

REPUBLIC OF LEBANON

OFFICE OF THE MINISTER OF STATE FOR ADMINISTRATIVE REFORM



E-Government Strategy for Lebanon

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Final Detailed Version

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PREFACE

The Office of the Minister of State for Administrative Reform (OMSAR) is pleased to present the “E-Government Strategy for Lebanon”. The realization of this important document is the culmination of a collaborative effort by the Information and Communications Technologies (ICT) team within OMSAR’s Technical Cooperation Unit (TCU). Given the years of work at OMSAR in the area of providing ICT solutions and services to the Lebanese Administration, through a diverse donor-funded portfolio of projects, this encompassing *full detailed version of the* document depicts what has been accomplished on the road towards E-Government and presents in detail what needs to be achieved as per international best practices in this domain along the various coherent axes of intervention (legal, technical, services, capacity building/promotion/ operations) to attain a full E-Government status. A high level implementation plan for the roll out of E-Government over a span of 7 years is also projected taking into account a number of strategic priority projects.

As part of our professional principle to involve the private sector and academia in our thinking, this document was reviewed, enhanced and validated by a number of local and international domain experts. It was also reviewed and endorsed by the Lebanese Ministerial ICT Committee that I chair and which has as members the Minister of Economy and Trade and the Minister of Telecommunications. These collective inputs and validations make this document truly a solid reference for all future E-Government work in Lebanon. In addition, its impact on the administrative reform agenda that OMSAR has been working on will be most optimal once its implementation plan is integrated with that of the “Strategy for Administrative Reform” that was prepared by OMSAR and approved by the Council of Ministers in September 2001. Such an integrated implementation plan will undoubtedly foster a modern government operation and provide the needed means for equitable access, empowerment and governance for the respective beneficiaries from citizens, to the business community, to academia, to civil society and to the public administration at large.

And finally, with the world of ICT constantly evolving with newer and improved products and solutions, this strategy document is to be considered a working document that will be openly discussed with a large group of representatives from the government, private sector and academia for the inclusion of as many intuitive ideas as possible. It is also to be reviewed on a quarterly basis by a public-private sector working group and updated in accordance with various developments in the relevant domains on the national and international levels. The resulting revisions of this document will be placed in a timely manner on the OMSAR web site at <http://www.OMSAR.gov.lb>.

It is my personal aspiration that through such thought-provoking initiatives, OMSAR with the pro-active involvement of other government institutions can constantly rise to the challenge and make the Lebanese public administration a model of excellence from both the institutional development and ICT deployment perspectives for others to learn from.

Fouad el-Saad
Minister of State for
Administrative Reform
December 2002

1. EXECUTIVE SUMMARY

This document provides an all encompassing strategy for the realization of a Lebanese E-Government initiative. First, an e-government vision for the Government of Lebanon is enumerated based on the attainment of a number of key strategic objectives. Then the underlying principles of the proposed e-government strategy are clearly stated. Following this, several sections focus on the national focal point and the various key players in both the public and private sectors required for the attainment of this e-government strategy.

Three modules are then documented. Module 1 covers a comprehensive situation analysis of E-government enabling achievements till date in Lebanon with details on the various relevant assessments and studies, the status of the national telecommunications infrastructure, deployed systems and applications, training and capacity building efforts, legislative work and the national awareness campaign. This provides the base information for Module 2 which describes the required E-Government framework that needs to be fulfilled. Four frameworks were identified, namely:

- Legal Framework:
The legal framework addresses the aspects of legalizing electronic information and services, protecting electronic information and securing electronic services.
- Technical Framework:
The technical framework covers the need for a secure national and global communications network infrastructure to interconnect all of the government offices in the country and abroad; the unification of data sources through the establishment of redundant data centers for the government operations and the introduction of a national ID or e-government personal smart card; branding and standards for e-government applications (portals or web sites) and associated domain name classifications and directory services.
- Services Framework:
The services framework describes a number of information dissemination applications such as government-wide information portals, specific web sites accessible through the Internet by Internet account holders or through government established multi-purpose community tele-centers and/or individual interactive kiosk stations at municipalities; government online service applications covering government-wide services portal(s) and a dedicated eprocurement portal; inter-government applications ranging from simple email exchanges, to workflow, document management and archiving system applications, to information and decision support system applications and finally to government-to-government and government-to-employee administrative applications.
- Capacity Building/Promotion/Operations Framework:
The capacity building framework focuses on training, educating and raising awareness for both civil servants and society at large. It also covers guidelines for the E-government operations and management structure covering both the central government requirements and the specific government offices (Ministries, agencies and international offices) requirements.

Module 3 describes the necessary planning steps for a phased implementation. A number of priority (anchor) projects are presented followed by a high level plan for the completion of the overall work as part of this government program with an anticipated duration of 7 years, provided the required funding is secured. Then a listing of the criteria for success and associated risks for this e-government program is documented. A benchmarking section is presented covering the current global e-government landscape. And finally, potential partners and funding sources for this e-government program are mentioned.

2. INTRODUCTION

Since the mid 1990s, the Government of Lebanon has launched a good number of modernization projects that include Information and Communication Technology (ICT) solutions. These projects and the associated ICT solutions were initially planned with the active involvement of the international funding organizations that provided loans and grants for this purpose to select government Ministries and Agencies. With time, the planning for these projects and ICT solutions shifted to a more flexible direction becoming more of a beneficiary (government office) or demand-driven process based on a pre-defined project selection criterion. This allowed for earmarking of available funds to the best suitable project that would render the targeted modernization and operational results through use of ICT. Through this planning modality more tangible projects were implemented in the government over a shorter period of time.

With this background, and for proper future planning that goes one step further to ascertain the requirements of the citizen (the citizen-centric approach) as well as the business and investment community (business-centric approach) insofar as government modernization/ICT projects are concerned, there is a need to lay out an overall strategy for the eventual attainment of all government information and services electronically or online. This strategy document intends to do just that by enumerating the various requirements for realizing an e-government status in Lebanon taking into account the anticipated cost estimates and plausible implementation timeframe for the identified projects along with the potential partners and funding sources needed to achieve them.

3. THE LEBANESE E-GOVERNMENT VISION

The e-government vision for Lebanon centers around the attainment of a number of strategic objectives based on citizen and business-centric approaches. These are made possible by the facilitating role of Information and Communication Technologies (ICT) and backed by the required institutional and legal frameworks. These objectives can be summarized as follows:

- Dissemination of all public sector information that a citizen¹ is entitled to through various communication channels – the Internet, via hotlines, through government service centers, etc.
- Fulfillment of all public sector services for citizens online, whether for their individual use or on behalf of an establishment, through any government office or through the Internet regardless of the geographical location of this office or the residence of the citizen.
- Reduction to a minimum the information and supporting documents required of a citizen to fill out a public sector formality not considering the means by which this formality is being submitted. Once entered in the government information systems, no re-entry of the same information would be required.
- Provision of a single point of notification for a citizen to use in informing the government of any change in personal or business information. From this point, all concerned government information systems will be updated accordingly.
- Realization of all government procurement processes online based on a harmonized commercial coding schema. This is to serve as the leading example for electronic commerce on the national level and hence is intended to foster its growth.
- Attainment of all intra-government information exchanges and communiqués online, reducing in the process the dependency on courier services and/or the diplomatic pouch.

¹ acting in an individual capacity or as a representative of a business establishment or other organization

4. UNDERLYING PRINCIPLES OF THE E-GOVERNMENT STRATEGY

To attain the just stated e-government vision for Lebanon, the strategy to be followed needs to be supported by a number of underlying principles. These principles can be summarized as follows:

- The government will assure the enactment of the required institutional, regulatory and legal frameworks for the administration at large – in the country and abroad - in an orderly and timely manner.
- The government will undertake the necessary measures to realize a comprehensive network infrastructure throughout the administration and to gradually roll out compatible information systems that exhibit open design architectures and operate on top of replicated data repositories or centers.
- The government will adopt a secure means of data entry for all e-government applications through the use of leading-edge smart card technology and biometrics.
- All citizens will be given the opportunity to be part of the electronic or networked society notwithstanding their financial, social or educational conditions.
- All civil servants will be given, by the nature of their new job functions, an equal opportunity to be part of the electronic or networked society, whether for their provision of services to the citizen or for intra-government communications.
- The government, in partnership with the private sector, academia and non-government organizations (NGOs), will work aggressively on the proliferation of ICT literacy throughout the country, whether through the continuous enhancement of the education curriculum or through the provisioning of targeted awareness campaigns and training programs.
- Electronic commerce will be adopted by the private sector, with government taking a leading-by-example role through its e-procurement initiative.
- The government will actively involve the local ICT industry in the various e-government related projects and constantly work on promoting this industry for it to be a national resource in support of the national and international Information Society.

5. BENEFITS

The E-government initiative being proposed is to the benefit of various entities, those being the participating parties, namely the Government, the citizen, the businesses in Lebanon and outside Lebanon, the government employee him/herself, as well as international organizations and the educational institutions. Described below is part of those benefits that come to mind:

Government:

For the Government, the benefits can be described in the following areas:

- Better management of resources hence placing the right person in the right position
- Streamlined operations and simplification of procedures, hence more efficiency
- Reduction in transaction time, hence cost reduction per transaction
- Enhanced operational accountability and transparency, hence less chances of error and forgery
- Electronic transfer of authenticated forms between government agencies, hence reduction of transport and other cost related elements

- Less storage space needed for archiving documents, hence less spending on rent
- Government spending when and where needed through analysis of data, hence anticipated and studied budgeting
- Better services offering to the government employees and the citizen, hence a supported government
- Revenue generation instead of revenue spending through the savings done, the creation of new jobs, the targeting of studied investments, projects done more efficiently through lessons learnt

Citizen:

As for the citizen, the E-government initiative views the citizen as the customer and the government as the provider. Hence, customer satisfaction is targeted through the following points:

- Less time in doing a government transaction
- Accessibility to different government transactions through one window – the one-stop-shop model
- Updating of life event data (as change of marital status, change of address, etc.) in one place and one place only
- Carrying personal data and benefits offered by the government through a smart card that will be distributed by the government, validated and updated through secure channels, authorized by the government, very near the premises of the citizen, hence reducing the time spent in getting the right forms filled
- Notification alerts through various delivery means (cellular, internet mail, etc.) when certain updating of information is needed by the government, certain offerings are given by the government, etc.
- Reduced number of visits to government offices, hence decreased queuing time resulting in enhanced personal and national productivity
- Multiple accessible channels offered by the government related to information distribution, service offerings, citizen information updates, and available transactions
- ICT awareness raising and minimizing the digital divide through training, hence opportunities for a digital community to be born that would face the challenges of the new world which Lebanon cannot but be part of
- Opportunity to learn and use ICT through the establishment of multi-purpose community centers
- Expanding the local ICT job market with government as the employer for young university graduates
- E-government initiatives would also be instrumental in building the next generation through updated curriculums at schools and universities and giving opportunities to innovative business ideas through the various facilities offered by the government itself or the negotiations that are always taking place with the private sector for the benefit of increasing the business opportunities, the usage of the internet, the creation of jobs, and the elimination of all illegal entities that would be a hindrance to the community as a whole.

