

CHAPTER I

INTRODUCTION

According to Nicholas Negroponte, the director of the Massachusetts Institute of Technology's innovative Media Laboratory, “The Net is 10.5 on the Richter scale of economic change”. This statement reveals the tremendous impact of the Internet on the economy.

In order to participate in the new digital economy, countries must take advantage of Internet-based opportunities. However, not all countries are ready to do so and this explains the widening digital divide that exists, not only within a country, but also between developed and developing countries.

In order to measure the preparedness of countries to take part in the digital economy, the “E-Readiness” concept emerged. The determinants of e-readiness are many. They cover the physical infrastructure of a country, the level of usage of technology, the legal and regulatory framework, the human capital and the business climate of a country (Bridges 2001).

Several e-readiness assessment tools and methods have been devised by various groups and institutions around the world. These tools aim at assessing a comprehensive set of factors in relation with the degree of development and usage of Information and Communication Technologies (ICT). These factors include items associated with the network infrastructure of a country, the business climate and its openness to such technologies, the governmental support and adoption of ICT, the educational system which includes the availability of a trained workforce and the social factors that reveal the degree of utilization of ICT in everyday activities (Bridges 2001).

Country specific assessments are being conducted and huge budgets are being allocated to such assessments. Looking at the pillars that have to be in place for a country to score well on e-readiness, we find that the banking sector is an important enabler of e-readiness as it provides financial services needed by Internet-based transactions.

Banks are also important adopters and promoters of new technologies as it is apparent in the proliferation of various forms of electronic banking. Electronic banking can take many forms starting with ATMs and plastic cards, passing through phone banking, wireless banking and Internet banking.

The development of these services and delivery channels has many benefits from both the banks and the customers' viewpoint. However, these benefits cannot be harnessed without addressing several issues and challenges.

In Lebanon, the banking sector has set for itself high standards vis-à-vis information technology. This sector has an undisputable competitive edge when considering that customers' deposits represent 3 times the GDP of the whole country. The Lebanese banks' customer base is wealthy with 51.8 billion USD in deposits (BankData 2002), sophisticated and open to information and communication technologies with 680,000 phone lines, 775,000 mobile lines, 400,000 Internet users and 275,000 PCs (ITU 2003).

The purpose of this project is to determine the extent to which the Lebanese banking sector is contributing towards national e-readiness and to discuss the role it can play in encouraging and promoting ICT usage in Lebanon.

Chapter two provides an e-readiness framework, presents the various e-readiness assessment models and tools and establishes the link between electronic

banking and the e-readiness of a country.

Chapter three takes a quick look at the evolution of electronic banking and presents the different delivery channels used to deliver banking products and services while stressing on the drivers, challenges and trends associated with these new banking channels.

Chapter four presents the methodology followed in this project together with the research design, instruments for data collection and methods of data analysis that were used.

Chapter five outlays the results of the survey (administered at 51 banks out of the 52 commercial banks currently operating in Lebanon) on the status of electronic banking in Lebanon.

Finally the results of the survey are discussed and the degree of contribution of the Lebanese banking sector towards national e-readiness is revealed in Chapter six.

CHAPTER II

E-READINESS ASSESSMENT TOOLS AND STRATEGIES

We often speak of the invention of the Internet as a revolution as the Internet and e-commerce were adopted with a remarkable intensity and speed. In fact, electricity was invented in 1873; however, it took 46 years to achieve mass adoption of this technology worldwide. In addition, it took 35 years for telephones, 22 years for radio and 16 years for PCs to be adopted on a large scale. The World Wide Web has achieved mass adoption in about 6 years only (Pyun 2002).

In the Information Age, the gap between rich and poor threatens to widen, not only within countries, but between developed and developing countries. The first report on e-readiness on a global level prepared by McConnell International states that:

Electronic preparedness measures a nation's capacity to participate in the digital economy. Electronic preparedness is the source of economic growth in the century of interconnectedness and the requisite to carry out successful electronic business. Neither countries nor businesses can prosper if the main electronic pillars are not in place. For those countries who have only taken their first steps, the rhythm at which the changes are taking place implies complacency on their part which is a danger to their future development.

E-readiness is defined as the extent to which the business environment of a country is favorable to internet-related opportunities. The determinants of e-readiness are many; they range from the sophistication of the telecom infrastructure to the security of credit card transactions and the literacy of the population (Lowinski 2001).

Several organizations and research institutions around the world have attempted to define e-readiness and to develop a framework to measure it in different countries. So far, a plethora of e-readiness assessment projects were completed and many are being conducted or are being planned for. While governments, international

bodies, and the private sector have recognized the need to coordinate their efforts regarding e-readiness assessment, we notice that their work is uncoordinated and duplicative. For instance, a bridges.org survey found that 107 countries had already been assessed, of which 32 countries have been assessed at least five times by different organizations. The reason for duplication is that the assessment results are not publicly available or easily accessible as only the government agency or organization that commissions the assessment gets the results (World Bank 2001).

Assessing the e-readiness of a country is important in a sense that it allows the development of a national strategy which addresses the opportunities and constraints identified in the readiness assessment and hence enhances the country's ICT sector (GeoSINC International 2002).

A. E-Readiness Framework

A general e-readiness framework addresses several areas of activities of a country which can be classified in five categories: (1) Physical infrastructure: this category covers the telecommunications infrastructure including teledensity and Internet access, bandwidth, pricing, and reliability; (2) ICT usage or the levels of technology-oriented applications usage in homes, businesses, schools, and government; (3) Human capacity: in this category, items such as literacy, ICT skill levels, and training are addressed; (4) Policy environment whereby the legal and regulatory environment affecting the ICT sector is considered, including telecommunications policy, trade policy, e-commerce taxation, consumer protection, and privacy; and (5) ICT economy or the size of the ICT sector (World Bank 2001).

Several e-readiness assessment models were developed by various groups in

the world. These models take into account the five main areas of activities of a country previously mentioned. However, we have to keep in mind that each model brings its own specificities in terms of categories considered, applicability to certain situations and the actual assessment methods used to carry out the e-readiness assessment of a country.

The following section provides an overview of the various e-readiness assessment models.

B. E-Readiness Assessment Tools

1. Center for International Development's Readiness for the Networked World

The Center for International Development at Harvard University and IBM developed "Readiness for the Networked World: A Guide for Developing Countries" (Center for International Development 2001).

This guide attempts to assess the networked readiness of the developing world by considering factors grouped in five categories as follows:

- Network Access: is considered a necessary condition for a country to be able to participate in the networked world. This access is determined by considering the availability and affordability of use of the network as well as the quality and speed of the network.
- Network Learning: stresses the importance of incorporating information and communication technologies into the education system in order to be able to take part of the networked world.
- Networked Society: represents an attempt to determine how members of the community are using the ICT they have access to.

- **Networked Economy:** demonstrates that businesses and governments develop more sophisticated ways of conducting their activities by employing information and communication technologies.

- **Network Policy:** recognizes that a favorable climate created by public policy for Internet use and e-commerce encourages the use of ICT (Center for International Development 2001).

2. APEC's E-Commerce Readiness Assessment

The Asian Pacific Economic Cooperation (APEC) recognizes that each economy has a readiness profile. Readiness is assessed by examining six broad indicators of readiness for e-commerce that are developed into a series of questions that provide direction as to desirable policies that will promote e-commerce and remove barriers to electronic trade.

These indicators are infrastructure and technology, access to services, current level and type of use of the Internet, promotion and facilitation activities, skills and human resources and positioning for the Digital Economy.

- **Basic Infrastructure and Technology:** access to basic infrastructure consisting of fixed line telecommunication networks, wireless networks and cable, is an essential condition for the development of e-commerce. The speed and reliability of the infrastructure, the access price, the availability of terminal equipments such as PCs and mobile phones are important determinants in the development of e-commerce.

- **Access to Necessary Services:** access to value-added services provided by Internet Service Providers (ISPs) plays a role in providing applications for electronic commerce. Furthermore, with electronic commerce, the buying and selling of physical

goods can take place over longer distances. This will require that business services are adequate and that the physical distribution system is reliable, fast and affordable.

Also, e-commerce requires specialized support in financial services and an advanced payments system. As consumer transactions regard credit cards as the most convenient payment method, governments should look to establish a regulatory environment that facilitates access by business and consumers to a competitive market in these services.

- **Current level and type of use of the Internet:** this section tries to find out how individuals, businesses and governments are using the Internet services and the type of content to which they have access.

- **Promotion and Facilitation Activities:** electronic commerce creates perceptions of technical complexity. Therefore, it is important to promote e-commerce and provide facilitation activities through the use of technical standards in a community.

- **Skills and Human Resources:** a range of skills is required to develop and to implement electronic commerce technologies. Users also require basic information technology skills. Developing the necessary skills in society through schools, higher education and training will be essential to the participation in electronic commerce.

- **Positioning for the Digital Economy:** government policy plays a pivotal role in determining the vitality of the electronic commerce environment as traditional regulations are too rigid to support the speed of technology and market developments that characterize electronic commerce. Industry self-regulation can also provide an alternative to government regulation. Issues such as taxation, tariffs on electronic commerce, legal framework, electronic authentication, security and encryption, copyright, liability and privacy need to be addressed in order to promote e-commerce. It is to be noted that an appropriate legal framework for electronic commerce requires the

legal recognition of electronic documents and signatures (APEC 2000).

3. McConnell International

McConnell International conducted an analysis of 53 countries, including Lebanon, in order to assess their level of e-readiness. This assessment enables companies to realize the revenue potential and the possible threats when entering new markets. It is also useful for governments as detailed national-level analysis creates an opening for business, government, and private organizations to work together to improve a nation's overall ability to participate in the digital economy (McConnell International 2001).

The McConnell model considers five categories: connectivity, e-leadership, information security, human capital, and e-business climate. The analysis of these categories is backed up with concrete examples of initiatives that are improving countries' e-readiness.

- **Connectivity:** Are networks easy and affordable to access and to use?

In order to participate in the networked economy, there should be a reliable infrastructure for the exchange of information and of goods and services with the rest of the world. Key elements to assess connectivity include:

- Availability of wire line and wireless communication services, community access centers, and networked computers in businesses, schools, and homes.
- Affordability and reliability of network access, including the cost of service, downtime, and the prevalence of sharing access among individuals.
- Underlying infrastructure, including the reliability of electrical

supply for business-critical computer operations, and the ease of importing and exporting goods and of transporting them within a country.

- E-Leadership: Is E-Readiness a national priority?

Governments can increase the e-readiness of a country by providing an environment that encourages private sector action, while protecting consumers. Key elements to assess e-leadership include:

- Priority given by government to promoting the development of an e-society on a national level.

- Extent of demonstrated progress on e-government, including efforts to automate governmental processes, offer services to business and citizens electronically, and create national portals.

- Quality of partnerships between industry leaders and government to improve E-Readiness.

- Level of effort to promote access for all citizens.

- Information Security: Can the processing and storage of networked information be trusted?

A vital aspect of E-Readiness is the level of information security for several reasons. First, poor protection of intellectual property can inhibit the growth of the national software industry. Second, inadequate protection of personal data creates barriers to information exchange. Third, failure to recognize electronic signatures or to permit the use of encryption undercuts trust in the new ways of doing business. Key elements to assess information security include:

- Strength of legal protections and progress in protecting intellectual property rights, especially for software.

- Extent of efforts to protect electronic privacy.

- Strength and effectiveness of the legal framework to address and prosecute computer crimes, authorize digital signatures, and enable public key infrastructures.

- Human Capital: Are the right people available to support e-business and to build a knowledge-based society?

Skilled human factor in technology is a must for a country to participate in the new economy. Key elements to assess human capital include:

- Quality of and participation levels in the education system, with an emphasis on efforts to create and support a knowledge-based society.

- Penetration of ICT in schools and ability of educators to use and teach in accordance with the technologies.

- Culture of local creativity and information sharing within the society.

- Skills and efficiency of the workforce, and strength of efforts to retain skilled managers and technologists.

- E-Business Climate: How easy is it to do e-business today? E-businesses operate in a complex context of regulatory policies and institutional arrangements. Key elements to assess e-business climate include:

- Existence of effective competition among communication and information services providers.

- Transparency and predictability of regulatory implementation, openness of government, rule of law, and general business risk (e.g., political stability, financial soundness).

- Openness to financial and personal participation by foreign investors

in ICT businesses.

- Ability of the financial system to support electronic business transactions.

- Sponsorship of science and technology parks as hubs of innovation and support for new enterprises (McConnell International 2001).

4. Economist Intelligence Unit's E-Readiness Rankings

The 2003 e-readiness rankings of the Economist Intelligence Unit use around 100 quantitative and qualitative criteria in six different categories:

- Connectivity and technology infrastructure (25%) whereby access to basic telephony services, computers and the Internet is measured with a special focus on the affordability, quality and reliability of service as well as the security of Internet transactions and the content delivered.
- Business environment (20%) which focuses on the country's economy, political stability, the regulatory environment, taxation, competition policy, the labor market and the openness to trade and investment.
- Consumer and business adoption (20%) where an assessment of e-business practices is carried out in order to determine the share of retail commerce that is performed online, the extent to which the Internet is used to automate traditional business processes and the degree of development of logistics and online payment systems and the availability of finance and state investment in IT.
- Legal and policy environment (15%) whereby the overall legal framework and the specific laws governing Internet use are considered in order to determine the ease of e-business development in a country.

- Social and cultural infrastructure (15%) where the fact that the use of the Internet necessitates literacy and basic education is recognized and the level of education and Internet literacy, the degree of entrepreneurship and the technical skills of the workforce are assessed.

- Supporting e-services (5%) considers the availability of e-business consulting and that of technical support and the existence of industry-wide standards for platforms and programming languages (EIU 2003).

5. SADC's E-Readiness Framework

The e-Readiness Task Force of the Southern African Development Community (SADC) developed an e-readiness framework where three overlapping levels of e-readiness were identified:

- Fundamental level: this level involves the fundamental enablers of e-readiness such as basic telecommunications services, basic infrastructure (electricity, education, access to television and radio) and human factors.

- Middle level: this level involves access to more advanced telecommunications (data) services, including e-mail and Internet usage in general, and the foundation of an ICT infrastructure, with specific focus on priority applications like e-government, e-education, and e-health (with a focus on PC penetration in schools, clinics, community centers, government offices, and businesses).

- Advanced level: the advanced level involved the latter stages of a higher level of ICT infrastructure and application, and implies the use of the Internet for global trade and other commercial activities. This implies the foundational requirements of a well developed banking infrastructure and legal support mechanisms (SADC 2002).

6. WITSA's International Survey of E-Commerce

The World Information Technology and Services Alliance (WITSA) conducted a survey in 2000 which focused on the experiences of companies with e-commerce. The survey covered a range of issues such as barriers to technology, role of consumer trust, problems with e-commerce technology, internal business practices that support e-commerce, workforce problems, taxes, public policy issues, and resistance from consumers (WITSA 2000).

The results of the study conducted by WITSA identified eight areas that should be given special attention if electronic commerce is to achieve its full potential:

- **Trust:** the importance of security of payments is paramount in the acceptance of electronic commerce. Low levels of credit card use and restrictions on using credit cards over the telephone were identified as a problem in implementing e-commerce in developing countries. Privacy and authentication were also major concerns for these countries.
- **Technology:** technological barriers needed to be overcome are the availability of security systems, the integration of electronic commerce systems with existing enterprise systems and the lack of internationally recognized standards for transaction processing.
- **Workforce Issues:** the shortages of skilled workers in the IT industry in addition to the high training costs were identified as issues to be dealt with.
- **Public Policy:** public policy issues need to include the development of standards for authentication that would ensure trading partners are legitimate and the impact on electronic commerce of the taxation of online sales.
- **Taxation:** despite a lack of clarity on taxation in many countries, taxes are

not considered an important barrier to electronic commerce.

- **Business Processes:** while new internet only businesses such as auction sites and share-dealing services have been launched, the majority of organizations trading on the internet are established businesses that must integrate their electronic activity with existing business processes which creates a fear of opening corporate systems to outsiders.

- **Costs:** the costs of changing business processes and adapting corporate cultures to accommodate electronic commerce are seen to represent the biggest cost elements.

- **Consumer Attitudes:** users need to be reassured that they can trust the Internet. In fact, users fear of communicating personal information such as credit card numbers, addresses and telephone numbers over the Internet. They also fear to lose money by purchasing goods from unknown companies in the absence of regulation governing procedures in the event of disputes (WITSA 2000).

7. World Bank's Framework for National ICT Strategies

The World Bank based the framework for national ICT strategies on the following:

- **Access infrastructure:** this implies a reliable telecommunications infrastructure and requires independent regulatory agencies, pro-competitive policies, licensing, interconnection, tariff rebalancing, spectrum regulation, universal access and privatization.

- **E-commerce and convergence:** e-commerce and other applications of new technologies require the presence of digital contract and signatures, security,

public/private key infrastructure, encryption, personal data privacy protection, banking and financial services, exchange controls, copyright and intellectual property rights, liability, electronic payments, duties and import tariffs as well as computer crimes and electronic fraud prevention.

- Promoting IT and IT-enabled industries: it is vital to have strategic information systems and IT hardware and software as key components of any country's IT. The main areas that need to be focused on are investment policies, taxation, approval procedures, establishing high-technology parks and identifying leading sectors.

- E-governance: a key to the success of the improvement of a country's e-readiness is the government's participation on two levels: first the government's use of ICT and the government's support of deregulation and private sector initiatives.

- Human resources and capacity building: education is crucial to the improvement of a country's e-readiness, therefore access to ICT in primary and secondary schools should be promoted as well as the technical IT skills and the ICT usage in the general population (World Bank 2002).

Having looked at the various e-readiness assessment tools and models, a comparison of these models is provided in the following table:

Table 1. Comparison of E-Readiness Models

	CID	APEC	McConnell	EIU	SADC	WITSA	World Bank
Technology							
Infrastructure – Network, Tele-density	✓	✓	✓	✓	✓	✓	✓
Pricing	✓	✓	✓	✓	✓	✓	✓
Speed and Quality	✓	✓	✓	✓	✓	x	✓
Other Technology Issues	✓	✓	✓	✓	✓	x	✓

“Table 1 – Continued.”

