

The National eStrategy for Lebanon

The United Nations Development
Programme

The Office of the Minister of State for
Administrative Reform

Document 2:

The National eStrategy
for Lebanon

Prepared by
Akram Najjar
Salam Yamout
Kamal Siblini

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1.0 Introduction

The National eStrategy for Lebanon is a project launched by the UNDP and OMSAR in the spring of 2003. The Consulting Team carried out a 4 phase project consisting of the following activities:

1. eReadiness Assessment
2. Developing the National eStrategy for Lebanon
3. Proposed implementation
4. Consensus building with stakeholders

The project was completed in September 2003.

The National eStrategy is presented in 6 major documents:

Document 1 The National eStrategy for Lebanon: An Executive Summary.

Document 2 The National eStrategy for Lebanon: This is the current and main document where the rationale, objectives and the eStrategy are presented.

Document 3 The eReadiness Assessment: The document consists of an analysis of eReadiness criteria for Lebanon based on a survey carried out by the Consulting Team. The survey resulted in a comprehensive eReadiness Assessment. The results are summarized in Section 3.0 in the current document.

Document 4 The ICT Policies: The document presents an analysis of the 7 proposed ICT initiatives that meet the requirements of the National eStrategy. The ICT Policies are summarized in Section 6.2 in the current document

Document 5 The Implementation Roadmap: The document presents a proposed Roadmap for the National eStrategy for Lebanon and discusses related issues such as roles, challenges, critical success factors and implementation best practices. The Implementation Roadmap is summarized in Section 7.0 in the current document

Document 6 Programs, Solutions and Recommendations: The document presents proposals for around 100 programs, solutions and recommendations in detail. The document is also available in a Web Based format with full indexing of each program, solution and recommendation to allow for different classifications.

The above documents are available from the UNDP and OMSAR. They are also available on OMSAR's website (www.egateway.gov.lb). This is the government portal developed by OMSAR to host all information, international references, discussion forums and reports associated with all national eInitiatives.

2.0 The Aims of the National eStrategy

The basic requirements for the National eStrategy were laid out in the project proposal by the UNDP and OMSAR. To quote:

“The main aim behind the eStrategy is to lay out the roadmap for the eEnabling building blocks covering the information and communication technologies (ICT) infrastructure, the institutional and legal frameworks and the human resources from both the service user and service provider perspectives.

This shall serve towards achieving the following:

- Mainstreaming ICT into national development priorities
- Formulation of a national eStrategy that includes capacity development, economic opportunity and social equity in addition to infrastructure and other policy dimensions
- Bringing together and facilitating dialogue between all key players on the priorities and modalities of implementation”.

2.1 The Specific Aims of the National eStrategy

The above statement can be broken down into specific objectives for the National eStrategy for Lebanon. The following list presents these specific objectives and adds a few more:

1. Improve the **ICT infrastructure** needed as a base for implementing the eStrategy. This improvement aims at providing proper communications, cheaper, faster and secure Internet. Current and emerging technologies should be implemented to enhance the capabilities of the ICT infrastructure.
2. **Widen the use of the Internet** by making needed services available to all. Internet penetration can be improved by providing such services as eGovernment, eCommerce, eBanking as well as through the development of relevant local content.
3. Develop the **legal framework** needed to ensure the proper, equitable and efficient implementation of the eStrategy. This would cover legal, regulatory and institutional issues.
4. Develop the **institutional frameworks** needed in the public sector to facilitate government administration and service delivery.
5. Encourage the **private sector** to develop its institutional, administrative and operational frameworks in order to facilitate its growth and make it more competitive.
6. Concentrate on **human capacity development** in all aspects of social life in Lebanon. This would cover ICT in education as well as the improvement of ICT

- skills. This would address formal and informal education. It would cover such development in the workforce and as part of the daily life of the citizen.
7. Use ICT to drive and enable national **sustainable socio-economic development** priorities. ICT is also crucial in its ability to provide information for such development.
 8. Use ICT to provide **economic opportunity** for all.
 9. Use ICT to enhance **social equity and democracy** through the launch of new participatory mechanisms, the strengthening of decentralization and the empowerment of the citizen. ICT should be used as the basis for new societal interactions bringing communities together and allowing them to make their voice heard.
 10. Highlight and advance the role of Lebanon in **the globalization process**.
 11. Cement **relationships** needed to implement the National eStrategy. These are between such stakeholders as the private and public sectors, academia, international organizations and NGOs. These are also needed to improve foreign direct investments in both the ICT sector as well as in other sectors.
 12. Use ICT as a means to **bridge the various digital and knowledge disparities** in age, income, gender, education, skills and geographic location.
 13. **Raise awareness** of the importance and applicability of ICT through appropriate media and by conducting pilot projects to demonstrate the feasibility, suitability and impact of ICTs.

To reach the above specific aims, the National eStrategy project has to develop ICT Policies.

2.2 The Global Aim of the National eStrategy

The specific aims presented in the previous Section can be subsumed under one global objective for the National eStrategy:

The aim of the National eStrategy is to move the economy and society of Lebanon towards a Knowledge Based Society in the shortest possible time while at the same time addressing related challenges and opportunities that Lebanon is facing.

A robust **process** is required to develop such a global aim in a practical and pragmatic manner.

2.3 A Process for Developing the National eStrategy

Lebanon has already embarked on various initiatives that address some of the above policies, namely:

- The Ministerial ICT Committee
- The preparation of OMSAR's eGovernment strategy
- The various initiatives by the Central Bank
- The eCommerce project by the Ministry of Economy and Trade
- Initiatives conducted by members of the Parliament
- Initiatives conducted by the Association for the Development of Informatics and Law and the two main professional ICT associations.