Business and Investment Community:

As for the business and investment community, whether in Lebanon or outside, the E-government initiative proposed encompasses the following benefits:

- Facilitating the registration of new companies of all kinds
- Researching the availability of certain businesses and assisting in establishing partnerships or alliances i.e. new investments
- E-procurement services
- Secure payments over the Internet
- Streamlined operations for requesting permits through one-stop-shop investment portals
- Faster transactions for business dealings with the government
- Expanded local ICT market with government as the largest user of ICT products and services

Employee:

Through the implementation of the e-government strategy, the benefits listed below would be few of the ones the civil servants will get:

- Increased productivity, through the simplification of procedures
- Information availability any time and any place
- Faster communication within the government across departmental boundaries
- Information and knowledge sharing
- Efficient Human Resources related services like performance appraisals, online requests and approvals
- Salaries paid through e-banking

International Organizations:

In dealing with the Government of Lebanon, International Organizations are surely to benefit from the e-government initiative as follows:

- Better and timely sector statistics provided through government information systems
- Streamlined, transparent and accountable government processes that concern such organizations
- Better management of fiscal matters and effective donor coordination whether for loans or grants from such organizations
- Timely decision-making by the government officials through decision-support system environments

Educational Institutions:

Last but not least are the educational institutions that produce the new generations of e-government benefactors. They are to benefit from the e-government initiative in several ways such as:

- Involvement of teachers and researchers in the e-government design and implementation processes – an alliance with the government and the business community that can generate new research revenue channels for the institutions and lead to innovative ideas and technical papers
- Expanding the ICT curriculum to include topics of relevance to e-government deployments. Hence, the new graduates will be ready for involvement in e-government projects and universities can become e-government centers of excellence
- Providing training and continuing education sessions to civil servants and/or citizens in support of e-government applications usage or administration

6. NATIONAL FOCAL POINT FOR E-GOVERNMENT STRATEGY ATTAINMENT

The Government of Lebanon formed a Ministerial Information and Communication Technology Committee (MICTC) in May 1997 based on decision 33/97 issued by the Prime Minister and based on decree 9500 dated 7/11/96. The MICTC is currently chaired by the Minister of State for Administrative Reform and includes the Minister for Economy and Trade and the Minister of Telecommunications. Its prime objective is to develop and implement a nationwide ICT Policy and Strategy which will make maximum use of CT in the various sectors to promote the economic development of Lebanon. In that context, the MICTC shall be the executive level decision-making body for the e-government strategy attainment. It shall be supported by an e-government advisory committee with domain expert representatives from the public sector, private sector and academia.

In coordination with the Ministerial ICT Committee and for the proper achievement of e-government, there needs to be a national focal point entrusted with the overall planning, implementation, management and monitoring of the documented strategy. Within the context of the Government of Lebanon, and given its various initiatives in support of e-government attainment since its establishment in 1995, this focal point is the Office of Minister of State for Administrative Reform (OMSAR). OMSAR with its well-established core competencies in the fields of Information and Communication Technologies (ICT) designs and implementations, modern procurement procedures and institutional and legal framework developments in addition to its active relationships with international donors and its direct organizational link to the Council of Ministers (CoM) is best qualified to be the focal point for e-government realization.

In that regards, it is envisaged that OMSAR's current ICT operations, under the Technical Cooperation Unit, shall be revised and expanded to address the E-government requirements. This in turn shall lead to the formation of a National ICT Unit (NICTU) at OMSAR with the following Divisions:

1. E-Government Strategy and Planning
2. E-Government Implementation
3. E-Government Central Operations and Management

The E-Government Strategy and Planning Division will serve as the driver behind all e-government projects to be handled by the Implementation division. It shall be responsible to work on e-government white papers, as well as on updating this strategy to stay current with international developments and best practices in this field. It shall develop and monitor the high-level action plan and facilitate a phased implementation through detailed annual work plans. It shall oversee the required resource mobilization and financial issues. It shall address the necessary government-wide policies and standards affecting e-government, as defined in the e-government technical framework. It shall also focus on the necessary legal activities, as defined in the e-government legal framework. And finally, it shall address the overall marketing strategy and communications objectives for the government, citizen and other stakeholders, as defined in the e-government capacity building/promotion framework.

The E-Government Implementation Division will be formed in OMSAR with participation from other government ministries and agencies for each defined project to oversee the required design and implementation processes. With a broader collaboration from the agencies/departments, government-wide ownership and commitment to the e-government initiative will be attained. The E-Government Implementation division shall be responsible to plan, scope and manage the implementations of e-government solutions before handing over to the E-Government Central Operations and Management division. It shall address the e-government technical and services frameworks which cover infrastructure requirements, applications and solutions, security and training, amongst others.

The E-Government Central Operations and Management Division shall be responsible to ensure proper operation of all e-government implementations and monitor and evaluate their impact. This Central Operations and Management division shall also oversee and coordinate the planned e-government operations and management division(s) in the various government ministries/agencies. (refer to Section 12.3 for details).

MODULE 1: SITUATION ANALYSIS

E-government enabling achievements till date in Lebanon are documented in this module. It covers a situation analysis of all with some detail covering various assessments and studies, status of the national telecommunications infrastructure, deployed systems and applications, training and capacity building efforts, legislative work and the national awareness campaign.

7. KEY PLAYERS IN THE PUBLIC AND PRIVATE SECTORS

To successfully realize an e-government implementation within a partnership perspective, all key players in both the public and private sectors need to be identified. Within the Lebanese context, these key players can be listed as follows.

7.1. CENTRAL GOVERNMENT BODIES

Forming the core of the Lebanese administration are ten central government bodies. These cover the three main branches of government namely, the Presidency of the Republic, Parliament, and Presidency of the Council of Ministers in addition to the following core agencies: Civil Service Board, Central Inspection, and Court of Accounts, Central Disciplinary board, Constitutional Assembly, Religious Judiciary and OMSAR. Collectively, these government bodies play the pivotal role as relates in particular to the enactment of the required institutional, regulatory and legal frameworks. Add to this, their common functions insofar as the fiscal budget is concerned in general and the allocation of funds from this budget for ICT projects in particular. And finally, OMSAR has a strategic ICT role among these core bodies and particularly through donor funded programs.

7.2. MINISTRIES AND AUTONOMOUS AGENCIES

Functioning around the central government bodies are some twenty one Ministries and over fifty Autonomous Agencies, most of which are under the tutelage of the Ministries. These Ministries and Autonomous Agencies form the services branch of government and hence constitute the key interfaces with the citizen. And it is mainly their mandate and institutional structure that will be impacted the most by the new institutional, regulatory and legal frameworks in support of e-government. For example, the Ministry of Telecommunications will be reduced to a Telecom Regulatory Authority overseeing the operation of a privatized telecom sector, once the new telecom law is passed by Parliament and the telecom sector is privatized. Other service Ministries will also experience a similar adjustment in function once the relevant privatization process is completed. Also, some Autonomous Agencies might be merged together since they have the similar function yet only operate in different jurisdictions such as the many water authorities.

What is clear here is that during the implementation of e-government, caution needs to be taken in that the final mandate and structure of these key service Ministries and Autonomous Agencies will be much more efficient in the very near future and hence the e-government implementations can be carried out with a reduced level of complexity.

7.3. MOUHAFAZATS AND MUNICIPALITIES

Completing the government formation after the above listed core bodies and service oriented Ministries and Autonomous Agencies are the regional Mouhafazats (governorates) and Municipalities (city halls). There are 6 Mouhafazats and over 780 Municipalities in Lebanon. These government offices constitute the nationally dispersed field offices of the administration – the interface with the regional and local citizen.

Within the e-government initiative, these offices will operate as remote online one-stop-shop service centers, starting from the Mouhafazat offices and the large Municipalities where such centers can be located and ending with the medium to small Municipalities where online service kiosks can be installed. Simply stated, these managed centers and kiosks will serve as the online access facilities or points for those that do not have access to the Internet or are not ICT literate.

7.4. EMBASSIES, CONSULATES AND MISSIONS ABROAD

Constituting the government presence in the international arena are the Lebanese embassies, consulates and representative missions. Located in a large number of countries around the world, these government offices form the internationally dispersed field offices of the administration – the interface with the international citizen.

Embassies mainly deal with diplomatic affairs, Consulates deal with civil records, visas and passports, whereas Missions deal with concerns of the international organization in which they represent Lebanon. Hence, Consulates are the services-oriented international offices and Embassies and Missions support government operations and hence are more intra-government service providers. The respective inclusion of these offices in the e-government initiative from both an infrastructure and information systems perspective is crucial.

7.5. BANKING AND FINANCIAL SERVICES SECTOR

Any e-government initiative cannot be considered complete unless the means of electronic payment are available and hence the key role of the banking and financial services sector. Whether on a national or international level, banks and financial institutions play a pivotal role in the facilitation of online services or transactions. Transfers of funds from bank accounts to and from the government, payments of services fees by credit or debit cards and settling of utilities bills by online money transfers are but a few examples of the involvement of banks and financial institutions in the e-government fulfillment process. Without them, simply all but financial transactions can be handled online, making e-government a partial solution.

For a successful e-government implementation, the involvement of these institutions and the Central Bank are required at all phases – from design to development to roll out. From this involvement required e-government systems interface standards for all banking and financial institutions can be worked out and enforced to facilitate the implementation process.

7.6. NATIONAL ICT SECTOR

Given the intricacies of e-government implementations, particularly as relates to the localization of the systems user interface from one hand and the need to have the skills of ICT professionals on the national level readily available to perform various outsourcing functions on the other hand, the national ICT sector becomes a strategic player as well. International best practices can always be transferred to an e-government implementation, yet their localized implementation cannot be realized without a skilled national ICT workforce. Also, from an operational maintenance or systems upgrade perspective, national ICT capacity is required.

The global trend is for governments to administer and use e-government systems and communications implementations and to outsource overall maintenance and upgrade functions. This cannot be realized without a prepared national ICT sector - a sector that has alliances and partnerships with international ICT companies in order to facilitate the timely transfer of knowledge.

The national ICT sector is also a catalyst in raising ICT awareness and providing training programs on the national level, all to make society at large more ICT literate or e-ready.

7.7. NON-GOVERNMENT ORGANIZATIONS

Through their global forte of providing assistance to the many unprivileged or illiterate people, and with funding from a large group of international donors, non-government organizations (NGOs) have an important role to play in expanding the reach of e-government services to the community. Examples of this role include the provisioning of ICT training to citizens in the remote rural areas of the country through co-funded community tele-centers or mobile training vehicles. The tele-centers will also provide an economical means to access the Internet.