Economy								
	Use within Businesses	✓	✓	✗	✓	✓	✓	✗
	E-Commerce	✓	✓	✓	✓	✓	✓	✓
	Market Competition / Privatization	✗	✓	✓	✗	✗	✓	✓
	Export Trade, Foreign Investment	✗	✓	✓	✗	✓	✗	✗
	Other Economic or Business Factors	✗	✓	✓	✓	✓	✓	✗
Government								
	Policy Regulations (Privacy, Trade, Intellectual Property, Electronic Signatures)	✓	✓	✓	✓	✓	✓	✓
	E-Government	✓	✓	✓	✗	✓	✗	✓
	Political Openness, Democracy	✗	✗	✓	✗	✗	✗	✗
Education								
	Use in Schools	✓	✓	✓	✓	✓	✗	✓
	Tech Training in Schools	✓	✓	✓	✓	✓	✗	✓
	Availability of Trained workforce	✗	✓	✓	✓	✗	✓	✓
Social								
	Use of ICT in Everyday life	✓	✓	✓	✓	✓	✗	✓
	Utilization of Technology throughout Society	✓	✓	✓	✓	✓	✗	✓
	Basic Literacy, Poverty, Other Social Factors	✗	✗	✓	✗	✗	✗	✗
	Locally relevant Content	✓	✓	✓	✗	✗	✗	✗
	Consumer Trust	✗	✗	✗	✗	✗	✓	✗
	Political, Business, Social History	✗	✗	✓	✗	✗	✗	✗

C. E-Banking and E-Readiness Assessments

The previous section reviewed the various e-readiness assessment tools and strategies that are being used around the world in order to determine who is ready and

who is not to take advantage of new information and communication technologies.

Almost all of the tools discussed addressed the role of the financial sector in promoting the e-readiness of a country. In essence, e-banking services, when present, play a role in enhancing the e-readiness of a country. However, the lack of e-banking services can also hinder the advancement of e-business and e-commerce and hence can negatively influence the e-readiness ranking of an economy.

Uzbekistan applied the guide developed by the Center for International Development at Harvard University to assess its readiness for the networked world. It is to be noted that in the Networked Economy category, one of the strengths of this country was the relatively developed banking system with smart-card payment system and inter-bank clearance network. In fact a smart card payment system has been implemented at the National Bank of Uzbekistan using the BGS SmartCard Systems AG, an Austrian company enjoying exclusive rights to the Universal Electronic Payment System in Central Asia utilizing Direct Universal Transaction System (D.U.E.T.) Technology (Revin 2001).

However, weaknesses arise from the fact that Uzbekistan is a cash economy and the level of credit card use remains very low in addition to the absence of supporting infrastructure necessary for e-commerce development such as public key infrastructure (PKI) and certificate authorities. A related weakness is found in Network Policy where a legal framework necessary for the development of a new economy (digital signatures, electronic transactions, etc.) is lacking (Revin 2001).

The Asian Pacific Economic Cooperation (APEC) stresses the fact that an adequate support in financial services and an advanced payment system are essential for the uptake of e-commerce. Not only that, but also regulations should be put in place in

order to facilitate access by businesses and consumers to a competitive market in payment services as credit cards are considered as the most convenient payment method by consumers. Answering questions such as: are financial institutions allowed to issue credit cards to consumers; are there financial limits imposed by government on credit card usage; do foreign exchange restrictions prevent or restrict consumer purchases from international web sites; is the technology infrastructure of commercial financial institutions capable of supporting online authorization and settlement of e-commerce transactions and do government regulations restrict electronic settlement of e-commerce transactions or the use of electronic payment technologies, can provide an insight into the development of payment services of an economy (APEC 2000).

Furthermore, an appropriate legal framework needs to address issues such as electronic authentication, security, encryption and privacy and to recognize electronic documents and signatures (APEC 2000).

McConnell International considers that the level of information security is a vital aspect of E-Readiness and it can be assessed, among others, by evaluating the extent of efforts to protect electronic privacy and the strength and effectiveness of the legal framework to address and prosecute computer crimes, authorize digital signatures, and enable public key infrastructures. Furthermore, a favorable e-business climate depends on the ability of the financial system to support electronic business transactions (McConnell International 2001).

The study of 53 countries conducted by McConnell International identified opportunities in five areas: digital inclusion (promoting rural access, wiring schools, and increasing small and medium-sized enterprise involvement in e-commerce), e-government (designing portals, delivering G2G, G2B, and G2C e-services, and

improving back-office infrastructure and systems), business systems (designing Net-enabled credit systems, and networking banks to enhance e-banking), and potential e-business partnerships (designing and joining science and tech parks or incubation hubs, and fostering local ICT-based industries) (McConnell International 2001).

Regarding e-banking initiatives, this study sheds the light on the case of South Africa. Because one of the most significant hindrances to the growth of global e-commerce is lack of familiarity with credit cards, South Africa has underway an initiative to build trust in alternative payment methods. Using a smart card system, citizens of the Venda region, one of the country's most remote areas, will be able to obtain state benefits, make payments, or deposit savings through electronic kiosks. Obstacles presented by illiteracy can be overcome by utilizing graphic displays that depict the various transactions. The security of these transactions is accomplished through the use of biometric fingerprinting (McConnell International 2001).

Among the indicators considered by the Economist Intelligence Unit (EIU) rankings are the development of logistics and online payment systems and the overall legal framework and the specific laws governing Internet use. As such, the 2003 EIU rankings revealed the global trends that are emerging vis-à-vis the use of the Internet. These encompass the increased competition between cable, mobile-phone, fixed-line and Internet service providers, the migration of government services online, the quick uptake of e-banking services and the expansion of mobile commerce. Furthermore, new legislations are dealing with payment systems and related security issues (EIU 2003).

Concerning the uptake of e-banking services, we can see that financial services are being conducted online in Europe. In Germany, around 15 million customers hold a total of 20 million online bank accounts. In addition to that, 25% of customers at

Sweden's SEB bank do their banking online. SEB is considered as having the most advanced Internet banking systems in the world and this sophistication can be illustrated by the fact that the bank has been migrating services such as insurance and pension plans to the Internet. SEB has also in place an e-finance service whereby consumers buying via the Internet from companies connected to its system can apply for credit online. These applications are handled within an hour and payments can be made in installments. When approved, this credit facility is valid at all the companies within the system (EIU 2003).

E-banking services are also offered by Sweden's Nordea bank and these give customers the possibility to access bank accounts, check investment portfolios, and buy and sell shares using their WAP-enabled mobile phones (EIU 2003).

Also, Barclays Bank in the UK offers an Internet-based supply-chain management service that connects purchasers and suppliers which facilitates order placement and bill settlement (EIU 2003).

In Asia, e-business among financial institutions is very pronounced as half of foreign-exchange trade at HSBC, Hong Kong's largest bank and one of the largest foreign-exchange dealers in the world, takes place online (EIU 2003).

On the other hand, we can see that credit-card penetration is low in Eastern Europe and online payment systems are unsophisticated and this deficiency makes consumers wary of buying goods online. However, a progress is being made as credit-card ownership is rising in the Czech Republic and Hungary and so is the adoption of EU standards on e-signatures and other transactional security measures (EIU 2003).

Furthermore, financial institutions in the Czech Republic, Hungary and Poland are investing heavily in e-banking. In the Czech Republic, all major banks offer online

services, and the Internet-only bank eBanka had expanded its customer base to 257,000 in 2002, from 40,000 in 2000. Hungary's e-banking market is also developing quickly (EIU 2003).

The banking sector plays a role in the advanced level of e-readiness of the e-readiness framework developed by the e-Readiness Task Force of the Southern African Development Community. The recommendations for this level were as follows:

- Increase Internet access and utilization: The Internet-related skills can be acquired by increasing the usage of this medium. Moreover, the more exposed the users are to the Internet, the more they can make use of advanced services offered such as online banking. Not only that, but the growth in usage of more traditional forms of automated banking systems such as ATMs and smart cards can also remove adoption barriers to Internet banking and this in turn leads to more e-commerce adoption. In essence, the business sector, including the banking sector, needs to take the lead in spearheading e-commerce.

- Develop the banking infrastructure: Having a world-class financial infrastructure is key to a country's development to the more advanced levels of e-readiness and is crucial to the participation in the global economy, and to the growth in usage of e-commerce applications.

- Develop an e-commerce infrastructure: E-commerce development needs an external stimulus which can be driven by the government and the business sector. In addition to the development of business-to-business (B2B) and business-to-government (B2G), a paradigm shift can be achieved in the consumer segment with respect to the use of the banking infrastructure for e-commerce activities (SADC 2002).

Several strategy and policy options were presented in order to promote e-

readiness in these countries. These included the development of the banking infrastructure including ATMs, smart cards, and electronic banking systems, the introduction of satellite bank branches, in urban and rural communities, the introduction of innovative models, such as that of the prepaid concept in the mobile phone industry, to make the communities who are not bankable into using banking technology and finally the adoption of e-procurement technology in the government and private sector large corporations to pay employees electronically (SADC 2002).

The World Information Technology and Services Alliance (WITSA) survey also focused on the importance of the security of payments and the levels of credit card use and restrictions on the adoption of e-commerce (WITSA 2000).

The International Telecommunication Union has undertaken a project (the EC-DC project) in over 100 countries to promote electronic commerce in developing countries. In fact the challenges faced by developing countries are many such as the poor ICT infrastructure, low income, lack of awareness on e-business, inadequate legal and regulatory framework, absence of trust and lack of network payment and secure transaction services. Therefore, “the lack of adequate banking infrastructure is one of the main technological barriers for building e-business infrastructures in developing countries” (Ntoko 2002).

Finally, the World Bank recognized that e-commerce and other applications of new technologies require the presence of digital contract and signatures, security, public/private key infrastructure, encryption, personal data privacy protection, banking and financial services and electronic payments (World Bank 2002).

The following table depicts the specific items related to e-banking in the e-readiness assessment tools discussed above:

Table 2. E-banking Items Related to E-Readiness

Category	Item
Advanced payment system	<ul style="list-style-type: none"> -ATMs -Level of credit card usage -Electronic payment system -Security of card transactions -card usage
Smart cards	<ul style="list-style-type: none"> -Smart card applications
Electronic banking	<ul style="list-style-type: none"> -Electronic kiosks -Internet banking -Value-added services on Internet banking -Degree of usage of Internet banking -Online brokerage -Electronic bill presentment and payment -WAP banking
Supporting infrastructure for e-commerce	<ul style="list-style-type: none"> -Public key infrastructure, certification authority -Security systems -Trust
Legal framework	<ul style="list-style-type: none"> -Authorize digital signature -Recognize electronic documents -Electronic authentication -Security -Encryption -Electronic privacy -Copyright -Information security -Prosecute computer crimes -Enable public key infrastructure

CHAPTER III

E-BANKING: DRIVERS, CHALLENGES AND TRENDS

Information technology has been changing the banking industry worldwide. In fact, the entire 120 largest American banks, which have 75 percent of the country's banking assets, allow their customers to check their account balances, transfer money among accounts and pay bills online (Pyun 2002). According to the Online Banking Report findings, the compounded annual growth of online banking since 1994 has been 80% with more than 100 million households banking online around the world (Online Banking Report 2003).

Online banking has experienced a dramatic increase between 2000 and 2002, almost doubling to 37 per cent from 20 per cent. Online banking is most prevalent in Canada, the U.K., Germany and the U.S., where more than 40 per cent of internet users had banked online (EuropeMedia 2003).

The projections through the end of the decade look promising as the US usage of online banking is expected to double to reach 50 million households and worldwide, the usage is expected to triple to around 300 million households (Online Banking Report 2003).

A. E-Banking Evolution

Electronic innovation in banking can be traced back to the 1970s with the computerization of financial institutions (Sohail 2003). As technology evolved, different kinds of electronic banking systems emerged. The Automated Teller Machine (ATM) was the first system introduced in 1981 to facilitate the access of the user to his banking

activities via a graphical user interface. The next step was the introduction of phone banking in the 1990s whereby users can make a telephone call from home to the bank's automated voice response (AVR) system, and can use the phone's key pad to perform banking operations (Claessens 2002).

With further advancements in technology, banks were able to offer services through the customers' personal computers and a bank's proprietary software. The users of these services were mainly corporate customers (Sohail 2003).

More recently, online electronic banking was offered to customers so that they can perform their banking activities such as retrieving an account balance, executing money transfers between a user's accounts, from a user's account to someone else's account or retrieving an account history via a sophisticated and user-friendly interface such as an Internet browser. Now, mobile phones also offer the possibility to perform electronic banking (Claessens 2002).

B. The Multi-Channel Approach

1. ATMs

In the US, half of the transactions are paid for in cash and the other half in non-cash. While 70% of the non-cash instruments consist of payments by checks, the remaining 30% involve electronic payment methods such as payments with credit cards, debit cards and wire transfers (Guttman 2003).

The access to cash was facilitated with the increase in number of automated teller machines (ATMs). Over the period 1989 to 1999, the number of ATMs tripled in the US, going from 75,000 to 235,000 terminals (Guttman 2003).

ATMs lower operating costs for banks and allow banks to bypass geographic

distances. Banks' customers can perform various banking activities on ATMs which operate faster and more reliably than a bank teller (Guttman 2003).

2. Phone Banking

Interactive Voice Response (IVR) systems have become a commodity offered by the financial service industry, allowing customers to have access to their account information 24 hours a day. These systems can provide information and can allow transfers between authorized accounts, input for loan applications via touch-tone phone and bill payment, among others (Floyd 2001).

The convenience provided by interactive voice response systems is being increased by call centers with extended service hours. Customers can have access to qualified call center agents who can assist them quickly and accurately, and who have the authority to make decisions on the spot (Floyd 2001).

There are five technologies that could be used in a call center:

- Automated call distribution systems to route the call to the most appropriate call center agent, either through an analysis of call times, through pre-established routing options selected by the caller or by agent skill sets.
- Interactive voice response units as discussed above.
- Internet and Intranet electronic mail systems which allow customer inquiries can be directed to the call center from the customer's personal computer and a response from the call center may come as an e-mail reply or a telephone call.
- Contact management systems provide the ability to record and track customer interaction, to schedule follow-up contacts and to provide standard responses to customers.

- Computer-telephony integration (CTI) or the integration between the institution's telephone system and the data processing system. Automated call distribution systems, interactive voice response units and the institution's data processing systems can all be meshed together to provide the highest degree of customer service. Functions provided by a CTI solution include the identification of the caller's telephone number (Caller ID) and the possibility to have screen pops at the agent's PC. Screen pops bring up the customer's data or profile automatically utilizing either automatic number identification or a request for some type of information from the caller, such as an account number or personal identification number. The call center agent is then able to greet or respond to the customer more quickly, as information is available as soon as the call is received (Floyd 2001).

3. Wireless Banking

Wireless financial services are an important part of mobile commerce or m-commerce, and they offer customers a new level of convenience as they can reach their financial needs from any device such as a mobile phone or a personal digital assistant (PDA). Therefore, wireless financial services are attractive to people on the move and with limited access to physical branches. Financial institutions should provide wireless services as part of their multi-channel offerings because as technologies improve, financial institutions can benefit from the revenues generated by m-commerce (Garabedian 2000).

Europe and Asia lead in wireless financial services usage with millions of people using these services and one third of the top 100 retail financial institutions offering wireless services (Garabedian 2000).

4. Internet Banking

In the late 1990s, banks have established an Internet presence to meet several objectives: to market information, to deliver banking products and services, and to improve customer relationship. Most of them used the Internet as a new distribution channel as the same financial services can be offered through this medium but with lower costs and to more potential customers. These customers can have access to their bank from anywhere around the world at any time. For banks, this means having access to new markets without opening new branches (Jasimuddin 2001).

a. Internet Banking Models

The two widespread Internet models in the banking industry are e-banks and e-branches. An e-bank is a bank that exists only on the Internet. This model gives a bank the opportunity to exist without geographical limitations and without ever closing the doors to customers. The e-branch model is where a traditional bricks-and-mortar bank offers Internet banking to its customers (Nath 2001).

In response to the pressure by e-banks, many bricks-and-mortar banks have created independent e-bank subsidiaries. This way, the slow moving corporate structure is replaced with an entrepreneurial one free from the traditional bureaucracy.

Examples of some of the well-known and successful e-banks and e-branches include:

- The world's first Internet only bank is Security First Network Bank, now owned by Royal Bank of Canada, which has over 150,000 customers.
- The first profitable e-bank is NetBank that currently boasts \$1.5 billion in assets with more than 110,000 accounts.

- Telebank, which was acquired by E-Trade in 1999, began offering Internet transactions in 1998 and now has over 51,000 customers with over \$1 billion in deposits.
- Wingspan.com, a wholly owned independent subsidiary of Bank One was launched in June 1999.
- One of the dominant leaders in the number of total Internet banking customers is Wells Fargo. The institution, which recently merged with Norwest, has a division of Internet only accounts that totals over 1.5 million with about 100,000 being added each month.
- X.com, a startup bank with no foundation in the banking industry, represents the kind of threat brick-and-mortar banks are facing from Internet only e-banks (Nath 2001).

b. Benefits of Internet Banking to Banks

It has become well known that electronic processing dramatically reduces the cost per transaction. The average transaction cost at a full service bank is about \$1.07. It reduces to \$0.27 at an ATM and falls to about a penny if the same transaction is conducted on the web. Also, the cost of delivering bills electronically is substantially lower than if the bill was in paper form delivered through the mail (Nath 2001).

As banks offer a “hub” of financial services including bill presentment and payment, financial planning, estate planning, insurance, loans, and brokerage services, they are converging their services in a central location. This convergence will create a more involved banking customer who will more frequently utilize the banking site. By creating a more loyal customer, more bundling can occur and higher revenue per

customer can be generated (Nath 2001).

Furthermore, by creating financial portals where consumers can manage a broad range of financial activities such as stocks and mortgages, banks can profit from offering Internet capabilities to customers (Nath 2001).

E-commerce, when properly integrated into existing banking operations, can lead to substantial cost savings and higher profitability. Cost savings occur by virtue of automating customer transactions such as funds transfers, payments and account balance inquiries. Strategic alliances with insurance companies, mortgage companies, and stock brokerage firms can lead to additional business opportunities (Nath 2001).

c. Benefits of Internet Banking to Customers

Cyberspace is cheaper to operate in than bricks-and-mortar structure and this cost benefit is often passed along to consumers (Nath 2001).

