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NATIONAL PROFILE OF THE INFORMATION SOCIETY IN LEBANON

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Introduction

The Lebanese Republic, which gained independence from France in 1943, is located in Southwest Asia, at the eastern edge of the Mediterranean Sea. With a relatively small area of 10,452 sq km (4,036 sq mi), the population has reached 4.1 million in 2007 with a population growth rate of 1 per cent[1] and a population density of 392 per Km^2. The Lebanese economy is service driven with tourism and banking activities leading as its most important pillars. As such the majority of the Lebanese workforce takes employment in the services. The GDP contribution, accordingly, is very large and amounts to roughly 67.3 per cent of the annual Lebanese GDP. Lebanon lacks raw materials for industry and it depends heavily on the Arab countries for oil. This has made it difficult for the Lebanese to engage in significant industrial activity. As such, industry in Lebanon is mainly limited to small businesses concerned with reassembling and packaging imported parts.

Following the end of the civil war (in 1990), there were extensive efforts to revive the economy and rebuild national infrastructure, notably in Information and Communication Technology (ICT). Lebanon has undertaken a series of initiatives over the past eleven years (1998-2009) to develop a vision, policy and strategy to make use of ICT in pursuing reform both in Government and nationally. These initiatives were initiated by the establishment of the Ministerial ICT Committee (MICTC) in 1997 which was chaired by the Prime Minister to coordinate and oversee developments in the implementation of the ICT agenda in Lebanon. Progress was made in a number of e-Government projects in the Lebanese Government including key steps to the establishment of a legal framework which will permit the use of electronic processes in conducting business. In addition, a "National e-strategy" and an "E-government strategy" documents were devised in 2002 under the direct supervision of the Office of the Minister of State for Administrative Reform (OMSAR). The "E-government strategy" document was revised and updated in 2008 to reflect the latest international trends and the national changes and challenges.

In 2001, OMSAR was officially nominated by the Prime Minister to lead and supervise any and all national e-government initiatives. The decision requests and instructs all public administrations to coordinate and inform OMSAR of any ICT related projects to ensure that all activities fall under a uniform and strategized e-government umbrella. Significant other new initiatives are under way including the US-Lebanon Partnership and the Paris III initiative with the pooling of Donor funds and the adoption of a new modality for management and control.

[1] The World bank: Key Development Data and Statistics (for Lebanon)

I. THE ROLE OF THE GOVERNMENT AND ALL STAKEHOLDERS

A. NATIONAL INFORMATION SOCIETY POLICIES AND E-STRATEGIES

In 1998 the first IT national policy and strategy was developed. This encompassed both public and private initiatives. An e-Government strategy that included 4 frameworks: legal, technical, capacity building and services followed in 2002. In 2008, this strategy was upgraded based on 4 new pillars that modernize the strategy and form new indicators with a new situational assessment to provide clear and realistic goals to be achieved.

In October 2003, the Lebanese Government, through the United Nations Development Programme (UNDP) and OMSAR, completed the development of the "National e-Strategy" and e-readiness report. The e-Strategy vision was aimed at "moving the economy and society of Lebanon towards a Knowledge Based Society in the shortest possible time while at the same time addressing related challenges and opportunities that Lebanon is facing".[2] Thirty-two policies, grouped under seven initiatives[3], were proposed as vehicles for implementing the strategy. A portal[4] was designed and developed to incorporate all information and data pertaining to the various initiatives that are related to the project.

In May 2004, a 2-day conference held at UN-ESCWA (United Nations – Economic and Social Commission for Western Asia), analyzed regional e-strategies. During the same conference, Lebanon officially launched its "National e-Strategy". In 2005, OMSAR and UNDP followed up with a series of stakeholder meetings that were aimed at launching the "National e-Strategy" and formulating a coherent plan for its implementation. Participants were chosen from the public and the private sectors, academia, NGOs and civil society. Issues and discussions centered on the educational, economic, social and infrastructure sectors. The consensus outcome of the working groups was presented during a national conference in November 2005. One of the main policy recommendations was the creation of a "National ICT Coordinating Office" (NeSCOOR) that would be based at the Office of the Prime Minister (OPM). NeSCOOR started its activities in February 2007 and since then, the committee has, in close cooperation with the "US Partnership for Lebanon" initiative, launched several national projects that included the establishment of a Lebanese broadband strategy and the proliferation of community access centers (as detailed in the following section).

B. PUBLIC/PRIVATE PARTNERSHIP (PPP) OR MULTI-SECTOR PARTNERSHIP (MSP)

In broad terms, a PPP is an agreement between the government and private companies to share in the risk and rewards of a business venture involving public services.

In September 2006, as a response to the devastation caused by the Lebanese-Israeli war that took place during July and August of the same year, leading US business leaders established a "Partnership for Lebanon" (PFL) Fund which aims at providing critically needed resources to assist in the reconstruction efforts[5] as well as helping build a better future for the Lebanese people. The partnership relies on donations and includes the following corporations: Microsoft, Intel, Cisco, Ghafari Inc. and the Occidental Petroleum Corporation.

In coordination with the Office of the Prime Minister, PFL's main five work streams with their respective ICT achievements are:

(a) Connected Communities

It is a work stream aiming at providing the Lebanese people with access to information technology and related services through the establishment of locally based community centres. These centres provide

[2] National e-Strategy for Lebanon, executive summary, page 1 (http://www.e-gateway.gov.lb)

[3] http://www.omsar.gov.lb/Cultures/en-US/Publications/Strategies/Pages/National%20eStrategy.aspx.

[4] http://www.e-gateway.gov.lb

[5] E-Government Strategy 2008

members of the community with local access to the Internet, opening doors to job opportunities, training and education, ICT certification, social services and government resources. In 2007 and as an earlier initiative, Anera with the support of PFL rehabilitated 10 youth and IT training centres to restore and enhance the capacities of locally based organizations in South Lebanon and meet the urgent and priority needs of their communities. In 2008, phase 1 of the project was completed in collaboration with MercyCorps where 5 community centres were established in underprivileged war damaged areas. Phase 2 of the project aims at opening 8 additional centres over all of Lebanon by end of 2010, where a connected community business model will be implemented. This initiative is being done in collaboration with Digital Opportunity Trust (DOT) and Young Men's Christian Association (YMCA).

(b) Workforce Training and Education

It is a work stream which aims at training Lebanon's future business, government and technology leaders by promoting the integration of ICT in schools. The first project is "Dialogue on Education" aiming at fostering effective collaboration and alignment between all related stakeholders and the Ministry of Education and Higher Education (MEHE). The main objective is to advance the effective integration of ICT in schools through knowledge sharing and structured discussions. The second project is "School in a Box", a pilot based on a cohesive model to facilitate the integration of ICT in public schools. It provides the basic foundation to move from traditional "teacher-centric" teaching styles to more "learner-centric" method by utilizing ICT as a tool in teaching and learning. It is launched in partnership with UNICEF and the support of MEHE.

(c) Job Creation/Private Sector Revival

Spurring ICT business development and new jobs by investing in promise companies and partnership with Relief international, the Berytech fund and others to fund new emerging ICT businesses. The aim of this stream is to create high-paying jobs in Lebanon and help skilled workers seeking opportunities.

(d) ICT Infrastructure

Working to bring ICT to all of Lebanon through modernizing Lebanon's communications infrastructure and developing a national broadband strategy in collaboration with the Telecom Regulatory Authority (TRA). In addition, the PFL has provided Lebanon with its first Internet Exchange Point to increase speed and access to the Internet. "The objectives of Beirut-IX are to remain a neutral, open Internet Exchange where service providers and content providers can connect and peer with each other, stimulating economic growth, prosperity, and stability for the country".[6]

(e) Relief and Response

In partnership with different NGOs (such as ANERA, Habitat for Humanity, Merci Corps and UNICEF), PFL contributed to the rebuilding and equipment of homes, and schools. As a major ICT initiative under this work stream, PFL has organized, with different NGOs, "Tawassol", the first ICT summer camp for youth in Lebanon (for details on "Tawassol" please refer to section 1.C).

In coordination with OMSAR, PFL initiated in early 2008 national government initiatives covering two main subjects:

(a) Government Interoperability

The interoperability workshop initiated an interlocution on exchange of information (for details on this initiative please refer to section 7. A);

[6] http://www.beirutix.net

(b) Government Unique ID

With the citizen's benefit being the main concern, the Unique ID workshop was organized as a working seminar exploring the benefits, the How, the When and the What to do to create a unique ID for all Lebanese citizens to allow them to reliably interact with the public administration.

In addition to the above, each of the PFL corporations has initiated separate initiatives as detailed below:

1. *CISCO Projects*

(a) *National Education Network (NEN)*

CISCO on behalf of the PFL and in collaboration with the Hariri Foundation is connecting 50 schools to the MEHE via a National Education Network (NEN). The NEN will provide a reliable school network infrastructure as well as a number of essential applications and services that promise to widen best practices, to help schools share limited resources and to promote the development of online teaching materials.

(b) *Lebanese Broadband Stakeholders Group*

In order to raise awareness on the need of reliable high speed connectivity, CISCO, on behalf of the PFL, was able to mobilize the formation of the Lebanese Broadband Stakeholders Group (LBSG). LBSG is an informal and independent coalition of professional associations, companies, and individuals that aims at creating wide support and non-partisan cooperation for broadband. The LBSG is the ensemble of people and associations that endorse the Broadband Manifesto, a simple 10 points document which reclaims Lebanon's position as the regional leader in the provision of services, and recognizes that access to broadband has become a local service and necessity for any growing and successful economy. The LBSG was launched on October 31st 2008 through a ceremony held at the Chamber of Commerce of Beirut and Mount Lebanon and under the patronage of the Lebanese Economic Organizations and the Federation of the Chambers of Commerce of Lebanon.[7]

(c) *CISCO Rural Enterprise Development for Information in Technology (CREDIT)*

CISCO and Relief International created the CREDIT program to promote ICT and reduce the digital divide between urban and rural areas. Through CREDIT access to capital for the ICT sector was made available in order to create successful businesses that contribute to community and economic development in Lebanon's rural and universal areas.

(c) *Executive Mentorship Program*

On behalf of the PFL, CISCO is pioneering the Executive Mentorship Program which offers opportunities for accomplished business leaders in the United States to share their experience, insight, and expertise with CEOs in Lebanon (with a strong focus on the IT sector). Lebanese executives have the opportunity to gain a trusted mentor who will act as a sounding board and provide objective advice, feedback and guidance on various business issues.

(d) *Lebanon Creative Cluster Initiative*

CISCO, the Professional Computer Association of Lebanon (PCA) and Tom Fleming Creative Consultancy are working together to establish a creative cluster in Lebanon, exploring the potential of Lebanon to become a leading creative industries cluster, notably in the information technology sector, and overcome current barriers to success.

[7] http://broadbandlebanon.org

2. *Intel Projects*

Telemedicine

Intel has donated a second telemedicine system to the Saint Georges Hospital in Ashrafieh and linked it to a governmental hospital in Kobeiat in the North. The systems provide the hospitals with real-time video consultation between physicians who are kilometres apart and the ability to share data and to diagnose patients from afar.

In addition, Intel has the ICT training program the "Intel Teach program" through which 700 teachers will be trained, in 2009, on tools to develop their information and technology skills and aid them in curricular development and enhanced classroom teaching methods.

3. *Microsoft's Projects*

(a) *Partners in Learning*

As a continuation of its partnership with the public education sector in Lebanon, Microsoft, and for the 5th year, has provided a Help Desk, Support Center and Innovative training center at the MEHE. The initiative provided a teacher's portal with an e-content to be developed by the teachers allowing the posting of the educational programs of 2008-2009.

(b) *Microsoft IT Academy*

It is an expansion of the MS academy to the Lebanese University. The Microsoft IT Academy program enables academic learning institutions to connect the world of education to the world of work by enabling faculty and students to acquire new technology skills in an academic setting. Microsoft IT Academies benefit from world-class Microsoft curriculum and cutting-edge software tools to experience real-world challenges in the classroom environment.

C. ROLE OF NON GOVERNMENTAL ORGANIZATIONS

The Lebanese National Society has become, over the past few years, more aware of the role of ICT as an E-ffective and E-ssential tool in building a healthy society and in expanding the reach of e-Government services to the community. A large number of NGOs have become more involved in the ICT sector, promoting and using ICT in their different social programs. Below is a list per NGO of its respective initiatives that develop or build upon the information society.

1. *Ijma3 (Ittihad Jameyet Maaloumatiyah Arabiya)*[8]

IJMA3, an NGO that brings together professional computer associations from various parts of the Arab World, acts as a uniting platform for the Arabic ICT private sector and aims at promoting the use of ICT to improve development in the region. In that regard, Ijma3 has undertaken the following programs in Lebanon:

(a) *Centre for Excellence (CFE)*

The goal of the Centre for Excellence is to increase economic opportunities for disadvantaged people in the neighborhood of Bourj al Barajne by providing business development training and services to women and youth. IJMA3 worked with Mercy Corps to establish a business training and development center within Mercy Corps' Center for Excellence (CFE).

(b) *Connected Community Centers*

The goal of the Connected Community Centers is to bolster community-owned economic and social

[8] http://www.ijma3.org

development initiatives in Lebanon through the use of ICT platforms and investments. The first phase of the project was implemented in five locations: Alma Chaab, Baalbek, Bint Jbeil, Bourj al Barajne, and Nabatiye. Phase one activities were designed for rapid start-up and implementation. Close tracking of lessons learned were delivered as well as documentation of success as a basis for replicating, expanding, and deepening the proposed community center model in subsequent phases. The project was coordinated with "Partnership for Lebanon" and the Social Development Centers (SDCs) of the Ministry of Social Affairs.

(c) *ICT for Farmers' Kids*

The program focused on promoting the use of ICT as a coordination tool to encourage young farmers to build and expand on their family farming experience. The project is in progress.

(d) *LEA Program*

The LEA program was introduced to highlight the use of ICT in teaching techniques and methods. The objective was to spread awareness among students and teachers on the benefits and ease of use of ICT. The program started mid 2008 and has been producing remarkable results in promoting the use of ICT as a tool for teaching. Sixty (60) public schools have been involved in this program. This initiative was done in partnership with Mercy Corps, Cooperative Housing Foundation (CHF International) and UNICEF.

(e) *Consensus Hunt Program*

The Consensus Hunt Program helps build within the youth community the concept of "Consensus" and "Tolerance" using technology. It will make kids "Partners" in conflict resolutions rather than "Receivers". The "Consensus Hunt" is a Game where a group of kids sits together to plot a game. The Game is based on "Conflict" and "Consensus" to eventually lead to "Conflict Resolution". The project is being planned for implementation in Lebanon and to later expand to other Arab countries, starting with Iraq.

(f) *TAWASOL Camp*

The TAWASOL camp is an ICT Summer Boot Camp, the first of its kind in Lebanon that implemented a unique socially oriented approach to ICT education as well as a multi-disciplinary approach in bringing together youth from the ages of 14 to 17 to interact with each other. The objectives of the camp are to prepare a new generation of leaders to think creatively and utilize ICT for personal development. The camp took place in August 2008 at University of Balamand. The camp was done in partnership with Women in IT (WIT) and the PFL

(g) *E-North*

The E-North project aims at connecting the whole north, in particular all rural and under privileged areas, with a wireless digital communications system, WIMAX, providing more economic incentives for businesses to start and build up in the north. As such, the project was launched on 14 March 2009. Every public school, municipality and police station in the north area is being able to connect for an unlimited use at only US$ 20 per month. It is foreseen that the public institutions will be provided with free Internet access for the first two years of the project. The Ministry of Telecommunications and the private sector (such as INTEL and GDS) were the major partners in this initiative.

2. *Professional Computer Association of Lebanon (PCA)*[9]

The PCA was established in 1996 with two main objectives: Enhancing the capabilities of Lebanon's ICT companies in order to compete better in the regional and global markets and transforming Lebanon into a knowledge-enabled economy in order to participate pro-actively in the global economy. With that in perspective, the PCA conducted the following ICT related projects:

[9] http://www.pca.org.lb

(a) *"PiPOP" LPCA Internet Point of Presence[10])*

PiPOP is a program initiated by PCA in order to address the "digital divide" in the Lebanese society. For this purpose, PCA has collaborated with civil society and/or international organizations to generate PiPOP centers in various parts of the country. PIPOP centers facilitate access to technology and information, help IT skills, improve standards of living and bridge the digital gap between urban and rural areas. The project was launched in 2000 in joint effort with Ijma3 and successfully closed in 2006 after establishing 50 centers in rural areas.