In addition, NGOs can support small municipalities in attaining their local or communal interface role in an e-government implementation. Their active relationships with international donors can also be a plus in that additional sources of funding for e-government implementations can be channeled through them.

8. E-GOVERNMENT-ENABLING ACHIEVEMENTS

8.1. ASSESSMENTS AND STUDIES

Since the end of the civil war in the early 90s, various ICT, human resources, and institutional assessments have been made for the government by a number of local and international consulting firms. An initial assessment that focused on the rehabilitation and reform requirements of the Lebanese Administration led to securing 2 loans and a grant from international donors for OMSAR. Other sector specific assessments led to securing additional loans and grants for concerned Ministries and Agencies through the Council for Development and Reconstruction (CDR).

From the loans and grants secured by the government, a number of ICT, human resources and institutional programs have been launched, all with the objective of realizing a modern administration that can operate more efficiently and answer to the service requirements of the citizen in a timely and effective manner. The current results of these programs will be highlighted in the following sections.

Studies resulting from these loan and grant programs cover a National ICT Strategy and Policy document, an Institutional Development Strategy, a consolidation of human resources databases proposal, plans for the merger and restructuring of government Ministries and Agencies, a privatization study and others.

8.2. INFRASTRUCTURE

The ICT programs funded by loans and grants and by the government focused initially on deploying modern local tele- and data network infrastructure in government core offices, Ministries and Autonomous Agencies. Modern telephony systems and core data network systems were deployed. This took place as the country was finalizing a modern telecommunications infrastructure throughout its territories (the liberated south is now being added to this network). Over this national infrastructure, the interconnection of a selected number of Ministries and Autonomous Agencies with their branch offices over state-of-the-art high-bandwidth links (x-DSL) has been realized.

Overall, the current status of the local infrastructure in most of the government offices is sufficient to support any e-government implementation. Required still is the completion of the local infrastructure in the remaining government offices, covering Ministries, Autonomous Agencies, Mouhafazats, large and medium Municipalities as well as Embassies, Consulates and Missions abroad. All local infrastructure then needs to be interconnected via a state-of-the-art secure government-wide network that compliments the work already done in this regard.

As relates to Internet Service Providers (ISP), there are some 15 active ISPs in Lebanon, providing different levels of service to the end user. And due to the flat national telephone tariffs scheme, accessing the ISPs from anywhere in the country costs the same – currently at \$1.80 per hour for dial-up accounts².

8.3. SYSTEMS AND APPLICATIONS

With the local infrastructure in place, a number of system applications have been developed and deployed. These applications range from mere office productivity tools and email applications to more advanced document management and archiving systems to online service processing systems to intra-government administrative systems. Open design and development standards have been used in these systems applications so that they can be easily interfaced in the near future.

A good number of government offices have a web site that offers information about the concerned office and its branches. Also, a comprehensive government point-of-information portal entitled “informs.gov.lb” has been developed along with a hotline help desk facility. This portal and supporting help desk provide citizens with detailed information on all government formalities, covering the forms themselves, the required supporting documents, associated fees and processing procedures.

A complete inventory of all developed and deployed system applications is being prepared and will be added to this document as an appendix.

8.4. TRAINING AND CAPACITY BUILDING

It has been general practice that all ICT implementations in the Government of Lebanon are accompanied by the required training for the concerned civil servants. This training has covered end user training for PCs and productivity tools, advanced network and database administration training, systems applications development tools training and training on the developed tailored systems applications. Thousands of civil servants have been trained in these areas and more continue to be with the additional deployment of integrated systems and communications solutions. Most of this training has been and will continue to be fulfilled by certified training centers. Some has been done by a number of government training institutes.

As a result of this training, capacity has been built in various government offices to constantly operate, maintain, upgrade and populate the available information systems and their enabling environments. This capacity will form the core ICT operations units for the government.

Non-ICT training has also been given to a good number of civil servants, focusing mainly on modern administrative best practices. This training has covered for example simplification of administrative procedures, performance improvement plans, performance appraisal, and supervisory skills. The objective of such training is to have civil servants that are well-versed with modern administrative principles and that practice these principles in a sustainable manner, training other servants in the process. The application of these modern administrative principles goes a long way towards facilitating the proper use of ICT solutions.

8.5. LEGISLATIVE WORK

On the legislative front, work has been done in support of streamlining government operations. Examples of this work include the merger of a number of Ministers and Autonomous Agencies, the introduction of new accounting practices, and the enactment of a

² at the time of writing this document, a government decree reducing this fixed rate as per a usage time table was approved – it is to be implemented starting March 2003.

privatization law. Legislative work in progress encompasses the formalization of the simplification of some administrative procedures, modernization of the mandates of some key core agencies, and improving the job classifications of civil servants.

As relates to digital content, an intellectual property rights law was passed by the government in 1999. A digital or electronic signature bill is also near its final approval. And most recently, legislative work has started on matters of privacy protection and cyber-crime prevention.

8.6. NATIONAL AWARENESS

For any government-wide initiative to succeed, society at large needs to be aware of the resulting tangible benefits. Within the context of e-government, this is even more the case as society is not only the benefactor but is also the determining factor in making e-government provisions and services a success or not. To this end, national awareness on the various achievements to date towards an e-government status in Lebanon has been a key undertaking.

Whether at general ICT seminars or conferences or at specialized e-government events, the government has been presenting on e-government progress, focusing in a large part on the basic building blocks of e-government as well as on the requirements of society to benefit from its offerings. Also, many interviews and reports in the local and regional media (TV, radio and newspaper) have focused on Government of Lebanon ICT projects as part of the evolution towards e-government. A number of web sites of the government and of international organizations sponsoring e-government work are also being frequently accessed by the general public.

MODULE 2: E-GOVERNMENT FRAMEWORK

The vision of the E-Government framework is built upon 4 logical frameworks. All these frameworks are closely linked together and cannot be treated as separate entities. The logical view of the E-Government Framework is depicted as follows:

- Legal Framework (Law, Legislative, Administration) (Refer to Section 9)

The legal framework considers all initiatives around laws for Electronic Signatures, Data Protection and Data Security. This forms the legal and regulatory basis for the other frameworks.

- Technical Framework (Refer to Section 10)

The technical framework takes into account all technologies around Networks, Security Infrastructure (Public Key Infrastructure, Digital Certificates), and Data Interoperability and Access devices. This forms the technological basis for the services framework.

- Services Framework (Refer to Section 11)

The services framework describes all services delivered for the interaction between

- Government and Citizen (G2C and C2G)
- Government and Businesses (G2B and B2G)
- Government and Government (G2G)
- Government to Employees (G2E and E2G)

It also describes all related independent service offerings that complement the transactional functions described above, like payment gateway and directory services.

- Capacity Building/Promotion/Operations Framework (Refer to Section 12)

The last framework focuses on educating people, marketing the service offerings and defining guidelines for the operation and maintenance of the services.

The following chapters provide details on each of these 4 logical frameworks.

9. E-GOVERNMENT LEGAL FRAMEWORK

Any e-government implementation requires a solid legal and regulatory framework to eliminate the risks associated with electronic delivery of information and services.

9.1. LEGALIZING ELECTRONIC INFORMATION AND SERVICES

The basic component of an e-government legal and regulatory framework is that of legalizing electronic information and services. All applicable administrative laws in Lebanon need to be amended or modified through the implementation decrees of a general law that legalizes electronic information and services. There needs to be confirmation of the validity of electronic documents and the possibility of performing administrative formalities electronically concerning the citizen and the business sector. The legal aspect of remotely communicating with the government and obtaining information and services as well as internally exchanging information between government offices over a network needs to be affirmed. The basis, conditions and modes of applying such electronic exchanges particularly as relates to inter-governmental applications need to be regulated.

The digital or electronic signatures draft law currently in parliament covers to a good extent the requirements of legalizing electronic information and services and hence should be used as a reference for future laws of relevance.

As relates to legalizing e-procurement services by the government, the new draft law for Public Tenders needs to include new articles confirming explicitly the principle of making purchases electronically by the Lebanese government, and organizing the conditions of performing public transactions electronically with the business sector.

9.2. PROTECTION OF ELECTRONIC INFORMATION

The other component of an e-government legal and regulatory framework is to legally protect the electronic information available in the various applications (online, near online or even offline). There is a need here for laws that address the following aspects for electronic information: privacy, authenticity, integrity of information and non-repudiation. For each aspect, the required law and implementation decrees need to be enacted. Associated penalties for each electronic information aspect violation need to be quantified and included as a main article in the associated law. The laws should also take into account that the electronic information ownership, whether it be the government or the citizen and associate the penalties accordingly. The future consumer protection law should have articles associated with and referencing the laws that protect electronic information.

In terms of regulation, there is a need to regulate the status of digital information and data that are collected, stored, analyzed, and utilized electronically through ICT facilities. This to confirm the principle of allowing citizens to have access to this information and data and to examine it on one hand, and face the dangers that this information and data poses to the private life of citizens and to individual freedoms on the other hand, especially if these collected information and data were used – in case they were personal, nominal, or private - for various purposes without the knowledge and consent of their owner.

9.3. SECURITY OF ELECTRONIC SERVICES

Having legalized electronic information and services and protected electronic information, there remains the need to legally secure electronic services. The laws associated with securing electronic services center around intrusions in to the secure electronic environment supporting all e-government applications. These laws and their implementation decrees need to encompass enhanced penal texts in order to face the crimes of hacking information systems and electronic networks in both private and public sector, and that may assume

many forms and styles unknown in the past, such as hackers and intruders of systems or networks or stored information through theft, copying, corruption, modification, or destruction, etc. Any legal interrelations here with the digital or electronic signatures law and implementation decrees need to be identified and referenced.

10. E-GOVERNMENT TECHNICAL FRAMEWORK

10.1. NATIONAL INFRASTRUCTURE FOR GOVERNMENT OPERATIONS

With the infrastructure work that has already been realized in the government of Lebanon, most of the Ministries and Autonomous Agencies have been equipped with state-of-the-art local area digital data and telephony networks. The remaining government offices that have not been equipped with such networks will need to be assessed so that all government offices will be ready for digital interconnectivity using modern data and network security measures.

To securely interconnect all of government offices together, a wide area network (WAN) infrastructure will be required. This WAN infrastructure or government network will utilize the existing modern national infrastructure provided by the Ministry of Telecommunications either as only a cable transport medium whereby the government will procure the required active network terminal components (modems and routers) or as an end-to-end data services platform inclusive of all active network terminal components. The Ministry through its affiliate autonomous agency OGERO has recently launched an internal nationwide secure area network for its own services using a Metropolitan Area Network (MAN) topology. This same network can either be expanded to cover all of Lebanon or replicated to become the secure government WAN for the benefit of all government offices. Here, also, the required security measures (firewalls, proxies, PKI, etc.) will need to be assessed and specified.