Basic transactional web sites allow customers to check account balances, holdings and account statements. Systems that allow customers to initiate transactions online, such as transferring money between accounts or making payments, provide additional advantages to the customer. These enhanced web sites enable customers to pay bills, apply for and review loans and mortgages, and check credit card bills. Also, using the Internet, financial information from a bank can be linked to account information stored in a program such as Quicken, or Microsoft Money on a home computer (Nath, 2001).

Banks are adding real-time loan applications, and the opportunity to trade stocks through their web sites. This concept of “one stop” shopping is convenient and leads to more satisfied customers (Nath 2001).

d. Strategic Issues Related to Internet Banking

Internet banking is considered as a long-term defensive survival strategy. In fact, “many bankers do not find their website operations reducing their cost of serving their customers”. However, offering Internet banking services contributes to customers’ retention as the customer becomes tied to the bank’s website and it will be unlikely that he will switch to another bank (Pyun 2002).

In the Middle East, financial institutions and customers did not show much enthusiasm for Internet banking. However, more and more Arab banks accept that they must change their conceptions about the Internet so that they do not risk losing market share to more technology-savvy international players (Dudely 2001).

Because of the slow adoption of Internet banking, this service has only scratched the surface of the potential market and is available from only 8 banks in eight countries: Saudi Arabia, Bahrain, Qatar, Kuwait, the UAE, Jordan, Lebanon and Egypt. However, several other banks are planning internet strategies, especially that there are reasons to believe that there is genuine demand for this service. In fact, bankers point out that although comparatively few people in the Arab world are linked to the internet, a relatively high proportion of those use internet banking (Dudely 2001).

Furthermore, Internet banking will also form part of banks' defensive strategies. As countries enter the WTO, they will have to face competition from global banks because WTO rules require member countries to open up their financial markets to foreign banks starting 2003 (Dudely 2001).

Supporters of Internet banking in the Arab region recognize the fact that it will never completely replace the traditional branch network because many customers would still prefer to go to their branch and deal directly with their branch manager (Dudely

2001).

Other bankers strongly oppose Internet banking. According to a leading Qatari banker: "Given the question of security, the relative size of the market and the expense of developing systems, I look forward to the day when the profit contribution matches the hyperbole that surrounds the subject" (Dudely 2001).

The concern about security is regarded as the greatest hurdle that is related to Internet banking in the region because many people are not comfortable with conducting financial transactions through the internet (Dudely 2001).

e. Internet Banking Challenges

i. Security

Few successful electronic bank frauds are recorded, one of which is the Citibank breach of security in the early 1990s and which is still cited in banking and security circles. The security breach portrays hackers who penetrated Citibank's security system and progressively wired money to banks around the world. When the act was discovered in September 1994, 10 million USD had already been transferred. This amount was eventually recovered except for 400,000 USD (Hutchinson 2003).

Such incidents explain the fact that people are worry to use Internet banking services and at the same time, the tight security measures that banks try to adopt before opening up to the Internet.

Because of these fears, banks should offer their online customers several protection measures including: careful reference to their authorized Web sites, verification via the use of a digital certificate, evidence of security protection displayed on the screen, protection of personal identification numbers (PINs) and passwords, virus

protection, at least 128-bit encryption and firewall implementation (Hutchinson 2003).

The security requirements that have to be satisfied by an Internet banking sessions are as follows:

- Identification and authentication or the ability to uniquely identify a person or an entity and to prove that identity.
- Authorization or the ability to control the actions of a person or entity based on its identity.
- Confidentiality or the ability to prevent unauthorized parties from interpreting or understanding data.
- Integrity or the ability to assure that data have not been modified accidentally or by any unauthorized parties.
- Non-repudiation or the ability to prevent the denial of actions by a person or entity.
- Availability which is the ability to provide an uninterrupted service.
- Privacy or the ability to prevent the unlawful or unethical use of information or data.
- Audit-ability or the ability to keep an accurate record of all transactions for reconciliation purposes.

In addition to these requirements, authentication has to be enforced by the use of passwords, smart cards and biometrics (Hutchinson 2003).

Mutual authentication, data confidentiality, data integrity and non-repudiation are all provided by the public key infrastructure (PKI) which is the foundation for providing trust and security for e-business (Ntoko 2001).

A PKI consists of more than just technology as it includes a security policy,

certification authority, registration authority, certificate distribution system and PKI-enabled applications. Some components of a PKI are:

- **Digital Certificate:** an electronic document issued by a trusted party that binds the physical identity of an entity to their public key. Such a digital certificate is used to authenticate the parties involved in a transaction, to electronically sign documents used to ensure the integrity of contents and the non-deniability of transactions conducted electronically.
- **Certificate Authority (CA):** a CA is an organization that issues certificates by using a digital signature to bind the physical identity of the entity to the public key.
- **Registration Authority (RA):** an RA authenticates the identities of entities and requests the CA to issue a certificate for that entity.
- **Security Policy:** The security policy defines how an organization is implementing its information security. This includes the use of encryption technology and how security issues are handled. If the organization also operates as a certification authority, the security procedures and how security policies are enforced will be part of what is called a Certificate Practice Statement (CPS). A CPS includes procedures on how certificates are issued and revoked and how the keys for encryption (public key) are stored (Ntoko 2001).

The PKI promises the best security, but the setup of certificates and authorities looks sometimes complex. In addition, digital certificates in a PKI are held on PCs and this “opens the door to fraudulent use by parties claiming the rightful customer's identity”. One possible solution to this threat is the usage of smart cards to carry the needed certificates and keys by the PKI system (Jones 2002).

ii. Mobile Payments

The issue that is arising is whether or not mobile technology will be used in consumer payments industry and replace cash, checks, and credit cards. Telecoms could provide authentication, clearing, and even settlement services for purchases made with mobile phones (Viner 2001).

Mobile payments would pose threats to banks which risk another incursion into their core payments business and to credit card associations, whose entire business could be substituted. The opportunity and challenge for banks is in linking their current services to mobile devices (Viner 2001).

But with mobile payments, security remains one of the biggest concerns because consumers think that there is a significant risk of interception when data move from their handset (Viner 2001).

But in the long run, once security is assured, the arguments for wireless banking are that the mobile phone is a widely used device in addition to the fact that consumers are going to use their mobile phones for shopping and they will be offered facilities by their telecoms provider to put the cost of their purchases onto their phone bill. At that point, if banks are not offering banking on the mobile phone, then they will lose to the telecoms operators. In other words, “the banks can't afford not to offer wireless banking” (Jones 2002).

5. Smart Cards

Smart cards, both single-application and multi-application, constitute an important enabler in encouraging the development of electronic commerce (Information Age Government Champions 2000).

What makes a card “smart” is the inclusion of a microprocessor which enables the card to process and to store information. Smart cards can be used for applications such as electronic purses and credit and debit cards, for access control, to hold official documents, for data storage, in mobile phones, and to digitally sign documents to prove integrity and authenticity. Compared to other technologies, they can be resilient to tampering and hacking, and they can provide cryptographic and user verification functions (Information Age Government Champions 2000).

C. Delivery Channels Integration

The promises of Internet banking to bankers were that this channel would provide a cost-cutting engine and even create new profits by bringing new customers (Essayan 2002).

However, the online channel proved extremely expensive to develop and operate and it has not enabled significant cost cuts. Despite the enrollment of some customers in the online channel, new customers did not appear and even though banks are spending billions, their online offerings remain unprofitable (Essayan 2002).

Enrolling customers in the online channel can only add costs if they do not actively use the site. Investing in fancy functionality can be counterproductive as usability and security are what customers want. Banks can only extract value if they can significantly increase site usage and effectively coordinate this channel with others such as branches and call centers (Essayan 2002).

A research by the Boston Consulting Group (BCG) involving 30 of the world's largest retail banks has showed that although 15 percent of the typical bank's customer base is enrolled online, only 7 percent of customers are active on the site, logging on at

least once a month to check a balance or move money between accounts. Therefore there are not enough active users to cover the channel's high operating expenses (Essayan 2002).

The BCG also showed that the online channel is not profitable until 20 percent of the bank's customer base is active online. So, the primary goal of banks should be to get customers to use the online channel for at least some of their banking transactions (Essayan 2002).

Banks can stimulate usage of the online channel by marketing to consumers personally. For example, when customers contact the call center to request a transaction, the agent should explain to him that this transaction can be performed easily on the Web and ask him whether he would like to register in this channel (Essayan 2002).

Another way to market the online channel is by periodically placing Internet-equipped road-show kiosks in branches where staff is available to explain to curious customers how transactions are carried out over the online channels (Essayan 2002).

The online channel has to be integrated with the rest of the bank and each channel must have entry and exit activities designed to welcome customers and then send them on to other channels (Figure 1) (Essayan 2002).

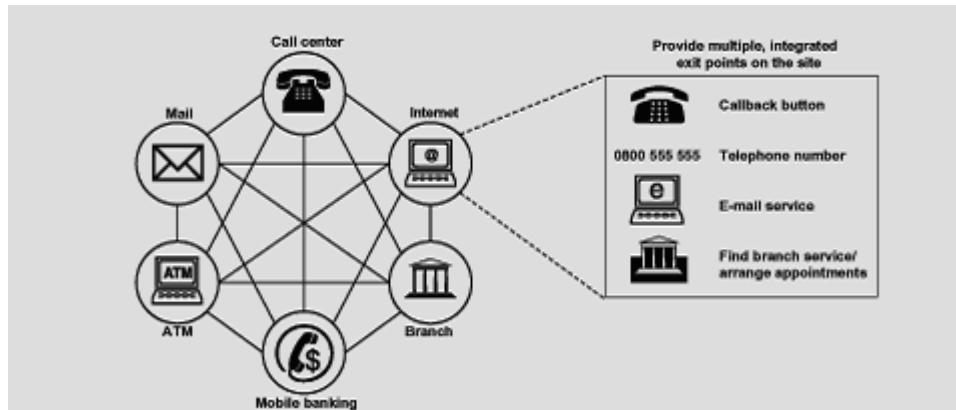


Fig. 1. Multi-Channel Integration

Source: Essayan, Martin, Carl Rutstein and Peter Wetenhall. 2002. *Activate and Integrate: Optimizing the Value of Online Banking*. Paper on-line. Available from <http://www.bcg.com>; Internet; accessed April 2003.

For example, a customer who begins a mortgage application online but quits halfway through should not be abandoned. The next time he talks to the bank, the telephone representative should see the unfinished business on his screen and suggest an appointment with the branch manager. Furthermore, an e-mail sent to customers containing an offer from the bank, should also contain an Internet link to the page on the bank's Web site that contains additional information. The page should also contain a "call me back" button to request contact with the call center and a "request appointment" button to schedule a face-to-face meeting with the branch manager (Essayan 2002).

This environment is advantageous to the customers who have multiple ways to find the financial services they need and to the banks as they are the ones delivering those services (Essayan 2002).

D. Electronic Payment Systems

Payment by credit card is now a common payment method in the physical

world as this method is widely accepted around the world. This method has also been applied on-line, but cardholders' confidence needs to be improved as some unscrupulous merchants can steal cardholders' credit card information entered on their websites. This information constitutes the key elements needed to fake a credit card and to use it in fraudulent transactions (Hwang 2003).

Because of its simplicity, the Secure Sockets Layer (SSL) protocol has been widely used for on-line credit card payments. But this protocol is designed to provide a private and reliable channel between two communicating entities only, therefore; in order to secure on-line credit card payments, VISA International and MasterCard International have proposed the Secure Electronic Transaction (SET) protocol and it has become the de facto standard in these days (Hwang 2003).

The transaction model of credit card payments involves the cardholder, the merchant, the issuer which is a financial institution that issues a credit card to the cardholder and the acquirer which is a financial institution that processes payment authorizations and payments for the merchant. The flow of a card transaction is as follows:

- The cardholder enters his card information and makes an order.
- The merchant sends an authorization request to the acquirer.
- The acquirer forwards the authorization request to the issuer through the existing financial networks.
- After validating the status of the credit card, the issuer sends an authorization response back to the merchant via the acquirer to guarantee the corresponding payment.
- If the transaction is authorized, the merchant confirms the order.

So the card information is known to all the merchants that the cardholder has dealt with and to all the corresponding acquirers. In addition, the issuer keeps all the cardholder's transaction history that could be analyzed to find out the cardholder's spending habits.

This privacy concern must be addressed in order to win cardholders' confidence (Hwang 2003).

Banks, on-line retailers and payments companies are still searching for a method of electronic payment that is suitable for consumers and less risky for both the merchants and banks. A Gartner Group research pointed out that "There's been a requirement for a long time for something other than credit card payment on the Internet", but alternative payments were never found because of the lack of universal acceptance (Bruno 2002).

E. Internet Banking and E-Commerce

E-commerce is often used to describe several inter-related concepts and business phenomena and it encompasses everything related to doing business using the Internet. As such, buying books, trading stocks and checking the bank account on the Web all fall under e-commerce (Chaudhury 2002).

The banking industry responded to the rapid development of on-line commerce in many ways. First, banks started to use the Internet in order to deliver traditional banking products more efficiently. Second, some large banks have developed new products designed specifically to facilitate their customers' participation in e-commerce (Wenninger 2000).

Many banks have used the Internet as a new access channels to deliver basic

banking services. In fact, transactional web sites were established in order to allow individuals and businesses to perform basic banking functions such as checking balances, transferring funds, or applying for credit cards. Small businesses can apply for loans, initiate wire transfers, and take advantage of cash management and payroll services (Wenninger 2000).

These services were advantageous to both the banks and their customers as customers are attracted by the convenience of this delivery channel and banks benefit from the cost savings that arise when customers perform the transactions themselves rather than dealing with a bank's teller (Wenninger 2000).

Furthermore, some of the large banks have developed new e-commerce products and if these new products succeed, banks may more and more function as facilitators of e-commerce. These products vary along many directions:

- Establishing Internet Portals: some of banks planned to participate in Internet portals where both financial and non-financial products could be offered.
- Verifying Identities: some banks have also planned to offer a service that would protect e-commerce participants against fraud. In fact, using encryption technology, each bank would certify the identities of its own account holders and serve as the intermediary through which its account holders could verify the identities of account holders at other banks. In this way, both sides of an e-commerce transaction would have some assurance that they were not dealing with an impostor.
- Assisting Small-Business Entries into E-Commerce: some banks were involved in helping small businesses in setting up the infrastructure for an interactive web site and the needed payment capabilities for participating in e-commerce.
- Electronic Billing: electronic bill presentment and collection is proposed

as an enhancement to the existing cash management and remittance processing services offered by banks to large companies that send out substantial volumes of recurring bills.

- Facilitating Business-to-Business E-Commerce. A few of the largest commercial banks have begun to offer the technology for electronic business-to-business commerce. These banks are essentially undertaking to automate the entire information flow associated with the procurement and distribution of goods and services among businesses.

- Issuing Electronic Money and Electronic Checks. As more computers become equipped with smart card readers, banks consider issuing electronic money that could be stored on these cards and spent over the Internet. Furthermore, an electronic version of paper checks is being developed so as to allow a check to be sent over the Internet from a buyer to a seller. The check is then electronically endorsed by the seller, and then forwarded on-line to the seller's bank for electronic collection from the buyer's bank.

- Integrating the ATM and Internet Networks. Some banks are considering the possibility to allow access to the Internet and to the banks web sites from ATMs. This integration of two networks would allow consumers to use ATMs to participate in e-commerce or to conduct their banking on-line through ATMs (Wenninger 2000).

The offering of special e-commerce products is advantageous for banks because they have key advantages over potential competitors as consumers value the brand names of banks and see these institutions as trustworthy third parties enjoying established relationships with consumers on one hand and businesses on the other one. E-commerce would also create opportunities for banks to strengthen their relationships with customers and sell additional services but it would also create new kinds of risks

for banks to deal with (Wenninger 2000).

Some of these risks are strategic that is, banks may be unable to adapt successfully to the changes in the business environment created by e-commerce. Others are operational in a sense that banks are more exposed to the technological failure of the infrastructure that supports e-commerce (Wenninger 2000).

Moreover, the success of banks' efforts to market products over the Internet will depend on the continued smooth functioning of their computers and of the computer network. Failure of computers fail would cause customers' inconvenience and so the reputation of the bank would be damaged. Banks could also suffer financial losses if hackers entered fraudulent transactions that compromised bank systems (Wenninger 2000).

Therefore, to manage strategic and operational risks effectively, banks will have to develop information systems to monitor the financial exposure resulting from their involvement in e-commerce (Wenninger 2000).

Banks have an edge in establishing themselves in customers' minds as trustworthy agents. Because they are supervised by central banks and regulators, banks are perceived to have financial strength, security, and longevity (Viner 2000).

In order to take advantage of Internet-driven changes and of their competitive edge, banks have to play a substantial role in the online world. They can do so by becoming aggregators of online payments for both businesses and consumers. Banks are also well positioned to become the preferred facilitators of online payments transactions. They can also offer cash management services and purchasing cards that allow companies to buy online (Viner 2000).

Banks can expand their position as trusted intermediaries to provide

certification services that alleviate concerns about using the Internet for e-commerce transactions. According to BCG estimates, certification revenues could grow to nearly \$1 billion by 2001, from less than \$100 million in 1998. Services that banks could offer include identity authentication, credit scoring, payment guarantees, non repudiation guarantees, validation of online credit card payments, and protection against credit card fraud on the Internet. Banks are already joining together to form certification authorities. One example of such a venture is IDENTRUS, a utility owned by a number of banks that together boast several million corporate relationships (Viner 2000).

Another emerging service business in which banks can play a major role is electronic bill payment and presentment. Providing customers with the possibility to be billed and to make payments over the Internet will cut billing and processing costs to an average of about 25 cents per transaction. Transactions using paper bills and checks costs at least \$1.50, and transactions conducted by automated teller machines or telephone cost an average of about 80 cents and \$1.20, respectively (Viner 2000).

The convenience of paying bills online would help increase traffic to the site and thus give the bank more occasions for selling additional products and services (Viner 2000).

As business-to-business e-commerce is redefining how companies do business, it is also changing their financial needs. Therefore, financial services are critical to business-to-business e-commerce (Schwarz 2000).

Financial institutions can provide value-added services to business-to-business ventures. For instance, they can offer their services to business customers online. Such services include cash management, certification, credit scoring, escrow accounts, factoring, lending, payment processing, risk management, and trade finance. As

business-to-business markets grow, they will require extensive credit and trust services and because financial institutions have unrivaled experience in managing financial positions and controlling risk, their skills will be critical to the success of business-to-business e-commerce (Schwarz, 2000).

