial service infrastructure is vital for a secure and efficient electronic commerce. An overview of that infrastructure in Egypt is given below.

### *(a) Credit cards*

There are 102 licensed banks in Egypt, while the total number of credit cards is less than 250,000 (provided by six banks and a credit card company). This low number can be mainly attributed to the lack of "cultural" awareness and acceptance of the use of credit cards. The market is still in the initial phase of providing credit card services to end-consumers, and credit cards issued without the consumer submitting twice the credit limit as an escrow deposit is limited. Therefore, since credit cards are the primary method of settling financial transactions on the Net, the upper limit for online shopping would be 250,000 potential consumers.

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<sup>46</sup> E-commerce Committee of the Internet Society of Egypt, "Towards electronic commerce in Egypt: a certificate authority for Egypt", presented at C@inet '98, Cairo.

Smart cards will be introduced into the market as an alternative to credit cards. A memorandum of understanding has been signed between IDSC and Visa International to create a company that will include all Visa member banks in Egypt as partners. Salary payments will be made via a salary card. There are more than five million people working for the Government, earning a total of over LE 24 billion (US\$ 7 billion at the exchange rate in 2000). Half a billion of the dollar amount is handed over to citizens in the form of cash every month. If this money were to be retained in banks and accessed as needed via salary cards, this would potentially help solve the liquidity problem that the country has been facing.

(b) *Financial transactions on the Net*

The lack of existing compliance mechanisms in the country, such as SET (secure electronic transactions), is owing to a culture that limits the application of computer online validation services, which are not currently offered as a banking service with regard to credit cards. In addition, the Central Bank of Egypt does not support Internet-based (initiated) transactions and has not accepted to be the designated bank for national settlements of credit cards.<sup>47</sup> There are many cases of local Egyptian companies using credit card validation services located abroad to guarantee financial transactions. Some companies pay a fee 10 per cent on every transaction. If more companies follow, an increasing amount of money will be drained out of the national economy.

(c) *The bank as financier*

Banks are reluctant to invest in start-up companies and, therefore, cannot be regarded as potential sources of funds for small business ventures. Moreover, venture capital funding for ICT projects is very scarce in Egypt. There are two contending investment banks operating in that area—the Horus Fund of EFG-Hermes and the Commercial International Bank (CIB). These entities, however, have been very cautious in making new investments following the recent downhill trend of dot.com companies in the United States and the NASDAQ stock exchange.

## 6. Content development

The developing world at large suffers from inadequate web site content, in addition to a shortage of content in indigenous languages. The language barrier is considered one of the problems hindering the wide spread of Internet use in the region (82 per cent of web sites are in English). While the use of Latin languages (English and French) is common in the Arab region, the real penetration into the online market lies through a prevalence of Arabic web sites. In Egypt, the number of commercial web sites is a mere 1,930, most of which are in the English language. Language, no doubt, will remain a barrier to the use of the Internet for the majority of Egyptian and Arab people who only read and write Arabic.

Web sites in developing countries also suffer from the lack of home-grown content. This poses a problem *vis-à-vis* export-based electronic commerce. In Egypt, the ratio of incoming and outgoing traffic is 4 to 1, respectively, meaning that most of the traffic is inbound and indicating that there is little or no pull factor to Egyptian web sites. Increasing and improving local content, in both the English and Arabic languages, would draw international clients to local web sites and create an online demand for Egyptian products and services. The problem, in this respect, is rooted in a cultural trait inherent in the character of the Egyptian people—as one interviewee put it, “We are not an information-based society.” This is another pertinent issue in developing countries that will have to be addressed in their pursuit of participation in the new knowledge-based economy.

The Government also has a role to play in enhancing content. If government agencies are encouraged to standardize the format and improve the integrity of the information and statistics they release (e.g., trade, economic and other types of data), web sites would be able to offer more useful information on their products and services.

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<sup>47</sup> VISA Department, Banque Misr, Cairo, Egypt.



On the subject of content development, the “Nomad” experience in Egypt should be mentioned. Nomad is a newly formed company that is focusing on building its own in-house content in specific areas. In August 2000, for example, in conjunction with the onset of the Olympics tournament in Australia, Nomad launched a sports portal, named Minhina.com.<sup>48</sup> Nomad’s marketing edge lies in its focus on language and style of reporting, as well as on Arab perspectives of regional events. Using CNN as a model for content, Nomad is challenging the way reporters currently write and present information. One of the obstacles faced by reporters, as Con O’Donnell, managing editor of Nomad, remarked, is the “super-sensitivity in divulging information.” There is, moreover, “a culture of paranoia about giving information” when it comes to the Government. There is a willingness to sell information, but not to provide it freely. In addition, some organizations do not even provide basic statistics—for example, the Egyptian Football Association was not able to provide statistics on league players, simply because it did not have this information at hand. There is also a problem in obtaining visual info as well. Since few newspapers maintain photo archives, Nomad works directly with the photographers themselves. As for statistics, it gets this information from knowledgeable people who know the facts. It also depends on “stringers”, who are people usually working at sports clubs and who break the news to Nomad before it reaches local newspapers or international press agencies.

### 7. International negotiations and agreements

Many international negotiations and agreements currently taking place will determine the global e-commerce framework. Among the major players in the international arena are the World Intellectual Property Organization (WIPO), the United Nations Commission on International Trade Law (UNCITRAL), the Organisation for Economic Cooperation and Development (OECD) and the World Trade Organization (WTO). These organizations are holding periodical meetings to negotiate and formulate the rules and regulations for global electronic commerce (as an example, see box 3 on WTO and e-commerce). Meanwhile, a number of international agreements are having a significant impact on the “readiness” of countries for e-commerce. For example, Egypt is not a signatory to the WTO Basic Telecommunications Agreement or the WIPO copyright treaty or the Madrid Agreement Concerning the International Registration of Marks. It is imperative, therefore, that Egypt actively participates in the many international forums that are laying the foundations and regulations for e-commerce.

### 8. Monetary issues

One of the typical attributes of developing countries is low income level. Affordability of e-commerce, therefore, is a critical issue. Electronic commerce is an application of information technology, involving computer utilization, web-hosting, connectivity services and so on. The list below summarizes the costs related to Internet and IT through a comparison of costs in Egypt with those in developed countries.<sup>49</sup>

Item	Cost
Per capita spending on IT	Per capita spending on IT in Egypt is US\$ 5/year, while it is US\$ 995/year in Switzerland. Per capita income in Egypt is US\$ 1,100/year, while in Switzerland it is US\$ 20,000/year.  Hence, Egyptians spend 0.5 per cent on technology, whereas the Swiss spend 5 per cent, or 200 times more. <sup>50</sup>
Hosting cost and price/performance	Egypt–US\$ 60      United States–US\$ 25  Taking into consideration the average income, this figure is costly for an Egyptian. Additionally, the price/performance is very slow, which is an added (time) cost in itself.

<sup>48</sup> Minhina means “starting from here”.

<sup>49</sup> In this section, please note that adjustments need to be made for relative wage rates, thus further increasing the gap.

<sup>50</sup> International Data Corporation, 1997.

Item	Cost
Web site design and implementation	Costs range from US\$ 500 to US\$ 35,000, the minimum cost still being too expensive.
Internet access	US\$ 15/month in Egypt, US\$ 10/month in the United States. <sup>51</sup> US\$ 80,000 in Egypt for a T1 connection versus US\$ 14,000 in the United States.
Computers	Adjusting for relative wage rates, a computer in developing countries is approximately five to ten times more expensive than in the United States. <sup>52</sup>

Therefore cost is an obstacle to accessibility of the Internet. Workaround solutions such as technology access centres provide a compromise solution. These centres may provide services to the general public or to specific industries situated in industry zones.