(b) *PICTA Academies (PCA ICT Academy)*

In order to allow the youth of Lebanon to thrive and not stagnate during difficult times, the PCA established PICTA academies. The academies offer a wide variety of courses and seminars that enable users to make efficient and effective use of computers and the Internet. PICTA also offered training courses that would have been usually unaffordable at low cost. Ten training academy centers were established. The project was divided into two phases, whereby phase I was closed with 4,000 graduates (each trainee received around 120 hours of training in total) and phase II is currently undergoing. Ijma3 and private sector companies and international organizations are the major partners in this initiative.

3. *Women in Information Technology (WIT)[11]*

Women in Information Technology (WIT), is a Lebanese non-profit association that was established in 2005. It is dedicated to inspire more women to be willing and able to use new technologies as a tool for their empowerment. WIT's main projects/programs that build upon ICT are:

(a) *MEPI's Women in Technology (WIT) Program in Lebanon*

The main objectives were to provide substantial capacity building to partner organizations and expand their reach and ability to serve women, create a strong base of women with vital IT and professional development skills allowing them to gain access to new careers and training opportunities, and empower WIT participants to play an integral role in shaping their country's future through training at eligible selected partner organization centers. The project started in November 2007. There are 4 training centers in rural areas. To date, each of these organizations trained 150 women. The main partners in this initiative are the Middle East Partnership Initiative (MEPI) of the US Department of State which is managed by the Institute of International Education (IIE).

(b) *ICT Youth Awareness*

WIT organized different events to spread ICT awareness among youth. These initiatives include the workshop entitled "Career Paths in Engineering and Technology", "Girls Explore IT" and "Visits to Schools". These events aimed at raising awareness among girls, mothers and women in general about their career opportunities, advancement and access to knowledge and sharing experiences. These events are taking place in a number of private and public schools and universities' in partnership with the Women in Engineering section of the IEEE NDU Student Branch, AUB, LAU, Microsoft, CISCO and other local NGOs.

(c) *RespAct, Respectible and Active Arab Citizen*

The project's output is a compact disk and a Web portal that are designed to acquaint Arab youth with civic duties and responsibilities. The produced materials are youth oriented and use FAQ, games, and quizzes

[10] http://www.pipop.org

[11] http://www.wit.org.lb

to set their message across. The project is implemented by a consortium of NGOs (Moroccan, Egyptian, and Lebanese), in collaboration with UNDP – ICTIDAR.

(d) *Empowerment Project for Women*

In January 2009, WIT initiated the Empowerment project for women as a support to the Empowering Municipalities through Local Economic Development (EMLED) project for the NBC (Nahar Al-Bared Community) cluster in Akkar, providing relevant expertise in technical areas to the NBC beneficiaries. Through workshops, attendees will be provided trainings and focus group meetings including interactive games and stimulation exercises covering areas such as ICT, entrepreneurship, and access to finance. The partners in the same initiative are Relief International (RI) and United States Agency for International Development (USAID)

4. *Saradar Foundation*[12]

Since its initiation, Saradar foundation has been dedicated to strengthening social cohesion and to promoting sustainable human development in order to achieve a "society for all", founded on social equity, economic prosperity and environmental protection. Its action is based on citizen participation and on effective partnership between the business sector and civil society in confronting today's challenges. From the main ICT related projects of the foundation:

(a) *The Saradar IT Programme*

The Saradar IT programme is based on the principles of "equal opportunities for all" and the "right to access information". It aims at facilitating access to technology and training ICT skills in rural areas of Lebanon. In its first phase, the project focused on the internally displaced populations in the cazas of Baabda, Aley and Chouf (Mount Lebanon) and specifically, women and children. This project is still ongoing and was initiated in partnership with Banque Saradar sal.

(b) *E-caravan*

As a mobile computer school, the E-Caravan-Phœnix travels to remote areas and villages that lack IT centers, technical institutions or adequate telecommunication infrastructure. The E-Caravan aims at covering the entire Southern region during the life of the project; with a target of participation of 65 per cent women and 5 per cent disabled persons. The E-Caravan-Phœnix targets subjects such as rural tourism, women, disabled persons, Training of Trainers, supporting small and medium enterprises and others. The project was launched in January 2006 in cooperation with UN-ESCWA and is still ongoing.

(c) *Adaptive Technology Program (ATP)*

The Adaptive Technology Program (ATP), a first in the country and in the region, proposes an IT learning and capacity-building activity dedicated to the visually impaired in Lebanon. This program, that was initiated in partnership with the Youth Association of the Blind - Lebanon (YAB), Al I'zzat wa al Saadah Association, The Canadian Fund for Social Development, The Canadian International Development Agency (CIDA), and Oxfam-Québec, was delivered through two mobile computer schools, the Saradar IT Program and the E-Caravan, which roam clusters of villages to introduce the world of Information Technology (IT) to marginalized social groups.

(d) *The Accessibility Programme*

The main aim of the Accessibility Programme is to encourage the social integration and development of individuals with disabilities into the workforce. The initiative started from rural areas, choosing the Bekaa Valley as a pilot region, due to the high number of disabled people that are heavily affected by the poverty and isolation that this region is facing. Another aim is to link IT training to employment needs, encouraging

[12] http://www.fondationsaradar.org

the socio-economic integration of individuals with disabilities into the workforce. The program started in 2003 in Bar Elias (Bekaa Valley) and is still ongoing.

5. *IT and Internet Association – Lebanon (ITIA)*[13]

ITIA was established in 2001 with a primary mission to take a leading role in establishing, developing and promoting multi-sector systems and an electronic environment and applications based on International Business Standards. The organization has worked on enhancing the local information technology society through different initiatives (rather than projects):

(a) *Enhancing the Telecommunication Industry*

ITIA devised an "Enhancing the Telecommunication Industry" legislative proposal aiming to enhance the telecommunications environment and practices for the foreseen future, and called for the reduction of bandwidth rates, and E1 rates.

(b) *Erasing Computer Illiteracy*

ITIA called for free ICT seminars and conferences to be open for the Lebanese information society allowing the access to up to date technologies to the public and private sectors in Lebanon. Between the end of 2005 and beginning of 2006, ITIA would establish a call for free ICT seminars and conferences.

II. ICT INFRASTRUCTURE

A. INFRASTRUCTURE

The telecommunications are a monopoly of the Lebanese Government (Ministry of Telecommunications, MOT) that owns and/or licenses all fixed, mobile, and wireless networks. OGERO (Organisme de Gestion et d'Exploitation de l'ex Radio Orient), established in 1972 and 100 per cent owned by the government, is the only entity in Lebanon responsible for the operations, maintenance, sales, marketing, billing and management of the fixed telecom network in the country.

In 2002, a new law was issued for the privatization of the telecom sector especially that the privatization of the telecom sector has become imperative. In fact, the Paris III conference has shed the light on that and set the need for privatization to be completed within a period of time not exceeding 5 years. The Lebanese Ministry of Telecommunications has been asked on many occasions to speed up the privatization process, which seems to be more difficult than expected since 38 per cent[14] of the state budget comes from telecom revenues. However, the Ministry of Economy & Trade and Ministry of Finance, being the main players, were putting all possible efforts to complete the privatization process of "Liban Telecom" and fixed lines by mid 2007.

With the launch of the Telecom Regulatory Authority (TRA) in Lebanon in 2007 the sector started witnessing a promising future. The TRA is set to privatize and liberalize the market and soon introduce new telecom services, as well as sell new licenses in several fields. Though the auction of the country's two mobile networks was scheduled for February 2008, the Telecommunications Minister at the time postponed the privatization until after the upcoming presidential elections due to political pressures. Unfortunately the delay in privatization of the telecom sector has inhibited the expected growth in the telecom job market (according to a press release with the Minister of Finance at the time, 2008, the privatization of the telecom companies would have created more than 50,000 jobs in Lebanon, as more companies will be more inclined to invest in the country once this sector is fully liberalized).[15]

[13] http://www.itialebanon.org

[14] http://www.hatiftelecom.com/news/lebanon.html, November 1 2008

[15] http://www.regulateonline.org/content/view/1108/40/

Currently, Lebanon Mobile Telecom penetration has reached 28 per cent of the population with just two operators at a time when the Arab world is witnessing strong growth in telecom subscriber numbers and rising competition.[16] As such, Lebanon finds itself under pressure to deliver quality telecom and ICT.

1. *Fixed and Mobile Telephone Networks and Penetration*

The fixed line network in Lebanon has gone through major advancements since 2003 with the dissemination of public telephone booths and the establishment of a call center functioning 24 hours a day and 7 days a week.

Table 1 provides a listing of major indicators for fixed and mobile telephony for Lebanon from 2005 to 2007.

TABLE 1. FIXED AND MOBILE TELEPHONY INDICATORS FOR LEBANON (2005-2007)

Indicators	2005	2006	2007
Total telephone subscribers in (000s)	1628.3	1787.8	1957.5
Total telephone subscribers per 100 Inhabitants	45.52	49.46	47.76
Main fixed telephone lines in (000s)	634.7	681,4	697.5
Main fixed telephone lines per 100 Inhabitants	17.75	18.85	17.02
Cellular mobile subscribers in (000s)	993.6	1,106.4	1260
Cellular mobile subscribers per 100 Inhabitants	27.78	30.61	30.47

Source: International Telecommunication Union

Lebanon's market is regionally peculiar with two GSM networks, government owned, and managed by private companies.

Early 2009, a new research and analysis from the Arab Advisors Group revealed that Lebanon's cellular operators charge the highest prepaid average minute rates in the region. The report focused on the average cellular rates of 46 Arab countries' operational cellular providers.[17]

In addition, Lebanon was found to have 12.8 per cent of its GSM users sharing their phone lines with other members of their families. The main reason for that was not having a mobile line of their own which indicates pent-up demand for cellular services in Lebanon. This provides a promising future for the country's mobile penetration which is below regional levels.[18]

In an attempt to increase the fixed and mobile network penetration the MOT has taken vital measures represented by the following:

- All fixed lines became automatically international lines (as of 11/2007);
- Fixed lines were refunded for the international set up fees (as of 19/10/2007);
- International call rates have been reduced to around 30 per cent for calls between 10p.m. and 7a.m. (as of 1/11/2007);
- Billing for fixed lines to monthly rather than every three months (as of 8/2007);
- Reduced the fixed phone installation fees from 200,000 to 57,000 and this includes call waiting, clip and call forwarding (As of mid 2008, this has increased the number of subscribers by 45,000[19]);
- Decreased the fixed line to fixed line call rates from 100 LBP per minute to 49LBP between 7a.m and 10p.m and to 28LBP between 10p.m. and 7a.m.;
- Decreased the fixed line to mobile line call rates from 300 LBP to 198LBP;

[16] http://www.tvover.net/2009

[17] http://www.arabadvisors.com/

[18] http://www.arabadvisors.com/

[19] Ministry of Telecom

- Reduced cellular rates (the per minute and the monthly subscription) for prepaid and postpaid cards (as of April 2009: a 40 per cent drop in the post paid cards monthly subscription fees, and 16 per cent for the per minute rate. The one month prepaid cards will fall from 45$ to 35$);
- Increased the number of mobile lines (800,000 new lines were introduced to the market as of March 2009);
- Free charges for changing a prepaid card to become a post paid card (As of April 2009).

In addition, the two local mobile companies have started to offer further services such as providing mobile customers the freedom to select and book their mobile number online, providing international messaging access for free, e-recharge of the prepaid cards, and credit transfers among others.

On October 2008, the two mobile operators in Lebanon organized in coordination with the telecommunication ministry a first-ever auction of privileged mobile numbers, allowing the government to benefit from the collected revenues rather than ending up on the black market. Currently, Lebanon has less than 1.2 million cellular subscribers, but the revenues from the sector are the second-largest source of income for the government after value-added tax (VAT). The expanding and modernizing of the networks would increase the value of the cellular lines and allow the government to get a better price from the intended privatization of the mobile companies.

In December 2008, the TRA undertook an in-depth market assessment with the assistance of Frontier Economics (under the EU funded project) and contracted to the AC Nielsen. The key results on phone penetration and overall mobile usage were revealed as follows:

TABLE 2. OVERALL USAGE TYPE FOR THE YEAR 2008

	Residential *(percentage)*	Corporate *(percentage)*
Penetration Landline (HH)	50	100
Penetration Mobile	53	77
Postpaid	12	81
Prepaid	88	19

Source: Telecommunications Usage Patterns and Satisfaction in Lebanon[20]

TABLE 3. TYPE OF PHONE CALL USAGE (2008)

	Percentage Type of Usage		
Overall Usage	All	Prepaid	postpaid
Calls	72	70	87
SMS	27	29	11
Data	1	1	1

Source: Telecommunications Usage Patterns and Satisfaction in Lebanon[21]

On another hand, the Ministry of Telecommunications has signed contracts for international call centers in Lebanon. The MOT has so far signed 10 call-center contracts and expects to sign 10 more in the near future. The MOT is encouraging the contracted companies to set up offices outside Beirut to stimulate the economies in other regions, and to hire handicapped people as the law stipulates that 3 per cent of the workforce should be physically disabled. The first 5 call centers have provided around 500 job opportunities whereby each centre has around 35 operators per shift working 24 hours over 3 shifts a day.[22] It was noticed by the MOT that the companies applying to operate in Lebanon are exploring the possibility of providing other services that can draw more customers to the county which will eventually allow the telecom market in

[20] http://www.tra.gov.lb/Market-reports

[21] http://www.tra.gov.lb/Market-reports

[22] Ministry of Telecommunications

Lebanon to reach international competitive measures. It is worth noting that the call centers are the only parties in Lebanon that will be allowed to use Voice over IP technology as their service backbone.

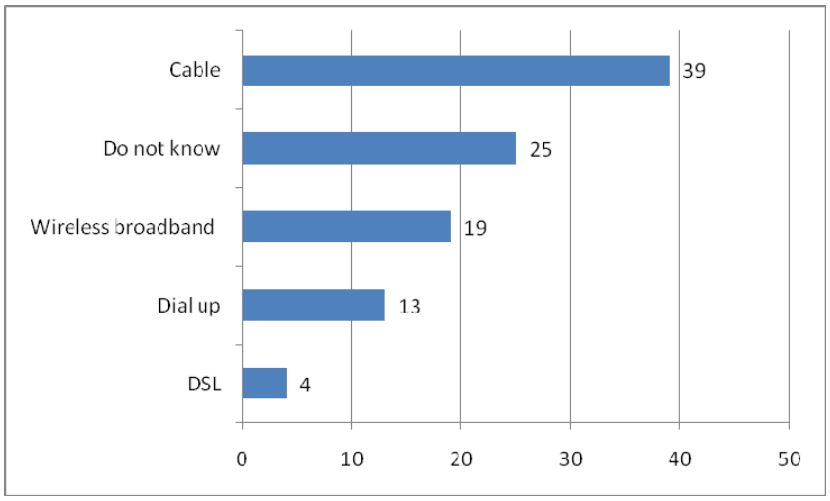
2. *Broadband, ISPs and Penetration*

Overall, the quality of service of ISP in Lebanon is good. However, Internet fees are still relatively high in Lebanon as compared to other countries in the ESCWA region particularly if one considers the low bandwidth offered. Currently there are 15 licensed ISPs in Lebanon:[23] Cyberia (www.cyberia.netlb), IncoNet-Data Management (IDM: www.idm.net.lb), Fiberlink Networks (www.fiberlinknetworks.net), Sodetel Internet (www.sodetel.net.lb), Terranet (www.terra.net.lb), Trinec (www.trinec.net), Netlink (www.netlink.net.lb), FarahNet (www.farahnet.net), Virtual ISP (www.visp.net.lb), Lebanon OnLine (www.lebol.net), Moscanet (www.wise.net.lb), Comnet ISP (www.comnetlb.com), Pros-services (www.prosservices.net), Broadband Plus (www.bb-p.net), and Keblon (www.keblon.net).

Before January 2003, unlimited Internet access was available through cable companies. As of January 2003, MOT regulations halted the operation of illegal Internet providers, and introduced the dedicated Internet line as an alternative. The dedicated Internet line is a regular line that is enabled to connect to local ISPs using 4-digit numbers and to receive data-communication only with no voice communication, where voice calls are unavailable during the data communication time.