CHAPTER IV

METHODOLOGY

Business research can be classified into three types: exploratory, descriptive and causal. Exploratory research is a preliminary type of research aimed at clarifying or defining the nature of a problem. Descriptive research is designed to describe characteristics of a population or a phenomenon. Typically, a descriptive research answers the *who, what, when, where* and *how* questions but not the *why* question. The *why* question is addressed by causal research conducted to find a cause-and-effect relationship between variables in a narrowed down problem (Zikmund 2000).

The research process is composed of six interrelated stages. The first is the problem definition which may include exploratory research. Once the problem is defined, a research design is defined. The major designs are survey techniques, experiments, secondary data analysis and observation. Then a sampling plan is chosen.

This design is put into action in the data collection phase. The analysis stage follows whereby data are edited, coded and processed. The results are then interpreted and the analysis is properly presented and communicated (Zikmund 2000).

The data needed for the research might be primary or secondary. Primary data is data gathered specifically for a certain research project while secondary data is data which has been previously collected project prior to the one at hand. The advantage of secondary data is the ability to build on past research so as not to start everything from scratch (Zikmund 2000).

One method to collect primary data is by conducting a survey. A survey requires asking people or respondents for information. Questionnaires or interviews are

used to collect data on the telephone or face-to-face (Zikmund 2000).

Most survey research is descriptive in nature and aspects of survey may be qualitative in addition to the fact that surveys are conducted to quantify factual information (Zikmund 2000).

The advantage of surveys is that they are a quick, inexpensive, efficient and accurate way of assessing information. However, there are many sources of survey errors such as respondent bias, non-response error, interviewer bias or data processing error (Zikmund 2000).

Conducting surveys by means of personal interviews has many advantages. The interviewer can have the opportunity for feedback in clarifying issues to respondents, can probe complex answers or to ask for clearer ones, can benefit from a lengthier interview which can last up to one hour and a half, can ensure that all items on the questionnaire will be answered and that a high participation rate will be guaranteed. We have to keep in mind that a good questionnaire design is a key to obtaining good survey results and therefore, questionnaires should be relevant and accurate (Zikmund 2000).

The questionnaire will produce raw data that has to be edited and coded so that each answer can be given a numerical score. For open-ended questions, data is post coded in a sense that the large number of individual responses is reduced into a few general categories of answers (Zikmund 2000).

Transforming the data into an understandable form that can be easily interpreted is referred to as descriptive analysis. Descriptive analysis is obtained by summarizing, categorizing and rearranging data. Tabulating data is useful for indicating percentages and frequency distributions. Cross-tabulation shows how one variable

relates to another variable in order to reveal differences between groups (Zikmund 2000).

Also, key informant interviews may be conducted. They are qualitative, in-depth interviews with people having first-hand knowledge about the topic of interest. The interviews are loosely structured, relying on a list of issues to be discussed and allowing a free flow of ideas and information (Goetz 1984).

For the purpose of this study, exploratory research was conducted on the e-readiness assessment tools and methods. This research was accomplished via an extensive review of the literature on this topic. This research revealed that the financial infrastructure of a country is a building block of its e-readiness. Based on this finding, the focus of the study was defined as the determination of how the Lebanese banking sector is contributing towards Lebanon's e-readiness. The research design aims at determining the status of electronic banking in Lebanon. For this research design, a survey technique for primary data collection and secondary data analysis were chosen. Data collection would be through face-to-face interviews because of the many advantages of such interviews.

The survey carried consisted of a questionnaire (please refer to Appendix II) containing items that were of a quantitative and qualitative nature and addressed all aspects of electronic banking in Lebanon. Items in the questionnaire spanned the various delivery channels offered by banks in Lebanon and tried to find out the nature of services offered through these channels and their degree of usage by the banks' customers. Questions raised were divided in sections corresponding to the electronic banking delivery channels as defined in the Online Banking Report 2003. These channels include ATMs, plastic cards, phone banking, Internet banking, wireless

banking, TV banking, call centers and self-service kiosks (Online Banking Report 2003).

Regarding Internet banking, items (questions 4.17 and 4.18) were designed to determine the banks' perceptions on Internet banking by addressing, when applicable, the strategic and operational impacts of Internet banking on Lebanese banks. Also items (questions 4.19 and 4.20) were put in place to assess the effect of Internet banking on the banks' customers and various technology related considerations (Nath 2001). In addition, questions 4.9, 4.10, 4.11, 4.12 addressed various drivers, development issues and challenges associated with the online channel, in addition to the security features used (Aladwani 2001).

Questions 4.13, 4.14, 4.15 and 4.16 were included to assess the customers' preferences and attitudes vis-à-vis Internet banking (Sohail 2003)

Also, some items on the questionnaire, namely questions 4.21, 4.22, 4.23, 4.24 and 4.25, were based on a Forrester research which tried to find out where the banks would concentrate their online efforts in 2003. This can be determined by looking at the online channels strategies, the priorities for the channel development and the various channels and metrics associated with the online channel (Shevlin 2003).

Data for this research was collected by means of a personal interview with the Information Technology managers at all banks in Lebanon. The IT manager of the bank was chosen as the contact person as he/she would be aware of all aspects related to electronic banking and therefore could provide reliable information concerning questions raised.

The raw data collected was coded using SPSS 11.5 and Microsoft Excel. Open-ended items or qualitative data were also coded into categories when possible.

Data was then transformed into a meaningful descriptive analysis. This was accomplished through the use of summarizing and categorizing data, tabulating and cross-tabulating variables and by graphing and charting data.

In addition, interviews were conducted with two key informants: the IT & Development Manager at BLOM Bank and the Head of the Information Technology Department at Banque du Liban.

CHAPTER V

RESULTS

A. A Profile of the Lebanese Banking Sector

Most banks in the Arab world focus their operations in national markets rather than multinational ones. Therefore, mergers and acquisitions across the borders are prohibited and foreign banks are either not allowed to enter local markets or are limited by the number of services they can offer so as to protect local banks. As such, even the largest Arab banks are small by international standards and none of them figures among the top 100 banks measured by asset size. As an illustration, the assets of leading international banks such as Citigroup or HSBC exceed those of all Arab banks put together (Cornelius 2003).

The dimension of the Lebanese banking sector is significantly high when compared with the economic dimension of the country. When measuring the banking activity by total consolidated assets, we would get a value of 51.8 billion USD and this figure would give an assets to GDP ratio of 308% at the end of 2001. This ratio is a record high in the region and is among the highest ratios in the World (BankData 2002).

The Lebanese banking sector has a strong reputation and is a leader in the region and it has outperformed other sectors in the economy in the 1990s (Infopro 2003).

The banking sector is experiencing waves of mergers and acquisitions operations as small and medium size banks are being swallowed up by larger banks (Infopro 2003). According to the Quarterly Bulletin for the Fourth Quarter 2002 published by the Central Bank of Lebanon, there were 53 commercial banks operating

in Lebanon at the end of 2002. The number of commercial banks fell from 60 to 53 due to six mergers and one self-liquidation operations that took place in 2002. These 53 banks, out of which 11 were foreign banks, operated 787 branches in Lebanon (BDL 2003).

At the time of the study, there were 52 commercial banks since the Lebanon branch of the Cairo-Amman Bank terminated its operations in 2003.

The banks operating in Lebanon are divided into four groups according to the size of their deposits, which constitute the principal drive for growth.

The Alpha group includes 13 banks with customers' deposits above 1 billion USD, the Beta group includes 10 banks with deposits between 300 million USD and 1 billion USD, the Gamma group includes 14 banks with deposits between 100 million USD and 300 million USD and the Delta group includes 12 banks with deposits below 100 million USD (BankData 2002).

Three banks were not classified in Bilanbanques 2002 and they are Al Baraka Bank Lebanon, Banque Libanaise pour le Commerce and Banque de Credit National.

The complete list of commercial banks currently operating in Lebanon, the group to which they belong and their market shares can be found in Appendix I.

B. Lebanon's ICT Indicators

The penetration of computers and Internet access is small relative to that of East Asia and the Organization for Economic Co-operation and Development (OECD) countries mainly because of high access costs in the Arab World. For instance, off-peak Internet access costs less than 7 USD per month in the United States. Another reason for low penetration is that people in the Arab region are not well trained to use these new

technologies (Cornelius 2003).

In 2000, the population size of Lebanon was 3.5 million people with 90% urban population. The adult literacy rate is 91% for male and 77% for female (Cornelius 2003).

Regarding the ICT infrastructure, the main indicators in 2002 were as follows:

- Telephone lines: In 2002, the world average of main telephone lines was 18.04 per 100 inhabitants and 18.77 cellular mobile subscribers per 100 inhabitants.

With 678,800 main telephone lines subscribers, Lebanon had in 2002, 19.88 main telephone lines per 100 inhabitants. The cellular lines represented 53.3% of total telephone lines in 2002 as there were 775,100 mobile subscribers and this figure gives 22.7 cellular subscribers per 100 inhabitants (ITU 2003).

- Personal computers (PCs): In 2002, the world average for PCs is 9.22 PCs per 100 inhabitants. With an estimated number of 275,000 PCs, Lebanon had 8.05 PCs per 100 inhabitants in 2002 (ITU 2003).

- Internet access: Telephone densities and the number of PCs place an upper limit on Internet access. The world average number of Internet users was 972.16 per 10,000 inhabitants in 2002. In Lebanon, there were 400,000 Internet users representing 1171.3 users per 10,000 inhabitants in 2002 (ITU 2003).

- Internet hosts: The world average is 238.26 hosts per 10,000 inhabitants in 2002. In Lebanon, there were 7199 hosts in 2002 and this figure represents 21.08 hosts per 10,000 inhabitants in 2002 (ITU 2003).

- Internet service providers (ISPs): A competitive market exists for ISPs in Lebanon as is indicated by the number of licenses given to ISPs and the numerous price wars between ISPs in Lebanon (ESCWA 2002).

- Local content: Some sites in Lebanon offer services of Libraries, newspapers, and various information in Arabic (ESCWA 2002).

Table 3. Lebanon's ICT Indicators

	Lebanon (2002)	World (2002)
Main Telephone Lines	678,800	---
Main Telephone Lines per 100 inhabitants	19.88	18.04
Cellular Subscribers	775,000	---
Cellular Subscribers per 100 inhabitants	22.7	18.77
Total Internet Hosts	7199	---
Internet Hosts per 10,000 inhabitants	21.08	238.26
Internet Users	400,000	---
Internet Users per 10,000 inhabitants	1171.3	972.16
Total PCs	275,000	---
Total PCs per 100 inhabitants	8.05	9.22

C. E-Banking Status in Lebanon

Delivery channels have been expanding as banks are trying to provide customers with new and innovative access methods to their accounts. In fact, ATMs, phone banking, Internet banking, wireless banking and even TV banking are enabling customers to have a quick and permanent access to their funds. These new channels have reinforced rather than replaced the existing ones.

1. ATMs and Plastic Cards

The survey results showed that not all banks have an ATM network. While 34 banks possess their own ATMs, 17 banks do not have ones and these banks' market share is 5.25% as shown in Table 4.

Table 4. Banks not having ATMs

Bank	Group	Market Share (%)
BANQUE MISR LIBAN	Beta	0.9545
SOCIETE NOUVELLE DE LA BANQUE DE SYRIE ET DU LIBAN	Beta	0.8938
BEMO-BANQUE EUROPEENNE POUR LE MOYEN-ORIENT	Beta	0.8598
SAUDI LEBANESE BANK	Beta	0.0000
LEBANESE SWISS BANK	Gamma	0.5258
NORTH AFRICA COMMERCIAL BANK	Gamma	0.4492
BANQUE DE LA BEKAA	Gamma	0.3401
NEAR EAST COMMERCIAL BANK	Gamma	0.2840
CITIBANK	Delta	0.2308
BANQUE PHARAON ET CHIHA	Delta	0.2228
BANQUE SADERAT IRAN	Delta	0.1919
SAUDI NATIONAL COMMERCIAL BANK	Delta	0.1362
SYRIAN LEBANESE COMMERCIAL BANK	Delta	0.0914
HABIB BANK LIMITED	Delta	0.0391
ARAB AFRICAN INTERNATIONAL BANK	Delta	0.0119
RAFIDAIN BANK	Delta	0.0093
AL BARAKA BANK LEBANON	N/C	0.0000
		Total 5.25

Some banks have plans to introduce ATMs in the near future and these are Banque Misr Liban, Societe Nouvelle de la Banque de Syrie et du Liban and Banque Saderat Iran.

The other banks do not have their own ATM network for many reasons. In some cases, the bank is the only branch of a foreign bank and the decision not to expand operations in Lebanon comes from the mother bank abroad as is the case for the Arab African International Bank. Also, branches of foreign banks are of a corporate or a commercial nature and therefore, there is no interest to have an ATM network. In this category we can find Citibank, Saudi National Commercial Bank and Habib Bank Limited. Also, Bemo-Banque Europeenne pour le Moyen-Orient does not have an ATM network because of the corporate nature of their clients and for Near East

Commercial Bank, the cost of having such a network is not cost justified. Finally, North Africa Commercial Bank, as a Lybian bank suffers from restrictions from the United Nations which bans it from clearing US Dollars.

The number of ATMs in Lebanon has been steadily growing. In fact, in January 1998, there were 226 ATMs and in March 2003, this number reached 708 ATMs (BDL 2003). The geographical distribution of these ATMs in March 2003 was as follows:

Table 5. Geographical Distribution of ATMs

Period	Beirut & Suburbs	Mount Lebanon	North Lebanon	South Lebanon	Nabatieh	Bekaa	Total
3 - 2003	396	137	49	48	9	69	708

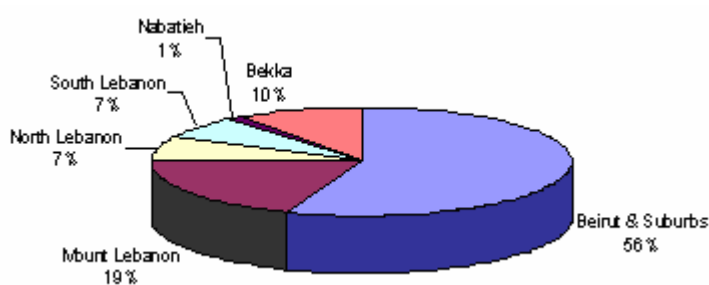


Fig. 2. Geographical Distribution of ATMs

Source: BDL. 2003. Quarterly Bulletin Fourth Quarter 2002. Beirut, Lebanon.

At the time data was collected, the number of ATMs reached 727 as follows:

Table 6. ATM Number

Bank	Number of ATMs
BLOM BANK	45.00
BANQUE AUDI	95.00

“Table 6 – Continued.”

BYBLOS BANK	65.00
BANQUE DE LA MEDITERRANEE	26.00
BANQUE LIBANO FRANCAISE	50.00
FRANSABANK	46.00
CREDIT LIBANAIS	56.00
SOCIETE GENERALE DE BANQUE AU LIBAN	43.00
BANK OF BEIRUT	40.00
BBAC	34.00
ARAB BANK	13.00
BANQUE SARADAR	7.00
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	3.00
LEBANESE CANADIAN BANK	25.00
HSBC BANK MIDDLE EAST	12.00
LEBANON & GULF BANK	9.00
BANK AL-MADINA	13.00
INTERCONTINENTAL BANK OF LEBANON	7.00
FIRST NATIONAL BANK	13.00
AL-MAWARID BANK	12.00
BANK OF KUWAIT & THE ARAB WORLD	4.00
BANQUE DE L'INDUSTRIE ET DU TRAVAIL	11.00
CREDITBANK	13.00
AL-AHLI INTERNATIONAL BANK	10.00
MIDDLE EAST AND AFRICA BANK	4.00
NATIONAL BANK OF KUWAIT (LEBANON)	10.00
JAMMAL TRUST BANK	6.00
FEDERAL BANK OF LEBANON	6.00
BANCA DI ROMA	4.00
STANDARD CHARTERED BANK	5.00
UNITED CREDIT BANK	4.00
BANQUE LATI	1.00
BANQUE LIBANAISE POUR LE COMMERCE	30.00
ALLIED BANK	5.00
Total	727.00

All ATMs in Lebanon allow customers to make a balance inquiry and to withdraw cash in LBP or USD. Some banks offer more services such as a mini statement of account or a transfer from account to account. The mini statement consists

in general of the last 10 transactions of the account to which the card is connected.

Other operations can also be performed at some banks' ATMs. For instance, at Banque Audi's ATMs, the customer can recharge his cellular, inquire on the mechanic amounts, penalties and due dates, change his PIN, activate his telephone banking by setting a PIN for this service. At Banque de la Mediterranee's ATMs, the customer can change his PIN code and order a checkbook.

Banque Nationale de Paris Intercontinentale ATMs offer the possibility of checkbook request, consultation of stocks and consultation of credit card movements. Finally, at ATMs of HSBC Bank Middle East, one can settle his credit card balance, request a checkbook or a statement, deposit cash in an envelope or deposit a check.

Table 7. Transactions on Banks' ATMs

Bank	Mini Statement	Transfer	Others
BANQUE AUDI	Yes	Yes	Yes
BYBLOS BANK	Yes	Yes	No
BANQUE DE LA MEDITERRANEE	Yes	Yes	Yes
BANQUE LIBANO FRANCAISE	Yes	Yes	No
FRANSABANK	Yes	No	No
SOCIETE GENERALE DE BANQUE AU LIBAN	Yes	Yes	No
BANK OF BEIRUT	Yes	No	No
ARAB BANK	Yes	No	No
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	Yes	Yes	Yes
LEBANESE CANADIAN BANK	Yes	No	No
HSBC BANK MIDDLE EAST	Yes	Yes	Yes
AL-AHLI INTERNATIONAL BANK	Yes	No	No
BANQUE LIBANAISE POUR LE COMMERCE	Yes	Yes	No
ALLIED BANK	Yes	Yes	Yes

The ATMs in Lebanon are connected between each others and to the international network via three switch providers: Interbank Payment network (IPN),

CreditCard Services Company (CSC) and Centre de Traitement Monétique (CTM). These companies offer card services like issuing cards and acquiring transactions, running ATMs and POS.

As we can see from the table below, 19 banks are connected to IPN, 13 to CSC and 2 to CTM.