### 9. Pragmatic evidence

The surest way to learn the extent to which e-commerce can make businesses more efficient, reduce costs and produce profits is through the evaluation of practical projects that have been implemented. In an initial step undertaken to assess the extent of e-commerce activity in Egypt, it was found that most companies working in the domain were still laying the foundations and venturing on their very first projects in the field. In mid-1998, there were only ten web sites operating that were equipped to offer the transactional back-office and clearance mechanisms needed to provide consumers with the proper online acquisition of goods/services.<sup>53</sup>

On the B-to-C side, most commercial sites in Egypt were only engaged in a presence/cataloguing level of e-commerce. In the forefront, however, was a grocery-shopping site, which provided an online shopping experience to the Egyptian public, coupled with the virtual presence of a supermarket. There was a fair return on investment, yet the low revenue classed the entire exercise as purely experimental.<sup>54</sup> However, a few representative examples of B-to-C commerce exist, varying from selling flowers, Egyptian artifacts and Arabic software to offering educational courses.

In business-to-business transactions, the fact that nearly 57 per cent of procurement in Egypt is in Government hands makes the Government a strong prospect for B-to-B e-commerce.<sup>55</sup> However, the Government's attempts to utilize electronic commerce have been negligible in comparison with the private sector. Nevertheless, there have been several e-commerce projects on the B-to-B level, but they are still in the preliminary phase of operation.<sup>56</sup> Further efforts will be required in this domain, most importantly in the public sector.

Meanwhile, arrangements to establish a portal for the pharmaceutical industry were finalized during the summer of 2000. The portal, named CiraNet, is a 50/50 joint venture between Citibank and Raya Holding Company (an IT holding company) and constitutes an Internet B-to-B exchange for suppliers and buyers of pharmaceutical products in Egypt. Raya recently obtained a license from the Ministry of Communications and Information Technology CIT for a public data network that connects buyers with suppliers. The portal will be in both English and Arabic and will include call centres, financial services and mail services. One of the issues of concern is supplier/buyer connectivity. There are 19,000 pharmacies in

<sup>51</sup> Tom Butterly, "Constraints to the growth of electronic commerce in developing countries", Annual Trade Point Meeting, Lyon, France, November 1998.

<sup>52</sup> Ibid.

<sup>53</sup> Internet Arab World, July, 1998.

<sup>54</sup> "An Internet user profile in the Middle East", presented at Comdex '98 by Intouch Communications Services, Cairo.

<sup>55</sup> Government investment figures for the fourth five-year National Plan, Ministry of Planning, May 1998.

<sup>56</sup> No statistics are available to measure project success.

Egypt, out of which only 2,000 have personal computers. Citibank plans to extend its portal venture to other sectors, such as travel, the auto industry, textiles, petroleum, brand consumer goods and consumer durables.

CiraNet is expected to be up and running by November 2000 and going live on the Net by the first quarter of 2001. There are, however, still many obstacles to overcome. A main hindrance is the traditional business culture; these pharmacies have been doing business in a certain way for generations and have strong resistance to change. There is a need to build trust in this new purchasing process and in its online payment mechanisms. Pharmacies will be using vendor cards—a compromise solution—with which they can make purchases from a specific vendor within a certain credit limit. Many of the pharmacies are not even using personal computers to run their in-house operations, let alone using them for Internet connections. Clearly, there is a need to re-engineer the way business is done. Another important concern is legal protection; laws that recognize financial transactions on the Web are still lacking in Egypt. For example, there are currently no laws on digital signatures and no official government position with regard to e-tax.

#### 10. *E-Government*

Not many people enjoy dealing with the Government, one of the main reasons being the inefficiency of the public sector. Government departments are organized in such a way that the delivery of services requires frequent collaboration between employees across departments. The Internet offers solutions to this problem via the introduction of government portals that can serve as a one-stop centre to take care of all the citizens' needs. Citizens avoid the organizational complexity behind the scenes, while the portal is transparent to all transactions related to the matrix of the government department.

The Egyptian Government is aware that its own e-government strategy can have a powerful effect on business in general. Before moving on to all-embracing portals that cover every aspect of government activity, it is important to “start small, scale fast, deliver value,” as Jay Nussbaum, Executive Vice President of Oracle Service Industries, remarks. The Ministry of Communications and Information Technology has been working closely with Microsoft to establish a framework for electronic government. This project, funded by Microsoft, will be implemented with Telecom Egypt. All telephone connections in the system will be automated and remotely accessed. The services provided will include receiving customer complaints and payments of national and international telephone bills.

The Cabinet Information and Decision Support Center and the Ministry of Communications and Information Technology have been coordinating efforts to provide government services online. The IDSC recently launched a pilot programme to create information kiosks for the public. The IDSC surveyed international initiatives related to electronic government and concluded that those services could be provided in three forms or, rather, in three consecutive stages: (a) interactive voice response (IVR), (b) information kiosks; and (c) the Internet. A pilot project was undertaken to handle the services of the Ministry of Administrative Development via the aforementioned channels. Under the programme, voice services are made available to the public through the dialing of a three-digit number; 1,000 services covering 25 sectors are currently provided. The public information kiosks equipped with PCs will be installed in rural and remote areas to enable the public to access government forms for a particular service and submit them for processing. The forms are provided online at <alhofoma.gov.eg> (*alhokoma* literally means “government”). The first service to be provided on the site is the issuance of the national identity card; 300 different government forms are currently displayed on the web site.

The Ministry of Communications and Information Technology is currently collaborating with VISA and Banque Misr to enable interactive payment of telephone bills via the Internet or at Post Offices through use of credit cards.

## 11. *Legal environment*<sup>57</sup>

On the global level, many businesses and consumers are still wary of conducting extensive business in cyberspace, owing to the lack of a predictable legal environment governing transactions and contract enforcement, intellectual property protection, liability, jurisdiction, privacy and security.<sup>58</sup>

On the national level, a local study has confirmed that from a theoretical point of view, the existing Egyptian law can deal with e-commerce implementation and the resolution of disputes that may arise through electronic transactions.<sup>59</sup> However, a separate law allowing for certification needs in e-commerce-related cases is essential. Certification authorities are synonymous with other impartial third parties in Egypt that offer technical reference in case of disputes (e.g., conscription companies) and specific laws granting them authority to operate were created. Nevertheless, specialized legal circuits are needed in order to deal with e-commerce cases.<sup>60</sup> At the same time, Egypt's legal system is in dire need of reform. Judges and lawyers are overburdened with work<sup>61</sup> and need to be trained to specialize in specific fields of expertise such as e-commerce and information technology.

A joint legal e-commerce committee, formed in coordination with the IDSC and the Ministry of Justice in March 2000, drafted an Egyptian cyberlaw, which should be passed by the General Assembly in its next parliamentary round (November 2000). Meanwhile, there are no laws for the recognition of digital signatures or electronic contracts.

## 12. *Social and psychological drawbacks*

Commercial relationships are shaped to a considerable degree by social conditions and cultural attitudes. Diffusion of the benefits and opportunities of e-commerce are also affected by similar factors, such as the following:

(a) *Trust*. The lack of trust in electronic means of payment remains a worldwide deterrent, although it is subsiding at the moment. Since Egypt is lagging behind, however, this remains a strong deterrent to making payments over the Internet;

(b) *Resistance to change*. This is one of the most typical cultural drawbacks accompanying any technological change in general and e-commerce is no exception. People are accustomed to doing business in a certain way and do not want to change the way they operate. Their system is working, so why change it? This attitude becomes a significant hurdle in its own right;

(c) *Territorial behaviour*. Top-level decision makers exert "territorial behaviour," meaning that they want to have control over their business territory. They feel that they would lose control over the company's assets if they venture on to e-commerce. One manager made all the company employees use one e-mail account for which he had the password, so that he could check all incoming mail. One cannot dwell on the

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<sup>57</sup> Mohamed el-Nawawy and Magda Ismail, "Overcoming deterrents and impediments of electronic commerce in light of globalization: Egypt—a case in point", Inet '99, July 1999.