By late 2004, the MOT introduced a broadband service. This service was based on cable connection to satellites on the tops of buildings. In fact, through a TRA survey[24] conducted in December 2008 in collaboration with AC Nielsen, it was disclosed that though the household PC penetration is around 52 per cent, only 31 per cent of them have an Internet connection with the following 2008 figures illustrating the distribution on Internet connection types:

Figure 1. Types of Internet Connection Used in Households by Percentage (%)



Source: TRA survey (Dec 2008), Telecommunications Usage Patterns and Satisfaction in Lebanon

The survey indicated that the low household Internet penetration rate was due to:

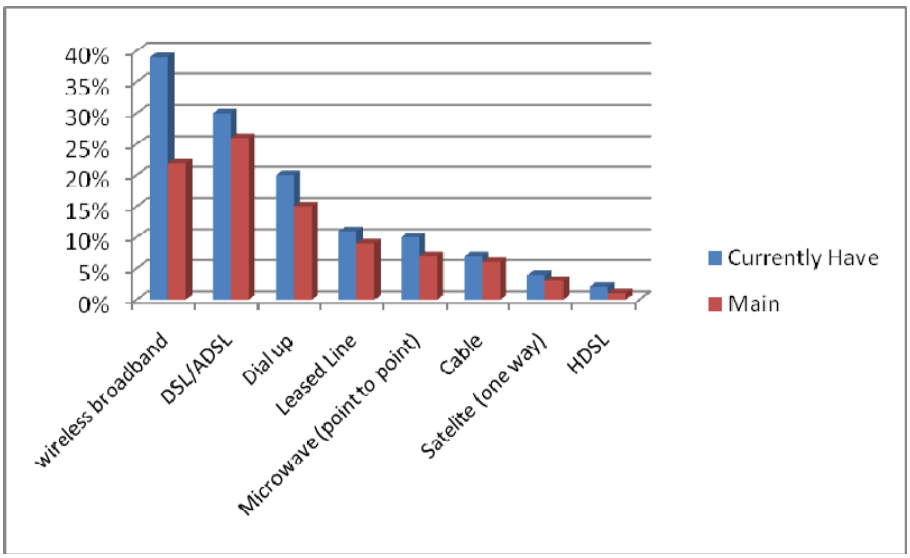
- Expensive: subscription, monthly costs are expensive (39 per cent);
- I don't need Internet/I do not think it s necessary for me (37 per cent);
- Expensive: installation fees are expensive (34 per cent);
- It is distracting (25 per cent);
- Internet is not available in this residential area (10 per cent).

[23] http://www.mpt.gov.lb

[24] http://www.tra.gov.lb/Market-reports

The survey also revealed that the take-up of Internet is highest among upper socioeconomic classes (in Beirut and among people aged between 15 and 34. As such expense is the main barrier to Internet inclusion in households. As for the corporate segment, 88 per cent of surveyed companies indicated that they use the Internet with the following usage type distribution.

Figure 2. Types of Internet Connection Used in Corporations



Source: TRA survey (Dec 2008), Telecommunications Usage Patterns and Satisfaction in Lebanon

Wireless broadband and DSL are the mostly used with 39 per cent and 30 per cent respectively. The relatively high penetration of DSL indicates demand for and take-up of faster Internet connection types. Though dial-up is the oldest connection type, it ranks third and is still in use as a main connection by a significant proportion of companies in Mount Lebanon and the North. Table 4 provides a listing of major indicators for Internet penetration for Lebanon from 2005 to 2007.

TABLE 4. INTERNET PENETRATION FOR LEBANON (2005-2007)

	2005	2006	2007
Internet subscribers in (000s)	230	310	260
Internet subscribers per 100 Inhabitants	6.43	8.58	6.34
Internet users in (000s)	700	950	1570
Internet users per 100 Inhabitants	19.57	26.28	38.3
Broadband Subscribers in (000s)	130	190	200
Broadband Subscribers per 100 Inhabitants	3.63	5.26	4.88

Source: International Telecommunication Union

3. PC Dissemination

Many efforts were exercised by different NGOs and international associations to broadcast ICT usage through donation and distribution of PCs (notably to the educational sector). The PC penetration, as estimated by AC Nielsen for the year 2008, is estimated to be 52 per cent in the residential segment[25] and the overall Lebanon PC market (including notebooks and accessories) was worth US$88mn in 2007.[26]

[25] http://www.tra.gov.lb/Market-reports

[26] http://www.businessmonitor.com

B. INITIATIVES/PROJECTS FOR ICT INFRASTRUCTURE AND DEVELOPMENT OF NEW SERVICES

New ICT development projects in Lebanon enjoy the general business climate in the country, where trade is open, taxation is reasonable and related commercial policies compare favourably to other countries in the Middle East. The "LOCO Monitor" tracked 71 foreign direct investment projects (FDI) in Lebanon since 2002 to date, of which 12 were in the ICT sector.[27] A survey conducted by "Connexus", a local consultancy firm, asserts that investors are still interested in the telecom sector in Lebanon despite the war and that the value of the telecom equipment such as satellites and antennas that were destroyed during the war is a small portion of the equation. Although Lebanon's telecom infrastructure suffered hits in the war, mobile-phone service was only interrupted in a limited number of areas.[28]

Under the 4 pillars of E-Government, different initiatives and projects have been taking place and/or planned to develop the ICT infrastructure and the government services. These initiatives/projects are described below:

(a) *MICTC meetings*

OMSAR, in partnership with key agencies and the Ministerial Information and Communication Technology Committee (MICTC), is proposing, as part of the upgraded E-government strategy, to schedule a series of meetings to "energize" the implementation of the Lebanese E-Government strategy.

(b) *Chief Information Officers (CIO) and CIO Council*

The appointment of Chief Information Officers (CIO) in public agencies is key to introducing new processes and enabling an enterprise wide view of the use of ICT to be developed and promoted in Government.

(c) *Unique ID*

Unique citizen identification is primary for G2C services. With the current inaccuracy in identifying different people due to similarity in names and register information, G2C services are jeopardized. The Unique ID will allow Lebanese citizens and residents to interact with the public administration with a reliable identity reference.

(d) *E-Government Smart Card*

Smartcard technology can enable an organization to become more secure, efficient and interoperable while delivering strong authentication and security, identity management, data management, customer support and communications. The e-Government Smartcard initiative for the Republic of Lebanon was commissioned under the Malaysian Technical Assistance Programme in March 2008 under the supervision of OMSAR. The project scopes a comprehensive term of reference for the implementation of the Lebanese e-Government Smartcard on the health sector related.

(e) *Government Website Standardization*

OMSAR is in the process of developing standards for government Websites based on best practice models.

(f) *Government Website Upgrades*

Lebanon has a significant presence on the Internet with many Websites. However, these are not yet interactive such as to allow the submission of forms electronically. This project's goal is to upgrade selected Government Websites to make them interactive.

[27] The Ministry of Foreign Affairs in Denmark, http://www.ambbeirut.um.dk

[28] http://www.connexusco.com/publications.htm

(g) *Standardization of Government Transaction Forms*

OMSAR is currently working on a "Government Transaction Forms Standardization" to unify and simplify government transaction forms. This initiative aims at easing any future effort by the Government of Lebanon to move from the basic digital forms placed online for downloading and manual filling towards complete online e-service transactions.

C. ICT CONNECTIVITY

1. *Digital Inclusion, Enabling Universal, Sustainable, and Ubiquitous Access to ICTs by All*

Different parties have been involved in the wide distribution and accessibility to ICT by all types of Lebanese communities. The different initiatives are being described in more details in the respective sections.

2. *Total Country Connectivity Measure*

Though a lot of the Arab countries were able to raise their connectivity measure, Lebanon (much like Morocco and Oman) were not able to reach competitive levels with its neighbouring countries. Contrary to the norm, the drop in fixed phone lines negatively affected the household penetration measure of 2003 that pulled down the 2003 Total Country Connectivity measure (TCCM) score from their 2002 levels.[29] Lebanon, nevertheless, has been taking different measures (as listed in section 0) to overcome its regional market slump. However, Connection Speed versus Connection Quality is a crucial issue for measuring bandwidth performance. A fast connection speed by itself can render more application deliver problems, than a slower connection with consistent throughput.

D. INTERNET INFRASTRUCTURE

Considerable investments and improvements are underway in the "communications infrastructure development" in Lebanon, led by the government owned-providers (Ministry of Telecommunications, OGERO, and two government owned mobile phone companies), as follows:

- Implementation of DSL, however tariffs are seen to be high when compared to international standards;
- Other plans include the improving of communication facilities/ improved international Internet capacity/ better broadband services/legalization of Voice over IP (VOIP) services;
- Serious plans to selling the 2 private mobile phone companies present today;
- Proposals as to the privatization of OGERO and the creation of "Liban Telecom";
- Creation of the TRA (Telecommunications Regulatory Authority) in anticipation of the above-mentioned plans.

Government communications services are to date provided at the request of individual Ministries to meet specific requirements (e.g. the Ministry of Education's project to connect 200 public schools; the Ministry of Finance's financial network). In providing such services the suppliers are operating in "reactive" mode.

The government being the heaviest user of communications capacity, it needs a "grand plan" designed to meet its future communications requirements at the "enterprise level"; MOT and OGERO are considered to be suitable for the developing of such a plan for e-government communications as they have the resources in terms of skills, technological capacity, and complete data on the use of communications facilities across all governmental bodies. However what still needs to be considered by MOT and OGERO is that they need to communicate with other ministries and agencies in order for them to be informed of their strategic ICT needs and accordingly to assist in developing their government strategies. It is however necessary for ministries to develop, each, a plan for its future services as well as document communications capacity and

[29] http://www.mafhoum.com

services needed and required (accompanied by a time frame) in order to develop an overall communications strategy and vision. The case today is that many ministries do not have the capacity to develop the above mentioned plans.

1. *Internet Backbone*

Internet in Lebanon first started with dial-up connections. Other Internet backbones were introduced in the market with the development of the local networks and the improving of the communication facilities among others. A massive program to build the telecommunication network practically from scratch was initiated in 1995. The result is a nationwide, fully digital Public Switched Telephone Network (PSTN), a Global System for Mobile Communication (GSM), a high-speed data network, digital leased lines, and the introduction of ISDN services.

The main types of Internet connections available currently in the country: dial up, leased line, microwave, satellite, DSL/ADSL, HDSL and wireless broadband.

Lebanon still, however, does not have a public data network (PDN). Tables 5 provide a listing of major Internet backbone indicators for Lebanon for 2006.

TABLE 5. INTERNET BACKBONE INDICATORS FOR LEBANON (2006)

	2006
Leased lines subscribers (K)	7.6
Initial cost [Leased Lines] (US $)	667
Monthly charge [Leased Lines] (US $)	200
ISDN subscribers (K)	0.92
Initial cost [ISDN] (US $)	551
Monthly charge [ISDN] (US $)	37(1)

Notes: (1) Value ranges between 37$ and 42$ Source: ICT Indicator database ESCWA, ICTD.

During the 11th annual Arabcom summit held at Habtoor Grand Hotel in Beirut on May 2009, Alfa (one of the two mobile operators in Lebanon) declared that it will be launching the HSPA plus technology in Lebanon by the end of 2009. HSPA plus offers over 20 megabits per second data speed over cellular, it is an upcoming wireless broadband standard which provides data rates up to 42 and 11 megabits per second in the downlink and uplink respectively with multiple input, multiple output technologies and higher order modulation. It is supposed to provide internet speed 20 times faster than anything available now in Lebanon, and even 50 times faster than what is called high speed today. It is worth noting that Austria and Australia are the only countries that have launched this service so far, and Lebanon is going to be the first to launch it in the Middle East.

The main usage of such a technology is for watching videos and even seeing the person you are talking to.

2. *Broadband Network Infrastructure*

Since end 2003, broadband in Lebanon was frozen by its status quo due to different reasons such as no activation of the TRA at the time, no privatization of the telecom sector, in short no practices taken based on the 2002 telecom law (number 431). In 2005, an internal decision, in OGERO and MOT has been taken to engage in a broadband access pilot over all of Lebanon. The pilot was built as puzzles, connecting the existing infrastructure and building on it to make it a broadband. The main aim was to legalize and strategize all haphazard and illegal Internet services that were taking place in the country. The latter has also paved the way for new types of Internet services, and from the first to benefit was the automated medical compensation system of the COOP. In a step to legalize and authorize the pilot broadband project, MOT took the decision to make OGERO the sole provider to end customers and to existing ISPs. This has helped build existing

networks over OGERO's. In June 2007, OGERO offered Broadband Internet over DSL service (marketed as BLINK) for the first time in Lebanon. This service enabled the public to get on-line 24 hours/24 without the need for dial-up, with a choice of a range of speeds offered by MOT/OGERO starting from 128 Kbps to 2 Mbps depending on the need. Currently, the broadband spread over all of Lebanon with 10GB Ethernet base (planning to reach 40GB). OGERO's share of the DSL market currently stands at 60 per cent.

HDSL was also placed in the market; however, demand for HDSL is low in comparison with DSL due to the higher imposed fees. HDSL has been mainly requested by small businesses for which the cost benefit ratio is affordable.

Lebanon will be getting a new international telecom cable boosting connections with Jordan, Saudi Arabia and Syria, according to the Ministry of Telecommunications in Beirut. On 19 February 2009, MOT signed a preliminary agreement with Saudi Telecom to deploy a new cable that will boost peak Internet speeds for Lebanese Internet users by a factor of 20. The licensed companies will be able to make use of OGERO's existing infrastructure and further new capacity such as the cable from Saudi Telecom (MEED 27:01:09). This initiative will be made possible by laying fiber-optic cables covering an area of 4,700 kilometers and with an implementation period extending from June 2009 till end of 2011. This will also allow the introduction of new services in the fixed line networks. The project will introduce new technologies for the cellular networks such as the third-generation mobile (known as UMTS). The ministry installed fiber-optic cables in Lebanon 15 years ago but this network only covered an area of 1,300 kilometers. With its wide parameter range, the project will ensure un-interruptability of services.[30]

3. *Wi-Fi Hotspots and WiMAX*

The Ministry of Telecommunications provided wireless data networking licenses in 1997. The licenses were activated in 2003 and the companies started providing fixed wireless services in 2004. The technology enabled the licensed providers to use frequencies ranging between 1.9 GHz, 2.6 GHz and 3.5 GHz for point to multi-point applications and 7 GHz for point-to-point links. In total, there are four licensed wireless network providers: Cedarcom, GDS, Pesco and Cable One. The bandwidth came in packages of 128, 256 and 512 Kbits. The prices for monthly connections started at $50 and increased in proportion with the bandwidth.

During the time when DSL was being prepared for, Lebanon's wireless operators deployed mobile wireless broadband network based on iBurst technology.[31] The various services (e.g. Mobi, Wise and WiGo) provided connection with a maximum speed of 1 Mbps downlink and a maximum of 354 kbp/sec uplink. The serviced area covered almost 1.5 million inhabitants and covered over 90 per cent of businesses in Lebanon before the inauguration of DSL.

In March 2009, the Ministry of Telecommunications announced the launching of the "E-North" project. The project aims at connecting the whole north (and in particular all rural and under privileged areas) to the technology highway, WiMAX, providing more economic incentives for businesses to start and build up in the north. As such, the project creates more employment opportunities, less social problems and eases on the city congestion. The ultimate goal is to spread the concept on all of Lebanon.

4. *National and Regional Internet Exchange Centres*

CISCO on behalf of the PFL, the PCA, Packet Clearing House (PCH), and Berytech all joined hand to create the Beirut-IX, the first Internet Exchange Point (IXP) in Lebanon. The objectives of the Beirut-IX are to remain a neutral, open Internet Exchange where Service Providers and content providers can connect and peer with each other, stimulating economic growth, prosperity, and stability for the country. The Beirut-IX was launched in December 2007.[32]

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[30] http://www.dailystar.com.lb

[31] Arab Advisors Group *Strategic Research Service*, 4 January 2007, page 1.

[32] http://www.beirutix.net

5. *Regional Root Servers*

Lebanon uses two main root servers:

(a) *CADMOS*

It is a submarine telecommunications cable system in the Mediterranean Sea linking Cyprus and Lebanon. It has landing points in Pentaskhinos, Cyprus and Beirut, Lebanon. It has a design transmission capacity of 622 Mbit/s and a total cable length of 230 km. It started operation on 8 September 1995.

(b) *BERYTAR*

It is a submarine telecommunications cable system in the Mediterranean Sea linking Syria and the Lebanon. It has landing points in Tartous, Syria and Beirut, Lebanon. It has a design transmission capacity of 5 Gbit/s and a total cable length of 134 km. It started operation on 7 April 1997.