The envisaged secure government network or WAN will at the same time interconnect all offices to the securely located redundant data centers to complete the government-wide information infrastructure.

10.2. GLOBAL INFRASTRUCTURE FOR EMBASSIES, CONSULATES AND MISSIONS

No e-government initiative could be considered complete without addressing the administrative and services operations at the government offices abroad, namely at the embassies, consulates and missions. This requires the provision of a secure global communication linkage between the government offices in-country and those abroad.

With the proliferation of the Internet on a global scale and its access nodes available in most of the countries, this medium becomes one of the primary choices to interconnect the national government with its international offices. The other medium that presents itself to such connectivity requirements is that of Satellites that through geographical zone coverage can easily handle data and telephony communication requirements on a global scale. Typically, through the use of transponders on two well positioned Geosynchronous Earth Orbiting (GEO) Satellites, the entire global network infrastructure requirements of any country can be handled.

In comparing though the Internet option with that of Satellites, the cost factor will play a major decisive role based on the types and levels of communication services required. For through the Internet, in its current bandwidth capacity, and with the implementation of a secure Virtual Private Network (VPN) for the global communication requirements of the government, data, voice, images, and low level video conference streams can be transmitted with minimum latency. Whereas for Satellites, the bandwidth capacity is scaleable and can be dynamically programmed as per local working hours in designated

countries and hence data, voice, images, and high quality video conference streams can be securely transmitted instantaneously.

The government of Lebanon will explore the two possible choices for a secure global communication network with its international offices and select the most cost-effective solution based on a thorough assessment of the volume and frequency of transmissions of the different data/media types. This selection process will also take into account future scalability requirements to cover new international offices in current or new countries.

10.3. PUBLIC KEY INFRASTRUCTURE

Beyond secure network infrastructures, there are critical requirements to ensure confidentiality (privacy) and integrity of the information to be delivered over these infrastructures as well as authenticity and non-repudiation of the source and receipt of such information, whether these infrastructures are used for information exchanges within the government or between the government and other establishments (other governments, businesses, etc.) or citizens. These requirements are best handled through a government-wide public key infrastructure (PKI) that enables users to securely and privately exchange data through the use of a public and a private cryptographic key pair that is obtained and shared through a trusted authority. The public key infrastructure will provide for a digital certificate that can identify an individual or an organization and directory services that can store and, when necessary, revoke the certificates.

The proposed PKI will consist of at least the following components:

- Certificate authority (CA) entrusted with issuing and verifying digital certificates that include the public key or information about the public key.
- Registration authority (RA) that will act as the verifier for the certificate authority before a digital certificate is issued to a requestor.
- Key management system involving two redundant directories where the certificates (with their private and public keys) will be held.
- Certificate processing and management system that will handle the different types of certificates to be issued.

The PKI architecture will need to be open and scalable to allow for interfacing with the various current and future government applications and with the growing number of users of these applications. It should also allow for the possibility of cross-certification between different CAs so that multiple organizations using their own CAs can be interfaced accordingly to the government CA.

The steps that need to be implemented for the effective deployment of PKI will need to be addressed in discussions between the Government of Lebanon and the private sector in light of the electronic signatures law and implementation decrees currently being reviewed by a special committee in the parliament. These steps involve decisions on the specific nature, number and make-up (private sector owned and operated or public sector or a mix) of the PKI certificate and registry authorities respectively.

10.4. NATIONAL ID OR E-GOV SMART CARD

Due to the agonizing procedures the Lebanese citizen endures whenever the need arises to carry out a government transaction, or whenever authentication of certain civil record data is needed, the Lebanese citizen has to produce the same documents over and over again. The purpose of the National ID or E-Gov Smart Card is to combine various pieces of information pertaining to a Lebanese national (for example medical, insurance, tax, social security and personal identification – civil record data) on to one card with the needed security and authentication measures. This single card will on one hand save the citizen the hassle of

filling out administrative forms with personal information and on the other hand replace the certificates needed to be produced to the public administration/agencies every time a government transaction is to take place. Hence, the card will relieve the citizen from time spent in having to fill out forms, accumulate needed supporting documents and sometimes, save on money spent in paying for the services rendered in producing these documents.

Smart card solutions with their related technology combine excellent storage solutions with incomparable security and authentication measures that can go up to high security levels. Smart cards come in different memory capacities to address different storage requirements (64k and higher). And on the card, different authentication measures such as biometric authentication can be used for the purpose of identifying the owner of the card and its stored data as well for using the card as a key to get into the database system for updating and authentication the data.

This smart card project envisaged for the government of Lebanon will aim at gathering information pertaining to the citizen in one place (the card) from many government database sources. Updates to such data will then be made to the card when needed and from the database source. For example, civil record data, Police records, etc will be entered and updated only from the Ministry of Interior databases, Social Security records only from the National Social Security Fund (NSSF) databases, and Medical and Social Benefits will be entered from either the NSSF, COOP or the Ministry of Health databases depending on the benefits acquired by the citizen or even non-citizen.

The government of Lebanon is currently working on a prototype design for a national ID or E-gov smart card and intends to produce a representative number of these cards for testing purposes before getting into a larger national scale smart card project.

10.5. STANDARDS AND BRANDING

GOVERNMENT ICT STANDARDS

For the government of Lebanon to apply e-government as a whole, ICT standards have to be adopted by all government ministries and agencies. OMSAR has launched an ICT Standards and Guidelines Document project which covers ICT projects implemented by the government entities themselves and/or by the private sector. The project covers the following areas which are needed to ensure for example a minimum standard of quality and the ability to communicate easily among systems.

- **Data Interoperability**

Exchanging data and building on knowledge must be one of the priorities of the government. This would include what kind of data must be standardized on and who is the owner of this data who will have responsibilities in managing it.

- **Data Communication**

This must consider the coding of data and the standard fields to be used. It should also mention what the levels of sensitivity of the data and what levels can be accessed by the different agencies in the government and/or outside and to which extent.

- **User Interface**

A friendly user interface, web-enabled in most cases, must be adopted that reflects the Lebanese government. This interface must be standard in all the government agencies to allow the ease of use and familiarity with the screen. A common look-and-feel (look, the colors, the buttons, etc.) is a must.

- Telecommunications
Standard protocols must be recommended for the various telecommunications requirements in interconnecting government systems as well as providing on-line access to government services to the general public, business communities, and other organizations.
- Security
Security to data (online and offline), to systems and to the infrastructure must be recommended with all the justification and reasons for the standards recommended.
- Desktop Packages
A standard criterion in selecting market-available desktop packages must be adopted when selecting desktop packages. This must be uniform through out the government.
- Operating System
Open systems must be adopted through the various relevant ICT standards recommendations.
- Software Applications
Development of new systems or customizing market-available packages must follow the standards guidelines recommended by this document.
- Hardware and Cabling
Hardware and cabling specifications must follow guidelines recommended by this document

GOVERNMENT DOMAIN NAME CLASSIFICATION AND DIRECTORY SERVICES

With the ever increasing number of government domain names, some order must be brought to its domain name registration practices and clear policies must be created to set the norms and standards for the usage and deployment of directory services across all departments and public institutions.

Currently, there are no established clear policies. The lack of rules and regulations has created a chaotic environment where users cannot easily identify an institution from its domain name. A public institution might register its domain name using an infinite number of possibilities.

The following example takes the ministry of reform as a case in point. We've limited our domain names to five but the choices are endless:

- www.reform.gov.lb
- www.ministryofreform.gov.lb
- www.ministry-of-reform.gov.lb
- www.MOR.gov.lb
- www.moreform.gov.lb

A clear policy would first establish who would be able to register its domain name under the "gov.lb" domain and would set naming conventions that would take into consideration the nature of the institution (ministry, autonomous agency, etc.) and its function (reform, finance, tourism, etc.). A user would then be able to guess the domain name of an institution easily.

Similarly, the government needs to establish norms and standards for all "directory services" objects. The establishment of a clear naming policy is essential for the smooth operation of an inter-governmental network (a government WAN or intranet). The lack of a clear naming policy would lead to chaos as departments would either compete for names or would simply

have different conventions (or none at all) for the same object. Identifying or finding an object in the government's directory would become quite difficult.

As an example, naming conventions must be established for the following objects (going from the highest level to the lowest):

1. Hierarchy. Example: directorateY.ministryX.gov.lb
2. Server names. Example: fileserver2.directorateY.ministryX.gov.lb
3. Computer names. Example: PC10.directorateY.ministryX.gov.lb
4. Printer names. Example: laserprinter3.directorateY.ministryX.gov.lb
5. User names. Example: firstname_lastname@directorateY.ministryX.gov.lb

The government of Lebanon, through OMSAR, will form a committee from a select number of Ministries and Autonomous Agencies to work on establishing standards and related guidelines for domain name registration and directory services documentation for all of government entities to follow.

10.6. E-GOVERNMENT DATA AND DATA CENTERS

All e-government data, whether for internal or external usage, will be stored at the facilities of or accessed through secure and fully redundant data centers that will replicate all data available on the local infrastructure of all government offices. These data centers will become the repositories of e-government data for the various types of e-government applications, such as:

1. Government to Citizen (G2C)
2. Government to Business (G2B)
3. Government to Government (G2G)
4. Government to Employee (G2E)

THE NEED FOR DATA CENTERS

As mentioned before, several ministries and agencies in the government of Lebanon have either already automated many of their functions or are in the process of doing so. As more information or data becomes available electronically, the need to share it in a secure, reliable, scalable, redundant and manageable environment becomes inevitable.

Government departments are generally apprehensive of the threats posed by the opening of their internal data network to other government departments or to the public - be it through a private network or through the Internet. Stories of hacked Web sites and breaches of security into government networks worldwide have fostered the creation of closed environments where data is jealously guarded and made unattainable to all but a trusted/privileged few.

While the actuality of keeping information or data locked away might translate into keeping it safe, it has several negative facets that overshadow that lone positive result:

1. It gives the perception that the government is always trying to hide its doings. All talk about transparency in the administration becomes suspect.
2. It creates the need for duplicate data sources that do not communicate and that do not get updated in the same manner or at the same time. Data from different sources becomes inconsistent, notwithstanding the increased costs of collecting it several times and storing it safely in more than one location.
3. Data that is stashed away is simply that. It becomes worthless and useless as people simply do not know of its existence. This lack of knowledge hinders its proper exploitation and leads to a bad or slow decision-making process.

Hence, the most effective way of putting government administrators' minds at ease would be to provide a safe environment for public data that would be as non-intrusive to their private environment as possible. The solution would include building safe and secure data centers that would act as intermediate set-ups between public and private networks.

The need for more than one data center (primary and secondary) stems from the requirement of having an online redundant backup set-up that would become the active data center in the event of a malfunction in the primary data center.