<sup>58</sup> These are concerns that are shared worldwide and are beyond the scope of this study.

<sup>59</sup> "Towards electronic commerce in Egypt: a certificate authority for Egypt", E-commerce Committee, Internet Society of Egypt, presented at CAINET '98 Internet Conference, March 1998, Cairo. The Egyptian legal system follows the principles of the French legal system and not the Anglo-American system, which requires precedence and the creation of new laws for new situations. Under the French system, no new laws need to be drafted, only modifications to existing laws are made.

<sup>60</sup> Hossam Loutfi, Professor of Civil Law, Cairo University. The intention has been to upgrade the know-how of the judiciary, but this has not been possible, because of (a) the incredibly large number of cases the judges have to deal with, and (b) the necessity of possessing full awareness of the new laws that are issued in the country, as well as the international laws and conventions that Egypt has acceded to, in order to have a "complete" view when judging cases.

<sup>61</sup> There are over 15,000 judges in Egypt, and each judge normally must write 1,300-rulings/month and read 4,000 cases/month, with each case averaging 50 pages in length.

many other managerial/organizational issues that reside in management systems, but territorial behaviour is a general philosophy that many top-level managers subscribe to;

(d) *Generation gap.* Many executives of probably most companies in Egypt do not use e-mail for the simple fact that they were not raised in the information age. IT is not part of their daily routine. Coupled with this is the mentality of not willing to invest in IT, owing to lack of perception of its added value. However, those middle-aged persons who are currently in middle management and are on the rise to top-level management in the next decade are convinced of the benefits of IT and are technologically adept;

(e) *Language barrier.* The language barrier is considered one of the serious problems hindering the large-scale spread of Internet in the region—82 per cent of web sites are in English, while the majority of the people only read and write Arabic. Effective penetration into the e-commerce market and its subsequent success demands an increase in Arabic web sites.

#### E. RECOMMENDATIONS

The above sections have reviewed the impediments that stand in the way of e-commerce development and growth in Egypt. The recommendations that follow focus on some of the areas to be addressed in order to create an enabling environment for online trading in Egypt. It is crucial for “a champion in the government to carry forward the steps necessary to implement e-commerce in the country.”<sup>62</sup>

1. *Promotion and awareness.* Encourage and facilitate the activities of business associations, key private sector players, chambers of commerce, investors’ associations and the Federation of Egyptian Industries to educate, lobby, coordinate and motivate the society to embark on e-commerce.
2. *Human resource and skills development.* It is essential that Egyptian professionals be trained and brought up to par with regard to e-commerce in their respective fields of practice (lawyers, judges, tax and customs authorities, educators and others). The private sector and the Government must work together to formulate new human resource policies that will better prepare students and workers to meet the challenges of the emerging digital economy.
3. *Liberalization of telecommunications infrastructure development.* Telecommunications is considered a strategic investment for developing and maintaining competitive advantage in both local and international markets. The private sector should be encouraged to invest in the upgrade of local telecommunications infrastructure and value-added services in urban and rural areas. This would produce the side effect of developing technological capabilities and generating employment.
4. *National and legal endorsement.* There is need for stronger public endorsement of e-commerce at the highest government levels, since this would induce effective “line of control” over all ministries, and not just from the Ministry of Trade and Supply (to which the National Electronic Commerce Committee is attached). There is need for general IT policy reform and, more specifically, the automation of workflow systems within the government. There is also need for an e-commerce task force, consisting of both government and private sector entities, to formulate a national e-commerce strategy and determine the technological, legal and financial infrastructures required.
5. *Regional strategy.* Not enough regional planning, initiative or coordination has been taking place in terms of Internet and electronic commerce, whether in research and development, Arabization of web sites or on the organizational, regulatory and awareness levels. The need for a regional strategy is important, since this would encourage countries within the region to harmonize their planning and standards.
6. *Financial services.* A general policy in providing financial services, developing credit systems and establishing standards for financial transactions should be adopted in order to ensure the reliability of

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<sup>62</sup> The authors would like to thank Professor Giorgios Doukidis for introducing this idea at the UNCTAD/UNDP Arab Regional Workshop on Electronic Commerce, held 26-28 September 1998 in Cairo.

e-commerce operations. The establishment of a certification authority also must be looked into and endorsed.

7. *Content development.* There is need to encourage the use of Arabic content (and perhaps iconographic content) on the Internet in order to attract the Arab population to use the Internet in general and e-commerce in particular. Crossbreeding and inter-cultural operations need to be stimulated.

8. *International negotiations and agreements.* The Government should participate aggressively in the formulation and negotiation process of international agreements related to e-commerce, instead of waiting until those agreements crystallize and then being forced to accept them as is.

9. *Monetary issues.* The government needs to look into the means for reduction of general and specific costs related to IT and electronic commerce in addition to sources for funding e-commerce-related projects.

10. *Pragmatic evidence.* There is a need for practical projects to be initiated on the sectoral level by creating a model site that can be evaluated and, in turn, serve as a matrix to attract businesses in that sector to venture into e-commerce. The need for centres of excellence, special centres to provide assistance to SMEs and tele-centres equipped to extend the e-commerce presence to remote rural areas also should be addressed.

Finally, efforts should proceed in a comprehensive manner, rather than piecemeal.

## VII. E-COMMERCE IN THE UNITED ARAB EMIRATES

The United Arab Emirates is fertile ground for e-commerce. The country enjoys a very high income level and has a highly educated population, both native and expatriate. It also has a well-developed banking system, a world-class communications infrastructure and a rapidly growing Internet market. Moreover, the United Arab Emirates has one of the most advanced shipping and customs systems, with low customs duties that are capped at 4 per cent.

The leadership of the Emirates has also taken serious steps to endorse IT and e-commerce. This is expected, as the Government has been engaged in diversifying the economy and promoting commerce.

### A. THE GENERAL E-COMMERCE ENVIRONMENT

There are great expectations concerning e-commerce in the United Arab Emirates and this optimism is founded on valid reasons. The United Arab Emirates has the best telecommunications facilities in the region; it utilizes the latest technologies in telephone and Internet services. Credit card coverage and Internet usage are high and payment gateways and online security solutions are available. In addition, human resources, local and foreign, could be viewed as possessing the skills required for e-commerce operations.

Although most of the requirements for e-commerce are available in the United Arab Emirates, not much has been taking place in that sector so far. Many firms have web sites, but actual online buying and selling is minimal, at both the local and global levels. A number of online shops and a few malls have been established, but most of them are mainly for advertising and marketing. In fact, the e-commerce experience for those merchants is just a secondary channel of doing business. This is more so at the SME level. Many of these enterprises lack business strategies and need guidance in planning and implementing e-commerce procedures.

This modest e-commerce performance is caused by a number of factors. One factor is cultural resistance, which renders consumers reluctant to use the Internet for trade with other parties they can't see. Language is another hindrance. Arabization of the Internet might help increase the number of subscribers, as the local population would relate more to Arabic sites. Taking the cultural traits of the region into consideration when creating web sites would considerably help promote e-commerce. Another influencing factor is trust. Many customers are reluctant to use credit cards and worry about the possible leakage in personal data and information. The most important reason for the lack of e-commerce practice, however, is a combination of lack of awareness about what electronic commerce is plus the absence of legal mechanisms to protect transactions and consumers from online fraud.