The Lebanese Ministry of Telecommunications has recently engaged in the setting up of a multi terabit submarine cable connecting India to the gulf then to the MEA. The Lebanese MOT is one of the 9 operators working on this infrastructure, engaging for the first time ever, as a member in a real submarine cable consortium. In 2005, the total traffic recorded by all ISPs combined didn't exceed 100Mb/sec. With the planned infrastructure the traffic is planned to hit 1.5 Gb/sec. With this infrastructure Lebanon can become a hub for the region offering VPN service for the neighboring countries with 120 Gb/sec links. There will be 3 fiber cables each having 12 wave lengths and providing 10 Gb/sec per wave length.[33]

6. *Commercially negotiated Internet transit and interconnection costs*

The BERYTAR and the CADMOS submarine fiber optic cables are an important part of the region's fiber optic submarine network which allows for worldwide cable access and restoration of international connections. Berytar connects Tartous in Syria to Beirut in Lebanon with a fiber cable length of 134Km. The Berytar is 46.875 per cent owned by the Lebanese Ministry of Telecommunications, 46.875 per cent by the Syrian Telecom establishment and 6.25 per cent by Areno. The network has been put in place since April 1997 with a life span of 25 years, an average transmission of 5Gbps, a 1550 Nano meter of length of wave transmission and 5,670 Basic 64 Kbps Channels.[34] Table 6 below provides more details.

TABLE 6. FIBER OPTIC SUBMARINE CABLE "BERYTAR" TARIFFS

Co-owner basis	STM1 Ownership	1,985,548 USD
	1 Tributary ownership	992,774 USD
IRU (Irrevocable rights of use)	Half system 2 Mbps	30,000 USD
Discounts	1-5 half systems	No discount
	6-10 half systems	10% discount
	11-21 half systems	20% discount
	Over 21 half systems	30% discount

Source: Ministry of Telecommunications, site (http://www.mpt.gov.lb)

Cadmos connects Beirut to Pentaskhinos - Cyprus. Its length is 230 KM using Armoring cables, and it consists of two fiber pairs, SDH technology. The root server is 38 per cent owned by the Lebanese Ministry of Telecommunications and 62 per cent by Cyprus, Syria and other countries. The network has been put in place since September 1995 with a life span of 25 years, an average transmission of (1+1)x622 Mbps, a 1550 Nano meter of length of wave transmission and 3780 Basic 64 Kbps Channels.[35] Table 7 below provides more details.

[33] Dr Toufic Chbaro, OGERO IT Director

[34] http://www.mpt.gov.lb

[35] http://www.mpt.gov.lb

TABLE 7. FIBER OPTIC SUBMARINE CABLE "CADMOS" TARIFFS

IRU (Irrevocable Right of Use)	
half system 2 MB/S	34,500 USD
half system 8 MB/S	130,000 USD
half system 34 MB/S	488,000 USD
VC3	630,000 USD
155 / 140 Mbps	1,811,250 USD

Source: Ministry of Telecommunications, site (http://www.mpt.gov.lb)

7. *International bandwidth*

In 2005, Lebanon was ranked 86 internationally with 290 Mbps bandwidth level. As mentioned in different sections of the document at hand, the Ministry of Telecommunications has been working on enhancing the telecom sector in Lebanon to reach competitive levels regionally and internationally. Table 8 below depicts the year on year growth of Lebanon's connection growth as reported by Wireless International

TABLE 8. YEAR ON YEAR CONNECTION GROWTH

	2003	2004	2005	2006	2007	2008
Rank in the Middle East Region	16	15	15	13	13	9
Value	3.61%	10.54%	11.97%	10.18%	12.67%	19.87%

Source: Ministry of Telecommunications, site (http://www.mpt.gov.lb)

III. ACCESS TO INFORMATION AND KNOWLEDGE

A. PUBLIC DOMAIN INFORMATION

1. *Development and Promotion of Public Domain*

The United Nations Educational, Scientific Organization (UNESCO) in Lebanon has been working on promoting access to information through public domain, and promoting freedom of expression and as such strengthening the Lebanese communication capacity. UNESCO's Communication and Information section has led on many awareness campaigns embodied by many workshops. Some of the main topics related to use of public domain information were in Jan 2007: "Expert group meeting on open source software solutions" and in May 2007: "School Libraries as Learning and Information Centres".

2. *Use of ICTs as a Fundamental Working Tool*

Under the umbrella of e-government, OMSAR has been promoting the use of ICT as a tool to overcome the fundamental work challenges by setting ICT standards and guidelines. On another hand, the role of the different NGOs has been imperative in dispersing the use of ICT. The efforts put focused on underprivileged areas were coupled with awareness campaigns on the essential and vital role of ICT in general and in the work and education advancement in particular.

3. *Availability and Development of a Digital Public Library and Archive Services*

In 2005, the National Archives and OMSAR worked jointly on the digitization and indexing of all historic documents available at the directorate. To save deteriorated microfilms, there was a need to transfer all information to a more sustainable medium. The project provided an application to insure the transfer and storage of millions of graphics, the digitization of 19,000 microfilms and digitization of a total of 3,000,000 images together with the furbishing of the National Archives with microfilm equipment.

pACCESS TO INFORMATION AND PUBLIC INFORMATION

1. *Availability of Adequate Access to Public Official Information*

OMSAR launched, on 21 January 2002, the Central Office for Administrative Information (COFAI), a one-stop information shop consisting of two parts: a phone help line (1700) and an Internet website www.informs.gov.lb. Informs' first version encompassed information on 1,700 government transactions. The site's second release in 2003 provided a total of 4,500 government transactions and an information directory of different public and some private agencies. The COFAI team is currently working on upgrading the site to turn it into a comprehensive user-friendly information portal, and is continuously improving, adding and developing the content information in order to meet the needs of Web users.

2. *Access, Including Free and Affordable Access, to Open Journals, Books, and Scientific Archives*

Government agencies and ministries' websites mainly omsar.gov.lb, bdl.gov.lb (central bank), and ministry of finance, provide free access to Newsletters, reports and publications.

Party affiliated websites and newspapers offer free access to much of the content of journals as well as affordable access to their archives. Also, though restricted, university libraries such as the American University of Beirut offers its students online books, archives, journals, and references.[36]

C. MULTI-PURPOSE COMMUNITY PUBLIC ACCESS POINTS

1. *Availability of Sustainable, Affordable or Free-of-charge Access Multi-purpose Access Points*

NGOs in Lebanon played a major role in building and maintaining Internet and information technology access points and community centers to empower the public and connect it to the latest technologies. The below is a review of all previously described initiatives (and their respective reference in the document) that took place in that regard:

- PFL and Ijma3 Initiative: Connected Communities project (section section0 and section 0);
- PCA initiative: PIPOP (section 0);
- Saradar Foundation initiative: E-caravan (section 0).

2. *Provision of Help Services and Assistance to Users*

LibanPost, the national mailing service in Lebanon, has been recently extending its services to the public to include a multitude of government related services in full cooperation and coordination with the respective public entity. Being dispersed all over the Lebanese territories, and conducting government related transactions on behalf of the citizen, Liban Post has relieved the citizen from the burden of commuting and travelling to near cities to carry out the respective government transaction. Liban Post site[37] provides a detailed list of all its services.

3. *Use of Information and Sharing of Knowledge*

Lebanese Government websites such as informs.gov.lb, omsar.gov.lb, customs.gov.lb, ecomleb.org among others, offer an array of information and knowledge to be shared with all components of the civil society and ICT community.

[36] http://wwwlb.aub.edu.lb/~webjafet

[37] http://www.libanpost.com.lb

D. USING DIFFERENT SOFTWARE MODELS

1. *Use, Research, Development and Awareness of Different Software Models*

Ecomleb advises on updates for better use of software and operation system management. In addition, the ICT standards and Guideline had a specific segment on Software and their respective models to be applied as per the necessary need.

IV. ICT CAPACITY BUILDING

A. BASIC LITERACY

1. *Development and Promotion of Programmes to Eradicate Illiteracy Using ICTs*

As previously mentioned a lot of initiatives, from public private partnerships, multinationals and from NGOs, have taken place to eradicate illiteracy. Below is a list of the previously described projects and programs that promoted and developed literacy using ICT:

(a) *PFL initiative*: Workforce Training and Education Project;
(b) *CISCO on behalf of the PFL initiative*: Executive Mentorship Program;
(c) *Intel on behalf of the PFL Initiative*: Intel Teach program;
(d) *Microsoft on behalf of the PFL initiative*: Partners in Learning Program and Microsoft IT Academy;
(e) *Ijma3 initiative*: LEA program;
(f) *PCA Initiative*: PICTA;
(g) *WIT initiative*: MEPI's Women in Technology (WIT) Program;
(h) *Saradar foundation initiative*: The Saradar IT programme, Adaptive Technology Program (ATP) and the Accessibility Program.

2. *The Availability of ICT-based Alternative Educational Delivery Systems*

In addition to the above list, some alternative educational initiatives by local NGOs have been put in practice to achieve some basic literacy goals as listed below:

(a) *Ijma3 initiative:* Center for Excellence (CFE), Tawassol Camp, Consus Hunt, and ICT for Farmers' kids;
(b) *WIT initiative:* ICT Youth Awareness, and RespAct.

B. ICT IN EDUCATION AND TRAINING

1. *Integration of ICT in Education*

All schools in Lebanon (totaling 2812)[38] are required, by law, to follow a prescribed curriculum designed by the Ministry of Education and Higher Education. In 1999, a new Curriculum was put in use, as devised and applied by the Center for Educational Research and Development (CERD). The CERD was established in 1971 as the public entity in charge of setting the educational curriculum in the context of improving and developing the educational system in Lebanon. The new curriculum embedded Information Technology as a new instructional subject emphasizing the teaching of the most common computer skills and concepts, and encouraging the use of computers in teaching/learning other subjects. The new curriculum is based on known international and local experiences in the area of computer education, and is in line with the principles of the Educational Reform Plan set by the National Center for Educational Research and Development.[39] However, due to lack in ICT teachers and proper IT administration and maintenance of the

[38] http://www.crdp.org (statistics for 2006-2007)

[39] http://www.crdp.org

ICT labs and equipment, ICT in Education was not introduced as a mandatory teaching material nor as part of the official government examinations and it became at the school's own assessment and capabilities to apply the curriculum. Only 20 per cent to 25 per cent of public schools have incorporated the IT in their curriculum.[40]

With all the above, the Lebanese education curriculum still needs to be amended to formally incorporate ICT in education and to necessitate the development of the teachers' ICT capabilities.

Lebanon has three main types of institutions for delivering vocational education in Lebanon: technical schools, vocational high schools and technical institutes (with 37,446 graduates for the year 2006-2007 with 465 in the ICT sector between ICT specialist, System/NW administrator, and HW Specialist).[41]

As for the Universities, Lebanon has a total of 41 nationally-accredited private universities[42] and one public university, namely the Lebanese University; an increasing number of these universities provide ICT related programmes. It is estimated that the total number of enrolled university students is around 130,000 out of which 14,000 graduates in ICT related fields per year.[43] The estimated number of postgraduate students, which includes masters and doctoral studies, is around 3,500 and 4000.[44]

2. *Local ICT Training Centers*

As previously discussed, many initiatives have taken place to promote ICT in the public community and in education in general through establishment of ICT training centers, public access points and community centers.

C. TRAINING PROGRAMS FOR CAPACITY BUILDING IN THE USE OF ICT

1. *E-literacy Skills for All*

In a step to promote E-literacy among all government entities and administrations, OMSAR has completed the first phase of a mass ICT training for the employees of Ministries and other public agencies. Around 6500 employees from almost all public administrations and agencies were trained as ICT end users and 450 ICT advanced users based on a defined and agreed methodology. The second phase of this project was completed towards the end of 2005. Capacity building of civil servants is an on-going process, and OMSAR is in the process of launching a new training program in the fourth quarter of this year (2009).

2. *Training Programs (Governmental and/or NGO)*

NGOs and public private partnerships have targeted the Lebanese community for building its capacities in different approaches: through workshops, projects and programs. The main target was always the most vulnerable segments of the society represented by the youth and women. In addition, and since Lebanon's industry heavily relies on the services sector, some initiative targeted the professional division of the community.

The CERD as part of its mission works on developing the public school teachers' educational capabilities and ensuring their proper conformance and appliance of the curriculums as they change. Given the fact that the Lebanese Educational curriculum was updated in 1999 to include the IT as part of it, the CERD has undertaken different trainings and workshops in that regard between 1999 and 2003 but unfortunately with no further follow ups.

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[40] MEHE

[41] http://www.crdp.org (statistics 2006-2007)

[42] Infopro Management. "Lebanon Opportunities - Business Information". (2007).

[43] Presentation "R&D Potential in ICT: Case Lebanon" by Hassan Diab, American University of Beirut, November 2003.

[44] Ibid.

D. INNOVATION AND PATENTS

In the Registration of patents and Innovations at the Ministry of Economy and Trade, ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning (as per the OECD Definition).[45]

However, Computer programs are the most important part of the ICTs. Computer Programs are not patented in Lebanon, they are protected as literary works under the copyright law number 75/99 (Article 2). The law gives examples of protected works as the following: books, archives, pamphlets, computer programs whatever their languages may be including preliminary work.[46]

According to the Lebanese Copyright law as well as Berne Convention for the Protection of Literary and Artistic Works, literary and artistic works are protected without any formalities in the countries party to that Convention, that's why the number of registrations is very low if it exists.[47]

Though Innovation in Technology activities are limited and only take place within a few universities in Lebanon, on April 3rd 2008, a Lebanese firm, iFusion Labs LLC, launched its invention, Woopra[48], as an analytics service for bloggers. Woopra is one of the world's most comprehensive, information rich, easy to use, real-time Web tracking and analysis application.

V. BUILDING CONFIDENCE AND SECURITY IN THE USE OF ICTS

A. USE OF ELECTRONIC TRANSACTIONS AND DOCUMENTS

The use of electronic signature in Lebanon has been obstructed by the revision of the IT draft law that has been drafted in 2004 as a working version and finalized end of 2006 by the parliamentarian IT committee awaiting enactment by the Parliament. In September 2008, the draft law was transferred from the parliamentary IT committee to the Parliamentarian Joint committees for revision to be sent after that to the Plenary for voting.

According to Article 4 of the IT draft Law, the electronic written documents and signature in terms of legal effect and proof were equalized:

- Electronic writing and signature have the same force of law as the paper writing and signature;
- Any electronic written document has the same evidential power of an official paper document provided that it's possible to determine the person who has issued, initiated and saved it in such a manner as to insure its safety in accordance with the standards laid down by the Authority;
- In case of denial of the document or the electronic signature, or the allegation of their falsification. The judge shall verify the fulfillment of the authentication conditions as prescribed in the law;
- In case, it is required to affix the expression) written by hand) the affix can be done electronically in case it abides by the IT law.

Article 5 of the law stipulated provisions related to electronic offers, contracts and transactions as:

- The electronic contracts and offers shall be considered as having the same force of law as the paper-based documents;
- In electronic contracts and proposals the acceptance shall be treated as valid only after the Offeree has expressed his approval, offer verifying the content of both parties' obligations;

[45] Ministry of Economy and Trade

[46] Ministry of Economy and Trade

[47] Ministry of Economy and Trade

[48] http://www.woopra.com

- E Contract shall be considered to have been drawn up at the same time at which the acceptance reaches the offer.

As for the articles related to the authentication of the e-signature services, the IT law describes them in chapter 4 as:

- *Article 93*: each party desiring to offer e-signature services, has to obtain a license to that effect from the authority in charge;
- *Article 94*: the authority has to provide the proper reasoning based on which it granted the respective party the e-signature license within a period of 30 days from the application date. The license is not granted unless all conditions prescribed by the authority are met (in particular: the human and financial resources, the specifications of the technology and security systems, issuance processing and management of certificates, etc…);
- *Article 95*: the authority is responsible for safe keeping records of the licensed companies and building a database to log all issued licenses and create and update all Public keys provided by the parties providing the e-signature service.

However, given the fact that the law till the date has not been enacted and the technology has entered the market since the late 1990s, in addition to the fact that the need for digital signature authentication has been rising, CIE Lebanon (a local Lebanese company) has been representing Global Sign International and providing e-signature services in the Lebanese Market. E-signature is also provided through Very Sign International through direct international contact.

Though Public Key Infrastructure (PKI) was first seen as a key project in the 2002 e-government strategy, no plan of action concerning this project was continuous nor conclusive and therefore it has not been given a priority of achievement. It is to be noted however that the PKI is being used by the unofficial use of the E-signature and it is considered as basis for a secure and successful implementation of it.

Personal initiative has been taken by some Lebanese companies to adopt the e-signature in their electronic processes. One of which is the MEA (Middle East Airlines). MEA has adopted the e-signature in its e-processes 6 years ago for specific activities and has then expedited it over its total hierarchy from the chairman till the lower level.