The National eStrategy builds on these initiatives and moves forward in a consolidated and comprehensive manner.

In order to reach the global aim of the National eStrategy, the project went through the following process:

1. An assessment of eReadiness (the current situation)
2. An analysis of the challenges and opportunities facing Lebanon
3. An analysis of the requirements needed to transit into a Knowledge Based Economy
4. Development of ICT policies needed to meet the above requirements
5. Charting of a mandatory implementation roadmap
6. Identification of Programs, Solutions and Recommendations to implement policies
7. Consensus Building

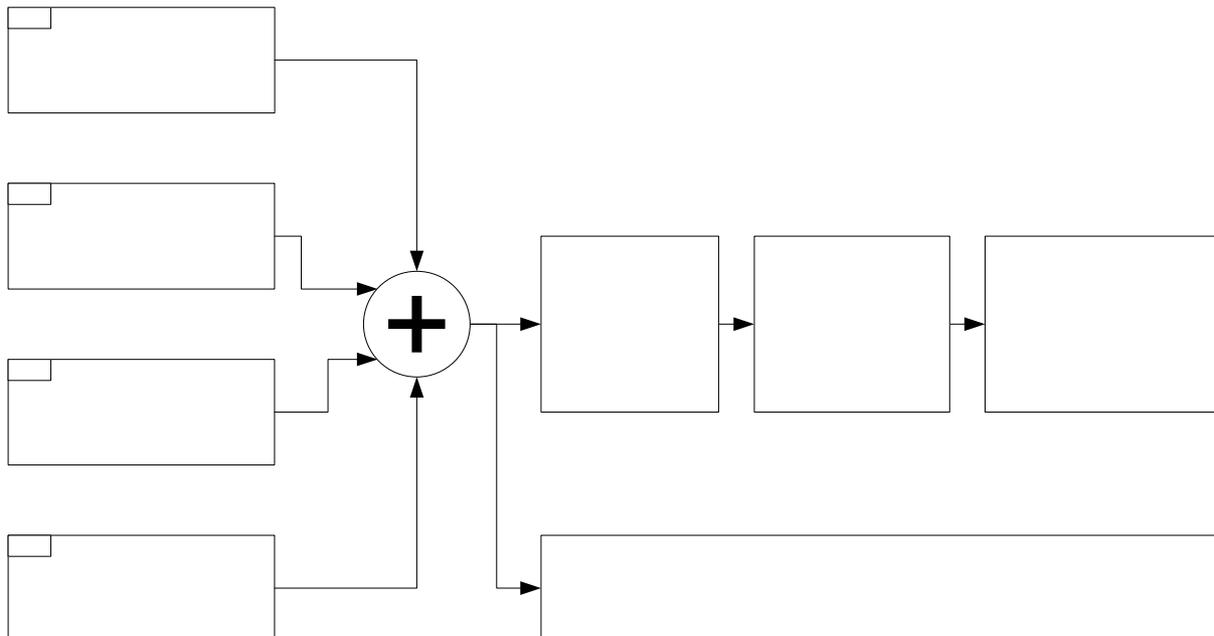


Figure 1: The Process for Developing the National eStrategy

The structure of the current document closely follows the above process.

2.4 Consensus Building

One of the critical success factors for the National eStrategy project is widely accepted consensus for its objectives and mode of implementation. One of the requirements placed by the UNDP and OMSAR on the Consulting Team is the building of consensus during the project. This was achieved through the following:

- An initial conference that presented the main aims and mode of operation of the project to all stakeholders.
- Several focus group meetings consisting of stakeholders with similar requirements (Education, environment, social issues, etc).
- Face to face interviews with key stakeholders
- A final conference that presented the main findings of the project and in which was launched upstream consensus building requirements.

On the completion of the project, it is important to maintain the interest and commitment of the champions and stakeholders of the National eStrategy for Lebanon. This is presented as Stage 2 of the Implementation Roadmap in Section 7.2 and elaborated in Document 5.

3.0 eReadiness Assessment for Lebanon (The Current Situation)

In an earlier phase of the project, an eReadiness Assessment of Lebanon was conducted. It covered the following activities:

3.1 Identification of eReadiness Criteria

eReadiness Assessment is based on evaluating the ICT readiness of Lebanon. Five major areas are addressed. Each of these areas is broken down into several eReadiness Criteria. The following structure shows the 18 eReadiness criteria as grouped into the 5 main areas:

Access and Infrastructure

- Network Infrastructure
- Access
- Affordability
- Reliability and Speed
- International Connections

Government Leadership

- National ICT Strategy
- ICT Policies and Regulations
- Central Bank Initiatives
- Partnerships and Funding for ICT
- eGovernment and Organizational Efficiency

Human Capacity

- ICT as Formal Education
- ICT as Informal Education
- The ICT Brain Drain

eBusiness and Economic Environment

- Economic Climate
- ICT as a Production Sector
- eCommerce

Social Environment and Public Awareness

- Usage of ICT in Everyday Life
- The Internet Society

For each one of the 18 criteria, several questions and issues were addressed. In total, there were 108 such questions and issues.

3.2 Collection of Data

A comprehensive review of all sources was made. Focus group meetings and interviews helped further elaborate the collected data.

As noted in the eReadiness Assessment document, data about Lebanon had the following characteristics:

- Data was scarce and often non-existent
- Much of the data was out of date. In some cases, this made it irrelevant.
- Data presented by different sources was often found to be inconsistent.