What is needed is a strategy by the United Arab Emirates Government to manage and regulate e-commerce in the country, to promote more awareness and to draft laws and regulations to govern electronic commerce. Dubai has shown a great deal of initiative, which has produced some awareness about e-commerce. However, two things are needed to move forward with e-commerce—namely, to raise awareness further and to promulgate laws and regulations to govern and manage e-commerce transactions.

Dubai's enthusiasm over e-commerce and e-government is worth noting. The Government of Dubai, represented by Crown Prince Sheikh Mohammed bin Rashid al-Maktoum, has launched three main initiatives that aim at embracing globalization by utilizing the latest communications and information technologies for the daily management of government, as well as for doing business. Dubai Internet City and the e-government project were launched in 1999, to be implemented by October 2000 and October 2001, respectively. More than US\$ 200 million have already been spent on Dubai Internet City, whose Phase I will be inaugurated by the end of 2000. Moreover, the Government of Dubai launched "Tejari.com", the first online virtual mall at [www.tejari.com](http://www.tejari.com), which is the first digital business-to-business marketplace in the Middle East. The web site was developed by Oracle and launched by the Dubai Ports Authority in June 2000, upon the request of Sheikh Mohammed. Tejari.com is now operational and its largest participant is the Government of Dubai, which has moved its procurement operations online.

The Dubai e-government project will connect all government offices with each other, as well as with citizens, through the Internet. Its aim is to facilitate government transactions. Citizens will be able to pay whatever is due, apply for licenses and obtain approvals and information from the different government departments without having to go to the offices in person. When e-government becomes functional, many citizens who have never used computers and the Internet will be compelled to use those facilities in order to take advantage of the easier governmental procedures. Hence, e-government will encourage more connections to Internet and, consequently, increase citizen exposure to e-commerce.

Several government institutions, whose databases will constitute the electronic network for e-government, have already migrated to the Internet and are offering online services to citizens. It is now possible to pay traffic fines via the Internet by entering the Dubai Police web site. The Dubai Department of Ports and Customs now offers the facility of online processing in the clearing of goods. At the same time, the Dubai Electricity and Water Authority offers the possibility of online bill-reading and will soon be providing payment facilities over the Internet.

On the whole, however, the United Arab Emirates as yet has no blueprint for launching e-commerce, although Dubai has been quite robust in joining the developed world in the use of ICT for both government operations and conducting commerce in and out of the Emirate. Dubai is cashing in on the reputation it has earned during the past two decades as a commercial hub by establishing a state-of-the-art e-commerce centre, namely, Dubai Internet City. Since most of the pillars of the e-commerce infrastructure are available in Dubai (and throughout the United Arab Emirates, for that matter), it will take only political will and adequate financing to push Dubai to the top as a regional e-commerce centre.

## B. TECHNICAL E-COMMERCE INFRASTRUCTURE

### 1. *Telecommunications: Etisalat*

United Arab Emirates telecommunications compare well with those of developed countries. The sole provider of telecommunications in the country is Etisalat, which is largely controlled by the government. Its network consists of satellite, earth and coastal stations, local lines covering the length and breadth of the United Arab Emirates, submarine cable systems, cable ships, fibre optic cables and international linkages. This extensive telecommunications infrastructure will certainly assist in creating an enabling environment for e-commerce.

Etisalat has the monopoly over telephones, mobiles and main lines. Its telephone services are of high standard and are offered at affordable prices. Other services are: an e-mail network that provides 24-hour automatic and electronic transfer of messages; an integrated services digital network (ISDN), which allows all forms of information (video, audio and data) to flow through a single network interface at considerable speed; and an asynchronous transfer mode, which allows the relay of data from a wide range of applications using one seamless network, thus enabling users to consolidate current diverse networks.<sup>63</sup> Etisalat has also introduced the Asymmetric Digital Subscriber Line (ADSL) to consumers and will introduce it for businesses in October 2000.

The United Arab Emirates telecommunications facilities are the best in the ESCWA region. The number of main lines and mobile phone subscribers per 100 inhabitants are the highest. In 1998, the number of main line telephones was 38.9 per 100 inhabitants, as compared with the world figure of 14.27, while the number of mobile phone subscribers in 1999 amounted to 20.96 per 100 inhabitants, or almost four times the world figure of 5.39. Telephone service is provided at affordable prices that are almost the lowest in the region.

### 2. *Internet services: Emirates Internet and Multimedia*

Etisalat, as the only ISP in the United Arab Emirates, introduced Internet to the country in 1995 and, at that stage, it proliferated slowly; but Internet subscription has picked up since then and the number of users

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<sup>63</sup> [www.Etisalat.co.ae/a\\_strong2](http://www.Etisalat.co.ae/a_strong2).



has now reached 400,000, according to Dubai Municipality sources. This makes United Arab Emirates Internet connectivity per 100 inhabitants comparable to the first ten countries in the world.

Etisalat's Internet company, known as Emirates Internet and Multimedia, provides Internet access, leased lines and web-hosting services. Access is provided in two ways. The first is dial-up, either analogue (56 Kbps) or ISDN (up to 128 Kbps). The second is through ADSL, either for residential or commercial use.

Dial-up Internet connection is available at 1.8 Dirham/hour (50 cents) during the day and 1 Dirham/hour (less than 30 cents) during the night. ISDN technology is in use and has also gone down in cost. ISDN at 64 Kbps costs 1.8 Dirham/hour during peak hours and 1.0 Dirham/hour during off-peak hours. As for ISDN at 128 Kbps, the charges are 3.6 Dirham/hour for peak hours and 2.0 Dirham/hour for off-peak hours. In the case of ADSL, which is eight times faster than ISDN, the cost is still high, amounting to 380 Dirhams per month per subscription. Etisalat also provides leased-line services, which could cost around 10,000 Dirhams per month. Leased lines are usually expensive, but can connect 20 to 30 users.

Emirates Internet and Multimedia has spread its activities to encompass the entire region. Through its Emirates Internet Exchange (EMIX), the first network of its kind in the Middle East, it provides Internet backbone connectivity to the regional ISPs. EMIX already has 23 customers in the Middle East, Africa and the Asia Pacific.

The monopoly of Etisalat over telecommunications in the United Arab Emirates, which includes telephones, mobiles and Internet access, has often been criticized. Although Etisalat has provided a wide range of excellent services, there are some critics who believe that competition in the telecommunications sector would have driven it to provide even better services and that consumers would have benefited from competitive prices and better terms.

As in many of the ESCWA member countries, telecommunications in the United Arab Emirates is controlled by the Government. While Jordan, Kuwait, Lebanon and Saudi Arabia have licensed multiple private companies to sell Internet access but kept telecommunications management under publicly owned companies, Etisalat has kept Internet services under its control. Many users complain that there is too much control over Internet access in the United Arab Emirates. Etisalat, for instance, has built many firewalls and controls prices and policies concerning Internet access.

### *3. Online security: Comtrust*

Etisalat has also established e-commerce services through its Comtrust department, which offers a comprehensive e-commerce solution that helps build public trust and confidence in online trading by providing governments and consumers with the tools to develop efficient and cost-effective ways of conducting e-business. The technology Comtrust offers will help the United Arab Emirates business community go global, thus reaching new markets and increasing revenue.