Table 8. Switch Providers

		Frequency	Valid Percent
Valid	IPN	19	55.9
	CSC	13	38.2
	CTM	2	5.9
	Total	34	100.0
Missing		17	
Total		51	

Banks connected to IPN have 54.47% market share, banks connected to CSC have a 23% market share and banks connected to CTM have a 10.5% market share.

Table 9. Market Shares of Switch Providers

Switch	Bank	Market Share (%)
IPN	BLOM BANK	13.0734
	BANQUE AUDI	9.1732
	FRANSABANK	5.9935
	CREDIT LIBANAIS	4.1692
	BANK OF BEIRUT	3.8847
	BBAC	3.4860
	ARAB BANK	3.1414
	BANQUE SARADAR	3.0296
	BANQUE NATIONALE DE PARIS INTERCONTINENTALE	2.4319
	HSBC BANK MIDDLE EAST	1.4340
	BANK AL-MADINA	1.2440
	FIRST NATIONAL BANK	0.8669
	AL-MAWARID BANK	0.7059

“Table 9 – Continued.”

	BANK OF KUWAIT & THE ARAB WORLD	0.5935
	CREDITBANK	0.5101
	MIDDLE EAST AND AFRICA BANK	0.4433
	FEDERAL BANK OF LEBANON	0.2427
	BANQUE LATI	0.0515
	BANQUE LIBANAISE POUR LE COMMERCE	0.0000
CSC	BYBLOS BANK	8.5854
	BANQUE DE LA MEDITERRANEE	8.1873
	LEBANESE CANADIAN BANK	1.4958
	LEBANON & GULF BANK	1.2495
	INTERCONTINENTAL BANK OF LEBANON	1.0877
	BANQUE DE L'INDUSTRIE ET DU TRAVAIL	0.5475
	AL-AHLI INTERNATIONAL BANK	0.4584
	NATIONAL BANK OF KUWAIT (LEBANON)	0.4373
	JAMMAL TRUST BANK	0.3599
	BANCA DI ROMA	0.2339
	STANDARD CHARTERED BANK	0.2000
	UNITED CREDIT BANK	0.1848
	ALLIED BANK	0.0000
CTM	BANQUE LIBANO FRANCAISE	6.5819
	SOCIETE GENERALE DE BANQUE AU LIBAN	4.0021

It is noteworthy to mention that some banks have implemented an in-house switch to manage activities on their ATM network: Banque Audi, Banque de la Mediterranee, Fransabank, Bank of Beirut and Banque Libanaise pour le Commerce.

Regarding this issue, a source at Banque Audi, explains that owning a switch entails high costs but this would allow his bank to be different from other banks by offering more services that would not be delivered otherwise. In addition, consumers can save on transaction costs as the transaction is free if it is performed through the bank's ATMs. However, costs associated with implementing an in-house switch cannot be justified unless there is enough volume of transactions passing through the bank's ATMs.

Lebanese banks are offering most of the range of plastic cards such as debit cards, credit cards, charge cards, chip cards and Internet cards. In fact, 34 banks offer debit cards, 32 offer credit cards, 18 offer charge cards, 2 offer chip cards and 20 offer Internet cards.

Table 10. Plastic Cards Offered

	Debit Cards	Credit Cards	Charge Cards	Chip Cards	Internet Cards
	Count	Count	Count	Count	Count
Yes	34	32	18	2	20
No	17	19	33	49	31

Each bank has chosen to offer plastic cards from a family of cards from Visa, Master Card, Cashless Card and American Express.

Table 11. Plastic Cards By Brand

	Visa	Master Card	Cashless Card	American Express
	Count	Count	Count	Count
Yes	25	34	4	2
No	26	17	47	49

Dedicated Internet cards are offered by 20 banks accounting for 63.5% market share. These cards are designed with a low limit to ensure security of cyber shopping. This limit can go from 50 to 500 USD with the average being 200 USD. At some banks, the limit on these Internet cards is set upon the customer's request. At Blom Bank, the limit on Internet cards can be raised up to 5,000 USD by the customer through the

Internet banking channel. To avoid misuse of the Internet card, the customer can use the hold/release feature of the Visa card on Blom's Internet banking service to release his Internet card only when he needs to commit a transaction on the Internet and to hold it afterwards.

As an additional security measure, 7 banks print the Visa CVV2 or the MasterCard CVC2 on the Internet cards. These banks are Blom Bank, Banque Audi, Banque Libano Francaise, Fransabank, BBAC, Bemo-Banque Europeenne pour le Moyen-Orient and Jammal Trust Bank. The Visa CVV2 or the Master Card CVC2 is a 3-digit code meant to be a fraud reduction tool which authenticates cardholders globally.

However, the number of Internet cards is very low when compared to other plastic cards and the volume of Internet transactions is very limited as cyber shopping is used by the selected few and in most cases, purchases are for personal usage and include books and toys.

Table 12. Dedicated Internet Cards

Bank	Group	Market Share (%)	Internet Cards (%)	Internet Cards (Nbr)
BLOM BANK	Alpha	13.0734	very few	
BANQUE AUDI	Alpha	9.1732		4000
BYBLOS BANK	Alpha	8.5854		
BANQUE LIBANO FRANCAISE	Alpha	6.5819		very few
FRANSABANK	Alpha	5.9935		
CREDIT LIBANAIS	Alpha	4.1692		
SOCIETE GENERALE DE BANQUE AU LIBAN	Alpha	4.0021		
BBAC	Alpha	3.4860		500-600
LEBANESE CANADIAN BANK	Beta	1.4958	few	
HSBC BANK MIDDLE EAST	Beta	1.4340	1.5%	746
LEBANON & GULF BANK	Beta	1.2495		
INTERCONTINENTAL BANK OF LEBANON	Beta	1.0877		50
BEMO	Beta	0.8598		20

“Table 12 – *Continued.*”

AL-MAWARID BANK	Gamma	0.7059	10%	
BANQUE DE L'INDUSTRIE ET DU TRAVAIL	Gamma	0.5475		
CREDITBANK	Gamma	0.5101	5%	
JAMMAL TRUST BANK	Gamma	0.3599		100
BANQUE PHARAON ET CHIHA	Delta	0.2228	10%	
BANQUE LIBANAISE POUR LE COMMERCE	N/C	0.0000		150
ALLIED BANK	Gamma	0.0000		
		Total	63.5	

The Visa International’s annual results revealed that cash payment is losing grounds to payment with plastic cards. Furthermore, cardholders are using their cards more frequently than ever before (Middle East Events 2003).

In 2002, the number of transactions made by Middle East debit and credit cardholders increased by 33 per cent from 130 million transactions in 2001 to reach nearly 175 million transactions which is equivalent to an average of six transactions made every second (Middle East Events 2003).

Transactions in Lebanon rose by 54% in 2002 to reach a total of 6 million transactions performed by 307,000 Visa cards (Middle East Events 2003).

According to BDL, the distribution of cards by category was at the end of the first quarter in 2003 as follows:

Table 13. Plastic Cards Numbers

	Resident	Non-Resident	Total
Credit Cards	82,588	761	83,349
Debit Cards	453,280	11,848	465,128
Charge Cards	119,248	2,354	121,602
Total	655,116	14,963	670,079

The volume of transactions performed by these cards as at end of March 2003 is:

Table 14. Plastic Cards Transaction Volume

POS Purchases(USD)			ATM and Cash Disbursements (USD)	
inside Lebanon by Residents	inside Lebanon by non-Residents	outside Lebanon by Residents	inside Lebanon by Residents	inside Lebanon by non-Residents
19,507,596.4	367,242.8	13,593,314	134,589,953.4	1,776,848.4

As we have seen, only two banks Blom Bank and Credit Libanais are offering chip cards but Visa predicts that the number of chip cards will increase in the region (Middle East Events 2003). According to Melanie Cameron, New Technologies Manager at Visa International, "Chip - also known as smart - is the technology of the future adding wider dimensions to the world of electronic payments. Not only do smart cards enable swifter transactions but more importantly, each microprocessor carries only encrypted data therefore having the power to reduce the possibility of counterfeit, which is a common threat in the card industry."

In order to facilitate the introduction of chip technology into the international payment systems, a joint industry group was created by Europay-MasterCard-Visa (EMV) to develop specifications for Integrated Circuit Cards (ICC) and terminals for Payment Systems. EMV serves as the global framework for chip card and terminal manufacturers worldwide. The EMV Specifications were created by Europay International, MasterCard and Visa International in 1996.

Furthermore, Europay, MasterCard and Visa have announced that they will not be liable for fraud arising from use of magnetic stripe cards bearing one of their brands

from 1st January, 2005 onwards. This means that any current issuers of Europay, MasterCard or Visa-branded cards will have to have switched from magnetic stripe cards to smart cards by then, or risk isolation from the EMV network. (ProtonWorld 2003)

A card specialist at CTM, saw in chip cards a solution for the unreliable communication problem in Lebanon as smart cards provide offline support and card holder verification at POS without going back to acquirer.

The change to EMV compliant standards entails the cost of new cards, costs of the operating system and needed applications on the chip. In addition, because smart cards provide new ways of settlement (online and offline), new systems and interfaces are needed by card management companies and a communication program needs to be established with the chip card to update offline values, change data on chip, since online and offline real balances need to be up to date.

Finally, Lebanon will have to abide by the 2006 deadline to be EMV compliant to avoid bearing responsibilities for fraudulent transactions resulting from magnetic stripe cards.

2. Phone Banking

Phone banking is currently offered by 15 banks having 60% market share.

Table 15. Phone Banking

Bank	Group	Market Share (%)
BLOM BANK	Alpha	13.0734
BANQUE AUDI	Alpha	9.1732
BYBLOS BANK	Alpha	8.5854
FRANSABANK	Alpha	5.9935

“Table 15 – *Continued.*”

CREDIT LIBANAIS	Alpha	4.1692
SOCIETE GENERALE DE BANQUE AU LIBAN	Alpha	4.0021
BBAC	Alpha	3.4860
ARAB BANK	Alpha	3.1414
BANQUE SARADAR	Alpha	3.0296
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	Alpha	2.4319
HSBC BANK MIDDLE EAST	Beta	1.4340
AL-AHLI INTERNATIONAL BANK	Gamma	0.4584
NATIONAL BANK OF KUWAIT (LEBANON)	Gamma	0.4373
JAMMAL TRUST BANK	Gamma	0.3599
STANDARD CHARTERED BANK	Delta	0.2000
		Total 60

Phone banking was one of the first electronic channels to be introduced to customers in the early 1990s. As we can see from the table below, services offered through phone banking are varied. Of these services, balance inquiry was recognized by all the banks’ IT managers to be the most widely used by their customers.

The percentage of customers using this service was inflated in some cases, while in others, it was not available as a PIN number for phone banking access is given for every customers opening an account.

Table 16. Phone Banking Services

Bank	Offered since	Subscribers (as % of customers)	Services offered
BLOM BANK	1994	15-20%	-Balance Inquiry -Checkbook Request -Golden Points Balance -Stock Quotes -Currency Rates -eBlom Internet Banking Activation Codes -Voice Mail -Plastic cards Information -Consumer Loans Simulation -Saving Plans Simulation -News Update

“Table 16 – Continued.”

BANQUE AUDI	1999	1-3%	-Balance Inquiry -Funds Transfer (multi-currency) -Stop Plastic Cards
BYBLOS BANK	1993	10-12%	-Balance Inquiry -Last 10 Transactions -Request a Fax
FRANSABANK	2002	N/A	-Balance Inquiry -Intra A/C Transfer -Last 5 Transactions on Credit Card -Loan Simulation
CREDIT LIBANAIS			-Balance Inquiry -Mini Statement -Intra A/C Transfer
SGBL			-Balance Inquiry -Last 5 Transactions -Exchange Rate of the Main Currencies -Confirmation by Fax of the last 5 Transactions -Consolidated Balance in USD of Registered Accounts
BBAC	1999	N/A	-Balance Inquiry -Last 5 Transactions -Checkbook Order
ARAB BANK	1993	20%	-Balance Inquiry -Last 10 Transactions -Checkbook Request -Statement Request
BANQUE SARADAR			-Balance Inquiry -Last 5 Transactions Details -Checkbook Request -Statement Request -Request Statement by Fax
BNPI	1996	4-6%	-Balance Inquiry -Transfer from A/C to A/C -A/C Statement -Checkbook Request -Card Transactions -Portfolio Consulting -Transfer by SWIFT to another bank
HSBC BANK MIDDLE EAST	1998	N/A	-Balance Inquiry -Checkbook Request -Transfer with foreign exchange -Interest Rates -Currency Rates -Statement Request -Statement by Fax
AL-AHLI INTERNATIONAL BANK	2002	80%	-Balance Inquiry -Statement
NATIONAL BANK OF KUWAIT	2000	10-12%	-Balance Inquiry -Mini Statement -A/C Transfer -Checkbook Order -Statement Request -Debit Card Deactivation
JAMMAL TRUST BANK	1996	20%	-Balance Inquiry -Mini Statement -Information on Bank's Services

“Table 16 – *Continued.*”

STANDARD CHARTERED BANK	2000	N/A	-Product and Services Information -Balance Inquiry -Transfer Funds between A/Cs -Statement Request -Checkbook Request -Change PIN number -Foreign Exchange Information -Transfer Funds to Credit Card
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In addition to the above banks offering a phone banking service, Bank of Beirut has a similar service under testing and it is expected to be released in June 2003. Services offered through this channel will be: general information, balance inquiry, inquiry on the last ten transactions, checkbook request, credit card stop payment and credit card loss report.

Also, Byblos Bank is currently upgrading its phone banking to a new platform which will allow it to offer a full fledged array of services including balance inquiry, checking loans, checking updates on housing loans, customizing menus and transferring funds between accounts.

3. Call Center

Fransabank, with a 6% market share, is currently the only bank in Lebanon to have a call center with computer telephony integration. The entry point to this service is an Interactive Voice Response system that allows the customer to inquire about his account and credit card balance, inquire about the last 5 transactions on his account and credit card, request a checkbook, transfer funds, report on loss of a credit card, perform simulations on loans and bancassurance products and have access to general information about the bank’s products and services as well as exchange rates and interest rates.

The customer can at any time request to be transferred to an operator. When doing so, a pop-up appears on the agent's computer screen displaying details about the customer as well as the steps he has performed through the automated service before transferring to an operator.

Since its introduction in 2002, this service is free of charge and all customers are given a PIN number to be able to use it. The most widely used services by customers are the inquiries on account balances and statements.

4. Wireless Banking

Wireless banking in Lebanon is offered in two manners: WAP banking and SMS banking.

In fact, WAP banking is offered by 3 banks having a 7.7% market share. These are Credit Libanais, Arab Bank and Al-Ahli International Bank and all 3 also offer a phone banking service as seen above.

Table 17. WAP Banking

Bank	Group	Market Share (%)
CREDIT LIBANAIS	Alpha	4.1692
ARAB BANK	Alpha	3.1414
AL-AHLI INTERNATIONAL BANK	Gamma	0.4584
		Total 7.7

Al-Ahli International Bank gives access to phone and WAP banking in the same package but each service is accessed with a different PIN number.

Credit Libanais uses the WTLS (Wireless Transport Layer Security) protocol

to secure transactions carried over the mobile phone. Concerning the WAP banking service, the most used service is also the balance inquiry.

In all cases, access to WAP banking requires a WAP enabled mobile phone as well as a special subscription to WAP services offered by the mobile operators in Lebanon: Cellis and Libancell.

Table 18. WAP Banking Services

Bank	Offered since	Subscribers (as % of customers)	Services offered
CREDIT LIBANAIS	2002		-Balance Inquiry -Statement of Account -Funds Transfer -Preset Instructions -Checkbook Request -Stop Payment on a Check -Credit Card Balance -Credit Card Statement -Change Password -Message to and from Credit Libanais
ARAB BANK	2002	1-3%	-Balance Inquiry -Last 10 Transactions -Checkbook Request -Intra A/C Transfer
AL-AHLI INTERNATIONAL BANK	2002	80%	-Balance Inquiry -Mini Statement

On the other hand, SMS banking is offered by 2 banks: Societe Generale de Banque au Liban and National Bank of Kuwait, both having 4.4% market share and again both offering a phone banking service.

Table 19. SMS Banking

Bank	Group	Market Share (%)
SOCIETE GENERALE DE BANQUE AU LIBAN	Alpha	4.0021
NATIONAL BANK OF KUWAIT (LEBANON)	Gamma	0.4373
		Total 4.4

Table 20. SMS Banking Services

Bank	Offered since	Subscribers (as % of customers)	Services offered
SGBL			<ul style="list-style-type: none"> -Consult accounts and cards (balances and movements) -Order checkbooks -Make transfers from account to account -Control the limit of accounts and the limit of the purchases made on a payment card through alarm triggers -Receive various information about the bank
NATIONAL BANK OF KUWAIT	2001	15%	<ul style="list-style-type: none"> -Balance Inquiry -Mini Statement -A/C Transfer -Checkbook Order -Statement Request -Debit Card Deactivation -Alerts

A source at the National Bank of Kuwait, regards the SMS banking as a “nice gadget” and the SMS alerts as being useful. However, he acknowledges that the service was not properly marketed and therefore, it is not reducing costs or adding benefits to the bank.

The convenience of SMS alerts was also recognized by 2 other banks, though in another context. In fact, Blom Bank, allows customers subscribed to its Internet banking service, to define floor and ceiling limits on their account balances in order to receive SMS alerts on their mobile phones if the balance of the account drops below or exceeds the preset limits. Customers can also define thresholds on Visa cards, so as to receive an SMS alert whenever transactions using this card exceed this predetermined value.

Also, Standard Chartered Bank sends SMS messages to its customers to announce due payments, credit cards balance at the end of each month.

5. TV Banking

Credit Libanais, with a 4.16% market share, is the only bank in Lebanon to offer a TV banking service. This service requires a special setup consisting of a box (Netbox) which has to be connected to the TV and to a telephone line to be able to access the TV banking website.

This box is provided as part of a package which also includes 4 months free unlimited Internet access, a free Internet MasterCard and a free access to online and WAP banking services. This package is for 300 USD.

Once the above set-up in place, the user can have access to his accounts online, browse the Internet, send and receive emails and consult TV programs.

The Netbox is not designed to offer spreadsheet, word processing or other capabilities often associated with PCs.

6. Internet Banking

Internet banking can be categorized into three levels according to functionalities offered: informational, transactional and fully transactional.