- The conclusions drawn by various parties over the same data were often contradictory.
- In some cases, mostly related to ICT figures, the data was so scarce that Lebanon was not even placed in the international tabulations.
- There was no consistency in the use of indicators from one year to the other.

It was therefore necessary to consider the eReadiness Assessment as an educated analysis of the ICT situation in Lebanon and not as an ongoing quantitative indicator trend monitoring exercise.

3.3 eReadiness Assessment and Gap Closing Policies

An eReadiness Assessment was conducted for each of the main criteria. On completing the eReadiness Assessment, the gap between what is required for Lebanon and the actual situation it is in was identified.

This gap was addressed through Policies developed under the first of the 7 main eStrategic initiatives. (Section 6.2.1).

Programs and Solutions (projects) were developed to implement such Policies identified to close such gaps. These are discussed in two places:

- The **Implementation Roadmap** document presents various mandatory steps in the National eStrategy. These would address eReadiness requirements.
- Individual programs and solutions are detailed in the **Programs, Solutions and Recommendations** document.

The following Programs and Solutions aim at closing the eReadiness gap:

ID	Programs
1	Launch ICT Enabling Legal Framework
2	Improve the Affordability of Internet Connection
3	Improve Network Speeds in Lebanon
4	Increase Internet Penetration
5	Promote Proper Usage of the Internet
6	Increase PC Penetration
7	Improve Electrical Power Quality
8	Increase Government's Yearly ICT Budget
12	Capacity Building for Public Sector ICT Staff
16	Free Information Access Points
22	Use Media to Promote ICT
27	Deregulation of Telecommunications Sector

Figure 2: Programs for Closing the eReadiness Gap

ID	Solutions
2	Activate and Speedup Online Banking
5	Implement Terrestrial Cable Network
8	Launch Project/Entity to Gather and Publish ICT Data
9	Setup a Government Entity to Handle ICT Matters
14	The Internet Hub Project
16	Whats On in Lebanon
27	Provide Comprehensive Electoral Information Online
39	Youth Network
40	Guide to International Relations and the Diplomatic Network
48	Manage ICT Resources in the Public Sector
60	Launch National ICT Professional Association
75	Prepaid Charge Card for Public Sector Transactions

Figure 3: Solutions for Closing the eReadiness Gap

ID	Recommendations
1	Improve Efficiency of Government Telecommunications Providers
2	Improve the Utilization of the Land Line Network
3	Amend Building Laws to Cover ICT Usage
4	Reduce Import and Export Complexities
5	Remove Trademarks as a Prerequisite for Domain Names
6	Create Incentives for ICT Training Companies
7	Start ICT Education at an Earlier Age

Figure 4: Recommendations for Closing the eReadiness Gap

Document 6 presents a detailed description of each of the above Programs, Solutions and Recommendations.

4.0 Opportunities and Challenges for Lebanon

The first step in developing the National eStrategy for Lebanon is to identify the issues facing the nation. The Issues of National Concern are of two types:

- The challenges facing Lebanon
- The opportunities Lebanon needs to exploit

(These are sometimes referred to as “National Priorities”).

These issues will be used to identify the national “**Requirements**” which can be expressed as Policies for the National eStrategy for Lebanon.

4.1 Challenges Lebanon Must Address

The civil war disrupted the growth experienced by Lebanon in the 50s through to the mid 70s. It disturbed the class structure and reduced the strength of the middle class. The civil war is not the sole cause for the erosion of Lebanon’s business legacy. Other factors of direct relevance to the National eStrategy emerged during the 80s and 90s. These helped erode Lebanon’s role in regional socio-economic development:

- The decentralization of business representation in the region
- The growth of competing regional transport
- The growth of alternate tourism spots
- The growth of oil boom business in the Gulf
- Regional competition in most of Lebanon’s successful sectors
- Frequent regional disturbances
- Globalization, which widened the scope of competition to international dimensions
- Constantly changing international trade rules
- The use by the competition of new technologies that Lebanon is not ready for

Furthermore, Lebanon had to face its own internal challenges which contributed to reductions in its traditional revenue sources:

- A national debt that lowered Lebanon’s international credibility and restricted its spending capability.
- A public administration burdened by inefficient, inflexible and unresponsive regulations, organizational and human capacity processes.
- An inflexible and unpredictable legal framework that does not match the requirements of modern technologies and business practices.
- A wide ranging social disparity in such factors as age, gender, education, geographic location and class.
- A technological infrastructure that is not ready to allow Lebanon to meet regional and international competition.

These factors continue to hinder Lebanon’s ability to grow and prosper.

4.2 Opportunities Lebanon Needs to Exploit

The opportunities currently available to Lebanon are discussed first. They are followed by the opportunities as identified and generally accepted by the UN and the Lebanese

Government.

The following characteristics of Lebanon's socio-economics are opportunities that need to be exploited:

- Lebanon has a legacy of highly educated citizens.
- It has a highly capable workforce in most sectors.
- The spread of the Lebanese Diaspora is an efficient means of improving the transfer of knowledge and technology.
- Lebanon is quite accustomed to international trade.
- Lebanon has a liberal economy which is flexible, having gone through various changes to maintain its head above water.
- The private sector is dynamic and highly adaptable.
- Lebanon is not far from being technologically ready (eReady).
- Lebanon is already focusing on the rehabilitation of its traditional strengths in such sectors as tourism, light industry, banking and finance, etc.
- Lebanon has well developed channels for technical cooperation.
- Lebanon has services that are knowledge based such as the media, publishing and a strong academic culture.
- Lebanon has shown its capability of taking up new technologies rapidly.