Comtrust provides secure e-commerce services utilizing digital signature, public key encryption technologies and public key certificates based on public key infrastructure. Moreover, Comtrust is the only certification authority in the United Arab Emirates, or the trusted third party in charge of certifying the authenticity of electronic transactions. By issuing a digital certificate, it does not only serve to authenticate, but also facilitates public key encryption and digital signing, thus ensuring the confidentiality and integrity of the data. In addition, Comtrust utilizes certified secured socket layer technology to ensure non-repudiation of transactions. It also offers server digital certificates, which assure online shoppers that a site is real and can be trusted. Comtrust will soon provide payment solutions for credit cards, debit cards and B-to-B transactions by tying up with banks and financial institutions.<sup>64</sup>

Moreover, Comtrust provides a range of hosting services that are meant to address the requirements of SMEs, as well as those of corporate organizations. There are also plans for Comtrust to form contractual alliances with logistics companies for the delivery of goods. The fact that Comtrust is linked to Etisalat, which enters every home and business in the United Arab Emirates and enjoys the trust of citizens, will encourage businesses to migrate to e-commerce.

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<sup>64</sup> [www.Comtrust.co.ae/cert](http://www.Comtrust.co.ae/cert).

### C. BANKING ASPECTS OF E-COMMERCE

The United Arab Emirates Central Bank brings all banks together under one system and offers mechanisms for direct debit payment. It has secured socket layers and will soon introduce PKI and smart card technologies. The Central Bank helps small banks that cannot afford e-banking by sponsoring them to share applications and by linking them to the one payment system. The Bank currently has plans to amend its laws in order to introduce a section on electronic bookkeeping and electronic signatures. It also plans to introduce the multi-party payment system.

While electronic banking has been introduced in the United Arab Emirates, the only bank that maintains a payment gateway and offers comprehensive e-banking services is Emirates Bank International (EBI), which is 80 per cent government-owned. EBI and the National Bank of Dubai are both also signed up with Comtrust to provide consumers and businesses with online credit validity and verification of accounts.

The rest of the banks in the United Arab Emirates offer automated services, such as ATM transactions, transfer of money and checking of accounts, but do not provide secured payment gateways. The National Bank of Dubai, the National Bank of Abu Dhabi, al-Mashrek Bank and Union National Bank have announced their secured Internet banking sites, but still do not offer e-commerce payment gateways.

Comtrust has also created a virtual mall that has a payment gateway. However, since Comtrust is not a bank and cannot handle or clear payments directly with credit card companies (Visa, Master Card, Diners), the shops located in the virtual mall deal with EBI in this regard. Other banks are attempting to offer payment gateways, such as the National Bank of Dubai and al-Mashrek Bank, but their operations are not yet end-to-end solutions and they still have to go through EBI. It should be mentioned that most of the virtual shops and malls that have been founded by United Arab Emirates merchants are hosted in the United States or the United Kingdom and are using foreign banks for settling online payments.

### D. LEGISLATION GOVERNING E-COMMERCE

Laws to govern e-commerce are absent in the United Arab Emirates. The laws that exist are not commensurate with the new global situation and certainly do not help e-commerce. There is need for the promulgation of laws that recognize the legal validity of electronic signatures and documents and that provide for consumer protection. The country's commercial code law will also have to be amended to cater to the banking aspects of e-commerce.

The Central Bank is planning to draft a law that will entitle it to organize payments and regulate the financial aspects of e-commerce, while the Ministry of Trade and Supply is looking into legislation dealing with the overall organization of e-commerce. The General Information Authority in Abu Dhabi, meanwhile, is involved in amending the commercial code law to suit the new realities in e-commerce and also has plans to formulate a comprehensive national e-commerce strategy for consideration by the United Arab Emirates Government.

Other laws, such as those that govern computer crimes, fraud and hacking, are also non-existent in the United Arab Emirates. The United Arab Emirates will need to draft such laws and harmonize them with international laws, since computer crimes are usually committed by people across national borders and are thus international in nature. Consumer protection laws governing contract obligations, product quality and privacy of personal data will also need to be put in place.

The existence of national laws that protect e-commerce operations is important, especially that the United Arab Emirates (and Dubai, in particular) are encouraging large foreign companies to invest in the country. Foreign investment is attracted by a sound legal environment that ensures trust and confidence and fights piracy and fraud. It should be noted that the United Arab Emirates is already enforcing a law on intellectual property rights, even though the official law will not be promulgated until the end of 2000. Enforcement of this law became necessary when the United Arab Emirates joined the WTO in April 1996.

## E. LOGISTICS: DELIVERY OF GOODS

The United Arab Emirates has 11 seaports, 6 airports, 8 post offices and 8 free zones.<sup>65</sup> The Dubai, Sharjah and Abu Dhabi ports of entry provide advanced cargo and customs services, the procedures concerning which are handled electronically. It can be generalized that delivery of goods in and out of the United Arab Emirates meets the standards required for e-commerce to grow.

This is especially so in Dubai, where world-class services exist at all its ports of entry. It has automated all the procedures for sea, land and air cargo. The success of its Jebel Ali Free Zone is a testimony to the success of its advanced cargo and customs services. These services, in turn, will serve as important logistics support for e-commerce in the Dubai Emirate, whose government has plans to transform it into a regional hub for electronic commerce and the ICT industry.

The Dubai Ports Authority (DPA) has migrated from a paper-based institution to a computer-based operation. With the emergence of e-commerce, the DPA moved to the Internet to provide web-based customer services. Recently it introduced E-Mirsal, an Internet site built on the application called "Mirsal", which laid the foundation for electronic clearing procedures of the Dubai customs and cargo sector. E-Mirsal is an electronic network that links DPA with air, sea and land cargo agents and with the handling authorities and banking system for data interchange, electronic payment and the clearing of consignments. So far, E-Mirsal has been processing bills of entry, handling delivery of orders and maintaining an electronic payment gateway, in addition to a statistical inquiry system (HS codes, country of origin, country of shipment/destination and products by country and vice versa). These developments are viewed as crucial for the establishment of an e-commerce environment conducive to the aspirations of the Dubai government.

## F. THE DEMAND FOR HUMAN RESOURCES AND ICT SKILLS

The United Arab Emirates has a population of around 2.9 million, but most are expatriates, mainly from India, Pakistan, the Arab countries (Egypt, Lebanon, Jordan and the Syrian Arab Republic) and the United Kingdom. This market is relatively small for the growth of e-commerce.

Skills are available in the United Arab Emirates to fill the demands of its current limited ICT industry and e-commerce, relying mostly on technicians and professionals from India, Lebanon and Egypt. However, when Dubai Internet City becomes functional, the demand for ICT skills will soar. At that point, Dubai may face some difficulty in attracting foreign professionals, especially since its existing labour laws limit the mobility of expatriates and deny them home ownership. Anticipating this problem, the government of Dubai has been taking steps to enlarge its pool of skilled workers by importing ICT professionals from Bangalore and Hyderabad, India's ICT centres,<sup>66</sup> as well as from Egypt and other Arab countries.

In order to build up the skills of its own national workforce, the government of Dubai is planning to establish an Internet University that will offer a programme of courses in Internet applications, e-commerce, multimedia development and other relevant disciplines. Once realized, the University will begin producing the ICT professionals needed to fill the demands of Dubai Internet City.

Meanwhile, other United Arab Emirates universities and vocational schools should add e-commerce courses to their programmes and, along with trade promotion organizations, should devise training courses and seminars on e-commerce operations. Such training is crucial, especially to help SMEs overcome their reluctance to venture into e-business.

## G. THE ROLE OF THE GOVERNMENT AND THE PRIVATE SECTOR

### 1. *The role of trade promotion organizations*

Trade promotion organizations can have a major role in promoting e-commerce. They can guide their members, especially SMEs, through the proper transition of their businesses to the Internet. They can raise

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<sup>65</sup> Report of the ESCWA regional adviser on telecommunications on his mission to the Ministry of Planning in Abu Dhabi, February 2000, p. 11.