In Lebanon, there are 30 banks having an informational website and these banks have an 85.7% market share.

Table 21. Banks having an Informational Website

Bank	Group	Market Share (%)
BLOM BANK	Alpha	13.0734
BANQUE AUDI	Alpha	9.1732
BYBLOS BANK	Alpha	8.5854
BANQUE DE LA MEDITERRANNEE	Alpha	8.1873
BANQUE LIBANO FRANCAISE	Alpha	6.5819
FRANSABANK	Alpha	5.9935
CREDIT LIBANAIS	Alpha	4.1692

“Table 21 – Continued.”

SOCIETE GENERALE DE BANQUE AU LIBAN	Alpha	4.0021
BANK OF BEIRUT	Alpha	3.8847
BBAC	Alpha	3.4860
ARAB BANK	Alpha	3.1414
BANQUE SARADAR	Alpha	3.0296
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	Alpha	2.4319
LEBANESE CANADIAN BANK	Beta	1.4958
HSBC BANK MIDDLE EAST	Beta	1.4340
BANK AL-MADINA	Beta	1.2440
BANQUE MISR LIBAN	Beta	0.9545
BEMO-BANQUE EUROPEENNE POUR LE MOYEN-ORIENT	Beta	0.8598
AL-MAWARID BANK	Gamma	0.7059
BANK OF KUWAIT & THE ARAB WORLD	Gamma	0.5935
BANQUE DE L'INDUSTRIE ET DU TRAVAIL	Gamma	0.5475
MIDDLE EAST AND AFRICA BANK	Gamma	0.4433
NATIONAL BANK OF KUWAIT (LEBANON)	Gamma	0.4373
JAMMAL TRUST BANK	Gamma	0.3599
BANQUE DE LA BEKAA	Gamma	0.3401
BANCA DI ROMA	Delta	0.2339
STANDARD CHARTERED BANK	Delta	0.2000
SYRIAN LEBANESE COMMERCIAL BANK	Delta	0.0914
ALLIED BANK	Gamma	0.0000
SAUDI LEBANESE BANK	Beta	0.0000
		Total 85.7

On the other hand, there are 21 banks (7.7% market share) that do not have a website.

Table 22. Banks not having an Informational Website

Bank	Group	Market Share (%)
LEBANON & GULF BANK	Beta	1.2495
INTERCONTINENTAL BANK OF LEBANON	Beta	1.0877
SOCIETE NOUVELLE DE LA BANQUE DE SYRIE ET DU LIBAN	Beta	0.8938
FIRST NATIONAL BANK	Beta	0.8669
LEBANESE SWISS BANK	Gamma	0.5258
CREDITBANK	Gamma	0.5101
AL-AHLI INTERNATIONAL BANK	Gamma	0.4584

“Table 22 – Continued.”

NORTH AFRICA COMMERCIAL BANK	Gamma	0.4492
NEAR EAST COMMERCIAL BANK	Gamma	0.2840
FEDERAL BANK OF LEBANON	Gamma	0.2427
CITIBANK	Delta	0.2308
BANQUE PHARAON ET CHIHA	Delta	0.2228
BANQUE SADERAT IRAN	Delta	0.1919
UNITED CREDIT BANK	Delta	0.1848
SAUDI NATIONAL COMMERCIAL BANK	Delta	0.1362
BANQUE LATI	Delta	0.0515
HABIB BANK LIMITED	Delta	0.0391
ARAB AFRICAN INTERNATIONAL BANK	Delta	0.0119
RAFIDAIN BANK	Delta	0.0093
AL BARAKA BANK LEBANON	N/C	0.0000
BANQUE LIBANAISE POUR LE COMMERCE	N/C	0.0000
		Total 7.7

As for transactional banking services, banks are classified into four categories as shown on the following chart: banks offering Internet banking, banks having an Internet banking service under trial, banks having an Internet banking service under development and banks having no plans to introduce such a service in the next couple of years. The number of banks and their market shares in these four categories is shown on Figure 3.

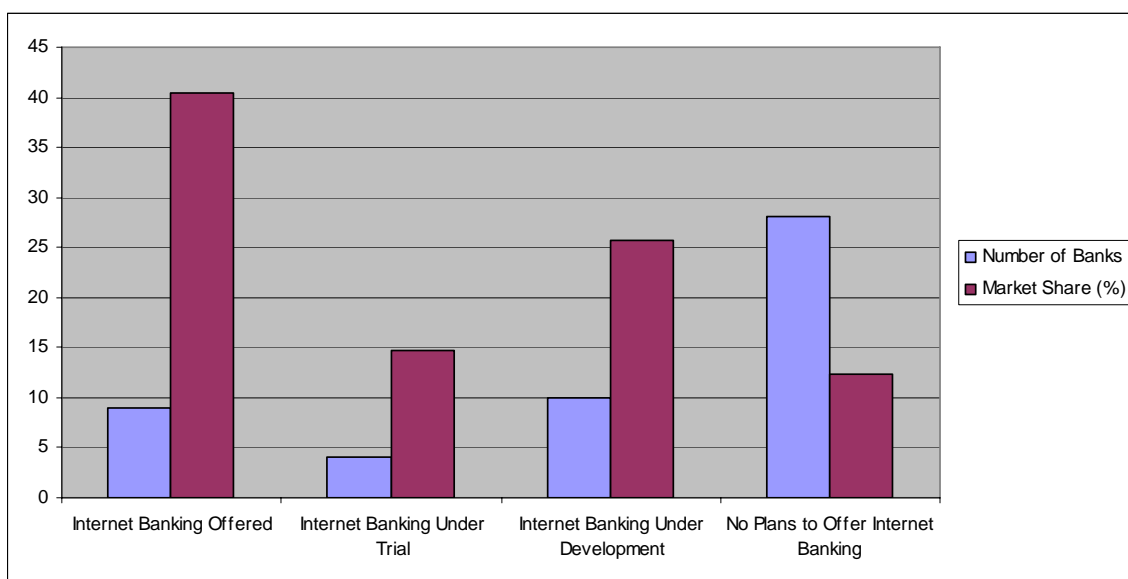


Fig. 3. Internet Banking Offerings and Plans

Transactional Internet banking is currently offered by 9 banks in Lebanon accounting for 40.5% market share.

Table 23. Internet Banking Offered

Bank	Group	Market Share (%)
BLOM BANK	Alpha	13.0734
BANQUE AUDI	Alpha	9.1732
CREDIT LIBANAIS	Alpha	4.1692
BANK OF BEIRUT	Alpha	3.8847
ARAB BANK	Alpha	3.1414
BANQUE SARADAR	Alpha	3.0296
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	Alpha	2.4319
HSBC BANK MIDDLE EAST	Beta	1.4340
CITIBANK	Delta	0.2308
		Total 40.5

4 banks with 14.7% of the market have a transactional banking service under trial:

Table 24. Internet Banking Under Trial

Bank	Group	Market Share (%)
BANQUE LIBANO FRANCAISE	Alpha	6.5819
SOCIETE GENERALE DE BANQUE AU LIBAN	Alpha	4.0021
BBAC	Alpha	3.4860
BANK OF KUWAIT & THE ARAB WORLD	Gamma	0.5935
		Total 14.7

10 banks with a 25.7% market share have a transactional banking service under development:

Table 25. Internet Banking Under Development

Bank	Group	Market Share (%)
BYBLOS BANK	Alpha	8.5854
BANQUE DE LA MEDITERRANEE	Alpha	8.1873
FRANSABANK	Alpha	5.9935
BANK AL-MADINA	Beta	1.2440
SOCIETE NOUVELLE DE LA BANQUE DE SYRIE ET DU LIBAN	Beta	0.8938
CREDITBANK	Gamma	0.5101
BANCA DI ROMA	Delta	0.2339
AL BARAKA BANK LEBANON	N/C	0.0000
ALLIED BANK	Gamma	0.0000
SAUDI LEBANESE BANK	Beta	0.0000
		Total 25.7

28 banks with a 12.4% market share have no plans in the next couple of years to introduce a transactional Internet banking service:

Table 26. No Plans to Offer Internet Banking

Bank	Group	Market Share (%)
LEBANESE CANADIAN BANK	Beta	1.4958
LEBANON & GULF BANK	Beta	1.2495
INTERCONTINENTAL BANK OF LEBANON	Beta	1.0877
BANQUE MISR LIBAN	Beta	0.9545
FIRST NATIONAL BANK	Beta	0.8669
BEMO-BANQUE EUROPEENNE POUR LE MOYEN-ORIENT	Beta	0.8598
AL-MAWARID BANK	Gamma	0.7059
BANQUE DE L'INDUSTRIE ET DU TRAVAIL	Gamma	0.5475
LEBANESE SWISS BANK	Gamma	0.5258
AL-AHLI INTERNATIONAL BANK	Gamma	0.4584
NORTH AFRICA COMMERCIAL BANK	Gamma	0.4492
MIDDLE EAST AND AFRICA BANK	Gamma	0.4433
NATIONAL BANK OF KUWAIT (LEBANON)	Gamma	0.4373
JAMMAL TRUST BANK	Gamma	0.3599
BANQUE DE LA BEKAA	Gamma	0.3401
NEAR EAST COMMERCIAL BANK	Gamma	0.2840
FEDERAL BANK OF LEBANON	Gamma	0.2427
BANQUE PHARAON ET CHIHA	Delta	0.2228
STANDARD CHARTERED BANK	Delta	0.2000
BANQUE SADERAT IRAN	Delta	0.1919
UNITED CREDIT BANK	Delta	0.1848
SAUDI NATIONAL COMMERCIAL BANK	Delta	0.1362
SYRIAN LEBANESE COMMERCIAL BANK	Delta	0.0914
BANQUE LATI	Delta	0.0515
HABIB BANK LIMITED	Delta	0.0391
ARAB AFRICAN INTERNATIONAL BANK	Delta	0.0119
RAFIDAIN BANK	Delta	0.0093
BANQUE LIBANAISE POUR LE COMMERCE	N/C	0.0000
		Total 12.4

The services offered through the Internet banking are mostly inquiries in nature with few transactional operations being allowed through this channel.

Table 27. Internet Banking Services

Bank	Offered since	Subscribers (as % of customers)	Services offered
BLOM BANK	2002	<10%	<ul style="list-style-type: none"> -Account Summary -Account Statement -Download Summary and Statement in a spreadsheet compatible format -Display Pending Transactions -Intra-account transfer (with foreign exchange) -Checkbook Request -Checks for Collection -Give nicknames to A/Cs -Customize A/C Summary -Set SMS Alerts on A/Cs and Visa Cards -Display Visa Cards available balance -Display Visa Cards safety limits -Change Visa Cards safety limit -Hold and release Visa Cards - Give nicknames to Visa Cards -Display the Visa golden points balance -Display the Visa Reward Program catalog -Display information on products and services offered -Perform simulations on consumer loans and saving plans -Send and receive messages to the bank -Receive confirmations for operations performed through the Internet banking
BANQUE AUDI	1999	1-3%	<ul style="list-style-type: none"> -Balance Inquiry -Statement of A/Cs -Pay Credit Card Bills -Transfers (multi-currency)
CREDIT LIBANAIS		12%	<ul style="list-style-type: none"> -A/C Inquiry -A/C Statement -Intra-account transfer -Transfer to another A/C (has to get a PIN from the branch and enter it on the site) -Credit card balances -Credit card statement
BANK OF BEIRUT	2003	1-3%	<ul style="list-style-type: none"> -Balance Inquiry -A/C History -Checkbook Request -Bill domiciliation -Third party payments (bills, SWIFT, payroll services) -Intra-account transfers -Card stop payment

“Table 27 – Continued.”

ARAB BANK	2002	1-3%	<ul style="list-style-type: none"> -A/C Summary -A/C Statement -Detail of Transactions -Internal Transfers -Payments orders to pay in another bank -Checkbook request -Statement request -Stop check payment -Send instructions by email -Open a sub account -Name accounts and change the look of the display -Establish and edit standing orders
BANQUE SARADAR	1996	3%	<ul style="list-style-type: none"> -A/C Summary -A/C Statement -Transfer from one account to another -Open a new account -Close an existing account -Modify the maturity date on your deposit accounts -Apply for a credit card -Calculate monthly payments on various loan products -Consult the financial markets
BNPI	1996	7-9%	<ul style="list-style-type: none"> -Balance Inquiry -Transfer from A/C to A/C -A/C Statement -Checkbook Request -Card Transactions -Portfolio Consulting
HSBC BANK MIDDLE EAST	2003	1-3%	<ul style="list-style-type: none"> -Balance Inquiry -Transfer between accounts and between HSBC accounts and other banks' accounts in Lebanon and overseas in any currency -Standing Instructions -Change Password -Issue cashier order and demand draft -Transaction charges inquiry -Open a term deposit account -Apply for a credit card
CITIBANK	1999	44 (Corporate Customers)	<ul style="list-style-type: none"> -View Transactions -Make Payments -View A/Cs -Check Payment -Pay Employees

The services offered by these 9 banks can be categorized in several sections as shown in Table 28:

Table 28. Comparison of Internet Banking Services

	BLOM BANK	BANQUE AUDI	CREDIT LIBANAIS	BANK OF BEIRUT	ARAB BANK	BANQUE SARADAR	BNPI	HSBC	CITIBANK
Account									
Balance	✓	✓	✓	✓	✓	✓	✓	✓	✓
Statement	✓	✓	✓	✓	✓	✓	✓	✓	✓
Open New	x	x	x	x	✓	✓	x	✓	x
Close Existing	x	x	x	x	x	✓	x	x	x
Modify Maturity Date	x	x	x	x	x	✓	x	x	x
Transfer									
A/Cs of same customer	✓	✓	✓	✓	✓	✓	✓	✓	x
A/Cs of different customers / same bank	x	x	✓	x	x	x	x	✓	x
A/Cs of different customers / different bank	x	x	x	x	✓	x	✓	✓	x
Standing instructions	x	x	x	x	✓	x	x	✓	x
Forex operations	✓	✓	x	x	x	✓	x	✓	x
Checks									
Checkbook ordering	✓	x	x	✓	✓	✓	✓	x	x
Check stop payment	x	x	x	x	✓	x	x	x	x
Tracking checks for collection	✓	x	x	x	x	x	x	x	x
Credit cards									
Credit cards balances	✓	x	✓	x	x	x	x	x	x
Credit card statement	✓	x	✓	x	x	x	✓	x	x
Stop a credit card	✓	x	x	✓	x	x	x	x	x
Re-initiate a credit card	✓	x	x	x	x	x	x	x	x
Change a credit card limit	✓	x	x	x	x	x	x	x	x
Change a card nickname	✓	x	x	x	x	x	x	x	x
Credit cards rewards	✓	x	x	x	x	x	x	x	x
Initiation of bills payment	x	x	x	✓	x	x	x	x	✓
Initiation of domiciliation	x	x	x	✓	x	x	x	x	x
Currency / Stock									
Currency prices	x	x	x	x	x	x	✓	x	x
Stock quotation	x	x	x	x	x	✓	✓	x	x
On-line Applications									
On-line loan application	x	x	x	x	x	x	x	x	x

“Table 28 – Continued.”

L/C application	x	x	x	x	x	x	x	x	x	x
Credit card application	x	x	x	x	x	✓	x	✓	x	x
Other Products application	x	x	x	x	x	x	x	x	x	x
Products simulation	✓	x	x	x	x	✓	x	x	x	x
SMS Alerts										
Alerts for accounts	✓	x	x	x	x	x	x	x	x	x
Alerts for cards	✓	x	x	x	x	x	x	x	x	x
Alerts history	✓	x	x	x	x	x	x	x	x	x
Others										
Change customer static data	x	x	x	x	✓	x	x	x	x	x
Nickname the accounts	✓	x	x	x	✓	✓	x	x	x	x
Message board facilities (send and receive)	✓	x	x	x	✓	✓	x	x	x	x

The services planned by the 4 banks that considered themselves in the phase of trying an Internet banking service are as follows:

Table 29. Planned Internet Banking Services

Bank	Expected Release Date	Services planned
BANQUE LIBANO FRANCAISE	End 2003	-Account Balance -Account Statement -Other services will be decided upon depending on the results of the trial of the current prototype
SOCIETE GENERALE DE BANQUE AU LIBAN	Summer 2003	-Consult accounts -Download information related to accounts and cards -Order checkbooks -Make punctual or periodic transfers to preselected accounts in Lebanon
BBAC	June 2003	-A/C Balance -A/C Statement -Transfer between A/Cs (LBP and USD) -Checkbook request -Stop check payment -Stop credit card -Currency converter

“Table 29 – Continued.”

BANK OF KUWAIT & THE ARAB WORLD

2004

N/A

Not surprisingly, all IT managers consider security as the number one challenge with any Internet banking service.

The security features used by banks offering Internet banking are as follows:

Table 30. Security Features

	BLOM BANK	BANQUE AUDI	CREDIT LIBANAIS	BANK OF BEIRUT	ARAB BANK	BANQUE SARADAR	BNPI	HSBC	CITIBANK
Firewalls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Encryption	✓	✓	✓	✓	✓	✓	✓	✓	✓
Digital certificate	✓	x	x	x	x	x	x	x	✓
Login ID & password	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smart cards	✓	x	x	x	x	x	x	x	✓
Others	x	x	x	x	✓	x	x	x	✓
PKI	✓	x	x	x	x	x	x	x	✓

While firewalls protection of networks, encryption of data exchanged and a user authentication based on a login ID and password seem to be the common setup for most banks, 2 banks stand out as having a higher level of security for Internet banking.

In fact Blom Bank and Citibank base their client’s authentication upon a digital certificate managed by an in-house public key infrastructure (PKI).

With Blom’s Internet Banking, a very sophisticated authentication system based on Public Key Infrastructure (PKI) that guarantees the confidentiality and the integrity of transactions was adopted and transactions are not accepted unless they have been electronically signed.

The electronic signature is the counterpart of a handwritten signature. It is based on a set of public/private keys where the public key may be available to everyone and is used to verify data sent by the private key holder. The private key on the other hand is used to sign the data and it never leaves its owner and is only known to him. This set of keys is not provided to the client by the bank, instead it is generated by a user application on the client's PC, which ensures that he or she is the only holder of the private key.

The combination of electronic signatures and strong encryption (128 bits) in Blom's Internet Banking provides optimum security for any banking transaction performed over the Internet. The encryption and signature of transaction is totally managed by the eBlom Internet Banking Security Software installed on the client's PC.