B. Online and Network Security

1. *Secure and Reliable Applications Facilitating Online Transactions*

EcomLeb advises five steps for facilitating e-commerce transactions through the use of Verisign.

2. *Cyber-Security*

OMSAR and the Ministry of Economy and Trade offer best practice information. In addition to that, OGERO (DSL) offers parental monitoring services, Ecomleb offers information on how to protect one's computer and avoid viruses, adware and malware and other cyber piracy applications that result from Internet browsing49. Moreover, ISF's cybercrime and intellectual property unit received a grant that covers technical assistance, and equipment related to cybercrime.

3. *Good Practices in the Field of Information Security and Network Security*

The Cyber Crime and Intellectual Property Bureau at the ISF launched its site in April 2009 listing best practices and awareness campaigns on information and network security. Furthermore, the Information System Audit and Control Association (ISACA) has established in February 2005 a Lebanon Chapter50

[49] http://206.131.241.189/acb5/stores/4/Security.aspx

[50] http://www.isaca-lebanon.org/

dedicated to promote and develop awareness on IT controls, standards, audit and practices among IT professionals and users of information technology in Lebanon. The chapter has been very active inviting chapter members and the Lebanese information society in general to security related workshops, awareness campaigns targeting topics such as Digital Signature and E-fraud, Governance and Road Map toward Management Support for Security among others.

4. *Protection of Data and Network Integrity, Information Security and Network Security Issues*

The Ecomleb portal links other e-commerce websites and provides additional network security.

C. PRIVACY AND DATA PROTECTION

1. *Initiatives or Guidelines with Respect to Privacy and Data Protection*

The data protection law (enlisted as part of the draft Lebanese IT law) covers any electronic manipulation of "personal data" that is defined as any information related to a physical entity (i.e. a person) and that can be used to identify him/her in a direct or indirect manner (article 129 of the law). The law does not cover the data protection of the information that deals with the physical person's activities (article 128 of the law). Electronic manipulation is defined as any transaction or a series of transactions that affects the "personal information" despite the mean, notably data compilation, registration, saving, altering, or exchange among others (article 130 of the law). On another hand, the law allows the following while working with personal data:

- *Article 133*: personal data is only gathered through secure manners and for specific eligible and specific goals (such as statistics, scientific research or chronological referencing);
- *Article 134*: the data collection form should always reference the respective laws and regulations that mandate the data gathering and that protects the use of the gathered data;
- *Article 137*: it is not allowed to gather personal data that might refer directly or indirectly to the identity, hereditary, or health information (with some defined exceptions);
- *Section 139*: the person in charge of working with the gathered data should take all necessary measures to protect against any miss use to the gathered data.

In addition chapter 3 of the law sets the articles under which the request for data must work. Such rules cover the legal steps to request the data, the committee in charge of granting the right to request personal data and the manner of dispensing the data. Furthermore the law incorporates in chapter 4, two sections one for the right of access and correction and the other for special cases. Chapter 5 covers all legal actions to be taken towards those who breach the law's article and sections among which article 156 to 160 imposing a financial fine ranging between 300,000 Lebanese pounds and 3,000,000 Lebanese pounds depending on the gravity and the sequencing of the personal data abuse.

2. *User Education and Awareness about Online Privacy and the Means of Protecting Privacy*

As a complementary effort, the government of Lebanon is planning to launch an awareness campaign after the enactment of the IT Law in order to spread the knowledge on its content, its stipulations and its enforcements and to allow a proper and effective implementation.

D. COUNTERING MISUSE OF ICTS

1. *Prevention and Detection and Prosecution of Cyber-crime and Misuse of ICTs*

The Cyber Crime and Intellectual Property Bureau as part of the ISF at the Ministry of Interior is the main authority in charge of preventing, detecting and prosecuting cyber-crimes and the misuse of ICTs. The bureau has been active since 2006 and has been equipped with the necessary information technology software, systems and equipment to properly detect and prevent such crimes. The bureau initiates its interferences based on registered complaints though it has the authority to conduct field inspections based on its own case management and evidences. The main types of cyber crimes currently detected in Lebanon

(listed in the order of their frequency):

- Cyber Defamation and threatening: The Criminal sends emails containing defamatory matters to all concerned off the victim or posts the defamatory matters on a website (this has been occurring frequently on Facebook);
- Nigerian Fraud: the Nigerian fraud is an impersonation fraud through letters or matchmaking sites. It works on building a trust level with the scammed person until he/she is comfortable enough to share address or bank information and a point where the fraudulent person will make use of this information to acquire on the scammed persons finances;
- Child Pornography; and
- Hacking

Phishing is still scarce in Lebanon due to the fact that e-banking has not yet flourished. It is worth noting, however, that the current Lebanese law has no provision for cyber crimes. The norm is to relay the cyber and e-crimes upon the existing criminal laws and it is up to the judge's assessment to set the applied verdict.

2. *Fighting Spam at National and International Levels*

Even internationally, fighting spam has not been effective, despite the large number of tools and utilities being made available over the web. On the national level, no serious effort has been done.

3. *Real-time Incident-handling and Response and Effective Mutual Assistance Efforts*

Mutual efforts have been put in order to control cyber crime on the national level between the Cyber Crime and Intellectual Property Bureau and the local ISPs. Coordination with the Ministry of Telecommunications and the TRA has also been established, however, the efforts on that level are still very conservative. In addition, with the lack of electronic exchange of information among respective parties, real-time incident-handling is not applied. However, Lebanon has been putting efforts to join the Budapest Convention on Cyber Crime as a rectifying member. With that in mind Lebanon can start adopting and applying the convention's articles on real-time interception means and methods. On another note, Lebanon, through the Cyber Crime and Intellectual Property Bureau coordinates with the Interpol for international assistance and exchange of cyber crime instances and notifications.

VI. ENABLING ENVIRONMENT

A. LEGAL AND REGULATORY ENVIRONMENT

1. *Supportive, Transparent, and Pro-competitive, Legal and Regulatory Frameworks*

Major achievements have been made in the preparation of the legislation required to legalize the adoption of ICT in the government, the citizens and the private sector that is deemed as necessary for enabling commercial and international business processes electronically and aligning Lebanon with best international practice standards.

As early as 2002, the Ministry of Economy and Trade recognized the importance of e-commerce as a tool that can help position Lebanese firms to take advantage of the global market. The growth of the e-business sector of the global economy has been impressive. The Ecomleb project was conceived and designed to address the main stoppers of ecommerce in Lebanon. Funding was secured through a € 1.7 million grant from the European Commission.

The legal component of the Ecomleb project includes the drafting of a comprehensive regulatory framework including all aspects of Internet interaction and trading. Overall, 200 articles are being proposed under nine titles.[51]

[51] http://www.ecomleb.org

In addition, an information technology and E-transactions draft law was prepared and studied by the ICT parliamentary committee to set the legal grounds for E-transactions most importantly the E-signature. As for E-procurement, a new public procurement law has been drafted. This law includes a provision opening the door for devising detailed decrees on how to implement e-Procurement.

A draft law on "Access to Information" was prepared by OMSAR in 2005, and drafts for a new cadre of ICT staff and salary scale have also been developed and sent to Parliament. The latter is being revisited and devised to include a provision to create IT units, departments or directorates in the public administration.

2. *Effective Dispute Settlement Systems, Notably Alternative Dispute Resolution (ADR)*

The current Lebanese laws and treaties do not include any provisions related to alternative dispute resolution (ADR). However, since the end of the war in 1995, Lebanon has been receiving large amounts in grants and loans to revive the country. A sizeable amount has been allocated to the revival of the Information Society in Lebanon.

3. *Updated Domestic Consumer Protection Laws*

The draft IT law amended the consumer protection law (number 659) that was enacted on the 4th of February 2004 to protect consumers in electronic contracts and E-commerce.

4. *Intellectual Property Including Piracy*

The intellectual property laws are distributed among:

(a) Amendments to existing laws

The Copyright Law no 75/99 was amended and has been approved by the Council of Ministers in October 27, 2007 and sent to parliament by decree no 972 dated 24/11/ 2007. The amendment updated the intellectual property rights for the Information technology related subjects to make it in conformity with the WCT treaty;

(b) New Drafted laws

(i) A new Trademark Law was approved by the Council of Ministers on October 27, 2007 (Old one 1924) and sent to Parliament by decree no 993 dated 24/11/ 2007. It states that the relationship between ICT and Trademark law is direct and cannot be ignored, because trademark provides protection to the owner of the mark by ensuring the exclusive right to use it to identify goods or services.

(ii) WIPO Copyright Treaty (WCT)
Related to the copyright over the Internet and was approved by Council of Ministers (CoM) on 27/11/2008, and sent to parliament by decree no 1087 dated 31 /12/ 2008. The treaty extends copyright protection to computer software as literary works under the Berne Convention (Article 4) and extends protection to compilation of data (databases) as intellectual creations (Article 5), The WCT impose obligations on anti-circumvention measures and digital rights management information;

(iii) WIPO Performances and Phonograms Treaty (WPPT)
Approved by CoM on 27/11/2008, and sent to Parliament by decree no 1086 dated 31/12/ 2008. WPPT expands the definition of fixation to include any embodiment or representation of a sound, thus including digitization of sound recordings, communicated or received through any device. Broadcasting is still defined as transmission by wireless means, while "communication to the public" includes transmission to the public by any medium, including making them audible to the public. The WPPT also imposes the same WCT obligations on anti-circumvention measures and digital rights management information.

5. *Telecom and Internet Regulation*

During 2005 and 2006, Lebanon's political instability led to the suspension of many national-level ICT projects. The creation of the Telecommunications Regulatory Authority (TRA) was a rare exception.

In July 2002, the Lebanese government adopted Telecommunications Law # 431. During the following years, the European Union provided funds and international advisors to help the Ministry of Telecommunications in its efforts to create the TRA. In February 2007, The TRA was finally launched with its top management appointed by midyear.

The appointment of the TRA implies that all regulatory activities which had been previously handled by the Ministry of Telecommunications will be transferred to the authority. The mission of the TRA[52] is to regulate the telecommunications sector and to create a competitive environment that will encourage companies to deliver high-quality services at reasonable prices which will have a positive effect on the development of the Lebanese economy.

The TRA, however, doesn't regulate the work of Internet providers or the Internet market and its penetration. The TRA, will be calling for Right of Way for every license operator (among which are the ISPs) to access the public properties such as water and electricity infrastructure. In addition, the TRA monitors the telecom spectrum. It is authorized to investigate interference to licensed radio communications systems (especially those of a safety related nature) from other radio communication systems, unintentional radiations or active electrical and electronic apparatus, equipment and networks. Plans are underway to set up a national automated monitoring system to ensure an interference-free environment for licensed radio frequency users. As the world becomes increasingly wireless (with cordless phones, cell phones, wireless Internet, GPS devices, etc), allocation of the available spectrum to each technology becomes increasingly contentious. Currently license operators squeeze the bandwidth usage to any possible limit, creating a chaotic environment. Further contention is to arise since no proper agreement is made with neighboring countries, and differences from country to country can cause interference along border areas.

B. DOMAIN NAME MANAGEMENT

1. *Management and Supervision, of Respective Country Code Top-level Domain Name (ccTLD)*

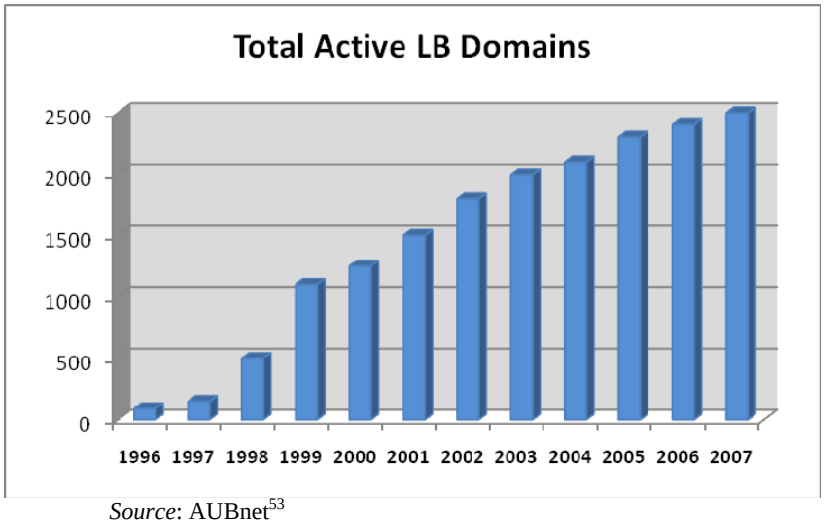
Lebanon's country code domain name is lb. The Lebanese Domain Name Registry (LBDR) is managed, supervised and administered by the American University of Beirut (AUB) through creating new domains, updating a domain record, changing the delegation of a domain, and reactivating an expired domain. The registry handles requests from different entity types in different manners. The main domain requests fall under:

- Commercial entities applying for com.lb domain;
- Government entities applying for gov.lb domain;
- Educational institutions applying for edu.lb;
- Organizations applying for an org.lb domain;
- ISPs applying for a net.lb domain.

In all of the above cases, the entity should be officially registered (as per its type) and should own the rights to the trademark/trade-name in Lebanon. The beneficiary entity can apply directly or delegate the registration process and maintenance of the domain name to a third party. According to the LBDR, the following picture depicts the growth in active LB domains.

[52] **Error! Hyperlink reference not valid.**

Figure 3. Total Active LB Domains



Source: AUBnet[53]

C. STANDARDIZATION IN ICT

1. *Development, Use and Promotion of Open, Interoperable, Non-discriminatory and Demand-driven Standards*

OMSAR in collaboration with the PFL has initiated an "Interoperability" Workshop in early 2008 to promote the necessity and need for public agencies to interoperate and exchange electronic information based on cross-sectoral international standards, allowing higher efficiency, faster service, higher levels of control and transparency among all public agencies.

2. *Awareness and Adoption of International Interoperability Standards (e.g. for global e-commerce)*

In 2003, OMSAR conducted the development of ICT Standards and Guidelines for 13 major segments. These were meant to provide public sector agencies with well documented and modern ICT standards and procedures to use in such areas as: hardware, telecoms, networking, data integrity, software applications, quality management, etc. The standards can also benefit the private sector dealing with government related projects (such as suppliers, vendors, consultants and others). The documents are available on OMSAR's site[54] and can be accessed by the general public[55] (Hardware specs are updated periodically). The standards are currently being evaluated for update whereby OMSAR will be launching a new project in the coming year to update the documents' content and trigger workshops and training for the adoption and use of those standards. In addition, OMSAR announced, on January 27th 2003, the issuance of a guidebook for "ICT Good practices" in IT and communication. The guidebook aims to be used as shorthand and quick reference on IT and communication practices. OMSAR is currently initiating a new project for the update of the guidelines to meet current international standards. The project is planned to be launched around the end of 2009.

With the increased number of Websites for government entities, and with the international drive towards common or single window to government portals, OMSAR has initiated at the beginning of 2009 a "Government Website Standardization" project. The main goal is to standardize the general design, look and feel (site categories, navigation flow, links, etc.) of government sites, based on best practices, allowing Web visitors to correlate government sites with specific standard layout to ease the public entities' site surfing. The latter, however, does not obstruct the specific identity of each public entity. Each agency can still tint its

[53] http://www.aub.edu.lb/lbdr/

[54] http://www.omsar.gov.lb

[55] http://www.omsar.gov.lb/Cultures/en-US/Publications/Guides/

site with its specific colours and logo. The project has selected a number of public agency sites as a pilot phase, aiming to generalize the agreed standards on all Lebanese Government sites. The "Government Website Standardization" project is considered as a building block to implementing consistent interface to citizens and businesses and as such a stepping stone for G2B and G2C portals.

OMSAR is currently working on a "Government Transaction Forms Standardization" to unify and simplify scoped forms by the means of standardizing, merging and/or updating the respective forms and extend the project to use information technology to create the interactive electronic forms.[56] This initiative aims at easing any future effort by the Government of Lebanon to move from the basic digital forms placed online for printing and manual filling towards complete online e-service, as such considered also as a pre-requisite for G2C and G2E.

D. SUPPORTING MEASURES

1. *Formulation by Governments and Stakeholders, of ICT Measures that Foster the Information Society*

(a) *Entrepreneurship, innovation and Incubator schemes*

Berytech[57] is the first facility in Lebanon to offer entrepreneurial experience, technological innovation, mentoring and business matching, and research and development. It provides incubation, support and hosting opportunities to project holders as well as growing enterprises operating in the fields of technology, multimedia and health. Besides physical incubation, Berytech provides virtual incubation to a number of entities through networking, support and training, allowing companies to operate with lower start-up costs. In the framework of its mission, Berytech also addresses issues in the areas of human resources development and capacity building, access to information and technology, as well as technology sharing, the availability of financing and market access on local and global levels.