<sup>66</sup> [viewswire.com/display\\_article.asp?doc\\_id=E1108706](http://viewswire.com/display_article.asp?doc_id=E1108706).

awareness, provide information and conduct seminars dealing with the benefits and requirements of e-commerce.

The Abu Dhabi Chamber of Commerce and Industry (ADCCI) has 50,000 member companies, of which 10,000 are large enterprises. ADCCI has posted a directory of all the member companies online and it advertises its site on international portals. Only 500 of those companies have web sites and 1,500 have e-mail. Few of the companies that are online buy and sell through their web sites. It is estimated that only 10 companies trade over the Internet (including 2 or 3 malls). ADCCI has established a quasi-committee on e-commerce that campaigns to raise awareness and has organized training courses and seminars. ADCCI has also helped some companies design their web sites. ADCCI admits that Abu Dhabi's government has not shown much initiative concerning e-commerce and that it has been slower than the Dubai government in that respect.

The Dubai Chamber of Commerce and Industry (DCCI) is optimistic about e-commerce and expects that it will further increase when e-government is launched in 2001. By then, DCCI will be linked with all the government departments in Dubai. DCCI encourages its 46,000 members to communicate with the DCCI electronically (most of them have e-mail). DCCI organizes and participates in seminars on e-commerce, Internet usage and web site design. It has also started issuing certificates of origin online. According to DCCI, large enterprises in Dubai are well prepared to pursue e-commerce while smaller ones have a long way to go and thus will need the support of DCCI. DCCI is also active on the educational level. It owns Dubai College (previously Dubai Polytechnic), which is a business school that has decided to add e-commerce courses to its curriculum.

It could be generalized that at the Federal level, with the exception of Dubai, awareness programmes on e-commerce are greatly needed. However, the Chambers of Commerce and Industry in both Dubai and Abu Dhabi, which together represent most of the companies in the United Arab Emirates, are actively aware of the compelling need to propel their members towards the new technologies and e-commerce.

## *2. The role of the Government*

The United Arab Emirates is a federation of seven independent emirates—namely, Abu Dhabi, Dubai, Sharjah, Ras al-Khaimah, Ajman, Umm Al-Quwain and Al-Fujaira. At the Federal level there is the absence of a comprehensive e-commerce strategy, although some sporadic initiatives that have relevance to e-commerce have been taken. The Ministry of Finance and Industry has plans to introduce Government-to-consumer electronic services, and the Ministry of Labour and Social Affairs is planning to issue work permits through the Internet.

In order to formulate an e-commerce strategy at the Federal level, the United Arab Emirates Government will have to address the following impediments: lack of awareness at the enterprise and citizen levels; lack of electronic databases in the ministries, which are a prerequisite for connectivity among the different ministries; the inadequacy of the existing laws, which are not commensurate with the existing world trend of globalization and e-commerce; and the lack of trust in and protection for transactions undertaken over the Internet.

Notwithstanding those impediments and the slow pace of government action, a notable exception at the Emirate level occurred in 1999 when Crown Prince Sheikh Mohammed bin Rashid al-Maktoum of Dubai initiated a move to put Dubai on a major ICT track that could do much to hasten the development of e-commerce in the Emirates. Sheikh Mohammed announced that by 2001 Dubai will have its e-government in operation, electronically equipped to extend to services of the various government institutions to its citizens. He also, at that time, announced the launching of Dubai Internet City, a free trade zone for businesses operating over the Internet in Dubai.

In April 2000, Sheikh Mohammed commissioned the Dubai Ports Authority to coordinate with Oracle to launch Tejari (tejari.com), the first digital marketplace in the ESCWA region and its largest B-to-B web site. The government of Dubai also announced that it had moved its procurement transactions to Tejari. Since most companies in Dubai are in some business with the government, many of them also moved to

Tejari. Although the number of companies initially participating in this electronic marketplace was only around 50, the target set by the end of the first year of operations is 1,000 companies.

While the above initiatives do not constitute a formal publicized strategy by the government of Dubai, they do represent a vision that was translated into a policy and work plan to embrace ICT and further promote trade in Dubai. It is, in fact, part of a larger strategy that aims at the diversification of Dubai's economy. For the past two decades, Dubai has been turning away from depending on oil towards enhancing trade and re-exports through the development of free zones in the Emirate. The government of Dubai envisions becoming a trade centre that will encompass an area stretching from India to the Middle East and North Africa. Having an e-commerce centre at Dubai Internet City will certainly help Dubai come closer to that aim.

#### H. DUBAI INTERNET CITY

Announced by Sheikh Mohammed as the "world's first free trade zone for e-business", Dubai Internet City (DIC) is to be inaugurated in October 2000, with Phase I of the project ready to meet that date.

DIC is being built with a world-class technological infrastructure that includes high bandwidth, secure high-speed support infrastructure and low-cost telecommunications, including Internet Protocol telephony. There are plans that DIC will have its own ISP and will only depend on Etisalat marginally. This state-of-the-art infrastructure supports the idea that the "new economy" is being shaped by rapidly evolving technologies whose most crucial element is speed. Moreover, it has been announced that DIC has access to a large pool of highly skilled professionals and low-cost workers. This concern for the availability of skills is also in line with the new economy, which is based on knowledge, information and entrepreneurship and whose most crucial resource is talent.<sup>67</sup>

With its state-of-the-art infrastructure and world-class facilities, offices and residential accommodations, DIC will function as a centre for information technology innovation as well as for e-commerce. DIC is expected to become the region's meeting place of creative ideas and investment. It will encompass all ICT-related companies that are venturing into the field of e-commerce. This will include areas such as e-finance, e-marketing, e-design and multimedia.

DIC will include Internet University, which will train and graduate highly skilled professionals who will enlarge the pool of skills in demand by DIC companies and also carry out research in ICT. The University is still in the planning stage, but the expectation is that the government of Dubai, in cooperation with top universities around the world, will manage and run the university. DIC will also house an ICT Research and Development Centre and a Science and Technology Park that will support all resident companies.<sup>68</sup>

It is to be noted that most of the office space resulting from the implementation of Phase I of the City has been rented out. More than 100 firms have been licensed to operate in DIC and 350 more are waiting for licensing. The companies include Oracle, IBM, Microsoft, Intel, Compaq, Master Card International, Emirates Bank International, Arabia Online and others.<sup>69</sup>

Dubai is fully prepared to host such an e-commerce and ICT centre. Dubai Internet City is expected to succeed because of several pertinent factors, among them the strategic location of Dubai and the logistic, banking and telecommunication facilities it offers. Add to this the unprecedented incentives that the government of Dubai is offering companies in DIC, such as 100 per cent foreign ownership and excellent leasing terms for the rental of facilities. All these attractions combined should lure investors into choosing Dubai, and Dubai Internet City in particular, as their regional headquarters for the Middle East and beyond. Dubai, as a regional centre, could also encompass subcontinent Asia, the Middle East and North and East Africa.

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<sup>67</sup> [www.dubaiinternetcity.com/abstract](http://www.dubaiinternetcity.com/abstract).

<sup>68</sup> [www.dit.net/itnews/newsmar2000](http://www.dit.net/itnews/newsmar2000).

<sup>69</sup> [viewswire.com/display\\_article/?id=E1112494](http://viewswire.com/display_article/?id=E1112494).

## I. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The United Arab Emirates provides fertile ground for the growth of e-commerce. It has the best technical infrastructure in the region, good credit card coverage, payment gateways and an efficient and advanced delivery system. Little e-commerce, however, has taken place so far. Several reasons can be cited.