Furthermore, the data center would act as an Internet Service Provider (ISP) for the government. In addition to hosting their public information at the data center, government departments and institutions would use a redundant high-speed connection to access and obtain information from the Internet. The cost of accessing the Internet would be borne by the center saving administrations the trouble of having to find and pay providers of this type of service.

The government of Lebanon has already completed a preliminary technical design of a government data center and will soon start a more refined needs assessment and prepare the required detailed technical specifications.

10.7. E-GOVERNMENT DELIVERY AND ACCESS CHANNELS

DIRECT DELIVERY AND ACCESS

Government web-sites will provide information and service portals that can be accessed directly by users who have a PC and an internet account

MULTI-PURPOSE COMMUNITY TELE-CENTERS

With the new global knowledge-based economy, it is imperative that all citizens in the various geographical areas of Lebanon have an equitable chance to take advantage of emerging opportunities. And for this purpose, OMSAR has proposed the establishment of Multipurpose Community Tele-Centers (MCTC) in the 5 Mouhafazats or governorates of the country. These centers are intended to serve as gateways to the Global Information Highway, providing access to ICT, such as the Internet, together with the borderless learning possibilities and accessibility to essential national government services. They also promote regional technology partnering champions with representatives from the local government, business community and education community working together to foster a better and more informed society.

In their initial design, the MCTC shall focus on offering the following programs and services:

Government Information Access: Through dedicated computers, users will have access to web-enabled government on-line information services by themselves or through the assistance of government clerk. This access may in turn be an opportunity to encourage the local regions to develop content-specific databases to be hosted in the central information office.

Internet Access: Through dedicated computers, facilitate accessibility to the Internet and the services it offers free of charge.

ICT Education and Training Facilities: Through an established networked computer training center, deliver structured training courses to a good number of citizens from the community via an instructor or through a self-paced modality.

Community Function Facilities: Through an established function room, members of the community can meet and share views on various topics of importance to the community. They can also meet with key government, business or education officials to listen to new ideas or initiatives.

The success of this initial MCTC design will be monitored and adjustments to it will be made before the deployment of additional MCTCs in other regions of the country. The government of Lebanon will also be working closely with NGOs on this project to learn from their lessons in serving the communities.

KIOSKS

Interactive kiosks are the ideal means for communicating government information to the population in very small and remote locales. Taking the Multipurpose Community Tele-Center one step further to the small and medium Municipality level, kiosks are seen as the information delivery channel. Through an intuitive easy to use interface, an interactive kiosk can delivery all kinds of information (government, business, educational, city or village, etc.) to the requesting citizen. Examples of such vital information include Government formalities, new tax information, new business offerings, new educational courses or seminars, street cleaning or closing notices and others.

Updating the kiosks with current information and notices is to be achieved either on a local level or through a network from a remote level such as the central information office or the nearest MCTC. In addition to the interactive touch screen, kiosks are to be equipped with laser printers and other peripherals such as smart card and biometric identification readers for future online applications.

The government of Lebanon will work on a design schema for these kiosks and produce a prototype for testing purposed before launching a larger scale deployment.

ADDITIONAL ACCESS CHANNELS

Other technologies for access (e.g. mobile solutions, PDA's, Smart Phones, Digital TV) are explored when these technologies are available widespread.

11. E-GOVERNMENT SERVICES FRAMEWORK

11.1. ENABLING APPLICATIONS

GOVERNMENT E-MAIL AND DIRECTORY SERVICES

One of the pillars of e-government for internal government operations is the dissemination of electronic mail (or e-mail) facilities across the public sector. These facilities have the main objective to enhance communication between employees and departments and to encourage the idea of information sharing.

To effectively realize such internal communication facilities, there is a need to implement an agency-wide e-mail system and directory services infrastructure that runs over both centralized and de-centralized mail and file servers. And to create a secure e-mail system and directory services infrastructure or a Secure Electronic Environment (SEE) for the government at large, a Public Key Infrastructure (PKI) setup along with associated Digital Certificates (DC) is required. Publishing of a high-level e-government directory policy and schema along with a policy framework for the adoption of Public Key Technology in government are also highly essential for the realization of secure internal communications and directory services.

WORKFLOW, DOCUMENT MANAGEMENT AND ARCHIVING

As a majority of government operations are internal to itself rather than external with the citizen, effective workflow, document management and archiving system solutions are a

must. These solutions once in place will effectively increase productivity, provide for more transparency and accountability, and most importantly facilitate quicker responses in fulfilling the services of the citizen.

Through the Government of Lebanon's information portal, "informs.gov.lb", the majority of internal government procedures needed to complete the various formalities is documented. Hence, the first workflow assessment phase can start from there. These documented procedures can be drawn out and linked to the associated government forms or applications – each having a unique code number – to come up with the workflow functional diagram for the targeted workflow system applications. These system applications will have both a local workflow component covering the procedures that are to be fulfilled in the same government office (Ministry or Agency) and an intra- or wide area government workflow component covering the routing of the workflow files from one government office to the other.

It is envisaged that document management and archiving system applications will supplement the workflow applications throughout the government. The document management system applications will store, index and manage the various documents associated with a government formality or workflow process, while the archiving system applications will place near online or in some events offline the documents that are no longer instantly needed.

Both the document management and archiving system applications will be connected to the government data centers, providing on-premises and off-premises functionality.

INFORMATION AND DECISION SUPPORT

Information and Decision Support Systems (IDSS) have become the vital reference for government officials to render informed and well-justified decisions on key issues facing the government. Whether in preparation for bi- or multi-lateral treaties, the assessment of various loan or grant portfolios in the government, the enactment of new laws, and other matters, IDSS environments have an essential role to play. Hence, this strategy document proposes the establishment of an IDSS portal for the Government of Lebanon that allows all government offices in country and abroad to access the needed information and receive the sought after decision support facilities in a timely manner.

Work has already begun on an IDSS environment for the government portfolio of loans and grants from international funding organizations to provide up-to-date information and the required decision support facilities to the Office of the Prime Minister and other key government offices. It is envisaged that the IDSS model being developed here will be expanded in terms of domain content and scope/specialization to become the IDSS portal for the government at large. A legal document decision support system has also already been developed for the Ministry of Foreign Affairs and can be added to this IDSS portal.

A section or module of the IDSS portal can be viewed as a channel in which the administrative knowledge of the civil servants, particularly the most senior ones, is frequently gathered and stored enriching in turn the decision support facility of the portal. This functionality of the portal will bring together content and knowledge management.

The IDSS portal will have different access levels for the different ranks in government and will be fully secure to insure the authenticity and integrity of the information that it contains.

11.2. INFORMATION PORTALS

Information portals are mainly intended to address the availability of suitable, useful and current content related to government operations and services and to make it accessible to the citizens. Today, government data in general is stored in a variety of systems making

access difficult. Hence, government offices must find ways to consolidate all available information and how better to do it than through the creation and implementation of government information portals.

GOVERNMENT SUPPORTING DOCUMENTS

OMSAR was the first government office to launch a government information portal in January 2002. This portal, named “informs.gov.lb”, is a one-stop-shop point of information site that contains the forms, filling instructions with required supporting documents, the routing process and actual fee (if required) for all government of Lebanon applications or formalities. Currently, there are some 1700 forms with explanatory and supporting information in this portal. Supporting this portal for non-Internet users is a hotline help desk facility, reachable by dialing 1700.

SECTOR SPECIFIC

Beyond this formalities information portal, the government of Lebanon will need to address the possibility and requirements for establishing sector specific information portals such as legal, economy, industrial, tourism and cultural information portals. Each portal will need to be designed to reflect domain-specific content in an intuitive manner, with all sharing a common look-and-feel interface. A mega-level information portal can be considered as the common interface or gateway to all of these portals once completed. It also becomes imperative to have all concerned government staffs open to information and knowledge sharing so as to keep the developed portals current with the widest possible selection of content.

TOURISM PORTAL

Several successful initiatives have taken place through the private sector to create information portals for the promotion of the tourism in Lebanon. However, the Lebanese government which has vast archives of Lebanese cultural and historical documents and is entrusted with the responsibility of promoting Lebanon to the world, should develop a portal to consolidate and promote all the historical sites to visit in Lebanon, all tourism outlets such as restaurants, cafes, etc., all hotels from small to big, from local to international, communication and commuting, customs, languages, available currencies etc. This portal must also be linked to other portals that would deliver bookings to hotels, travel agencies, booking restaurants, etc. which will be managed by the private sector.

BUSINESS PORTAL

One of the major goals of the Lebanese E-Government initiative is to promote the business sector through its various sectors, whether it is agricultural, industrial, services and commercial. The government must have an information portal that will deliver all requirements needed to achieve results, recommendations, investment opportunities in Lebanon, laws that govern this sector, statistics, trends, with a possibility for an e-mail address where citizens can post their questions to be answered by government officials.

This business portal must also have a link to various other websites including the currently developed Commercial register at the Ministry of Justice which facilitates the registering and updating of information related to companies to be started or changed in Lebanon. This portal must also have links with other websites constructed by other ministries such as the Ministry of Economy and trade, Ministry of Finance, etc.

An added value to this portal could also be links to portals outside Lebanon that can provide information related to ideas for new business inside and outside Lebanon .

11.3. SERVICE PORTALS

Providing all government services online is the ultimate goal of any e-government initiative. And with the requirements and the willingness of various government agencies to cooperate, one or more online service portals can be implemented. Ideally there should be a single portal that would act as a unified gateway to government services. This portal would provide services to both citizens and businesses through a secure access process that involves authentication methods (username and passwords initially and smart cards with digital certificates in the future).

The foundation for any service portal is an information portal containing all the forms and supported information that make up a service. By automating the back-office routing process for each form and providing the secure data entry and network communication measures, all forms can be placed online in a gradual manner. With the government of Lebanon "informs.gov.lb" information portal already developed, the task now shifts to grouping and prioritizing the forms to be placed on-line after they are simplified. Once this is done, all government forms can be automated for full or partial end-to-end online processing, depending on the nature of the form.

The realization of a services portal is a timely process that will span several years and is fully dependent on the level of systems and communications work already completed at the concerned government offices. It is also certainly a best practice to simplify all relevant government procedures before any online automation of forms submittal is begun. This simplification will undoubtedly reduce the number of stops and signatures required in the routing process for most forms.

The online processing of forms cannot be considered complete until the proper online payment mechanism is operational, allowing citizens and businesses to settle government service fees online as they submit the form.

A plan for the implementation of a government service portal along with a more definitive time schedule will be documented once the survey of all deployed networks and developed system applications in the government is finally completed.

GOVERNMENT TO CITIZEN (G2C & C2G)

Government to Citizen (G2C): all the data needed by the citizen for all his/her dealings with the government. This would allow the citizen rapid, one-stop access to needed information and a single location for the submission of transactions.