(b) *Venture capital investments, Government investment funds*

The Lebanese Government established, in 2001, the Investment Development Authority of Lebanon (IDAL) as the Lebanese governmental investment promotion agency responsible for attracting private capital investments to Lebanon and assisting investors in the development and implementation of their projects. IDAL currently provides package deals to different industries in Lebanon including the ICT sector.
On another note, the Ministry of Economy and Trade in partnership with the Ministry of Industry and the European Union inaugurated in 2004 the SME Support Programme (ISSP). The program aims at promoting and creating in Lebanon one of the best environments for business in the world. ICT has also gained a lot of attention from the ISSP.

(c) *Investment promotion strategies*

Kafalat is a Lebanese financial company established to assist small and medium sized enterprises (SMEs) in accessing commercial bank funding. The company helps SMEs by providing loan guarantees based on business plans/feasibility studies that show the viability of the proposed business activity among others.

[56] Interactive forms are electronic document templates or forms that the user can use to enter information in specific spaces on the template/form to print the form in a properly organized manner.

[57] http://www.berytech.org

VII. ICT APPLICATIONS

A. E-GOVERNMENT

1. *ICT in public administration*

(a) *Computerizing Public Administration*

Since the end of the war in 1993, different initiatives have taken place to computerize the Lebanese public administration. Donors such as the World Bank, the Arab Fund, and the European Union Commission, turned their attention to the e-development of the Lebanese Government. Though the concept and the approach were of the proper foundation, the results were the creation of e-islands, resulted from miss or no communication dictated and then demand driven projects rather than projects planned and strategized based on national e-government plans. In the early 2000s, the Lebanese Government realized the chaotic initiatives and as a result initiated the E-government and the E-strategy documents and appointed OMSAR to be the focal coordinator among all public agencies for any information technology related project. As explained in different sections of this document OMSAR has lead on many approaches to unify, strategize, and plan Information technology public projects under the umbrella of the adopted E-government and E-strategy documents. Workflow and document management systems, accounting systems, human resource management systems and stock management systems are only few examples of the computerization efforts that took place almost in every public entity in addition to the specialized computerization that dealt with department or entity specific work.

(b) *Computerizing customs processing*

The first automation achievement of the Lebanese Customs Administration was in the mid 1990s through the NAJM project that adopted the Int'l Harmonized System tariff ASYCUDA through a World Bank loan. The latter was followed by the NAJM Online Operation (NOOR) project that was implemented since May 2001 in phases. The NOOR system allows trader or customs broker to track declarations from their offices and customs to speed the work processing. With further attempt to ease the customs processing, the customs administration set up in 2007 the customs intranet that connects all regional offices together with a main connection line and a backup line. The customs started in end 2005 its upgrade of the ASYCUDA++ to its latest version ASYCUDA World (AW). The customs administration is currently working on expanding AW to cover all the offices by the end of 2009. In addition, the customs administration has been working on setting up an E-payment portal through agreement with Lebanese banks. After the full implementation of NOOR, traders and customs brokers can process and import or export their products at any time of the day, with no government working hours' constraints. The customs also has engaged with the National Social Security Fund in an interoperability pilot project coordinated and lead by the PFL and OMSAR (for further details refer to the below section on E-government solutions for G2G).

(c) *Computerizing taxation and revenues management systems*

Tax reform and computerization was one of the lead projects in Lebanon after the civil war. In 1997, the Tax and Revenue Administration was reborn. Different investments (financial, human resources, technological and developmental) started to take place. In 2007, the Ministry of Finance won the United Nations Public Service Award, in the category of "Improving the Delivery of Services". Internationally, the Lebanese Tax and Revenue Administration was ranked as having one of the most advanced systems.[58] The main reason for such an achievement can be reverted to absence of legacy systems. A full automated compliance and risk management systems were also put in use since 2007, with the risk management system working on a combination of around 100 risk criteria.

The E-taxation is expected to be launched around the second quarter of this year, 2009. Below are some performance indicators applied to quantify the change in service delivery level.

[58] MOF-Value Added Tax Directorate

TABLE 9. VAT TIME KEY INDICATORS

	2005	2006	2007
Transaction processing time	3 days	Immediate	Immediate
Inquiry processing time	1 day	1 day	Immediate to max 1 day
Transactions that need further investigation	Multiple visits with no assigned time for completion	- Pre-defined duration by type - Pre-defined required documents - Response/result sent to the taxpayers	- Pre-defined duration by type - Pre-defined required documents - Response/result sent to the taxpayers

Source: the Tax and Revenue Administration.

TABLE 10. VAT FINANCIAL KEY INDICATORS

	2006 *(Percentage)*	2007-targetted *(Percentage)*	2007-attained *(Percentage)*
Growth rate of the amount recovered from the tax returns	8	8	9
Percentage of voluntary declaration	95	96	95
Percentage of voluntary payment	96	97	97
Increase in number of registered taxpayers	0.86	1	1.53

Source: the Tax and Revenue Administration.

(d) *Digitizing Information*

On November 2008, OMSAR launched the first national GIS portal in the region that includes geographic information incorporated from different government stakeholders. The GIS portal won the International ESRI Award for Special Achievements in GIS awards.

2. *E-government Solutions*

(a) *Government-to-Government*

G2G (Government-to-Government) interaction between local and central governments: interaction and interoperability among government entities and public agencies has been lately promoted heavily by the government as it became clear that G2G interaction is the core and focal point of proper administration e-reform and e-development. In early 2008, the PFL has initiated in coordination with OMSAR, an Interoperability workshop, through which international experts were invited to talk about different countries initiatives and experiences, and to highlight to the attendees the importance of their data exchange and the need to coordinate all initiatives on information technology, to co-plan, co-work and eventually co-exist together with complete and transparent reciprocal exchange of required information. The workshop was followed by a pilot project lead by OMSAR. The pilot has started between the National Social Security Fund (NSSF), and the Ministry of Finance (in particular the Customs).

(b) *G2C (Government-to-Citizen) delivery models and government portals*

(i) The automation of the Cooperative of Civil Servants (COOP) medical benefits and compensation system: in 2001, and in collaboration with the OMSAR, the COOP initiated the automation of its medical benefits and compensation procedures to provide a better service to its beneficiary. Currently work is being done to upgrade the system to send automatic Short Message Services (SMSs) to beneficiaries whose compensation was transferred to their respective bank account.

(ii) Automation of the National Social Security Fund (NSSF) system: in a process to better serve the citizen and the government, the NSSF has been automating its operations through contracting with a private company to develop, maintain and deploy applications at all (35) offices, and through the World Bank automation of inpatient process was initiated. The latter is to be implemented as pilot

project with two hospitals starting June 2009. On another hand, and with the cooperation of OMSAR, the NSSF, the customs and the Tax Revenue administration has been working jointly on an effort to interoperate their related information and processes.

(iii) Cadastre Land Registration: the automation of the Cadastre Land Registration was one of the pioneering automation projects that the Lebanese government has commenced after the civil war. The automation started in 1998 and was completed in the 2005 with all regional Cadastre Land offices fully automated and linked to the central office.

(iv) Automation of the Work Permit system: the Ministry of Labor in coordination with OMSAR has completed the automation of the Work Permit Registration, providing citizens with faster, better and more efficient work permit processing and registration. The system has been put in place since January 2005.

(v) GIS portal: in 2008 the first GIS portal[59] was launched by OMSAR providing GIS information and GIS search capabilities for the public. The project was accomplished with the full cooperation of the Center for Remote Statistics (CRS), Council for Development and Reconstruction (CDR), Directorate of Geographic affairs (DGA), Ministry of Environment, Ministry of Public Works, and the Remote Sensing Center (RSC). The data ownership of the portal's content is to the respective entity that has remote access to the portal and adds updates and deletes information as deemed necessary.

(vi) Car Registration System: in 2006, the General Security forces of the Ministry of Interior, in coordination with OMSAR, automated the registration of entrance and exit of all vehicles over the Lebanese borders. Since June 2007, the project has been operational in all the Lebanese border offices.

(vii) Commercial Register: in 2001 the Ministry of Justice in coordination with OMSAR embarked on the automation of the commercial register. The developed system is currently being updated to provide a Web portal through which Web users can remotely access the system to check on companies' status.

(c) *Government-to-Business*

G2B (Government-to-Business) interaction between local and central government and the commercial business sector: government services that are of importance to the Lebanese business community and foreign investors have been given more importance in the post civil war era. G2B interactions can be summarized through the following projects:

(i) On-line business commercial registration: in collaboration with OMSAR, the Ministry of Justice has automated the commercial registration of companies operation in the Lebanese market. The aim is to make the system available over the web for the public use.

(ii) E-taxation: the Ministry of Finance is about to launch the first total e-government service for the public through the E-Tax service planned to get launched in the second quarter of this year.

(iii) ICT standards: the ICT Government standards including security; architecture; e-Government will serve a common platform through which the business sector can ensure compliance with government, and as such meet delivery expectations.

(iv) Automation of the custom system: the automation of the customs had the main goal of simplifying and improving the service to the custom brokers and the traders. The Lebanese customs has initiated its automation since 1993 and is currently upgrading and updating its systems to better serve the public.

[59] http://www.gislebanon.gov.lb

3. *Availability, Adoption and Use of E-procurement Applications*

E-Procurement is essential to improving government purchasing which enables a more efficient government, better and easier procedures for the private sector, greater efficiency and transparency in government purchasing.

There is a current project for the implementation of an online procurement in the government. However, given the obstacles facing an e-procurement application based on the old law and given the status of the modernization of that old law, OMSAR and the Development Gateway Foundation teamed up to implement a pilot e-procurement system in 5 public entities and to concentrate on a technical assistance.

The project will be launched and contracted during the second quarter of 2009.

B. E-BUSINESS

1. *Availability and quality of e-business services (online banking and e-commerce portals)*

Currently almost all Lebanese banks offer a limited section of their customer service over the Internet. In Lebanon, e-banking has not matured enough and need to learn new skills to grow in this sector. The first bank in Lebanon to have launched Internet Service was Crédit Libanais.[60] As explained in section 0, the Ecomleb project was established in 2004 to develop the complete legal framework for e-commerce. Currently there are different websites hosting ecommerce activities distributed between tourism, auction, literature and entertainment, in addition to telecom and Internet services.[61]

2. *Extent and Maturity of Applications such as B2B, B2C*

According to the Ministry of Economy & Trade (EcomLeb survey), ICT penetration among e-commerce businesses stands at an acceptable level. Export market constitutes 70 per cent of e-commerce activities in Lebanon.[62]

3. *Use of International E-business Models for Trade*

The customs administration and the EU funded project with the Lebanese Ministry of Economy & Trade has created a website for e-commerce in par with use of international e-business models for trade.

4. *Availability and Use of E-business Standards (such as e-payments systems)*

E-payment systems in Lebanon are predominantly dominated by commercial banks that offer Internet banking services that include e-transfers and sweeps, as well as (Internet) credit cards; for example, Fransabank SAL offers an Internet credit card claiming protection for payments through the Internet "*protecting the cardholders from fraud or the risk that could be incurred from Internet shopping*".[63]

Ecomleb advises e-payment portals that are harmonious with legislations for security purposes, for example, through the use of "Verisign" with numerous private companies offering e-services for buying goods and services that can be reached through the Ecomleb website.

[60] http://www.eu-esis.org/esis2prom/synthMED5.htm

[61] http://www.ecomleb.org

[62] http://ecomleb.org

[63] https://ebanking.fransabank.com

C. E-LEARNING

1. *Primary and Secondary Education*

(a) *Use of e-learning systems and applications in all school levels*

The Ministry of Education and Higher Education (MEHE) has launched an Education Management Information System (EMIS) that encompasses a number of activities: (i) EMIS at the Ministry, (ii) a School Information System (SIS), (iii) a National Education Network; (iv) Geographical Information System (GIS)/School Mapping; and (v) and the Information Management Unit (IMU) at the Ministry. Despite the difficult periods Lebanon is going through, good progress has been made on all fronts.

(b) *Internet connectivity in schools*

A memorandum of understanding was established between the MOT and the MEHE to make the MEHE an Internet hub for all public schools. A broadband connection was established between MOT and the main MEHE building (UNESCO Palace) together with the necessary equipment and relevant infrastructure. The initiative charged the MEHE only 10 per cent of the set up fees and waived all recurrent future fees (the monthly or yearly Internet fees), allowing through that to offer all public schools free Internet connectivity and play the role of a secure filter for the schools Internet usage.

On another hand, the Ministry of Telecommunications waives 40 per cent of the fees for any public school who wishes to get direct Internet connectivity from the Ministry of Telecommunications.

In addition, CISCO on behalf of the PFL, has launched with the MEHE the NEN project providing wireless access points in schools.

(c) *PC penetration in schools*

Almost all private schools in Lebanon, totaling around 1,419,[64] have computer laboratories for their students and the use of computers for administrative tasks. Based on a report released by the Council for Development and Reconstruction (CDR) and dated July 2004, 1284 public schools were rehabilitated.[65] Based on the needs assessment conducted by the MEHE, the CDR executed a World Bank project that completed the supply and installation of 5000 computers and their peripherals to public schools and other bids for supplying the necessary equipment for the laboratories of 250 intermediate and secondary schools. Implementation of these projects started in August 2003.[66] During 2005, 2500 PCs were also supplied by the World Bank. These were meant for 320 public schools and based on need. Eventually, they were allocated to computer labs and to administrative applications. Currently, the World Bank is finalizing a project for the supply of 1456 public schools to run a School Information Systems. Two PCs per school will be supplied.

In addition to the above, UNESCO Office in Beirut, through its "Bridging the Digital Divide" project, distributed more than 130 refurbished personal computers to 21 schools in Northern Lebanon, in cooperation with a local NGO. CISCO on behalf of the PFL, has also provided lately 50 PCs to public schools and devised and submitted to the MEHE material for ICT for education (School in a Box Project: for further details refer to section 0. As such, around 15,000 PCs currently are dispersed among the public schools with at least 80 per cent of them in good and up-to-date quality.[67]

[64] http://www.crdp.org (statistics for 2006-2007)

[65] Council for Development and Reconstruction, 2004 report, http://www.cdr.gov.lb/indexe.html

[66] http://csrd.lau.edu.lb/Publications/StudentReports/Education%20in%20Lebanon.htm

[67] MEHE

(d) *Educational portals*

In the early 2000, a project under the name of SchoolNet was established. SchoolNet-Lebanon[68] is the first of its kind education portal, in Lebanon, that aims at interconnecting all public and private schools and make available libraries together with the MEHE over a stable telecommunications infrastructure with a gateway to the global Internet. Its objective is to provide a knowledge-based society by providing continuing education through multimedia learning, facilities and resources. The ultimate goal is to expand the SchoolNet coverage to cover all public and private schools over direct communications connections.

2. *Higher Education*

(a) *Virtual universities*

In Lebanon, the concept of virtual universities does not exist. However some initiatives have been undertaken as explained in the bullet for "On-line learning programs/distance learning degrees".

(b) *E-learning systems and applications (management information systems, student information systems)*

In 1999, through a project supervised by OMSAR, the Lebanese University was furbished with a Student Information System with its entire related underlying infrastructure. Due to different reasons, the system was not put in full use. On another hand, CISCO, in the name of the PFL, has worked on the initiation of a School Information System (SIS) automating the administrative work of the public schools and connecting them to the Ministry's central database. In addition, the MEHE has been working on installing the SIS on all PCs that it is distributing on the public school administrations, to fasten the process (till the date 50 PCs has been distributed with the SIS installed on them).[69]

(c) *Libraries of e-content*

Microsoft in partnership with the public education sector in Lebanon, has created the "Partners in Learning" project through which Microsoft has provided a Help Desk and Support Center and Innovative training center at the MEHE, to provide innovative teacher's portal for e-content development by the teachers and program to reach out to the subject-matter teachers assigned by the MEHE in 2008-2009.