The United Arab Emirates is a small country, where consumers and businesses lack trust in and sufficient awareness of e-commerce. There is also a shortage of manpower and ICT skills; as a result, the country relies excessively on expatriates. In addition, laws and regulations to protect Internet users have not yet been put in place. Most importantly, the United Arab Emirates Federal Government does not have a specific strategy for the promotion of e-commerce. Only Dubai among the seven emirates has undertaken what could be described as an action plan aimed at making the Emirate the top ICT and e-commerce centre in the region.

In general, public awareness about e-commerce is still weak in the United Arab Emirates, but this weakness varies from one Emirate to another. Most individuals and SMEs either do not know what e-commerce is or have insufficient or distorted information about it. In Dubai, the level of awareness is high, mainly because of the government initiatives that were launched in 1999.

As is the case in the other countries of the region, most of the United Arab Emirates population, especially the older generation of merchants and consumers, has a cultural apprehension towards computers and Internets. E-commerce could increase that apprehension, since it entails doing business with partners that cannot be seen.

Most of the online transactions taking place in the United Arab Emirates tend to be concentrated on importing books, videos, CDs and other consumer products. E-commerce, therefore, is leaning towards importing rather than exporting, thus widening the trade balance gap. Behind this trend lies the fact that the purchasing power in the United Arab Emirates is strong; people are affluent and most of them hold credit cards, which makes it easy for them to shop online and receive goods from abroad.

It is therefore recommended that:

(a) To enhance awareness about e-commerce, the Government, public and private trade promoting organizations and the private sector should launch effective public awareness campaigns and capacity-building seminars; they should work together to create an e-commerce culture in the country by clarifying the concept of e-commerce and what its operations really entail. They should also encourage entrepreneurs to expose their products online and to advertise vigorously and adequately in order to sell and export products and not just be passive consumers;

(b) Universities and vocational institutes should offer ICT and e-commerce courses in order to educate and train the skilled workforce required to successfully conduct e-commerce. Computer and Internet literacy should also be encouraged at all educational levels;

(c) SMEs should be assisted in formulating appropriate strategies that will help them move into e-business and online trading;

(d) The Arabization of web sites should be taken seriously, not only to attract United Arab Emirates citizens, but also the citizens of all other Arab countries. This is important, since the United Arab Emirates is poised to become a major trading centre for the region. Arabic-enabled web sites will attract a much larger consumer base by providing concepts and content that are closer to the understanding of consumers;

(e) The monopoly of Etisalat over the entire United Arab Emirates telecommunications infrastructure has been frequently criticized. Many people believe that competition would lead to better services and terms, as well as to more affordable prices. This criticism may be most relevant to the Internet services domain, in which Emirates Internet and Multimedia is the sole ISP in the country. With more than one ISP, Internet services are likely to improve, thus encouraging more e-commerce activity in the country. Moreover, it has

been proven that the privatization of telecommunications services makes this sector more efficient and viable; this is an option the United Arab Emirates may want to consider;

(f) More banks in the United Arab Emirates should move into Internet banking and provide their customers with services that facilitate online transactions. At the same time, insurance companies should build the confidence of online buyers and sellers by insuring merchants and products;

(g) The United Arab Emirates does not have laws or regulations that recognize digital signatures or documents. Neither does it have laws that address computer crimes and online fraud. There is, therefore, a need to address these requirements. The various legislative bodies should move rapidly towards drafting the appropriate relevant laws and harmonizing them with international laws in order to avoid unnecessary controversies, as computer crimes, fraud and evidence are international in nature;

(h) Finally, the Government of the United Arab Emirates should draw up a comprehensive strategy for e-commerce in the country. When such a strategy is formulated, a programme can then be devised. An e-commerce programme should embrace all aspects of e-commerce and include such objectives as enhancing infrastructure, training human resources and providing laws and regulations. A section or department at the Ministry of Economy and Commerce could be established in order to host and oversee the implementation of such a programme.

## VIII. CONCLUSION AND RECOMMENDATIONS

Electronic commerce is playing a major role in the globalization of the world economy, creating a revolutionary new way of doing business by reducing distances and bringing companies closer to their distribution markets. Internet trading provides the means for cheaper and more efficient commerce that allows enterprises to enter new markets at minimal cost. It allows consumers to access a better quality of goods and governments to procure more cheaply and efficiently. It also allows SMEs to expose their products to wider markets.

In a few years' time, e-commerce will no longer be simply an option. Most of the trading giants are increasingly conducting their trade electronically. Therefore, it has become an imperative for the developing countries, among them those of the ESCWA region, to migrate their businesses onto the Internet. Those countries that procrastinate will risk being marginalized, while those that have been quick to embrace e-commerce will reap the benefits of early participation in the electronic global market.

Governments in the ESCWA member countries that have been seeking involvement in the global economy have recognized the importance of this new way of doing business and have been taking measures to prepare the ground for e-commerce operations. The private sector in these countries has also shown some e-commerce initiative, despite the lack of the ICT infrastructure that is needed for this avenue of trade to thrive.

To integrate into the new global market, the ESCWA member countries will have to make a major leap in adopting new standards and procedures and in acquiring new skills. This will require a series of preparations that must move from the planning stage to implementation, from theory to action. Consequently, the following recommendations are intended to assist the ESCWA member countries in their efforts to create an effective e-commerce network. They are directed to both the public and private sectors, as well as to NGOs and regional and international organizations.

### (a) *Creating awareness*

The Governments, NGOs and the private sector concerned with trade should work individually and collectively to raise awareness about e-commerce. The benefits of e-commerce should be highlighted to businesses and consumers. In particular, SMEs should receive proper education on how to conduct e-commerce and how to reap its benefits. The upper management of enterprises should adopt the new culture of e-business and e-commerce and raise the awareness of personnel at all levels in their organizations.

Governments should introduce computer and Internet literacy courses in the curricula of their schools, with a clear plan to integrate and involve the educational sector in popularizing the Internet, in order to reduce the digital divide between the "knows" and "know nots". Part of this plan could involve training centres to educate government employees on information technology. Computer centres in remote areas also should be set up to provide the rural population with computer and Internet access.

Private universities and vocational schools should incorporate e-commerce and e-business management courses in their programmes.

Businesses should review their current business practices and prepare to grasp e-commerce opportunities. They should create internal awareness of the potential benefits that e-commerce can create for all involved. Businesses should rely on their core competencies to offer attractive and competitive services to fill customer needs.

### (b) *Human resources*

Developing human resources is crucial to building a solid know-how base in the region. The region should invest in educating and creating a cadre of professionals that can develop and maintain high technology applications. Professional skills should be upgraded continuously in the various fields related to e-commerce, such as law, banking, communication engineering and software and hardware skills.



The private and public sectors should create an environment conducive to recruiting and keeping talented people on board. They should provide benefits, offer training and encourage employees to pursue further education and venture into challenging projects.

The private and public sectors could collaborate in developing the skills needed for the development of an ICT industry in the region, by initiating software management expertise training, particularly for large-scale software development projects.

(c) *Telecommunications infrastructure*

ESCWA member countries should privatize the telecommunications industry. This is known to increase the competitiveness of telecommunications services and to reduce prices, thus benefiting consumers and encouraging more citizens to subscribe to fixed telephone lines. Introducing open licensing for telecom operators would attract more investment in the industry and its infrastructure. This would result in higher quality services, better bandwidth and more affordable connections—all to the advantage of businesses, consumers and the Government.