These opportunities strengthen Lebanon's hope to move into a Knowledge Based Economy.

4.3 Existing Initiatives that Identify Challenges and Opportunities

The United Nations Development Assistance Framework (UNDAF)¹ was developed by the UN to provide programmes for the Government of Lebanon for the period 2002-2006. (The UNDAF is based upon the findings of the Common Country Assessment (CCA), a UN System common review and analysis of the national development situation).

The UNDAF responds to national priorities and needs as they emanate from key policy documents, including the preamble of the Constitution, the Document of National Understanding (1989), key statements by the President of the Republic, the Government statement, Lebanon's ratification of international conventions and treaties, and the Three Year Development Plan. (See the following section).

In 2000, the Council for Reconstruction and Development (CDR) issued a 5 Year Development Plan (TYDP) called "The Growth and Competitiveness Programme"². This was later revised to a 3 year plan.

(Refer to the Appendix in Section 11.0 where the above challenges and opportunities are elaborated.)

Two points need to be made regarding the above Challenges and Opportunities:

1. There is a need to view ICT as a driver and an enabler for socio-economic development.

Both sources do not address ICT directly. The Three Year Development Plan addressed ICT in some sections but used it to identify a few specific projects such as increasing market information or the enhancement of eCommerce.

2. There is a need to propose a paradigm shift for Lebanon. This will take Lebanon from a traditional approach of using ICT to support the improvement of socio-economic development to one where it is an integral driver of a Knowledge Based Economy.

Both sources provide recommendations consisting of incremental improvements in already growing sectors and do not plan for fundamental changes or quantum leaps.

The CDR's Three Year Development Plan came close to the next stage in Lebanon's development without directly addressing it. It suggested that sustainable competitive advantage can be achieved through the "continued upgrade" in both operational effectiveness and strategy. Nine objectives were stated in the Plan and confirm the proposal to improve, upgrade and increase levels rather than initiate fundamental changes. (These are also found in the Appendix).

The above two points confirm the need to emphasize the role of ICT in Lebanon and to proposed fundamental changes in development approaches.

5.0 Transiting into a Knowledge Based Economy

Having identified eReadiness as a key requirement and addressed challenges and opportunities as an additional second and third requirements, the National eStrategy finds that Lebanon needs to go into a Knowledge Based Economy as a fourth requirement.

The World Development Report of the World Bank³ stressed the importance of Knowledge in socio-economic development as follows:

“Knowledge has become, perhaps, the most important factor determining the standard of living - more than land, tools and labor”

This section presents the transition of Lebanon to a Knowledge Based Economy as the fourth requirement for the National eStrategy.

Refer to the Appendix in Section 12.0 for a more elaborate discussion on Knowledge Based Economies.

All players in a Knowledge Based Economy need be able to:

- Acquire knowledge
- Create knowledge
- Disseminate knowledge
- Use / perform / operate using this knowledge

The following requirements apply to all types of organizations: public, private, international and non-governmental. The position of Lebanon is assessed for each requirement.

5.1 Information Infrastructure

The main requirement for a Knowledge Based Economy is a fast, widely accessible, low cost and reliable information infrastructure. This should allow for technological convergence. Such an infrastructure should not be subject to disparities. It should be flexible enough to cope with the constantly changing face of ICT.

This was assessed for Lebanon as developing in the right direction. However, it is far from adequate. Lebanon is not totally eReady. Speeds have to be increased, costs have to be reduced, penetration of telephones, PCs and mobiles has to be increased and access has to be encouraged. Telecommunications have to be deregulated and converged.

5.2 Knowledge and Skills

Knowledge Based Economies require institutions and societies that are highly capable of acquiring knowledge and skills. This consists of the abilities mentioned earlier to acquire, create, disseminate and use Knowledge. With the reduced cost of learning made possible through ICT. it is simpler to acquire “codified” or “structured” knowledge offsetting the balance between “codified” knowledge and the more critical “tacit” knowledge. This latter

is based on the knowledge available in the culture of an institution or a society, one that is slowly built through the proper processes and experience.

Traditionally, the Lebanese have been open to education and the acquisition of knowledge and skills. Lebanon needs to spread this openness throughout all levels of society. It needs to encourage the use of ICT in education as well as the education of ICT (Both formal and informal).

5.3 Changes to Organizations

These need to produce knowledge based products or use knowledge to produce products in a flexible manner allowing high product quality, a fair degree of customization, fast and low cost production. Middle layers of the organization are reduced. Decentralization improves operations and makes an institution more flexible and location independent. Employees are more empowered and collaborate to perform team work. Such organizations must also be "Learning" organizations concentrating on developing intangible assets through innovation and change.

Organizations are also required to be more collaborative, clustering to work with one another even within the same industry, increasing the complexity of their products through increasing alliances.

This is an area that requires immediate attention in Lebanon, more so in the public than in the private sector.

5.4 Global Competitiveness

With the destruction of distance, companies and governments face competition from across the world. They both need to be ready to deal with such competition through the proper legal and regulatory framework, knowledge networking and most importantly, the proper alliances and coordination.

Although several initiatives have been launched such as entry into the WTO, Lebanon lags behind in assuming an international globally competitive role.

5.5 Establishing the Proper Economics of Knowledge

This involves understanding and enhancing the value of Knowledge as a driver to competitiveness and growth. Knowledge needs to be subjected to flexible and liberal new rules. In the past, economies sought to optimize the efficient allocation of scarce resources such as commodities and energy. Knowledge has a unique characteristic that once it is developed, it defies scarcity by having a zero marginal cost of production. The return on investment in such knowledge is low due to it being non-destroyed when consumed.