Examples of such projects would be:

- Notification to the citizen (G2C): This could be a trigger to the citizen on certain data that need updating by the citizen such as renewal of driving license. The media for notification can be several of the available at the time.
- Change of Marital Status (C2G): The citizen would update his/her data through a single location, that maybe through a portal, or through a one-stop shop, or from several access points that would be linked to a repository data.

GOVERNMENT TO BUSINESS (G2B & B2G)

Government to Business (G2B): all the data needed by local and foreign businesses. Similarly to the one above, this would unify and simplify all dealings and procedures.

Examples of such projects would be:

E-Procurement Portal (G2B): Automating procurement in the Government through the creation of an e-procurement portal is a very comprehensive exercise with many benefits for the government at large. These benefits cover:

- Better information to identify spending trends and negotiate better contracts
- Realize volume discounts
- Minimize maverick buying
- Pre-qualify a great number of vendors or suppliers to fulfill government orders
- Enforce purchasing policies (standard specifications) and control spending
- Reduce purchase order costs as much as 80 percent
- Speed approvals and order-to-delivery cycles
- Government procurement procedures through an e-procurement portal will simply become more organized, transparent and instantly auditable.

By centralizing procurements, the government will have one eprocurement gateway or portal for all its procurement needs. In this portal, requests from all government Ministries and agencies will be submitted. The job of this portal will be to consolidate all requests, get better offers from suppliers, as quantities are being requested, get better perspectives and accurate statistics on the amount of money spent in each area. This portal will have a standard policy all across the government. It will help in focusing on the demand and have a wider management on budget for each sector.

In a simple example to such a facility, a portal will be created, where all concerned and authorized people will login and submit their requests. The receiver of these requests will approve or disapprove them according to the budget constraint allocated for each department. As a single negotiator, and according to the policy set for the procurement, these goods will be bought or set for tender bids. With this new system, all transactions will be logged and monitored, accurate statistics will be calculated, spending will be monitored on a national scale. Over spending will be controlled and even stopped.

It is envisaged that the eprocurement portal for the government will be developed in different phases. In the first, the procurement of simple goods (ICT goods, stationary, etc...) will be enabled. This will allow for testing of and experimentation with the new portal to render it functionally stable and well understood by users on both the customer side (the government) and the supplier side (the private companies). Then, in the second phase, procurement of services and works will be added to the portal.

Request for Export Permit (B2G): To facilitate the handling of requesting and getting authorization pertaining to export permits, electronic signature must be put in place to verify the owner of this request and the authenticity of its contents, accept or reject and submit back the official reply.

Supplying Business Tax to the Government (B2G): Notification on tax amount can be sent to the citizen upon whom the citizen would simply submit tax calculations and remunerations to the government. If this is taken a further step, payments could also be submitted through this portal.

GOVERNMENT TO EMPLOYEE (G2E & E2G)

Government to Employee (G2E)/Employee to Government (E2G) and Employee to Employee (E2E): the exchange of information would be greatly facilitated by the creation of a central government e-mail facility that would provide mailboxes as well as easy and universal e-mail access to all government employees and departments.

G-to-E administrative applications cover for example employee benefits from the National Security Fund (NSSF) and the COOPerative for Employees, personnel files, and payroll

GOVERNMENT TO GOVERNMENT (G2G & G2G)

Government to Government (G2G): data that is shared by several public institutions and that is required to continue or finish a transaction. A public institution would no longer ask the citizen to provide information that may be obtained from another public institution. It would simply obtain it from the data center, saving the citizen the hassle of going from one institution to another to gather all necessary paperwork. This process would guarantee fast simplified access to correct and up-to-date data, simplify the processing of public transactions, minimize waiting queues, undermine corruption and cut costs. The exchange of information between government departments would be speeded up by electronic workflow as red-tape and the physical movement of paper-based communications would be rendered useless.

To complete the cycle for inter-government applications, the administrative system applications that concern the government and its employees need to be addressed, namely the Government-to-Government (G-to-G) and Government-to-Employee (G-to-E) applications. G-to-G administrative applications cover for example the government budget and inter-government funds transfer functions, circulation of various decrees and decisions, human resource management, in addition to the procurement requests that are to be covered by the e-procurement portal. On the G-to-G applications front, work has been done on the budget preparation and on human resource management. And as for G-to-E applications, some have been developed for the NSSF and COOP benefits and for the payroll systems. These developed system applications need to be expanded to cover all G-to-G and G-to-E administrative applications. A government administrative service portal for the government and its employees might result here.

12. E-GOVERNMENT CAPACITY BUILDING/PROMOTION/OPERATIONS FRAMEWORK

12.1. BUILDING NATIONAL CAPACITY

PROMOTING INTERNET UTILIZATION BY CITIZENS AND BUSINESSES

The Internet is the medium for enabling Lebanon to enter the globalization era. It is widely, if not universally, viewed as the prototype technology of the emerging information era, with vast potential to reshape and transform the ways in which people organize their lives, interact with each other and participate in the various spheres of society.

Although the number of internet users in Lebanon increases every year, it is estimated that it does not exceed ten to fifteen percent of the Lebanese population. Despite the efforts to make it more widespread through the establishment of various distribution means, it still remains that the majority of users come from the private sector, mainly the businesses, followed by students from private-university. This highlights the width of the digital divide in the country.

To facilitate the promotion of widespread use of the Internet, a number of actions can be taken by the government:

- Advocacy campaigns, that can include:
 - i. A program for the provision of ICT education through different channels of the media. The Office of the Minister of State for Administrative Reform identified this need during the year 2001 and is working with the European Union to launch this project during 2002.
 - ii. Public demonstrations in locations with significant pedestrian traffic could be a viable means of promoting access to ICT.

- Capacity Building initiatives, that can include:
 - i. The SmartBus™, an initiative just launched in Lebanon, is a qualified mobile retrofitted school bus designed to reach-out to rural communities and give ICT and Internet training. The government can benefit from this model to provide awareness to citizens in rural and urban communities.
 - ii. The establishment of Multi-purpose Community Tele-Centers is another means for reaching the districts and municipalities by providing the local communities with facilities to access the Internet, receive ICT and Internet training and if provided, attain government help desk services. (Refer to Section 14.3 for more details)

DEVELOPING AND OFFERING HIGH QUALITY AND AFFORDABLE INTERNET SERVICES

In 1996, Internet services in Lebanon started developing with the establishment of 17 operational private Internet Service Providers (ISPs) (out of some 30 that have been licensed). This number has been diminishing through mergers and acquisitions due to increased competition, which can be reflected in the decrease of Internet subscription costs to very reasonable levels (around \$20- \$25 a month).

Telephone Dial-Up charges are currently around \$1.80 per hour which makes the tariffs in Lebanon the second highest countries in the Arab world.

To encourage the accessibility to the Internet, work has to be done to develop and offer high quality and affordable services. Some actions that can be taken in that regards are:

- Reduce the international gateway tariffs for ISPs to access the global Internet Infrastructure to a reasonable monthly cost inline with regional countries³.
- Set-up a regional Internet Hub in Lebanon through connectivity to the International FLAG backbone or through Satellite gateway means.
- Offer a fixed monthly dial-up rate for end-users dialing into ISPs (fixed based on the authorized dial-up numbers issued to the ISPs)³.
- Offer ISPs means to enhance their services to businesses, academia and government by providing new broadband data communication services (xDSL, etc.).
- Encourage ISPs to offer special packages for educational institutions at all levels, and to government institutions and NGOs.
- Have ISPs offer Service Level Agreements (SLAs) to customers, insuring the level and quality of Internet service that they will receive based on a costing structure³.
- Work with ISPs to legalize all Internet-via-cable operations in the country³.

SUPPORTING NATIONAL ICT INDUSTRY AND PROMOTING INVESTMENTS

To promote the growth of ICT, synergy between the public sector and private sector needs to develop through positive reinforcement. The government has already taken some steps to promote ICT investment:

- The 'Media and ICT Free Zone' law passed by the government in 2000 provides the legal framework for the establishment of technology zones, which encourage direct local and foreign investments in the ICT sector through the start-up of ICT ventures. Tax and Labor Incentives were also introduced as part of the "Media and ICT Free Zone" law.

³ at the time of writing this document, a government decree addressing this action was approved – it is to be implemented starting March 2003.

- In early 2001, the government eliminated all import tariffs on ICT products, making all of Lebanon closer to a national free zone.
- In August 2001, the government passed a new Investment Law (replacing the Media and ICT Free Zone Law mentioned above) that modernized the mandate and operations of the Investment Development Authority of Lebanon (IDAL) giving it more autonomous power to secure investments. The law also divided Lebanon into 3 investment zones (A, B and C moving in-country from the sea coast), each of which having tax and labor incentives related to investments. For ICT investments, the incentives for any zone are “a complete exemption for ten years from any income tax and tax on profits of the investor”.

To further support the national ICT industry, a number of actions can be taken:

- Assist the software industry, which focuses on the development of quality Arabic software or the Arabization of available software packages. The aim is to enable the industry to play a major role in the development of an information-based national economy, as well as become a regional leader in the export of Arabized software content. Most important in the context of the e-government initiative is the role the software industry can play in implementing and maintaining e-government software solutions.
- Although The Central Bank of Lebanon has started encouraging national banks to provide Small and Medium Establishments (SME) loans, national capital markets for ICT ventures remain absent. This needs to be addressed through the establishment of appropriate investment houses or financing institutions.

Also, on the private sector side, several incubators (Netakeoff and Berytech) were launched in late 2000 to promote new ICT ventures as a result of ideas initially conceptualized in universities and/or other institutions.

ENHANCING ICT CURRICULUM AT ALL EDUCATION LEVELS

The Government of Lebanon realizing the importance of introducing ICT principles and tools through its various education levels; primary, secondary and higher education; embarked on an education reform program. The following projects are indicative of the Government's initiative in this area:

- A new education curricula, academic and vocational, were developed, which the public and private schools have started to implement.
- A SchoolNet pilot project which aims to increase the availability of low-cost and appropriate connectivity options for schools, to support the technical infrastructure at a provincial level, and to co-ordinate connectivity initiatives for schools was launched in June 2000. This project was complemented in early 2002 with the deployment of some 12 school computer labs with Internet connectivity, with funding from the International SchoolsOnline NGO.

To address the integration of ICT in the education curriculum and to ensure that it is up-to-date and accessible, there is a major requirement for research and development (R&D) programs. This should be complemented with a roll-out strategy for introducing and intensifying ICT literacy in public and private schools.

SETTING UP ICT TRAINING CENTERS OR ACADEMIES

Undergraduate and graduate (Masters) degrees in Computer Science and Computer Engineering are being offered in Lebanese universities, complemented with a limited number of high-quality private sector ICT technical training centers. They provide a good academic foundation, which is reflected in the qualifications of the graduates who find good

jobs in the ICT field in both the Arab world and the West. However, Lebanon lacks advanced continuous education programs to keep in-line with the technological advancements. It also lacks a realistic outlook to what is required upon employment in the ICT domain (hands-on experience, business skills, etc.)