(d) *On-line learning programs/distance learning degrees: availability and accreditation*

Due to restrictive old rules and regulations, accreditation of distance learning or on-line learning programs is not granted by the MEHE. Some universities have engaged itself with affiliations with universities abroad such as the "Ecole Superieur des Affaires" (ESA) whose graduates would attend courses in the university campuses in Lebanon and will eventually receive their degrees confirmed from the affiliated university (in the case of the ESA, from the ESCP-EAP European School of Management in France). In addition, the Lebanese University has also established a masters like type of program in affiliation with the Toulouse University, through which students will be lectured by teachers from the Toulouse University, who will be visiting Lebanon on semester basis. However, and due to the unstable political situation of the country, and in particular after the July 2006 war, teachers from the Toulouse University were not able to visit Lebanon. As a way of allowing the initiative to be completed as agreed, and to overcome the political instability, a video conferencing set up has been established in the Lebanese University, to allow Toulouse University respective teachers to deliver their required courses to the LU students without having to come to Lebanon.

[68] http://www.schoolnet.edu.lb

[69] MEHE

D. E-HEALTH

1. *Availability and Access to the World's Medical Knowledge and Locally-relevant Content Resources*

The Ministry of Public Health of the Republic of Lebanon provides through its website;[70] relevant content with respect to public health issues:

- Health promotion including an array of information such as expanded program on immunization;
- Surveillance information used in public health action to reduce morbidity and mortality and to improve health (WHO). Surveillance information is also made available through a close collaboration with health and medical institutions e.g. hospitals, and laboratories, and with the collaboration of other ministries such as the Ministry of Interior and the Ministry of Social Affairs;
- Expanded Program on Immunization (EPI) including videos such as TV advertisement, documentaries in Arabic and subtitled documentaries;
- The tobacco program which is a campaign to raise health awareness concerning, first hand and second hand smoking as well as a program administered by the Ministry of Public Health to aid people to quit smoking habits;
- Other health awareness campaigns including breast cancer awareness campaign and Hepatitis B&C campaign;
- A wide range of statistics especially with respect to communicable diseases through Epidemiological surveillance gathered on a monthly basis based on gender, age, and location (governates or municipalities); and
- National aids program made available in collaboration with the World Health Organization (WHO). The program aims at raising awareness on HIV/AIDS, and includes statistics in the form of recent frequency of cases of HIV/AIDS with respect to gender and percentages related to age, gender, sexual behavior, mode of transmission and travel behavior of cases.

2. *Telemedicine and Medical Use of Teleconferencing for Underserved Areas and Vulnerable Populations*

Intel has provided a second telemedicine system for the Saint Georges Hospital in Ashrafieh linked to a governmental hospital in kobeiat. The system allows real-time video conferencing, and the ability to share data and diagnose patients from afar.

3. *Maturity and Implementation of Health Care Information Systems*

In relation to the maturity and implementation of health care information systems it is divided in two parts, public and private sectors.

With respect to the public sector, the Ministry of Public Health's (MOPH) pilot project of connecting hospitals in the greater Beirut region is working on developing patients' records for Lebanon. Moreover, OMSAR in collaboration with health funds is embarking on an e-government smart card to facilitate, ease, simplify and reduce transaction time for the patient who has to endure a medical and/or hospital procedure. This initiative is being done in cooperation with the Malaysian government.

Moreover, the MOPH with other ministries and international organizations has worked on establishing a National Health Information System (NHIS). This NHIS links the various departments of the MOPH in order to gather and provide information for follow up, decision making, and ensuring transparency and accountability on all levels. In more details, the following application systems are currently available at the MOPH:

(a) *Digital record keeping*

The MOPH has a Transactions and Workflow Management System (TWFS). Currently the system has been made available over the ministry's site for citizens follow up on their respective transactions' status.

[70] http://www.public-health.gov.lb

(b) *Pharmaceutical management*

Distribution of Drugs system is available in the ministry for the handling of in(s) and out(s) of drug distributions for critical patients cases (such as cancer, aids, etc.).Drugs Stock Control initiated with the coordination of the World Health Organization (WHO) to help control the drug distribution for facilities such as hospitals, NGOs and others. The MOPH also has a Drugs Registration System for foreign drugs profile (price, agent, etc.) approved by MOPH. Pharmacist Registration System registering all pharmacists in Lebanon and issues certificates. A National Database System (NDS) that supports the ministry in collecting, aggregating, printing and transmitting (via electronic or similar media) data related to the Narcotics Drugs. Medical Supplies Registration System used to properly control and track the distribution of medical supplies and control the level of inventory.

(c) *Databases for national healthcare and patient care management*

The District Health Information System at the MOPH was deployed to empower the Health district manpower by improving the knowledge of ministry officials of health and health services in their areas of operation and their knowledge of other sectors with direct relevance to the health of the population such as education, environment, and NGO. The MOPH has also the Primary Health Care Information System that organizes and manages administrative and medical activities of primary health care centers in addition to the Interconnecting system allowing the MOPH and other public funds to share information about eligibility of patients. On another note, the MOPH has installed two further systems: the Visa Issuing system used to connect the central office of the MOPH and its regional visa centers to manage patients' admission to the contracted hospitals on the MOPH's expenses and the Billing System to control and properly manage incoming bills from the private hospitals.

As for the private sector, a system has been developed by some of the healthcare benefit management companies for the establishment of an Electronic Medical Record (EMR) profile. This system is connected to the central network of the company through portals. The beneficiary is issued a health card, and card readers are distributed at the registered service providers or partners.

3. *Use of ICT Based Information*

In order to control and properly estimate the spread of communicable and major diseases, the Ministry of Public Health has been using the following systems and working on improving them:

(a) CanReg System: is an international cancer registry software provided free of charge by the International Agency Research on Cancer IARC to track the level of cancer spreading in Lebanon;
(b) Aids Registration System: The system keeps track of the reported AIDS cases in Lebanon and generates a unique code for each patient by combining a set of entered information;
(c) National Epidemiology Information System: the Epidemiology Surveillance unit in the MoPH has been using the National Epidemiology Information System to properly observe the spread of communicable diseases.

E. E-EMPLOYMENT

1. *Use of ICT as means to locate employment*

The Ministry of Labor (MOL) has a dedicated unit that is in charge of matching job seekers and employers in Lebanon, the National Employment Office (NEO). The NEO is a free government service through which employers can post their job openings and job seekers can post their CVs. In 2002, OMSAR through the Arab Fund Loan worked with the NEO on the creation of the NEO national employment portal (www.neo.og.lb). The portal included a Human Resource and Matching System. The portal is currently being updated to include further features and functionalities.

2. *Employment Portal and National Database of Resume*

On another hand, several websites have already started offering online employment facilities. Examples of companies based in Lebanon are http://lebanon.zeezo.com/jobs.htm, www.hirelebanese.com, www.jobinlebanon.com/english, www.1stlebanon.net/uk/recruit.html, www.lebanonrec.com, and http://gulfbusiness.tradeholding.com. Even some external sites have special chapters for Lebanon, such as http://my.monstergulf.com and http://www.careerslb.com.

Most of these sites do not impose fees on the employer nor on the job seeker; however, some headhunters (or employment agencies) have started imposing charges on the employer in order to provide a proper list of registered job seekers and even to service the employer in selecting the appropriate candidate.

3. *Teleworking*

Teleworking using ICT means is usually restricted to business-business or within government such as grants and contracts part-timers and consultancies or research assistants; naming some organizations that use tele-working would be the European commission and the United Nations sub-organizations. Nevertheless there exists some presence of websites such as: http://lb.thehomeworkerjob.com/ which provides opportunities tele-working from home by recruiting employees online and for employers to post vacancies on the site.

VIII. CULTURAL DIVERSITY AND IDENTITY, LINGUISTIC DIVERSITY AND LOCAL CONTENT

A. USE OF ICT IN SUPPORT OF CULTURAL AND LINGUISTIC DIVERSITY

1. *Use of ICTs for the Preservation of Linguistic Diversity and Cultural Heritage*

Concerning cultural heritage, there exists extensive work by the Ministry of Tourism especially through its new and enhanced website[71] to provide cultural information together with a map stating different religious and touristic attractions in the country. Furthermore, www.yamli.com converts Latin alphabets to Arabic for enhanced Arabic search and is powered by Google.

2. *Development of National Digital Archives and Digitization of Information.*

Many initiatives have been taking place since the early 2000s to digitize public information in the Lebanese Government. The National Archives and OMSAR worked jointly on the digitization and indexing of all historic documents available at the directorate in 2005. Furthermore, many government agencies' sites were initiated as information portals with Informs.gov.lb being a centralized nationwide government information portal.

B. LOCAL AND NATIONAL DIGITAL CONTENT DEVELOPMENT

1. *Creation and Distribution of Software*

Under the World Summit on the Information Society (WSIS) set plans and targets, the Lebanese Government, through OMSAR, has taken on the development and implementation of some applications such as Budget System, HR databases, Document Management and Workflow Systems horizontally in diverse public agencies. In addition, OMSAR has signed two enterprise agreements with Microsoft (since 2002) and Oracle (since 2005) on behalf of the Lebanese Government to provide technical support to the public agencies, access to license upgrades, and legalize any previous license installations by any Lebanese public agency. Official system licenses were provided based on an accurate agency needs and ICT assessment. The agreements have also ensured low total cost of system license ownership for the government.

[71] http://www.destinationlebanon.gov.lb

C. ICT TOOLS, AND R&D PROGRAMMES

The government's role in promoting research and development in the technology areas of translations, machine translation tools, electronic dictionaries, terminology and thesauri and even multi-lingual search engines and content referencing is very shy. Even through public private partnerships, the current initiatives are still in the natal stage and still focusing on eliminating the digital divide and dispensing IT knowledge to the community as a whole.

IX. MEDIA

A. MEDIA INDEPENDENCE AND PLURALISM

1. *Diversity of Media*

In 1858, the first newspaper in the Arab region, Hadikat Al-Akhbar (The Garden of News), was published in Lebanon. Two years later, three other papers followed: Nafeer Souria (The Call of Syria) published by Butrus Al-Bustani in Lebanon, Aj-Jawa'ib (The Traveling News) published in Istanbul, and Barid Paris (Paris Mail) published in France.[72] Lebanon has also been the first Arab country to allow private radio and television stations,[73] promoting independent expression of thought.

Currently there are fifteen (15) TV stations, fifteen (15) newspapers (13 daily and 2 non-daily) and forty six (46) independent radio stations operating in Lebanon.[74] With the technology boom, almost all the Lebanese Media joined the Web revolution and made their appearance on the net. The Web media was accompanied by a new generation of press, the "Pure Web Media", represented by around seven (7) news websites (elnashra.com, lebanonfiles.com, nowlebanon.com, naharnet.com, allprint.net, tayyar.org, and almustaqbal.org). The news sites are mostly bi or tri-lingual with the exception of Lebanonfiles.com that is published solely in Arabic. According to the ALEXA standards, some Lebanese web news sites have been ranked among the top 6,000 worldwide,[75] putting Lebanese press in highlight not only in the Arab world but also internationally.

2. *Ownership of Media*

With only one station of the 15 local TV stations being state-owned, Lebanon is thought to have a heaven of "Free" media. With the enactment of the Audiovisual Media law, many of the small operators of illegal stations at the time were closed and mostly influential politicians and corporate conglomerates were the ones to receive the bulk of the private licenses.[76] Furthermore, in order to enforce the endorsed media law, the National Council for Audio-visual Media (CAN) was established. Irrespective of all the direct enforcements there is always an indirect influence that will weaver the respective media towards its own nest. Financial pressure and instability, believes of some "interest groups" and even managerial influence represent just a mere example of major indirect influences on the media's flow.

3. *The Media and its Contribution to the Freedom of Expression and Plurality of Information*

Though labeled with "Freedom of Speech", television and radio stations in Lebanon are governed by the Audiovisual Media Law (Law 382/94) passed by the parliament in October 1994 and applied on September 18, 1996. The latter divided television and radio stations into categories licensed for broadcasting news and/or political coverage or entertainment and general concern content. In addition to the enacted laws, the National Council for Audio-visual Media (CNA) in Lebanon was established as an autonomous entity in charge of regulating and controlling television and radio stations, together with newspapers (or the print

[72] http://www.pressreference.com/Ky-Ma/Lebanon.html

[73] IPI "Media in Lebanon: Reporting on a National Divide", December 2006

[74] http://www.pressreference.com/Ky-Ma/Lebanon.html

[75] http://www.alexa.com (http://www.tayyar.org ranked as 5875 in the 100,000 worldwide ranking)

[76] http://www.pressreference.com/Ky-Ma/Lebanon.html

press). Media providers have to be licensed to operate and are continuously controlled, and monitored for any breach. On another hand, with the technology boom and the introduction of the Lebanese Web news sites, press in Lebanon has found itself a new door for complete freedom of speech whereby news sites do not need to be licensed in order to get published and content is to a certain extent free of any law or regulation.

4. *Gender Portrayal in the Media*

Women in Lebanon have made great emergence in the private sector and are highly visible in the mainstream media as presenters, journalists, producers and even news managers. Women have become a partner in media making in Lebanon and with different NGOs working on empowering women, female presence has started to shine in the field.

B. THE MEDIA AND ITS ROLE IN THE INFORMATION SOCIETY

1. *Role of the media: Print, Broadcast as well as New Media in the Information Society*

The Lebanese media rarely covers information technology as a main program topic. For example Al Nahar newspaper has a dedicated section for ICT under the name "Computer and Internet" that is issued only once a week (every Sunday), however, the issues are addressed more as a social and cultural event rather than as a topic of discussion and debate. The other audio visual programs airing and correlated to ICT are phone, cameras and computer releases and prices rather than technological advancements in terms of innovative applications, networks or system. The problem may lay on the fact that the percentage of media listeners, readers and viewers for ICT topics do not represent a big enough stake of the media audience to encourage a dedication of a section or program on ICT.

2. *Use of Traditional Media in Bridging the Knowledge Divide and Facilitate the Flow of Knowledge, Particularly in Rural Areas*

As mentioned in the point above, ICT has not yet made its appearance in the Media as a hot topic, and as such the Media's role in facilitating, promoting and even dispensing the flow of knowledge on Information Technology in Lebanon has not yet occurred. However, with a new generation of technology fans, heads might be turned towards the importance of Information Technology in the Media and to make its entrance with E-legance.

X. INTERNATIONAL AND REGIONAL COOPERATION

A. FINANCING OF ICT NETWORKS AND SERVICES

Attraction of Major Private National and Foreign Investment

The Lebanese government has been actively working on diverse attempts with various governments for the building and development of the ICT. However, and given the unstable political and economic situation, no private national or foreign investments have taken place towards financing ICT projects in the 2000s.

B. INFRASTRUCTURE DEVELOPMENT PROJECTS

Current Implemented and Future Planned Projects Supported or Financed by International or Regional Organizations

The Lebanese Government is currently working on different national projects through international and regional financing agreements, such as:

- The Ministry of Justice in Lebanon is working on finalizing a financing agreement with the European Union (EU) amounting to 10 million Euros for the full automation of the courts in Lebanon;
- OMSAR is currently working, under the patronage of the Prime Minister, on financing the Smart card project (US$ 39.5 million) through the Islamic Development Bank;
- OMSAR will be implementing the e-government portal and a pilot project for the restoration and digitization of the National Civil Registry records through an Arab Fund for Economic and Social Development loan (estimated at US$ 14 million); and
- The government of Lebanon will be initiating the e-procurement project through a half a million USD grant from the Italian Government.

C. WSIS FOLLOW-UP

Lebanon was among the most active countries participating in the 1st phase of the World Summit on the Information Society (WSIS) held in Geneva from 10-12 December 2003. An official delegation headed by the president attended this event and participated in a number of plenary and round table sessions. Four ministers were also part of this delegation and individually held one-on-one meetings with representatives from different international organizations located in Geneva.

The private sector was also actively present. Headed by former International Chamber of Commerce (ICC) president Mr. Adnan Kassar a group of 20 company and academia representatives attended different events of the WSIS and spent considerable time at the Lebanese Pavilion in the ICT4D exhibition. The pavilion (some 60 square meters) was made possible by the contributions of 7 national banks and one ICT association.

Two documents were prepared by Lebanon for the Summit: Lebanon National Society Action Plan and Lebanon National Society Position Paper.

Also, an information society website[77] for Lebanon was created, to host all national information, data, activities, documents, presentations and speeches relevant to or produced for the WSIS event in Geneva.

Four Lebanese committees were created to work on the outcomes of the first summit in preparation for the second summit: National Working group for the WSIS (NWGWSIS) which met on regular basis to discuss relevant issues pertaining to the WSIS objectives as well as to discuss and follow up the activities of the Council of Arab Telecommunications and Information Ministers, the National Working Group on Internet Governance (NWGIG) to discuss the issues related to Internet Governance, National Working Group for the Solidarity Fund (NWGSF) dedicated to look into financing schemes for building the information society, and the National Working Group for the World Summit on the Information Society Phase II Logistics (NWGWSISL) to work on the logistics of the delegation attending the summit.