Knowledge is still not considered as a "valuable" asset in Lebanese society which still relies on traditional assets for its growth and competitiveness. This has been further confirmed by the CDR's Three Year Development Plan which concentrates on a wide variety of approaches most of which do not related to "knowledge assets".

5.6 Innovation and Creativity

The same factors that made Knowledge easy to disseminate also made it easy to get obsolete. Global competitiveness also adds to this challenge by forcing a Knowledge Based Economy to be highly innovative and creative. Institutions must be open to learning and change. They must be focused on training and developing employees stressing creativity and problem solving.

The Lebanese have a tradition of innovation and creativity. This is particularly true with the Lebanese Diaspora that has the advantage of proper environments and resources. However, innovation and creativity need to be promoted at the national and institutional level.

5.7 Social Basis

In the past, the success of an economy was mostly based on the agility of the private sector and a close cooperation with the public sector. A Knowledge Based Economy considers that Knowledge is a "social good". It is therefore dependent on a wider scope than a traditional economy and includes various segments of today's society.

Suitable content at all levels of society should be made available. Involvement of the citizen and the various communities should be a key objective. Knowledge should be made available to all segments of society.

There are many digital and knowledge disparities in Lebanon such as in age, income, gender, education, skills and geographic location. These need to be addressed to provide an equitable and a democratic basis to the Knowledge Based Economy.

(Refer to Section 12.7 for a discussion on how the UNDP view this issue).

6.0 The Framework for the National eStrategy

A Policy is generally accepted to be a "Statement of Requirement". The previous 3 sections identified "National Requirements" that relate to how ICT can improve growth and competitiveness as well as improve socio-economic development. They were grouped under 4 major requirements shown in the following diagram:

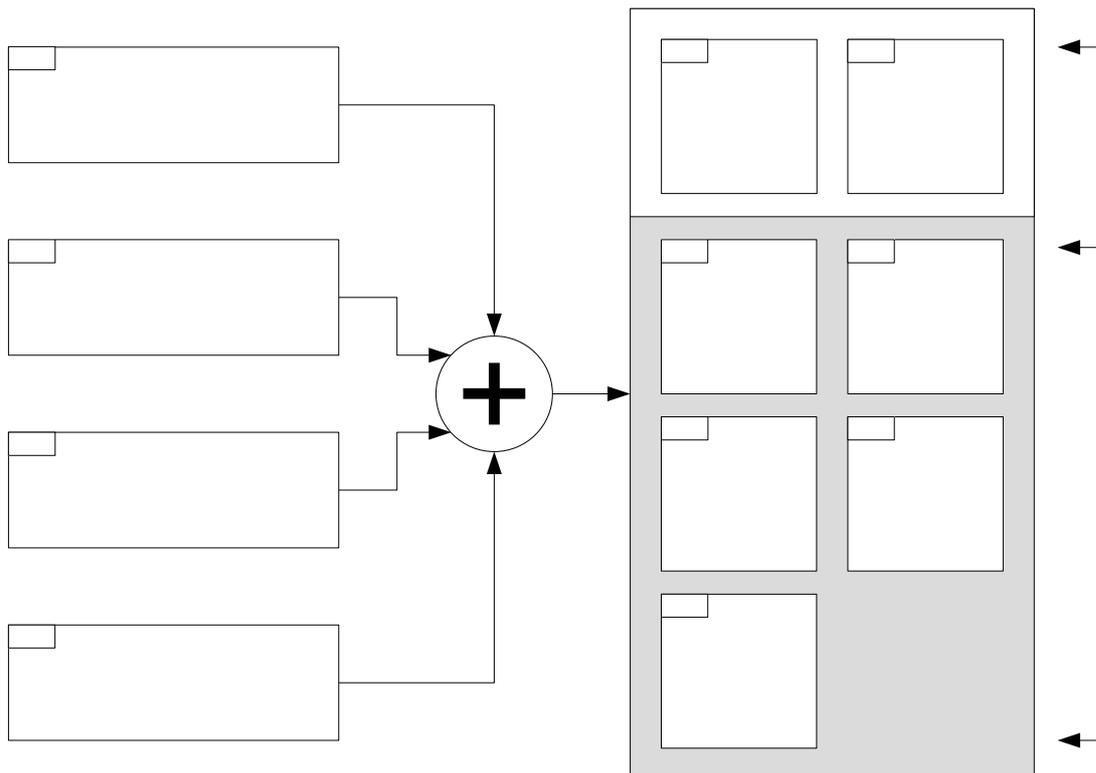


Figure 5: Development of Requirements into Policies

The "Requirements" became the basis for "Policy Generation". Policies were developed for all such requirements and were grouped under 7 different "Initiatives" for the National eStrategy.

Requirements

1

Requirements of the Knowledge Based Economy

6.1 Grouping Policies by Initiative

An "Initiative" is a set of policies that have a general and common aim. For example, all Policies related to social development are grouped under Initiative 5.

The 7 initiatives can be grouped into **National** policies and **Sectoral** policies. ICT Policies are further elaborated in Document 5 where each set of policies are further broken down into specific objectives (or sub-policies).

6.2 The 7 Initiatives

The following subsections present the 7 initiatives (2 National and 5 Social). Within each Initiative, there are several key policies. In total, there are 7 National Policies and 25 Sectoral Policies.