All the IT managers interviewed were asked to rate several Internet banking drivers and the top 5 drivers in order of importance were as follows (the number column in the table below represents how many respondents gave each driver a certain rank):

Table 31. Top 5 Internet Banking Drivers

Rank	Driver	Number
1	Providing faster service to customers	19
2	Providing easier service to customers	15
3	Improving the bank's image	6
4	Creating new markets	6
5	Reducing operational and administrative costs	4

Also, the top 5 Internet banking development issues in order of importance were as follows:

Table 32. Top 5 Internet Banking Development Issues

Rank	Issue	Number
1	Top management support	20
2	Budget available to develop the service	8
3	Time available to develop the service	3
4	Constant change in Internet technologies	2
5	Availability of Internet specialists	2

When asked about strategic issues in Internet banking, all IT managers of banks offering Internet banking or having such a service under trial, disagreed with the statement that Internet banking is only a fad that will disappear. This shows that they are convinced that Internet banking is here to stay and it has become an integral part of their bank's products and services. Some IT managers at banks currently developing an Internet banking service believe that it is only a fad.

More than two thirds of IT managers of banks offering or planning to offer internet banking, agreed with the fact that Internet banking is essential for the bank's survival, an opinion not shared with 50% of IT managers at banks which do not have plans to offer this service in the next couple of years. Most of IT managers believe that Internet banking is essential to compete effectively in the near future and some of them see that banks not offering this service will lose customers to other banks. The majority

of IT managers do not regard Internet banking as being only for large banks although 7 out of the 9 banks offering such a service are large banks.

Table 33. Internet Banking Strategic Issues

		Agree	Neutral	Disagree
Only a fad	<i>Service Offered</i>			100.0%
	<i>Under Trial</i>			100.0%
	<i>Under Development</i>	30.0%		70.0%
	<i>No Plans to Offer</i>	16.0%		84.0%
Essential for bank's survival	<i>Service Offered</i>	66.7%		33.3%
	<i>Under Trial</i>	75.0%		25.0%
	<i>Under Development</i>	70.0%		30.0%
	<i>No Plans to Offer</i>	45.8%	4.2%	50.0%
Gives the impression of a cutting edge bank	<i>Service Offered</i>	77.8%	22.2%	
	<i>Under Trial</i>	75.0%	25.0%	
	<i>Under Development</i>	100.0%		
	<i>No Plans to Offer</i>	91.7%	4.2%	4.1%
Mandatory to compete effectively in the near future	<i>Service Offered</i>	66.7%	22.2%	11.1%
	<i>Under Trial</i>	100.0%		
	<i>Under Development</i>	90.0%		10.0%
	<i>No Plans to Offer</i>	79.2%		20.8%
Banks not offering Internet banking will lose customers to other banks	<i>Service Offered</i>	55.6%	22.2%	22.2%
	<i>Under Trial</i>	75.0%		25.0%
	<i>Under Development</i>	30.0%	10.0%	60.0%
	<i>No Plans to Offer</i>	45.8%	16.7%	37.50%
Internet only banks can be a threat	<i>Service Offered</i>	11.1%	33.3%	55.6%
	<i>Under Trial</i>		50.0%	50.0%
	<i>Under Development</i>		40.0%	60.0%
	<i>No Plans to Offer</i>	4.2%	37.5%	58.3%
Only for large banks	<i>Service Offered</i>	22.2%		77.8%
	<i>Under Trial</i>			100.0%
	<i>Under Development</i>			100.0%
	<i>No Plans to Offer</i>	4.3%		95.7%

Concerning operational issues in Internet banking, there was a general agreement that Internet banking improves customer service, allows banks to increase customer base, lowers transaction costs and increases attempted fraud. Only one bank did not agree with the attempted fraud associated with this service because at that bank, security is very tight and they consider themselves immune vis-à-vis hacking.

The apparent difference in opinions was that in Internet banking, benefits outweigh the costs and the reason for this divide is that some banks do not see profits generated because of low volumes on this channel, while others look for indirect benefits to balance the costs associated with Internet banking.

Table 34. Internet Banking Operational Issues

		Agree	Neutral	Disagree
Benefits outweigh the costs	<i>Service Offered</i>	44.4%	11.1%	44.4%
	<i>Under Trial</i>	50.0%	25.0%	25.0%
	<i>Under Development</i>	80.0%		20.0%
	<i>No Plans to Offer</i>	58.3%	4.2%	37.5%
Allows banks to increase customer base	<i>Service Offered</i>	77.8%		22.2%
	<i>Under Trial</i>	100.0%		
	<i>Under Development</i>	80.0%		20.0%
	<i>No Plans to Offer</i>	79.2%		20.8%
Improves customer service	<i>Service Offered</i>	100.0%		
	<i>Under Trial</i>	100.0%		
	<i>Under Development</i>	90.0%	10.0%	
	<i>No Plans to Offer</i>	88.0%	4.0%	8.0%
Lowers transaction costs	<i>Service Offered</i>	77.8%	11.1%	11.1%
	<i>Under Trial</i>	50.0%	25.0%	25.0%
	<i>Under Development</i>	90.0%		10.0%
	<i>No Plans to Offer</i>	75.0%	8.3%	16.7%
Increases attempted fraud	<i>Service Offered</i>	77.8%	11.1%	11.1%
	<i>Under Trial</i>	50.0%	50.0%	
	<i>Under Development</i>	60.0%		40.0%
	<i>No Plans to Offer</i>	95.8%	4.2%	

Banks are also divided concerning the issue that Internet banking is technologically easy to get started even among IT managers at banks that implemented an Internet banking service and here opinions vary depending on whether or not the service was developed in-house or it was acquired as a package from a related foreign bank. All banks currently in the last phase of starting this service do not consider it technologically easy to start. On the other hand, 70% of banks developing or not even planning to do so believe that it is technologically easy to get such a service up and

running.

Also, banks do not find that it is difficult to find qualified people to run Internet banking and this shows that the human capital is not an issue in Lebanon.

Around two thirds of the banks saw Internet banking as expensive to implement. The others saw costs associated with this service as comparable to the one associated with any other project such as opening of a new branch or offering a new product.

Table 35. Internet Banking Technology-Related Issues

		Agree	Neutral	Disagree
Technologically easy to get started	<i>Service Offered</i>	44.4%	11.1%	44.4%
	<i>Under Trial</i>			100.0%
	<i>Under Development</i>	70.0%		30.0%
	<i>No Plans to Offer</i>	70.8%		29.2%
Technologically easy to maintain	<i>Service Offered</i>	55.6%		44.4%
	<i>Under Trial</i>	75.0%		25.0%
	<i>Under Development</i>	50.0%		50.0%
	<i>No Plans to Offer</i>	85.7%	4.8%	9.5%
Difficult to find individuals to run Internet banking	<i>Service Offered</i>	22.2%	11.1%	66.7%
	<i>Under Trial</i>	75.0%		25.0%
	<i>Under Development</i>	20.0%	10.0%	70.0%
	<i>No Plans to Offer</i>	28.0%	4.0%	68.0%
Is expensive to implement	<i>Service Offered</i>	66.7%	11.1%	22.2%
	<i>Under Trial</i>	75.0%		25.0%
	<i>Under Development</i>	80.0%		20.0%
	<i>No Plans to Offer</i>	16.7%	66.7%	16.7%

Starting this point forward, questions were only addressed to IT managers at the 9 banks offering Internet banking as they deal with issue in relation to customers and to the online channel strategies.

When asked about customer related issue in relation to Internet banking, there was a consensus that this channel benefits customers, reduces their visits to the physical branch, and that access to accounts at anytime is important to customers. The majority

of the banks do not see that Internet banking reduces customer-banker relationship and about half of them find that customers do not mind paying a monthly fee for it. Furthermore, around two third of the banks see that security is a concern for the customers.

Table 36. Internet Banking Customers-Related Issues

	Agree	Neutral	Disagree
Significantly benefits customers	100.0%		
Reduces the visits to the physical branch	100.0%		
Reduces customer-banker relationship	11.1%		88.9%
Customers mind paying a monthly fee for Internet banking	11.1%	44.4%	44.4%
Access to A/Cs 24x7 is important to customers	100.0%		
Security is a concern for our customers	66.7%	11.1%	22.2%

Strategies that are important for banks offering Internet banking are mainly to retain existing customers and to acquire new customers. To achieve these goals, most banks are trying to develop a customer relationship management and to integrate channels at various customer touch points.

Table 37. Banks' Strategies for 2003

	High priority	Low priority	Not a priority
Retaining existing customers	100.0%	0.0%	0.0%
Increase cross-selling	77.8%	22.2%	0.0%
Acquiring new customers	88.9%	11.1%	0.0%
CRM	77.8%	22.2%	0.0%
Cross-channel integration	77.8%	0.0%	22.2%

Of the strategies for Internet banking, 77.8% banks cited that it is very important to acquire new customers and most of them try to retain existing Internet

banking customers and to create a multi-channel experience for them. Around half of the banks do not consider improving their site navigation and usability because they believe that they already have a user friendly service.

Table 38. Banks' Online Strategies for 2003

	Very Important	Important	Not important
Retaining existing customers	66.7%	33.3%	0.0%
Improving Customer Satisfaction	66.7%	33.3%	0.0%
Acquiring new customers	77.8%	22.2%	0.0%
Creating a multi-channel customer experience	11.1%	77.8%	11.1%
Increasing site navigation and usability	33.3%	11.1%	55.6%
Migrating transactions from higher-cost channels	22.2%	33.3%	44.4%

Development plans for the Internet banking channel will focus on enhancing customer service by improving site content and adding online access to more products. However, improving the design of the site is not considered as crucial in 2003.

Table 39. Banks' Development Strategies for 2003

	High priority	Low priority	Not a priority
Enhancing customer service	55.6%	22.2%	22.2%
Improving site content	44.4%	55.6%	0.0%
Adding online product applications	22.2%	44.4%	33.3%
Improving site design	22.2%	33.3%	44.4%
Adding online access to more products	44.4%	44.4%	11.1%

Resources will not be a hindrance facing Internet banking development but challenges facing banks still exist and they are mainly to synchronize information across channels and to measure the channel profitability or ROI.

Table 40. Banks' Challenges

	A challenge	Not a challenge
Synchronizing information across channels	55.6%	44.4%
ROI/channel profitability measurement	55.6%	44.4%
Lack of resources	11.1%	88.9%
Setting the right priorities	33.3%	66.7%
Being innovative	33.3%	66.7%

To measure their online success, banks measure site traffic growth and they look closely at customer feedback and surveys. They also monitor the acquisition rate for Internet banking. However, 77.8% banks do not measure the revenue generated by the online channels. The reason is that there are no revenues in some cases and in others because customers are not segregated across channels and therefore revenue generated cannot be measured.

Table 41. Banks' Measurements

	Measure	Do not measure
Site traffic growth	77.8%	22.2%
Customer feedback and surveys	88.9%	11.1%
Acquisition rate growth for Internet banking	88.9%	11.1%
Revenue generated	22.2%	77.8%
Number of products sold online	44.4%	55.6%
Transaction migration from higher-cost channels	66.7%	33.3%

7. Self-Service Kiosks

Self-service kiosks can be found on the premises of Blom Bank and Banque Nationale de Paris Intercontinentale, accounting for 15.5% market share.

Table 42. Self-Service Kiosks

Bank	Group	Market Share (%)
BLOM BANK	Alpha	13.0734
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	Alpha	2.4319
		Total 15.5

Self-service kiosks were introduced at BNPI in 2002 in 3 branches. These kiosks offer customers the same Internet banking application but from within the physical branch. Customers need a login ID and password to start using these kiosks.

The goal of such a service is to create a modern branch and to eliminate the queues in front of the teller's window. The IT Manager at BNPI notes that customers walking into the physical branch are not usually attracted by the self-service kiosks. Instead, they are introduced to this new concept by a bank's representative.

In May 2003, Blom Bank, Lebanon's leading bank, inaugurated on its headquarters' premises, an unmanned branch where 3 self-service kiosks were put in place. These kiosks provide access to the same Internet banking service and to the bank's public website. According to Blom's IT Manager, these self-service kiosks are targeted to people who do not have a PC or an Internet access. Also, this service is meant to be a starter to introduce the bank's customers to Internet banking that can be accessed from any location. Since access Blom's Internet banking requires a digital certificate, a smart card containing this digital identity is delivered to the customer wishing to enroll to Blom's Self Service. This smart card is inserted in a dedicated reader inside the self-service kiosks to achieve customer's authentication and to generate electronic signatures on behalf of the client as is the case with Blom's Internet banking service discussed previously. It is to be noted that applications using smart

cards are being used for the first time in Lebanon and in the region.

CHAPTER VI

INTERPRETATION AND CONCLUSION

A. Findings and Interpretation

The McConnell International report on e-readiness showed that Lebanon needs substantial improvements in the conditions necessary to support e-business and e-government. These improvements are needed for all aspects of e-readiness: connectivity, e-leadership, information security, human capital and e-business climate (McConnell International 2001).

As e-banking and e-readiness are closely related, the banking sector in Lebanon, being one of the most productive sectors in Lebanon, has an important role to play in contributing towards national e-readiness.

1. Payment Systems

The proliferation of ATMs which number reached 727 machines shows that electronic payment systems have gained popularity. Banks are striving to diversify the services offered through ATMs by introducing innovative functions other than the usual withdrawal and balance inquiry operations.

Also, the offering of plastic cards is much diversified and the entire range of cards from 4 different brands is offered to customers. The number of plastic cards is around 670,079 and the volume of transactions carried on ATMs and POS shows that this electronic payment method is gaining more and more popularity in Lebanon.

Internet cards are also available for customers at 20 banks accounting for 63.5% market share. However, security measures on Internet cards such as Visa CVV2

or Master Card CVC2 are not enforced on all cards. In addition, some banks not offering dedicated Internet cards, do not restrict the usage of regular cards on the Internet and this represent a dangerous exposure of these cards over the Net.

It is to be noted that the usage of online payment is very limited and the number of dedicated Internet cards is also very low.

So, for the category dealing with the payment system in a country, we can say that Lebanon scores high on ATMs and on the usage of plastic cards, medium on electronic payments and on the security of these payments but low on cards usage on the Internet.

The overall status for this category is medium contribution towards e-readiness, meaning that Lebanon has in place a developed payment system but the low volume of online transactions needs to be addressed.

Table 43. Payment System and E-Readiness

Category	Item	Status in Lebanon	Overall Status
Advanced payment system	ATMs	High	Medium
	Level of credit card usage	High	
	Electronic payment system	Medium	
	Security of card transactions	Medium	
	Cards usage online	Low	

2. *Electronic Banking*

Electronic banking is being offered in all its flavors on the Lebanese market. In fact more than 90% of banks' customers have access to ATMs, 60% to phone banking,

6% to a call center, 7.7% to WAP banking, 4.4% to SMS banking, 4.1% to TV banking and 40.5% to transactional Internet banking.

As we can see, not all banks are engaging in this new type of banking as banks had to fix their banking infrastructure before offering these services.

Of these delivery channels, Internet banking deserves special attention as having the potential to offer much more services than any other channel.

Looking at the results of the survey, we find that 7 out of the 9 banks offering Internet banking are in the Alpha group, 1 is in the Beta group and 1 in the Delta group. Also, Arab Bank, Banque Nationale de Paris Intercontinentale, HSBC Bank Middle East and Citibank are considered to be foreign banks. These banks are very large by international standards and are well known for their Internet banking services worldwide. It is only natural that the mother bank abroad has a standardized software package for Internet banking and this package needs only to be deployed to get a similar service to the one offered by the foreign bank.

Regarding the offering of an Internet banking service, opinions are divided whether or not benefits outweigh the costs in such service. Some banks consider that Internet banking is a pure cost project but at the same time, it has some hidden benefits to retain the bank's customers as the bank not offering Internet banking will lose customers to other banks. And since an Internet banking solution costs from 30,000 to 1,000,000 USD, some banks find that there is a lack of volume to cover this cost and as such, this service is not justified. This opinion is expressed by a source at Banque de la Mediterranee as Internet banking is a matter of supply and demand, and therefore only if enough customers are using it, costs will be reduced. It is noteworthy to say that Banque de La Mediterranee is among the largest banks in Lebanon and it does not

have any electronic delivery channel. This issue is clarified by the source who says that the bank has an IT strategy, whereby a market study and a cost-benefit are conducted before deciding on the proper timing to implement a certain project.

Even with current Internet banking services offered, we can see that not many value-added services are present. In fact, online brokerage was not seen as a priority for banks. Furthermore, according to Byblos Bank, online lending is impossible for many reasons: the “centrale des risques” held at the Central Bank is not online, the credit scoring is only available in branches and the lending procedure already existing is strict and involves complex analysis, resulting in less than 10% of credit to be accepted.

As there is no legal framework for transfer to another party, electronic bill presentment and payment becomes impossible. Byblos Bank plans to offer Electronic Bill Presentment and Payment (EBPP) in such a way that when the government sends a bill, the customer has 2 choices, either to pay his bill or to suspend it and pay it later with penalties.

Also, because of the nature of the banking activities allowed, bancassurance products can be offered as a simulation only and insurance products cannot be sold on online banking channels.

The results of the survey revealed that the adoption of Internet banking by the Lebanese customers was very low. In fact, the percentage of Internet banking users is estimated to be around 5%. Barriers to Internet banking adoption are the lack of trust and awareness, the absence of rules and regulations to protect banks and customers, the complexity of such services, the fear from security issues, the costs of PCs and Internet connections. Also, adoption barriers can be directly related to the customers’ mentality as they prefer the personal contact with the branch manager, especially the customers

aged above 50 and who are not familiar with the usage of the Internet.

Therefore, on the electronic banking category, banks score medium in their contribution to the e-readiness of Lebanon.

Table 44. Electronic Banking and E-Readiness

Category	Item	Status in Lebanon	Overall Status
Electronic banking	Electronic kiosks	Low	Medium
	Internet banking	Medium	
	Value-added services on Internet banking	Medium	
	Degree of usage of Internet banking	Low	
	Online brokerage	Low	
	Electronic bill presentment and payment	Low	
	WAP banking	Low	
	Smart cards	Low	

3. Infrastructure for E-Commerce

The low number of Internet cards shows that e-commerce adoption is in turns very limited. This phenomenon is observed around the world as electronic commerce transactions play a small role as they account for 0.4% to 1.8% of total sales. So, we can see that Internet sales have not taken off yet and are still in their embryonic stages, especially in Lebanon. However, there are many ways to encourage e-commerce. First, there is a need for cheaper communication and Internet access. Also, e-commerce has to be legalized and a digital signature law has to be passed. Furthermore, there is a need to spread awareness among people so that they can change their culture and mentality. Awareness can be achieved by encouraging corporations to trade in a B2B environment,

by spreading e-education through advertising and seminars and by providing free access to kiosks for communities not having access to the Internet.