To address the need for specialized ICT professionals with business know-how, the government and education sector should work together to develop a high-tech curriculum, which caters for traditional subjects such as Electronics, Information Technology, Software Development, Data Communications and Engineering as well as more expert areas such as Entrepreneurship, Digital Media and Business proficiency. This can be achieved through the expanding and diversifying existing academic programs or through the establishment of specialized ICT Training institutions/academies, which offer specialized courses, targeted training sessions, seminars and conferences. On the R&D side, new programs for subjects such as document management, workflow, data warehousing and mining, and knowledge management can be established as well.

12.2. INTERNAL GOVERNMENT TRAINING AND CAPACITY BUILDING

PROMOTING ICT KNOWLEDGE FOR CIVIL SERVANTS

Civil servants are key actors in E-government. It is essential that the Lebanese government ensure that there are enough civil servants with the right skills to provide services delivered electronically. A number of initiatives have already been taken in that regards:

- Outsourced Government-wide ICT training: a project launched in March 2002 for a period of one year, addresses the ICT training needs of employees in different grades. It shall give the necessary tools to the staff of various ministries/agencies to make their work more productive, to be able to improve the quality and the accuracy of their daily work, and to provide better service use implemented ICT solutions. This project is a continuation of a similar government-wide ICT training project launched several years ago.
- Ministry or Agency-specific training for tailored ICT applications: for every tailor developed system application that has been introduced in the government, required training for end-users and system administrators has been fulfilled.
- Institute of Finance: continuously provides ICT and non-ICT training to the employees of the Ministry of Finance.

As a result of the above mentioned initiatives, thousands of civil servants have been provided with ICT training till date.

The above can be further harnessed with a number of actions, such as:

- Development of an ICT capacity building strategy for the government at large. This is being currently worked on by OMSAR.
- Establishing training 'core units' in public administrations/agencies to fulfill continuous training requirements.
- ICT awareness workshops and seminars for senior government officials. The purpose of such workshops is to be informative with emphasis on case studies, the application of the technological trends and how they could influence and improve practices in government.

SETTING UP ICT TRAINING CENTERS IN GOVERNMENT INSTITUTES

The Government recently formed the Institute of Public Administration (IPA) to oversee the fulfillment of training requirements, ICT and non-ICT, for the civil service. Under such a directive, IPA needs to work with private and public sector training institutes to fulfill its mission of continuously assessing individual training needs, evaluating and validating the training undergone by employees, and ensuring the proper utilization of the new knowledge/skill to make training cost efficient. The Institute of Finance, under the tutelage of the Ministry of Finance is but one of these public sector training institutes, with a focus on the training requirements of the civil servants in the Ministry and its directorates.

Training institutes with a pure focus on continuous ICT training requirements are needed in the government. They, also working closely with IPA, will need to continuously assess individual ICT training needs, evaluate and validate the training undergone by employees, and ensuring the proper transfer of knowledge to government operations. The government is currently working with a number of international ICT companies to setup such certified ICT institutes/academies. These institutes/academies can also focus on training-the-trainer programs to produce civil service training champions. Such training champions will play the central role of transferring continuous training to their fellow colleagues in the concerned Ministry or Autonomous Agency.

Large scale government-wide ICT training programs under IPA will be outsourced to certified training centers in the private sector.

12.3. THE E-GOVERNMENT OPERATIONS AND MANAGEMENT STRUCTURE

GOVERNMENT-WIDE CENTRAL OPERATIONS AND MANAGEMENT DIVISION

A government-wide central division in charge of the operations and management (GCOMU) of all e-government related initiatives shall be established at OMSAR under the National ICT Unit (NICTU) as mentioned in Section 6. This division will staff key senior professionals to handle the e-government portfolio. They will provide e-government related advisory services to the government at large, frequently assess e-government operations and provide enhancement recommendations, and oversee e-government developments in the areas of infrastructure, systems and applications, training and capacity building, legislative work and national awareness. The division will interface with e-government Operations and Management Units (OMUs) placed at Ministries, agencies and international offices.

MINISTRY AND AGENCY SPECIFIC OPERATIONS AND MANAGEMENT UNITS

To supplement the work of the GCOMU for e-government initiatives, there will be field OMUs at Ministries, agencies and international offices. The field OMUs will be a part of the concerned government office in terms of organizational structure and will handle the specific operations and management of e-government implementations for that office. This will be particularly important for those Ministries and agencies that have diverse operations and considerable system application deployments such as the Ministry of Finance, Ministry of Interior and Municipalities, Ministry of Justice, National Social Security Fund and others. The OMUs will staff key professionals to handle the operations and management requirements for e-government applications at the local level of the concerned government office.

For government international offices, namely Embassies, Consulates and Mission Representations, there will be one OMU for a group of such offices. In countries where the Government of Lebanon has 3 or 4 international offices, one OMU could be setup. Otherwise, the idea of having one strategic OMU per continent (North America, South America, Europe, Asia, Africa, Far East and Australia) could be considered.

The OMU staff will submit periodic reports to the GCOMU for the latter to always have up-to-date reports from the field.

ESTABLISHING ICT CADRE AND SALARY SCALE IN GOVERNMENT

With the introduction of ICT in the Lebanese government, a need for the implementation of standards related to new positions required by the introduction of new technologies was determined. The sustainability of completed government ICT projects (information systems, applications, integrated solutions) was hindered if not jeopardized by the lack of qualified technical personnel in the various administrations. In that regards, OMSAR assessed the ICT staff requirements for a number of ministries/agencies and proposed an ICT cadre for civil servants with a detailed terms of reference for each recommended job position and its associated job qualifications.

The draft law of the new ICT cadre with a corresponding salary scale for government at large is currently under review by a Ministerial Committee. The implementation of the law, complemented with continuous training programs and necessary incentives, shall play an important role in the achievement of a successful e-government.

In the following sections a number of priority (anchor) projects are documented, followed by a high-level plan for an e-government implementation roll-out in Lebanon, concluding with the criteria for success and associated risks, benchmarking with respect to the global e-government landscape, and the potential resource mobilization sources.

13. PRIORITY PROJECTS

A number of priority (anchor) projects can be identified under the 4 logical frameworks of e-government – legal, technical, services and capacity building/promotion/operations. These projects will collectively provide the foundation for the proper gradual provision of online services by the government, in addition to the e-procurement portal. This gradual provision will make the role out of online services to the level of reaching a government services portal more attainable because of the gradual momentum building that will take place. By placing online crucial services first, both the government staff involved and the recipient citizens will self-generate the enthusiasm for these online services to be frequently accessed and benefited from. One successful roll out after another, in a prioritized way, will tend to shift a good number of citizens to the online services provision channel and away from the routine manual paper-based process.

The priority projects under the 4 logical frameworks can be documented as follows:

- **Legal Framework:** *the timely drafting and enactment of all ICT-related legislation and regulation (including implementation decrees) as without this there will be no legal ground and regulatory basis for dealing with electronic information or data, not to mention online services or e-procurement contractual liabilities.*
- **Technical Framework:** *interconnecting through a secure network information infrastructure the central government bodies, a number of key ministries and agencies, and a couple of international offices.* This being based on well designed domain name classifications and directory services, a pilot data center and supported by a sound PKI communications mechanism.
- **Services Framework:** *providing the solutions for the following online services:*

Utilities subscription and billing services: covering electric power, water, and phone services. These services are vital to the day-to-day living requirements of the citizens and certainly are the revenue generating services for the government. The placement of their subscription and billing online is a priority in that better and timely services will be rendered and more revenues will be brought in to the government. A note needs to be made here that with the privatization process underway, most if not all of these services will be privatized. However, until this is achieved which for some utilities might take a year or two and even more, the placement of the subscription and billing services online still needs to be worked on for the mutual benefit of the citizen and government.

Civil and Criminal Records: as supporting documents for most of the forms to be submitted to the government, these records need to be placed online so that the citizen through a secure network can obtain them in a timely manner.

Completion of the NOOR online customs system: to handle all of the customs formalities at all ports of entry in the country.

Residence and Work Permits for Foreigners: a tedious paper-based process that must be placed online to facilitate better services to the concerned person requesting these permits and in turn to allow for proper online bookkeeping by the

government in terms of the different nationalities in the country and the periodic revenue generated by issuing these permits.

Passport and Visa Petitions and Issuances: these two document types are being modernized as this strategy document is being prepared. They will be made up of secure paper media and have machine readable codes printed on them. Currently, also passports can be renewed by mail. Placing the petitions for their submittal online will ease the process for the citizen and help the government in better managing the relevant files and generated revenue.

Vehicle Registration: this laborious process has been automated within the premises of the various vehicle registries in the country. Yet online registration with payment is still missing. With this new facility, vehicle owners will fulfill their forms more expeditiously and government will instantly maintain proper online records of all register vehicles in the country and the revenue generated from their registration.

Vehicle Excise Tax Payment: this is an annual expense to be paid by vehicle owners. Currently, it can be paid at bank branches throughout the country, yet the related paperwork is still tedious. With online excise tax form and payment submittals possible, with an interface to the vehicle registration system to cross-reference and check relevant vehicle information, both the vehicle owners and government will benefit.

The proper scheduling and budgeting for the realization of these online services will be worked on after more assessments are made.

- Capacity-Building/Promotion/Operations Framework: (1) *approving a modern and effective ICT organizational structure for the government at large* based on the requirements of individual ministries and agencies; (2) *continuing ICT training of civil servants*; (3) *deploying multi-purpose community centers in the Mouhafazats to train citizens on ICT and facilitate online access*; (4) *promote the e-government strategy during various events* (tradeshows, conferences, forums, visits of international delegations, etc); and (5) *completing the government-wide operations and management structure for e-government* and populating the central unit and a few field units.

14. HIGH LEVEL PLAN FOR E-GOVERNMENT ROLL-OUT

The table on the following page provides a high level plan (in terms of yearly quarters) for e-government roll-out as per the identified requirements and projects in this document. The plan for each e-government project will be refined and the proper cost estimates (fixed and recurring) will be made as part of an annual work plan process that will be followed for the full realization of the e-government strategy. The overall duration anticipated to attain the various e-government deliverables is 7 years, assuming that the funding is secured in accordance with this high level plan. With possible delays in the securing of funds on one hand and the attainment of the administrative reform strategy (a 10 year plan) on the other hand, the overall duration for accomplishing the e-government strategy may shift by a couple of years.