6.2.1 National Policies - Policies for Closing the eReadiness Gap

There is a need to close the gap between the current situation of ICT and the desired state for Lebanon. These policies are pre requisites for the rest of the initiatives:

1. Improve Network Infrastructure
2. Provide Wide Access or "Connectivity for All"
3. Provide Affordable Infrastructural Services
4. Improve Local and International Communications Reliability and Speed

6.2.2 National Policies - National ICT Policies

Lebanon needs to adopt nation-wide policies that use ICT to accelerate national development processes. These would place ICT in a good position to drive Lebanon into a Knowledge Based Economy:

5. Focus on Government Leadership in ICT Matters
6. Address Key ICT Challenges and Opportunities
7. Develop the Proper Legal Framework

6.2.3 Sectoral Policies - Policies for ICT as a Production Sector

ICT as a sector should be developed to be a competitive sector. Furthermore, it needs to be improved to serve the other 6 initiatives. These policies focus on the strengthening of ICT industries such as hardware, software, telecommunications equipment and services:

8. Improve the Efficiency of the ICT Sector
9. Assist the ICT Sector in its Objectives
10. Place the ICT Sector at the Leading Edge of Technology
11. Improve the Status of the ICT Workforce

6.2.4 Sectoral Policies - ICT and Human Capacity Development

Human Capacity is a cornerstone for the other 6 initiatives. It is also a critical factor in a Knowledge Based Economy. The following policies aim at strengthening human capacity:

12. Use ICT for Formal Education
13. Use ICT for Informal Education
14. Improve Formal ICT Education
15. Improve Informal ICT Education
16. Develop ICT Skills in the Private and Public Sectors

6.2.5 Sectoral Policies - ICT for Social Development

ICT can be a main driver and an enabler of social development. Social development leads to an improvement of the life of the citizen. This would lead to Lebanon's growth and competitiveness. Policies have been identified to address the social challenges and opportunities:

17. Alleviate Poverty
18. Reduce Gender Disparity
19. Use ICT to Improve the State of the Health Sector
20. Empower Communities and Citizens
21. Improve Local Content
22. Improve the State and Health of Youth
23. Advance Lebanese and Arab Culture through the Use of ICT
24. Direct Lebanon towards the Information Society

6.2.6 Sectoral Policies - ICT for Economic and Business Development

These are Policies that allow Lebanon to improve its economy and its business sector. This initiative also covers policies related to eCommerce:

25. Improve the Use of ICT in All Sectors
26. Use ICT to Position Lebanon as an Significant Trading Partner
27. Implement ICT Policies in the Financial and Banking Sectors
28. Encourage eCommerce

6.2.7 Sectoral Policies - eGovernment

Lebanon needs to improve the performance of its public sector institutions. This covers such issues as efficiency, transparency, predictability and accountability. It also improves ease of access and processing by the citizen. The policies allow the public sector to transit into the eGovernment phase integrating public sector with socio economic development:

- | | |
|-----|---|
| 29. | Pre-Requisite Policies to Support the eGovernment Initiative |
| 30. | Adopt a Top and Horizontal View of eGovernment Implementation |
| 31. | Reform and Develop the Public Sector |
| 32. | Improve Governance |

6.3 Objectives for Each Policy

Document 4, "The ICT Policies", presents the 7 initiatives and their 32 Policies. For each Policy, the document analyzes the benefits or the need for such a Policy and then presents its specific objectives.

For example, under Initiative 1, the eReadiness Gap Closing Policies, there is a Policy that addresses the requirements for "Improving Network Infrastructure". The following is presented as a "sample" of the specific objectives (or sub-policies) of a Policy:

- Extend coverage of telecommunications networks to reach all of Lebanon
- Modernize the telecommunications sector to host new technologies
- Plan for emerging telecommunications technologies
- Deregulate and liberalize the telecommunications sector
- Aim for convergence in telecommunications services
- Improve the utilization of fixed land lines
- Provide additional fixed land lines services and options
- Increase mobile penetration by removing the limit on mobile subscriptions
- Regularize the services of cable providers
- Consider the installation of a Lebanon wide terrestrial data cable network
- Remove regulations and restrictions on incoming data
- Encourage mobile operators to introduce state of the art services
- Improve the continuity and quality of electrical power
- Encourage the implementation of wide area networks

The above objectives are specific enough to assist the Lebanese Government in developing the appropriate solutions to reach them. This is discussed next.

6.4 From Policies to Programs and Solutions

Solutions were identified based on the specific objectives for each Policy. A specific Policy or Objective can be addressed by more than one Solution. Similarly, a specific Solution can respond to more than one specific objective or policy.