During 2005, a delegation from Lebanon representing OMSAR, the Ministry of Economy and Trade and the Ministry of Telecommunications attended the Tunis WSIS conference in November headed by the President of the Republic to endorse ICT in Lebanon.

The active participation of Lebanon clearly underlines the importance that Lebanon in all of its sectors – public, private, and civil society – gives to the information society and the benefits that can result from realizing a national society that exploits the value of information and knowledge. Being a nation that throughout history has depended on services as the main source of its national revenue, the information, knowledge and contacts acquired from this WSIS phase cannot but help in advancing Lebanon towards a knowledge-based society that harnesses modern information and communication technology and multimedia channels to promote more promising and sustainable national development.

Reaching such a national society is attainable, yet it requires the active and unconditional cooperation of all national stakeholders, starting first and foremost with the ministries and agencies of the public sector.

[77] http://www.WSIS-Lebanon.org

The multi-sectoral (public, private and civil society) cooperative and participatory work that made it possible for Lebanon to be actively present in the 1st phase of the WSIS in Geneva and continued though the 2nd phase in Tunis needs to continue even beyond that so that as a nation all can rise to the challenge and make Lebanon truly a reference point for information society successes for all other countries to learn from.

Following is a sample list of national and governmental projects done:

- Policies and Procedures: Simplification of all government procedures, Modernization of the national tax system, Organizational structure of ministries and autonomous agencies and New public sector tendering law;
- ICT laws and regulations: IPR and online banking laws passed in 1999, Digital Signature and other e-related legislation are under review by special parliament committee and near enactment;
- ICT Policy and Standards: Policy and strategy document prepared in 1998, Ministerial ICT committee appointed by Prime Minister in early 2001 to handle national ICT matters with private-public sector partnerships, Standards guidelines for ICT projects in the public sector prepared in 2003, e-Government strategy document completed and presented to Council of Ministers for approval in 2002 and upgraded in 2007, e-Strategy document prepared in 2003, and e-readiness assessment in 2003;
- Telecommunications: Voice, ISDN and DSL services in place, Phase I of national MAN infrastructure being tested; Phase II and III already scoped, 2 Cellular operators offering GSM and GPRS services, Government approved plans for privatizing MPT to create Liban Telecom, The Telecommunication Regulatory Authority (TRA) has been established and plans are well advanced to sell off the two government owned mobile phone companies;
- Computer Networks: Most ministries and agencies have a Local Area Network in place using latest standards and protocols and hundreds of servers (750+ across government) and Thousands of computers and peripherals have been deployed (11000+ PCs across government);
- System Applications: A number of vertical applications have been deployed (MOF tax system, customs system. Cadastre land registration system, Port of Beirut DMS, National Archives indexing and optical storage system, Legal Decisions DMS, etc.); Customs system expansion to cover all ports of entry (5 locations); Port tracker system application to address cargo manifest for port of Beirut; Other vertical applications recently completed include Work Permits, medical benefits and compensation system for Government Employees (COOP), Commercial Registration system; Some horizontal applications have been developed (Information offices, Informs portal, Budget System, etc.). Others in the works include HR database for the civil service, personnel and financial system for agencies, etc; and Multitude of General Security applications developed;
- Human resources: Good number of civil servants trained on ICT products (OMSAR has trained in access of 6500); A sizeable number of civil servants have been trained on administration of ICT solutions (some 450+ through OMSAR projects); Assessments of ICT staff requirements for a number of ministries and agencies have been made; and Draft of new ICT cadre and salary scale for government at large currently under review;
- Capacity building plans: With the support of the local industry continuous or in-service training plans are being achieved and the new Institute for Public Administration to play a key role in in-service capacity building;
- An e-Society: ICT awareness campaigns by the government are being prepared as well as Multi-purpose community telecenters; and Private sector ICT awareness through PCA, PiPOP, PICTA initiative and media and organizing successful conference and exhibitions such as Termium.

XI. MILLENNIUM DEVELOPMENT GOALS – MDG

A. PROGRESS TOWARD ACHIEVING THE MDGS

The millennium development goals are comprised of 8 goals which are : Eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empowerment of women, reduce child mortality, improve maternal health, combat HIV/AIDS, malaria and other diseases, ensure environmental sustainability, and develop a global partnership for development. According to UNDP, there

exist 71 related projects. For example, 33 of these projects are related to the eradication of extreme poverty. The “Regional Development of Akkar" to improve the living conditions is one example and the “Capacity Building for Poverty Reduction” through the enhancement of the Ministry of Social Affairs and strengthening NGO capacity is another.

Notable progress in Lebanon has been made with respect to achieving these goals, the social action plan of the government targets poverty, education, health, and development through the allocation of funds, food programs, and service payment exemptions.

Three out of eight of the goals are health related, in this sense much work has been made towards reaching the 2015 deadline for the achievement of these goals.

- Maternal mortality rate has dropped from 300/100,000 live births in 1990 to 86/100,000 in 2004;
- Infant mortality rate has dropped from 35/1000 in 1990 to 16 per 1000 in 2004;
- Also the prevalence of tuberculosis reported 30/100,000 in 1998 to 11.9/100,000 in 2004;[78]

On issues of environmental sustainability the CDR has progressively worked on projects such as:

- Environmental Master plan for the Litani River and Qaraoun Lake;
- Capacity building, the ozone layer, biodiversity, and climate change concerning the establishment of an ozone office and capacity building managed the Ministry of Environment;
- Energy efficient building program with an energy center that is managed by the Ministry of Energy and Water.[79]

The government created a Social Action Plan in order to:

- Achieve the Millennium Development Goals (MDGs) as well as reduce poverty, and improving social indicators;[80]
- An inter-ministerial committee was established composed of the Ministries of Social Affairs, Finance, Economy and Trade, Labour, Health, Education, Interior and Municipalities, and the Council for Development and Reconstruction, to ensure the advancement of a Social Development Strategy that would be effective;
- UNDP is the secretariat.[81]

B. USE OF ICT FOR ACHIEVING THE MDGS

With respect to Information and Communication Technology (ICT), the strategic vision of Lebanon complies with the WSIS recommendations and the UN Millennium Development Goals (MDGs):

- Lebanon’s policy is to use the enabling building blocks of the information society to steer the wheel towards a knowledge-based economy;
- The action plan of Lebanon includes government agencies, the private sector, civil society, the media and multilateral organizations that play a proactive role in the evolution towards an Information Society, supported by ICTs and traditional communication media.
- Projects and action plans have been identified within the framework of a national e-Strategy;[82]
- An all encompassing new E-government strategy was a success through a collaborative work of different government agencies most notably OMSAR and other ministries and departments of the Ministerial ICT committee (MICTC).

[78] Dr. Ammar, W., 2009. Health Beyond Politics. Beirut: WHO

[79] http://www.cdr.gov.lb

[80] http://www.economy.gov.lb

[81] http://www.mdgmonitor.org

[82] Lebanon information society action plan 2003

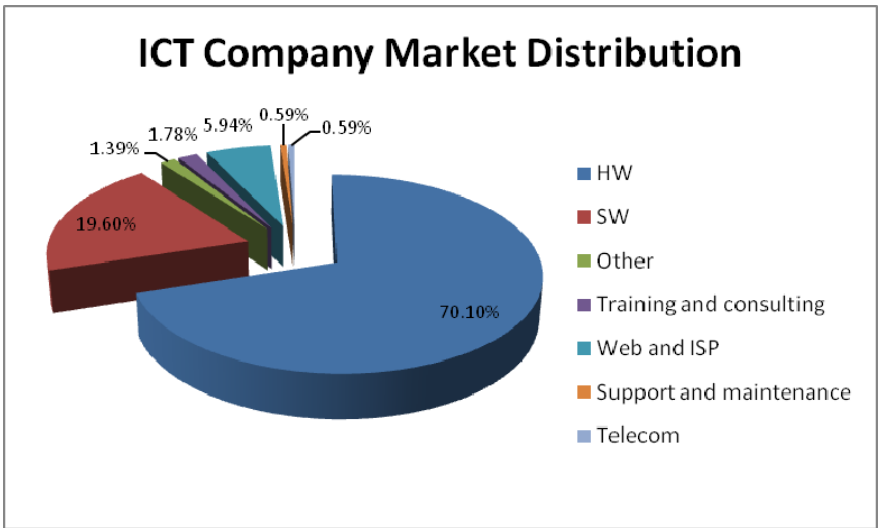
XII. BUILDING THE ICT SECTOR

A. ICT FIRMS

Telecommunications, Software and Computer Services, Wholesaling, Manufacturing

In Lebanon, there are around 559 ICT companies distributed among different types of ICT activities as follows:

Figure 4. Lebanese ICT company distribution



Source: Professional Computer Association (PCA) k-storm

A big number of companies have different activity types, combining hardware provider and software developer and even ICT capacity building. The above figure portrays figured the sector distribution based on the main activity attributed to the ICT companies. It is worth noting that ICT companies have been growing in Lebanon with a service range reaching all neighboring and regional countries. Many Lebanese ICT companies rely heavily on the gulf market and recently have been targeting underdeveloped countries such as in Africa.

B. R&D AND INVESTMENTS IN THE ICT SECTOR

1. *Research and Development in the Field of ICT, Equipments, Tools and Services*

Lebanon has a limited number of companies that specialize in ICT equipment or tool development. Most available establishments deal with the production of spare and auxiliary parts of ICT gears. One of the most known Lebanese companies in this sector is Libancable that produces cables of different types for the telecommunication infrastructure. Other related companies' activities are narrowed to assembling ICT machineries and equipments.

Due to the continuing problems with piracy, the domestic software market is expected to grow relatively slowly, despite the implementation of some government and private projects. According to Business Monitor International (BMI),[83] it is predicted that the legal software market value will reach US$ 46 million in 2008. A large number of the Lebanese software companies that were operating from Europe and the US, have moved back to Lebanon, boosting in recent years the Lebanese software development sector. The domestic software industry is mainly export focused, with 1/3 of local software firms' activities, according to a recent survey by BMI, provided 75 per cent from regional and Western markets. Local software companies tend to have a focus on banking, retail, education and trade.

[83] http://www.businessmonitor.com

2. *Local and Foreign Investments in the ICT Sector*

In the aftermath of the events of 2006, a number of international initiatives focused on IT as an engine of development. In 2007, the EU announced that it was offering another US$ 400 million to help Lebanon rebuild. This will bring total EU funding for Lebanon to US$ 500 million up to 2010. Among other donors is the US AID programme, which funds an initiative known as Access to Markets through IT (AIM IT), together with public private partnership taking place in the recent year. The launching of the DSL broadband in 2007 is regarded as a strong economic growth magnet. It is expected that regional and international interest will grow due to the recent ICT development put in place in the country.

C. CONTRIBUTION OF ICT SECTOR IN THE NATIONAL ECONOMY

1. *ICT Revenues and Expenditures*

No accurate figures were able to be collected regarding the Revenues and Expenditures that Lebanon incur in the ICT industry. Different approaches were undertaken such as contacting the Lebanese Central Bank who is in charge of congregating the figures of the different sectors in the country, and reverting to local associations who usually work on surveying the Lebanese ICT market in the purpose of providing directive and strategic measures for the sound growth of the respective field. The set efforts did not fruit in gathering the required indicators.

2. *Export of ICT Goods and Services*

The Lebanese Customs categorizes its imports and exports into two main categories special trade and general trade, and table 11 depicts the level of import and export in ICT as notated by the customs:

TABLE 11. ICT IMPORT AND EXPORT VALUES (2005-2009) IN USD

	2005	2006	2007	2008	2009*	Years Total	Yearly Average
Export Special	15,275	13,177	15,516	24,119	6,241	74,328	14,866
Import Special	135,659	131,063	139,517	147,491	24,032	577,763	115,553
Export General	17,576	16,290	19,431	28,210	6,590	88,097	17,619
Import General	135,645	131,063	139,520	147,491	24,032	577,752	115,550

Source: Directorate of Lebanese Customs[84]
**Note:* the 2009 figures represent the till the date values

It is worth noting that export of Hardware represents around 51 per cent of the ICT exports and Hardware Imports represent around 52 per cent of ICT imports to and from the country respectively.

3. *Contribution to the GDP*

Much like the ICT Revenues and Expenditure, ICT contribution to Lebanon's GDP could not be estimated for the 2007-2008 fiscal year. However, in 2004 the PCA conducted in association with SRI International a comprehensive ICT Capabilities survey to determine the core indicators to the growth of the ICT sector in Lebanon. The survey revealed that the size of the Lebanese ICT industry is estimated to be in the range of $360 to $400 million in total sales for the year 2003. The following table provides an estimate of the size of the ICT sector in million USD, given the Mundi index reported Lebanese GDP growth rate.[85]

[84] http://www.customs.gov.lb

[85] http://www.indexmundi.com/lebanon/gdp_real_growth_rate.html

TABLE 12. ICT CONTRIBUTION TO LEBANON'S GDP

Year	GDP Growth *(percentage)*	ICT Contribution in US$ million
2003		360-400
2004	3	371-412
2005	4	386-428
2006	0.1	386-428
2007	-6.4	361-400
2008	3.6	374-414

Note: the above assumes total parallel growth of the ICT sector with the total economy growth

4. *Employment in the ICT Sector*

No recent estimates or surveys have been conducted to calculate the level of employment in the ICT sector in Lebanon. The latest study was conducted in 2004 by the PCA in coordination with SRI international and it disclosed that employment in the ICT sector for the year 2003 ranged between 6,500 and 6,750.

D. GOVERNMENT FACILITATION

Since its inauguration in 2001, the Investment Development Authority of Lebanon, IDAL, was established as the Lebanese governmental Investment Promotion Agency responsible for attracting private capital investments to Lebanon and assisting investors in the development and implementation of their projects. Among the sectors currently supported by IDAL's package deal is the ICT sector, whereby, ICT projects can benefit from the listed below, given that the project at hand has a minimum of US$ 200,000 in invested capital and is seen to employ at least 25 employees:

- Full exemption of profits from income tax for a period of 10 years from the commencement date of the project;
- Work permits of all categories provided that the project preserves the interests of the local labor force through employing at least two Lebanese nationals for each foreign employee, and registering them in the National Social Security Fund;
- A 50 per cent fee reduction for work and residence permits of foreign labor, as well as a reduction by half the value of the certificate of deposit entrusted to the Housing Bank;
- Exemption of joint-stock companies aiming at implementing and/or managing an investment project from the obligation of having Lebanese nationals or members of the legal profession on their board of directors;
- Up to 50 per cent fee reduction on construction permits required for the building of facilities necessary for the execution of projects;
- Full exemption from fees related to land registration at the Land Registry for the estates on which projects will be built, provided that the execution of the project shall take place within five years from the date of registration of the land at the Land Registry. However, the above incentives vary on the investment zone in which the project is to take place. IDAL has classified Lebanon into three investment zones (A, B and C).

The Ministry of Economy and Trade in partnership with the Ministry of Industry and the European Union has inaugurated in 2004 the SME Support Programme (ISSP). The program aims at promoting and creating in Lebanon one of the best environments for business in the world. The Program assists the government in developing and implementing a national policy for enhancing business development services and accessing appropriate financial support instruments to SMEs. The program has established an SME Support Unit in the Ministry of Economy and Trade as the driver of government support and policies. The program has also devised a list of policies, legislations and regulations that are continuously amended to positively enable and stimulate the development of business. On another hand, the program has funded the establishment of four Business Development Centers with an emphasis on incubation of innovative

businesses. This component includes also the creation of national SME support services with a network of professional and accredited service providers.

Facilitation of access by SMEs to risk accepting capital sources has also been addressed through the creation of a joint Guarantee Scheme with Kafalat. Kafalat is a Lebanese financial company established to assist small and medium sized enterprises (SMEs) in accessing commercial bank funding. Kafalat (SAL) is owned by the National Institute for the Guarantee of Deposits (75 per cent) and fifty Lebanese banks (25 per cent). The company helps SMEs by providing loan guarantees based on business plans/feasibility studies that show the viability of the proposed business activity. It processes guarantee applications for loans that are to be provided by Lebanese banks to SMEs operating throughout Lebanon.

Kafalat targets SMEs and innovative start ups that are in the industry of agriculture, tourism, traditional Crafts, and High Technology sectors (among which is information technology). It guarantees loans benefit from interest rate subsidies. These subsidies have been set up to mitigate the crowding out effect of the high interest rates in Lebanon that are induced by public sector borrowing. The interest rate subsidies are financed by the Lebanese treasury and administered by the Central Bank of Lebanon.

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