In addition, the usage of e-commerce can be encouraged by providing incentives (less charges, more benefits, gifts...) to purchases over the Internet and by establishing trust through secure systems. In the e-commerce category, the banking sector scores low as it is not providing special services to e-commerce.

Table 45. E-Commerce and E-Readiness

Category	Item	Status in Lebanon	Overall Status
Supporting infrastructure for e-commerce	Public key infrastructure, certification authority	Low	Low
	Security systems	Low	
	Trust	Low	

4. Legal Framework

The major challenge to electronic banking in Lebanon is the lack of an adequate legal framework. In fact, Lebanon is behind in legal issues as there are no laws against hacking into other people's system and the ATM print-out is not legal and there is no electronic signature law; thus, banks cannot build a case against any fraud and any action taken through Internet banking.

In 2000, circular number 1810 was issued allowing banks to offer e-banking services to people. These e-banking services could include ATMs, plastic cards, mobile banking, telephone banking and PC banking. Furthermore, law number 133 allowed the Central Bank to regulate electronic banking services. The Central Bank proposed to the parliament an e-signature law, a data protection and privacy law and a copyright law.

As we can see, there are no privacy and security laws in Lebanon but an Intellectual Property Rights has been passed in 1999 (Feghali 2003).

Therefore, in the legal framework category, the banking sector scores low.

Table 46. Legal Framework and E-Readiness

Category	Item	Status in Lebanon	Overall Status
Legal framework	Authorize digital signatures	Low	Low
	Enable public key infrastructure	Low	
	Recognize electronic documents	Low	
	Electronic authentication	Low	
	Security	Medium	
	Encryption	Low	
	Electronic privacy	Low	
	Copyright	Medium	
	Information security	Medium	
	Prosecute computer crimes	Low	

Putting all the items of e-banking in relation with e-readiness we get the following table:

Table 47. E-banking Items Related to E-Readiness in Lebanon

Category	Item	Status in Lebanon	Overall Status
Advanced payment system	ATMs	High	Medium
	Level of credit card usage	High	
	Electronic payment system	Medium	

“Table 47 – Continued.”

	Security of card transactions	Medium	
	Cards usage online	Low	
Electronic banking	Electronic kiosks	Low	Medium
	Internet banking	Medium	
	Value-added services on Internet banking	Medium	
	Degree of usage of Internet banking	Low	
	Online brokerage	Low	
	Electronic bill presentment and payment	Low	
	WAP banking	Low	
	Smart cards	Low	
Supporting infrastructure for e-commerce	Public key infrastructure, certification authority	Low	Low
	Security systems	Low	
	Trust	Low	
Legal framework	Authorize digital signatures	Low	Low
	Enable public key infrastructure	Low	
	Recognize electronic documents	Low	
	Electronic authentication	Low	
	Security	Medium	
	Encryption	Low	
	Electronic privacy	Low	
	Copyright	Medium	
	Information security	Medium	
	Prosecute computer crimes	Low	

We can see that the Lebanese banking sector is contributing positively but moderately towards national e-readiness. Furthermore, banks and the Central Bank can

contribute more aggressively towards Lebanon's e-readiness. The following section provides some recommendations in order to achieve this goal.

B. Recommendations

- Banks already offering electronic banking and especially Internet banking need to get their customers to use these channels by increasing customers' awareness through marketing campaigns, making demonstrations on these services at kiosks available at branches and by providing training to corporate users. They should also target the right people to use the Internet banking and they are people with Internet and PC access and expatriates. They should increase customers' trust and explaining security-related issues. To encourage the usage of Internet banking, banks should provide incentives such as better forex rates and lower transaction costs.

- All banks need to have the basic electronic banking services: ATMs, Internet cards and an informational web site.

- Banks not engaging in these channels should include them in their IT strategic plans of the next 5 years.

- Banks offering some sort of electronic banking should implement an Internet banking service and address the security challenge of such service.

- Banks already having an Internet banking service should work on providing value-added services for corporate and retail customers.

- Banks should work closely with BDL to implement the SeBIL project (Secure Electronic Banking and Information for Lebanon) which will connect BDL, the banks and the public sector.

- BDL should give more attention to laws and regulations concerning

electronic banking and especially the electronic signature law.

APPENDIX I

LIST OF COMMERCIAL BANKS IN LEBANON

Table 48. List of Lebanese Commercial Banks as at May 2003

Bank	Market Share (%)	Group
BLOM BANK	13.07342909	Alpha
BANQUE AUDI	9.173223273	Alpha
BYBLOS BANK	8.585406122	Alpha
BANQUE DE LA MEDITERRANEE	8.187263203	Alpha
BANQUE LIBANO FRANCAISE	6.581883469	Alpha
FRANSABANK	5.993467678	Alpha
CREDIT LIBANAIS	4.169198661	Alpha
SOCIETE GENERALE DE BANQUE AU LIBAN	4.002090555	Alpha
BANK OF BEIRUT	3.884709793	Alpha
BBAC	3.485994261	Alpha
ARAB BANK	3.141428438	Alpha
BANQUE SARADAR	3.029584505	Alpha
BANQUE NATIONALE DE PARIS INTERCONTINENTALE	2.431888611	Alpha
LEBANESE CANADIAN BANK	1.495752898	Beta
HSBC BANK MIDDLE EAST	1.43397467	Beta
LEBANON & GULF BANK	1.249515468	Beta
BANK AL-MADINA	1.243954978	Beta
INTERCONTINENTAL BANK OF LEBANON	1.087681546	Beta
BANQUE MISR LIBAN	0.954508992	Beta
SOCIETE NOUVELLE DE LA BANQUE DE SYRIE ET DU LIBAN	0.893826299	Beta
FIRST NATIONAL BANK	0.866878035	Beta
BEMO-BANQUE EUROPEENNE POUR LE MOYEN-ORIENT	0.8597961	Beta
AL-MAWARID BANK	0.705933791	Gamma
BANK OF KUWAIT & THE ARAB WORLD	0.593453358	Gamma
BANQUE DE L'INDUSTRIE ET DU TRAVAIL	0.54746219	Gamma
LEBANESE SWISS BANK	0.525821236	Gamma
CREDITBANK	0.510107528	Gamma
AL-AHLI INTERNATIONAL BANK	0.458354745	Gamma
NORTH AFRICA COMMERCIAL BANK	0.449155092	Gamma
MIDDLE EAST AND AFRICA BANK	0.443329591	Gamma
NATIONAL BANK OF KUWAIT (LEBANON)	0.437314797	Gamma
JAMMAL TRUST BANK	0.359896212	Gamma
BANQUE DE LA BEKAA	0.340058277	Gamma
NEAR EAST COMMERCIAL BANK	0.283970678	Gamma

“Table 48 – *Continued.*”

FEDERAL BANK OF LEBANON	0.242726039	Gamma
BANCA DI ROMA	0.233919169	Delta
CITIBANK	0.230800562	Delta
BANQUE PHARAON ET CHIHA	0.222828949	Delta
STANDARD CHARTERED BANK	0.200023841	Delta
BANQUE SADERAT IRAN	0.191938652	Delta
UNITED CREDIT BANK	0.184797563	Delta
SAUDI NATIONAL COMMERCIAL BANK	0.136210711	Delta
SYRIAN LEBANESE COMMERCIAL BANK	0.091374232	Delta
BANQUE LATI	0.051457012	Delta
HABIB BANK LIMITED	0.039091428	Delta
ARAB AFRICAN INTERNATIONAL BANK	0.011878153	Delta
RAFIDAIN BANK	0.009275371	Delta
AL BARAKA BANK LEBANON	0	
BANQUE LIBANAISE POUR LE COMMERCE	0	
BANQUE DE CREDIT NATIONAL	0	
ALLIED BANK	0	Gamma
SAUDI LEBANESE BANK	0	Beta

Source: Bilanbanques 2002

Notes: The market shares of banks listed in the table above do not add to 100% because we are only considering the commercial bank operating in Lebanon in 2003 as Bilanbanques 2002 classifies all the banks in Lebanon including the investment banks.

Furthermore, this classification is based on data as of the end of 2001 and since that time, there were mergers and acquisitions that could have changes the market share of the acquiring bank. More recent data could not be obtained because at the time of the study, BankData, the agency responsible for the compilation and publication of the Bilanbanques series did not have these data. Finally, the market shares of Allied Bank and the Saudi Lebanese Bank are consolidated with that of Banque de la Mediterranee.

APPENDIX II

QUESTIONNAIRE

1. ATMs

1.1. Number of ATMs _____

1.2. Geographic distributions of ATMs (%)

a. Beirut _____

b. Other _____

1.3. Average monthly transactions number _____

1.4. Average monthly transactions volume _____

1.5. Types of transactions taking place at ATMs

a. Balance inquiry

b. Cash withdrawal

c. Mini statement

d. Transfer from A/C to A/C

e. Other (please specify) _____

2. Plastic Cards (retail payment system)

2.1. Types of plastic cards offered

a. Debit cards

b. Electron

c. Credit cards

d. Charge cards

e. Chip cards

f. Internet cards

2.2. Plastic cards brand (%)

- a. Visa
- b. Master Card
- c. Cashless Card
- d. American Express

2.3. Production of plastic cards

- a. In-house
- b. Outsourced, to company _____

2.4. Switch provider

- a. IPN
- b. CSC

2.5. Percentage of customers having at least 1 plastic card _____

2.6. If in IPN network, what is the percentage of BankerNet cards in circulation out of all plastic cards? _____

2.7. If in CSC network, what is the percentage of Visa Electron cards in circulation out of all plastic cards? _____

2.8. Can all cards be used on the Internet or only dedicated cards?

2.9. Percentage of customers having an Internet card _____

2.10. Number of Internet cards _____

2.11. Do you offer prepaid Internet cards?

2.12. What is the limit applied on Internet cards? _____

2.13. Do you offer additional security features on Internet cards (such as CVV2)?

2.14. Volume of Internet transactions _____

2.15. What do Lebanese buy on the Internet? _____

2.16. Do you plan to introduce a plastic card in the product line of Visa Cash?

3. Phone Banking

3.1. What services are offered through the phone banking service?

3.2. What is the percentage of customers who are subscribed to the phone banking service?

- a. 1-3%
- b. 4-6%
- c. 7-9%
- d.10-12%

3.3. What is the service most widely used through the phone banking service? _____

3.4. How is customer identification achieved with the phone banking service? _____

3.5. When was this service introduced? _____

4. Internet Banking

4.1. Do you have an informational web site? _____

4.2. Do you have a transactional Internet banking service?

- a. Yes
- b. Under trial, expected release date
- c. Under development, expected release date _____
- d. No and no plans to introduce an Internet banking service for the next couple of years

4.3. What is the number of customers who are subscribed to the Internet banking service? _____

4.4. What is the percentage of customers who are subscribed to the Internet banking service?

- a.1-3%
- b.4-6%
- c.7-9%
- d.10-12%

4.5. What is the percentage of retail consumers and of corporate subscribers? _____

4.6. What are the banking activities offered through Internet banking?

4.7. What is the service most widely used through the Internet banking service by retail consumers? By small and medium businesses? _____

4.8. Are your customers satisfied with Internet banking? What are the main reasons for dissatisfaction? _____

4.9. Rate the following Internet banking drivers in order of importance (1 being the most important):

- Providing faster services to customers
- Providing easier services to customers
- Providing more reliable services to customers
- Improving the bank's competitive position
- Improving the bank's image
- Meeting customers' demand for the service
- Retaining existing customers
- Creating new markets
- Reducing operational and administrative costs
- Reducing workforce

4.10. Rate the following Internet banking development issues in order of importance:

- Top management support
- Availability of Internet specialists
- Constant change in Internet technologies
- Budget available to develop the site
- Time available to develop the site

4.11. Rate the following Internet banking challenges in order of importance:

- Security
- Customers' trust
- Customers' awareness
- Continuity of the service
- Spread of computer use
- Spread of Internet use
- Difficulty of using Internet banking by some customers
- Pricing of Internet access
- Internet infrastructure in the country
- Cost of maintaining the site
- Lack of legal regulations

4.12. Internet banking security features:

(1=Currently used 2= Will be used in the near future 3=No plans to use it)

Firewalls

Encryption

Authentication

Digital certificate

Login ID and password

Smart cards

Others, please specify

PKI

4.13. Does the accessibility/cost of computers and Internet access influence the usage of e-banking?

4.14. Does an awareness of e-banking affect its usage?

4.15. Is security of Internet banking transactions a concern for the use of e-banking?

4.16. Is customers' reluctance to change a factor that affects the usage of e-banking?

4.17. Strategic issues in Internet banking:

(1=SD 2=D 3=N 4=A 5=SA)

Internet banking is:

- Only a fad
- Essential for bank's survival
- Gives the impression of a cutting edge bank
- Mandatory to compete effectively in the near future
- Banks not offering Internet banking will lose customers to other banks
- Internet only banks can be a threat
- Only for large banks

4.18. Operational issues in Internet banking:

(1=SD 2=D 3=N 4=A 5=SA)

Internet banking:

- Benefits outweigh the costs
- Allows banks to increase customer base
- Improves customer service
- Lowers transaction costs
- Increases attempted fraud

4.19. Customer-related issues in Internet banking:

(1=SD 2=D 3=N 4=A 5=SA)

Internet banking:

- Significantly benefits customers
- Reduces the visits to the physical branch
- Reduces customer-banker relationship
- Customers mind paying a monthly fee for Internet banking
- Access to A/Cs 24x7 is important to customers
- Security is a concern for our customers

4.20. Technology issues in Internet banking:

(1=SD 2=D 3=N 4=A 5=SA)

- Technologically easy to get started
- Technologically easy to maintain
- Difficult to find individuals to run Internet banking

Is expensive to implement

4.21. Which of the following strategies are priorities for your bank in 2003?

(High priority-Low priority-Not a priority)

Retaining existing customers

Increasing cross-selling

Acquiring new customers

CRM

Cross-channel integration

4.22. How important are the following online channel strategies for your bank in 2003?

(Very important-Important-Not important)

Retaining existing customers

Improving customer satisfaction

Acquiring new customers

Creating a multi-channel customer experience

Improving site navigation and usability

Migrating transactions from higher-cost channels

4.23. How much of a priority are the following for your bank's online channel development in 2003?

(High priority-Low priority-Not a priority)

Enhancing customer service

Improving site content

Offering online statements

Adding online product applications

Improving site design and navigation

Adding online access to more products

4.24. How much of a challenge are the following for your bank's online channel in 2003?

(A challenge-A minor challenge-Not a challenge)

- Synchronizing information across channels
- ROI/channel profitability measurement
- Lack of resources
- Setting the right priorities
- Being innovative

4.25. Which of the following do you measure to help determine the success of the online channel?

(We measure-We plan to measure-We don't measure)

- Site traffic growth
- Customer feedback and surveys
- Acquisition rate growth for online banking
- Revenue generated
- Number of products sold online
- Transaction migration from higher-cost channels

4.26. What are the challenges to online lending faced by your bank?

4.27. Do you sell or plan to sell insurance online?

5. WAP Banking

5.1. What services are offered through the WAP banking service?

5.2. What is the percentage of customers who are subscribed to the WAP banking service?

- a.1-3%
- b.4-6%
- c.7-9%
- d.10-12%

5.3.What is the service most widely used through the WAP banking service?

5.4.How is customer identification achieved with the WAP banking service?

5.5.What is the level of security applied on the WAP banking service?

5.6.When was this service introduced?

6. SMS Banking

6.1. What services are offered through the SMS banking service?

6.2.What is the percentage of customers who are subscribed to the SMS banking service?

- a.1-3%
- b.4-6%
- c.7-9%

d.10-12%

6.3. What is the service most widely used through the SMS banking service?

6.4. How is customer identification achieved with the SMS banking service?

6.5. What is the level of security applied on the WAP banking service?

6.6. When was this service introduced?

7. TV Banking

7.1. What setup is needed for the TV banking service?

7.2. What services are offered through the TV banking service?

7.3. What is the percentage of customers who are subscribed to the TV banking service?

a.1-3%

b.4-6%

c.7-9%

d.10-12%

7.4.What is the service most widely used through the TV banking service?

7.5.How is customer identification achieved with the TV banking service?

7.6.What is the level of security applied on the TV banking service?

7.7.When was this service introduced?

8. Call Centers

8.1. What services are offered through the call center?

8.2. What is the percentage of customers who use the call center?

a.1-3%

b.4-6%

c.7-9%

d.10-12%

8.3. What is the service most widely used through the call center services?

8.4. How is customer identification achieved with the call center service?

8.5. When was this service introduced?

9. Self Service kiosks

9.1. What services are offered through the self service kiosks?

9.2. What is the target market of the self service kiosks?

9.3. How is customer identification achieved on the self service kiosks?

9.4. When was this service introduced?

10. Smart Cards

10.1. Did you develop applications that use smart cards?

10.2. Do you plan to offer financial applications using smart cards?

11. Portal Services

11.1. Do you offer portal capabilities?

12. Electronic Payments

Bill Payments, Electronic Bill Presentment and Payment, B2B E-Payments, E-Checks, Cybercash

12.1. What are the challenges to the above services faced by your bank?

12.2. Do you plan to introduce any of the above services in the near future?

13. Online Brokerage

13.1. Does your investment bank offer online portfolio consulting?

13.2. Does your investment bank offer online brokerage services? Why not?

14. Legal environment

Are there laws that address and prosecute computer crimes, authorize digital signatures, and enable public key infrastructure?

15. Misc.

15.1. What is needed in Lebanon in order to encourage e-commerce?

- Establishing Internet Portals
- Verifying Identities
- Assisting Small-Business Entries into E-Commerce
- Electronic Billing
- Facilitating Business-to-Business E-Commerce
- Issuing Electronic Money and Electronic Checks
- Integrating the ATM and Internet Networks

15.2. What are the adoption barriers to Internet banking in Lebanon?

15.3. Can mobile payments succeed in Lebanon?

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