Telecommunications authorities should reduce dial-up fees for Internet users and international tariffs on Internet access to ISPs. This would encourage users to spend more time on Internet and consequently become more engaged in e-commerce.

Telecommunications authorities should further decrease bandwidth fees for ISPs and provide them with better services to encourage connectivity and enable them, in turn, to provide better services.

ISPs should enhance their terms and services. They should recruit and train professionals in the field of Internet services to reduce interruptions in connectivity and help find solutions for other Internet problems. Once they provide adequate services, businesses and other Internet users will stop connecting to international ISPs.

ISPs should reduce leased line fees, especially for SMEs, which would considerably help encourage e-commerce practice by those enterprises.

Internet access should be extended to remote rural areas not yet connected to this service.

Network operation centres should be set-up to coordinate Internet traffic and avoid bottlenecks. It is also recommended that each country create a local Internet node to facilitate the online activities of both the public and private sectors.

ESCWA member countries should encourage and expedite the introduction of new technologies, such as the Wireless Application Protocol (WAP), which is crucial to future e-commerce development.

(d) *Software development*

Instead of importing all know-how from industrialized countries, ESCWA member countries should engage in developing their own software and adapt and test successful ideas in the West to the ESCWA region. In addition, it is recommended that companies in the ESCWA region position themselves for international alliances. Strategies should include moving from standard applications to web-based and WAP-based applications.

(e) *Banking: payments settlement and project funding*

Internet banking must eventually include all banks, in order to facilitate and increase the volume of banking transactions. Payment gateways for e-commerce transactions should be established; and Central Banks in the ESCWA member countries should take charge of regulating e-commerce payments.

Simplifying applications and reducing or cancelling fees on consumer credit cards will increase consumer base for e-commerce transactions. Streamlining business-to-business e-commerce procedures will

help create quick and efficient online banking systems, to the benefit of both businesses and consumers. The ESCWA member countries should create online credit card processing systems in conjunction with banks.

The banking sector should provide seed capital or loans to help incubate e-commerce start-ups. It will take large investments in Internet-based projects to reap commercial benefits. Until measures are taken to stimulate investment capital and establish viable investment mechanisms, e-commerce in the region will be restricted to the activities of individual entrepreneurs and will not enter the mass stage witnessed in the West. To develop e-commerce, therefore, the region will require Internet incubators and venture capital firms to provide the funds and facilities required for e-commerce start-ups.

(f) *Internet security*

The lack of consumer confidence in e-business in the region is reflected in the fear of non-delivery of goods and in the theft and fraud of credit card numbers. As long as e-awareness is not conducted aggressively and the private and public sectors do not establish e-commerce regulations and provide consumer security, the trust issue will remain a major hindrance to online shopping.

Security of financial transactions is essential. Banks and other credit card issuers should actively explain to customers that the risks involved in online credit card transactions are no greater than those involved in conventional shopping. In a similar vein, customers have concerns for the confidentiality of their transactions and the disclosure of their identity by e-commerce entities. Governments must therefore set rules in this regard, the establishment of which will considerably help remove some of the doubts that prevent customers from buying online.

More awareness about online security solutions is needed. Moreover, the availability of the different online security solutions should be advertised, in order to generate trust and confidence among consumers and businesses.

(g) *Legal issues*

Laws that recognize and validate electronic procedures have not, so far, been put in place in all the Arab countries. To date, electronic documents and signatures are not recognized. There is, therefore, a need to review the laws in order to address and recognize electronic evidence.

E-commerce legal frameworks should be designed so that consumers can rely on the validity of transactions and have confidence that they are engaging in secure and reliable electronic communications. Countries in the region should pass and enforce laws that address intellectual property rights and also protect consumers from online fraud and computer crimes. Governments should also regulate the operations of ISPs, as well as create a centralized automated trademark and domain registry.

Laws, regulations and standards concerning e-commerce and ICT will have to be harmonized, so that national legislation will be commensurate with the laws applied in the rest of the world. This harmonization could start at the regional level by forming a regional body to study the specific laws and regulations needed in the region. At a later stage, these laws and regulations could be harmonized with international ones. Reviewing the UNCITRAL Model Law would be a step in the right direction.

(h) *Shipping and export*

The prompt delivery of goods is essential in establishing trust between customers and suppliers. Shipping companies in the region, therefore, should be assisted in delivering customer goods in the fastest way possible. This can be achieved by establishing a smooth and clear system between government agencies and courier companies and by simplifying export procedures and reducing taxes and fees.

(i) *Markets*

The region has a good number of Internet users that can constitute a base for e-commerce in the ESCWA member countries. For better and more profitable results, however, companies in the ESCWA region should also cater to the international market. Companies should export services and goods in which

they have a strong base. Identifying niche markets would greatly help e-commerce to flourish in the ESCWA region.

In addition, diversifying between business-to-business and business-to-consumer e-commerce, as well as utilizing new venues such as m-commerce (mobile commerce), will help increase regional markets and open up new international markets.

(j) *A national strategy for e-commerce*

There is need for better coordination between the private sector, the public sector and academia with regard to the creation and development of e-commerce. Government endorsement of e-commerce is crucial and the primary stepping-stone in creating an effective and flourishing e-commerce system. This calls for a proper “line of control” over all concerned ministries. The ESCWA member countries should have a comprehensive e-commerce strategy—a strategy that addresses all its aspects and objectives, such as enhancing infrastructure, developing human resources and providing the appropriate laws and regulations. This strategy could be translated into an operational programme managed by a committee or task force comprised of representatives of all concerned parties (telecommunications authorities, ISP companies, trade promotion organizations, banks, legal authorities and others), which will determine the framework of the national e-commerce strategy.

A national strategy could include the formation of a council that would focus on building public awareness of the importance of ICT and e-commerce. Such a council could run a continuous promotional campaign in the media. It could also promote success and failure stories of e-commerce efforts, which would serve as beneficial lessons to learn.

The Government, in collaboration with the private sector and international organizations, could produce a guide booklet containing all the preparatory steps to be taken in starting an e-commerce or e-business operation, including supporting diagrams on Internet links.

Governments should accelerate efforts towards the promotion of electronic procedures and practices. They should upgrade their constituents to IT literacy level and initiate pilot projects relevant to that purpose.

(k) *A regional strategy for e-commerce*

Not enough regional planning, initiative, framework or coordination has taken place in terms of the Internet and electronic commerce, whether on the research and development, Arabization, organizational, regulatory or awareness level. The need for a regional strategy is important, since this would encourage countries within the region to synchronize their planning, standards and objectives for the benefit of all.

The ESCWA region is a good-sized market, large enough for a viable e-commerce. What bolsters that market is common language, culture and traditions. E-commerce could be an effective complementary facet of the Greater Arab Free Trade Area. Countries and enterprises in the ESCWA region should seriously think regional.

ESCWA member countries that are members in WTO should coordinate among themselves and with other ESCWA member countries so that they will be prepared to participate effectively in the forthcoming round of multilateral trade negotiations of WTO, especially in the proposed new services component, which will include negotiations on e-commerce. It is essential that the ESCWA member countries participate in these negotiations and convey their concerns on this issue.

(l) *Arabization of e-commerce*

The Arabization of web sites should be taken seriously. Arabic-enabled web sites will attract a significantly large consumer base, since they would be based on concepts and content that are closer to the cultural understanding of consumers. Crossbreeding and inter-cultural exchange, meanwhile, need to be stimulated.

Some people, however, believe that web sites should utilize both English and Arabic, arguing that purely Arabic sites would erect a barrier for consumers and businesses from other areas in the world. This, in their opinion, could isolate the region’s businesses and limit their markets. It is recommended that web sites designed in the region should have the option of both languages.

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