E-government Program Component	Anticipated Start / Duration	
	Start	Duration
The E-Government Legal and Regulatory Framework		
Legalizing Electronic Information and Services	Q4 2002	1 to 2 years
Protection of Electronic Information	Q4 2002	1 to 2 years
Security of Electronic Services	Q4 2002	1 to 2 years
E-Government Technical Framework		
National Infrastructure for Government Operations	Q1 2003	3 to 4 years
Global Infrastructure for Embassies, Consulates and Missions	Q4 2002	6 to 7 years
Public Key Infrastructure	Q1 2003	continuous
National ID or E-Gov Smart Card	Q1 2003	6 to 7 yrs
Standards & Branding	Q3 2002	1 to 2 years
E-Government Data & Data Centers	Q2 2003	2 to 3 years
E-Government Delivery Channels & Access	Q2 1997	continuous
E-Government Services Framework		
Enabling Applications (email, DS, WF/DMS/A, IDSS)	Q1 1998+	6 to 7 years
Information Portal	Q1 2002	2 to 3 years
Service Portal	Q2 2003	6 to 7 yrs
Government to Citizen (G2C and C2G)	Q2 2003	6 to 7 yrs
Government to Business (G2B and B2G)	Q2 2003	6 to 7 yrs
Government to Employee (G2E and E2G)	Q3 2003	6 to 7 yrs
Government to Government (G2G)	Q2 2003	6 to 7 yrs
E-Government Capacity Building/Promotions/Operations Framework		
Building National Capacity	Q4 2002	continuous
Internal Government Training and Capacity Building	Q1 1998	continuous
E-Government Operations and Management Structure	Q1 2003	6 to 7 yrs

15. CRITERIA FOR SUCCESS AND ASSOCIATED RISKS

The criteria for success in the documented e-government initiative for each identified project are based on the attainment of the following benchmarks:

1. Resource mobilization is secured for the full roll-out of the specific e-government project inclusive of ICT solutions, training and capacity building of required human resources and operations and maintenance expenses. The idea of taking a percentage of the increase in government revenue as a result of e-government applications and reusing it in the financing of new e-government applications needs to be qualitatively and quantitatively assessed.
2. The Lebanese society becomes more educated and connected to the national information infrastructure through the Internet. With a current base of only some 7% of the population as Internet users, a pragmatic success criterion would be to have a 3% percent of the population increase in terms of Internet users every year for a period of 6 to 7 years, making the Internet usage rate some 25% of the population by the end of 2009. E-government applications will become more utilized directly by the citizens instead of through government clerks as intermediaries.
3. Productivity of civil servants increases at a rate of between 10 to 15% per year over the 6 to 7 year span of the e-government roll-out. This rate will vary and could

increase this bracket depending on the type of e-government application at hand (information portal, services portal or inter-government administrative portal, etc.).

4. Paper-based government information and services get reduced by a rate of 7 to 12% per year, with the target of having only 25% of such government information and services still in existence by the end of 2009.
5. Government revenue from services rendered through e-government applications increases at a rate of 15 to 20% per year, with the objective to have a two-fold increase in revenue by the end of 2009.
6. Government operations and procedures get simplified and streamlined at a rate of 10 to 15% per year, with the target to have full simplification of procedures and streamlining of operations by the end of 2009. The streamlining is to include having the proper number of skilled civil servants remaining in the government to fulfill its operations.

More developed e-government application specific success criteria need to be identified and documented at the start of implementation of each application so as to ascertain the most out of each implementation for the benefit of both the government and the citizen.

As with any initiative, success is always associated in one way or another to a number of risks. In the context of realizing the Lebanese e-government strategy, the associated risks that could delay the e-government roll-out agenda can be identified as follows:

1. Political instability in the government, which could lead to interruption and in some cases re-direction of the e-government initiative.
Risk Level: High.
Impact Level: Very High.
Mitigation Plan: None, resubmit vision again at later stage.
2. Poor resource mobilization to fund the e-government initiative, particularly in the absence of sizeable funds from increases in government revenues.
Risk Level: Medium.
Impact Level: High.
Mitigation Plan: Assuming the technical framework is already available try to implement the top ten priority projects with funding available.
3. Intentional or unintentional delays in the enactment of the required legal and regulatory framework which forms the core of any e-government implementation.
Risk Level: High.
Impact Level: Medium.
Mitigation Plan: Assure funding and start in parallel with the implementation of the infrastructure and the design of the service applications.
4. National disasters associated with the regional conflict, which could disrupt required infrastructure (power or telecom) for a considerable period of time.
Risk Level: High.
Impact Level: Very High.
Mitigation Plan: None, delay program.
5. Insurmountable resistance to change by the civil servants who fear for their job future as a result of the simplification and streamlining of government procedures and operations.
Risk Level: High.
Impact Level: High.
Mitigation Plan: Immediately start with additional dialogue, mediation and involvement in projects. Setup training and education plan and deliver as soon as possible.

6. Unwillingness of society to become e-educated and connected to the national information infrastructure through the Internet in an accelerated manner due to severe socio-economic problems.
Risk Level: High.
Impact Level: Medium.
Mitigation Plan: Immediately start with additional discussions and awareness promotions. Setup awareness building plan and deliver as soon as possible.
7. Insufficient capacity of the local ICT industry and/or poor support of the international ICT industry to work with the government on realizing the e-government implementations.
Risk Level: High.
Impact Level: High.
Mitigation Plan: Transfer of knowledge to the local ICT industry with their involvement along with international ICT companies within projects.

16. BENCHMARKING E-GOVERNMENT ON A GLOBAL SCALE

For a country to succeed in its efforts to become part of the new world, comparisons and benchmarking with other countries must take place on a continuous basis. Based on a recent global report, Lebanon is considered to be doing well in its e-government efforts being placed among the top thirty six global country leaders in the world. This has been published in "Benchmarking E-Government: A Global Perspective – Assessing the Progress of the UN Member States". Through this report the American Society for Public Administration (ASPA) and the United Nations Division for Public Economics and Public Administration (UNDPEPA) undertook a research study analyzing the approach, progress and commitment on the part of 190 UN member states in an effort to gain an appreciation of the global e-government landscape in 2001.

In determining what defines an enabling environment, the report analyses issues by benchmarking the prevailing core areas supporting national e-government programs. The final measure or E-Government Index attempts to: 1) objectively quantify these critical factors and 2) establish a "reference point" for which a country can measure future progress.

The E-government Index is a mean figure derived from three measures: the Web presence, telecommunication infrastructure and human capital.

- The first captures a country's online stage of development (Lebanon's web presence=3, Ave=3.6).
- The second compares six primary indicators which define a country's ICT infrastructure capacity. They are: PCs per 100 individuals (Lebanon=4.64, Ave=27.5), internet hosts per 10,000 individuals (Lebanon=23.00 Ave=447.93), percentage of a nation's population online (Lebanon=9.0, Ave=32.2), telephone lines per 100 individuals (Lebanon=19.96, Ave=46.00), mobile phones per 100 individuals (Lebanon=19.38, Ave=49.68), televisions per 100 individuals (Lebanon=352, Ave=459.5).
- The third attempts to capture a country's and its citizens' facility, opportunity and willingness to use online government. The indices of relevance here are: The UNDP Human Development index (Lebanon=.758, Ave=.883), the information access index (Lebanon=.250, Ave=.844) and the urban/rural population ratio (Lebanon=89.3, Ave=82.3).

In terms of E-government capacity,

- Thirty six countries, or 25% of the 144 indexed are reported to have High E-government Capacity with Lebanon having an e-government index of 2.0 (Ave=2.29). Countries in this category have the technical and human capacity and

the resources to sustain innovative and productive citizen-centric e-government programs with few hindrances.

- Twenty six countries (18%) have Medium E-Government Capacity. Countries in this group are technologically advanced and enjoy a well educated population.
- Thirty six countries (25%) demonstrated a Minimal E-Government Capacity. These are newly emerging economies, developing and least developing countries.
- Thirty five countries (24.3%) demonstrated Deficient E-Government Capacity. These are among the world's least developed nations.

The Middle East regional index of 1.76 qualifies its E-government Capacity as Medium. However, the enabling environments of each country vary dramatically. For Arab States, the United Arab Emirates (2.17) Kuwait (2.12), Bahrain (2.04) and Lebanon (2.0) demonstrated a High E-government capacity in 2001, while Tunisia, Yemen and Algeria are well below the regional index.

For the purpose of the UN/ASPA survey, a country's online presence can be categorized by one of five stages: emerging, enhanced, interactive, transactional and fully integrated or seamless.

- No country has yet achieved the seamless stage where the instant access to any service is through a "unified package".
- Seventeen countries (USA, UK, Australia, France, Canada, etc.) out of 169 have transactional presence meaning complete and secure transactions can be done online.
- Fifty five countries (Lebanon, UAE, Pakistan, Jordan, Kuwait, Greece, Egypt, Italy, Malaysia, Japan, etc.) have interactive presence, meaning that the country's presence on the internet is expanding dramatically with access to a wide range of government institutions and services.
- Sixty five countries (Tanzania, Indonesia, Kenya, Bahamas, etc.) have enhanced presence meaning that government publications, legislation and newsletters are available. A country's online presence begins to expand as its number of official websites increases.
- Thirty two countries (Yemen, Syria, Fiji, Cyprus, Mali, etc.) have emerging presence meaning that the country commits to becoming an e-government player. A formal but limited web presence is established through a few independent government websites which provide users with static organizational or political information.

Beyond e-government indices and survey results, a good number of countries around the world have developed and are implementing E-government Strategies. Leading the pack are countries like Canada, Singapore, United States, United Kingdom, and Australia. In the Arab World, countries like Jordan, Egypt and the United Arab Emirates have documented their e-government blueprints and are currently implementing them. Lebanon, through the formation and phased implementation of this e-government strategy will join this group of countries in advancing government service delivery to the citizen and realizing the needed logical frameworks for all e-initiatives (e-commerce, e-learning, etc.) to benefit from.

17. POTENTIAL PARTNERS AND FUNDING SOURCES FOR THE E-GOVERNMENT PROGRAM

Given the already established relations between the Government of Lebanon and both the international funding community and a good number of international and local ICT firms, a large number of potential partners and funding sources for the e-government program can be easily identified. The following funding organizations are documented for the purpose of illustration and do not constitute an exhaustive list of potential partners and funding sources.

International and local ICT firms are not listed here so as not to create any marketing pretenses. Their respective involvement in the e-government program will be announced in accordance with its occurrence and at that time only so as to be impartial to all.

International Funding Organizations:

- International Bank for Reconstruction and Development (IBRD or the World Bank)
- Canadian International Development Agency (CIDA)
- United States Agency for International Development (USAID)
- United States Trade and Development Agency (USTDA)
- European Union (EU)
- European Bank for International Development (EBID)
- Arab Fund for Social and Economic Development (AFSED)
- Islamic Development Bank (IDB)
- Kuwaiti Fund (KF)
- Saudi Fund (SF)
- Japanese Fund (JF)