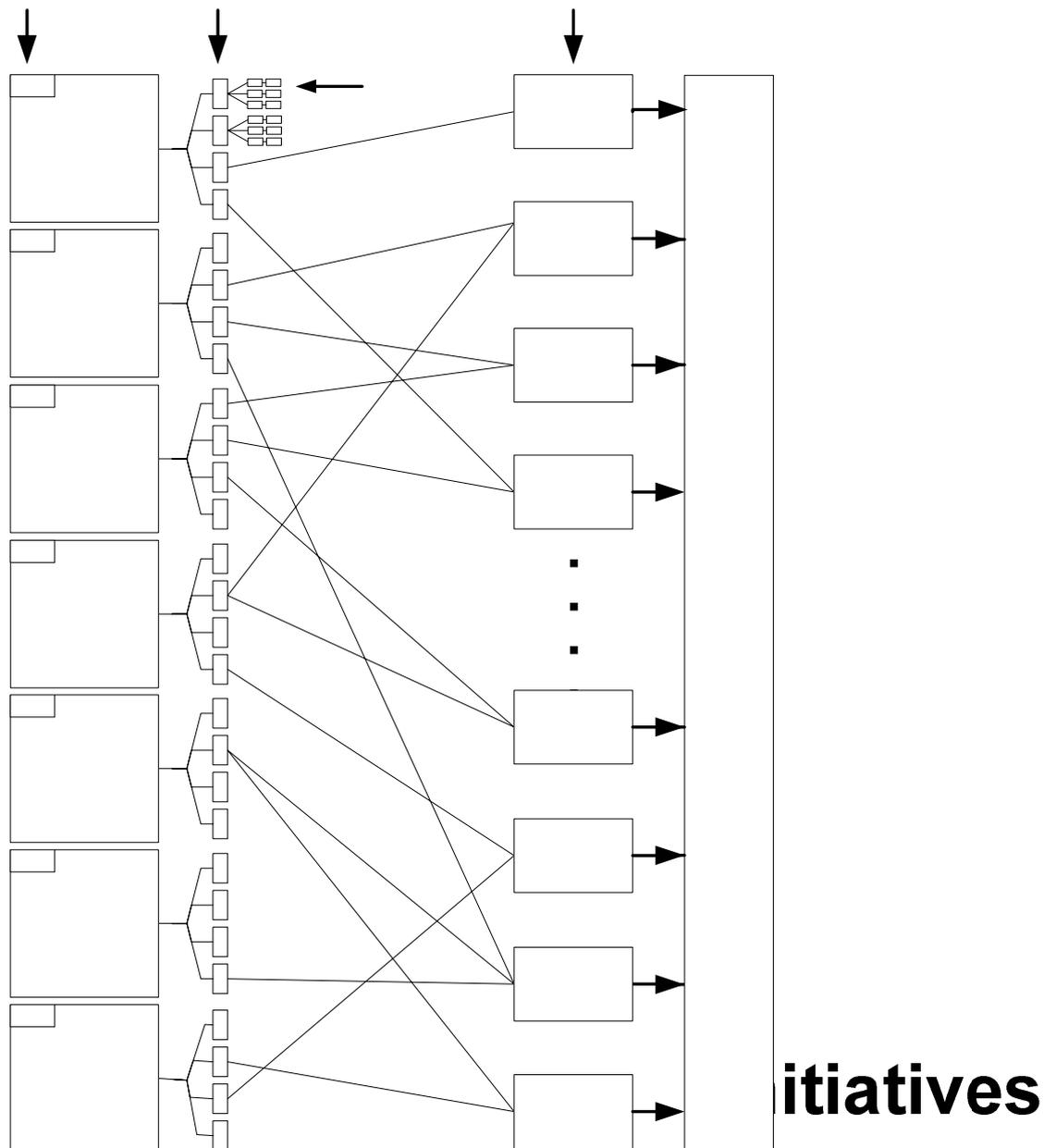


Figure 6: From Policies to Programs and Solutions

To reach the specific Objectives of each Policy, three types of approaches were developed:

- **Programs:** These are general courses of actions or a series of activities, tasks or projects that are implemented jointly. An example of a program is the set of activities and projects needed to implement the Legal Framework needed for the National eStrategy.
- Specific **Solutions** that can be implemented through clearly defined projects. An example of such a Solution is the implementation of a Competency Center.
- Single purpose **Recommendations** that need to be implemented. These are very specific and may be implemented directly without recourse to projects or programs. An example would be the change introduced in the Ministry of Education to start ICT education in primary schools.

The Programs, Solutions and Recommendations are presented in Document 6.

6.5 Classifying the Programs, Solutions and Recommendations

On reviewing the various Programs, Solutions and Recommendations, it can be seen that no single classification is really possible. These can be classified by any of the following:

- By Initiative
- By sector
- By implementing party
- By technology
- By theme
- By the product of the project
- Etc

It was therefore seen as more useful to present all Programs, Solutions and Recommendations in a Help File format (Also a web based format with the same format) where each of Program, Solution and Recommendation is indexed by any keywords above or any other relevant keywords. In this manner, the reader can review all programs, solutions and recommendations that are linked to any specific keyword of his or her choice.

An indexed Help File is available for download from the government's eGateway portal at www.egateway.gov.lb. The same content is also available in web page format indexed in the same manner as the Help File.

7.0 An Implementation Roadmap

The Implementation Roadmap proposed in this document is essentially a launching effort. An Entity is proposed as the starting point of the National eStrategy project. The Entity will consist of active stakeholders. It needs to be properly setup after which, it will be responsible for defining its own priorities, activities and project plans.

The National eStrategy project will be realized through the implementation of many programs, solutions and recommendations. These are to be implemented by various parties. It is therefore not possible to prepare a specific schedule. Rather, a roadmap is proposed that takes the National eStrategy project into several stages.

The following diagram presents an overall view of the proposed Roadmap:

	Years >>	1				2				3				
		Quarters >>	1	2	3	4	1	2	3	4	1	2	3	4
1	Setup an Implementation Entity	■	■	■	■									
2	Gain Consensus of Champions and Stakeholders	■	■	■	■									
3	Develop Specific Implementation Plans		■	■	■	■	■	■	■					
4	Implement Pre-Requisite Programs and Solutions			■	■	■	■	■	■	■	■	■	■	
5	Implement Priority Programs and Solutions				■	■	■	■	■	■	■	■	■	■
6	Monitor and Evaluate Implemented Solutions					■	■	■	■	■	■	■	■	■

Figure 7: An Overall View of the Implementation Roadmap

7.1 Stage 1: Setup an Implementing Entity for the Roadmap

One of the key issues in any National Strategy, ICT or otherwise, is the ownership of the overall project. For a National eStrategy, this complex issue is compounded due to the presence of many parties in the project.

The National eStrategy for Lebanon needs to be viewed as a process, an ongoing set of coordinated programs, projects and specific activities. It is necessary that an implementing Entity be setup to manage such a wide base of action.

The implementing Entity is to be viewed as an executive Entity whose role is the development of project plans and activities, their implementation and the monitoring of their progress. The Entity also needs to constantly review the relevance of the eStrategy and update it as and when needed.

The National eStrategy project proposes that an Entity be identified or specifically created. The following conditions need to be met by any Entity if it is to be successful:

1. **Reporting Line:** The Entity is an executive and monitoring agency. It needs to have authority in various aspects of its operations. It therefore requires to report directly to the Prime Minister's Office (PMO).
2. **Structure:** The Entity should be run by a board consisting of a group of stakeholders, wide enough to secure acceptance and narrow enough to be effective with representatives from the government, the private sector (including the ICT sector), academia and international organizations.
3. **Empowerment:** The Entity needs to have a suitable level of autonomy in terms of spending, human resources and related activities. It needs to be an agile organization having dynamic and flexible internal processes needed to address the complex projects it will be implementing.
4. **Proper Resources:** Implementing the National eStrategy requires wide ranging expertise therefore the Entity needs to be manned by experienced personnel with the proper background and knowledge.
5. **Openness to the Private Sector:** The Entity needs to be open to the private sector in terms of being able to work with such firms without the restrictions often placed on government agencies.
6. **Short Time Frame for Setup:** To proceed with the pre-requisite and high priority projects at the soonest, it is recommended that the implementing Entity be setup within a framework of 6 months leaving the setup and launch of related organizational components for the following 6 months.

Such an Entity will have the following **responsibilities**:

- Revisit the present Roadmap and elaborate and refine its activities.
- Revisit the Programs and Solutions defined in Document 6.
- Constantly review the relevance of the eStrategy and update it as and when needed.
- Coordinate with all parties involved in work related to the National eStrategy project.
- Coordinate with the Task Forces carrying out consensus building in Stage 1.
- Prepare budgetary estimates.
- Secure funding for the Programs and Solutions.
- Prioritize the Programs and Projects according to agreed upon criteria.

- Develop project plans for specific Programs and Solutions.
- Launch the Programs and Projects according to the established priorities.
- Monitor and evaluate all project activities, progress and results.
- Assist various parties during implementation.
- Represent the Government in all international conventions and meetings.
- Ensure that the Programs and Solutions have sustainable operation and results.

7.2 Stage 2: Gain the Consensus of Champions and Stakeholders

The National eStrategy is project with many aspects. It requires commitment and consensus from a large number of stakeholders. The following activities are needed at this stage.

1. Identify the stakeholders
2. Identify the Champions
3. Schemes for Consensus Building
4. Task Forces
5. Review Progress

As and when such activities take place, the project needs to be revised and updated based on the contribution and feedback of the Stakeholders and Champions.

7.3 Stage 3: Develop Specific Implementation Plans

During the development of the National eStrategy project, the Consulting Team and the Technical Committee went through an evaluation and ranking exercise. Programs and Solutions were evaluated on the following weighted criteria:

Criterion (1 = total disagreement >>>> 5 = total agreement)		Weight
1	Project responds to national priority issues	20
2	Project is implementable (Institutional, Capacity, Legal)	20
3	Required technological infrastructure is available	15
4	Project is sustainable (Results, Funding)	15
5	Project impacts are are visible to citizen	10
6	Private / public partnership is feasible	5
7	Time to achieve impact is short	10
8	Estimated budget is low	5
Total		100

Figure 8: Criteria for the Ranking of Solutions

The exercise allowed the Consulting Team to identify Pre-requisite projects (also driven by eReadiness gap closing consideration) as well as high priority projects. These are presented in the following two stages.

Stage 3 can be launched when the Entity is setup and the stakeholders agree on various elements that make up the National eStrategy for Lebanon implementation roadmap. The Ranking and Evaluation exercise will be revisited to prioritize projects. Such elements as funding, priorities, scope, etc., will be defined.

From such elements, the Entity will develop specific implementation plans for the various pre-requisite, high priority and remaining projects to be launched and monitored.

7.4 Stage 4: Implement Pre-requisite Programs and Solutions

The eReadiness Assessment showed that Lebanon is not eReady and that there are many gaps to be closed before it becomes eReady. In order for the various Solutions proposed in Document 6 to be successfully implemented, the following Programs, Solutions and Recommendations are needed as a pre-requisite:

Note: The ID refers to the numbering used in Document 6 which presents all Programs, Solutions and Recommendations include the pre-requisites. In that document, it is clarified that the Programs are not listed in any special order. A Help File is delivered with this document that allows for multi-purpose indexing of the Programs.

Note: The Appendix in Section 13.0 shows the mapping between the above Programs and Solutions and the 32 Policies presented earlier.

7.4.1 Pre-Requisite Programs

ID	Programs
1	Launch ICT Enabling Legal Framework
2	Improve the Affordability of Internet Connection
3	Improve Network Speeds in Lebanon
4	Increase Internet Penetration
5	Promote Proper Usage of the Internet
6	Increase PC Penetration
7	Improve Electrical Power Quality

Figure 9: Pre-Requisite Programs

7.4.2 Pre-Requisite Solutions

ID	Solutions
9	Setup a Government Entity to Handle ICT Matters
55	Resolve Administrative Anti-Patterns in the Public Sector
76	Implement a National ID and Smartcard

Figure 10: Pre-Requisite Solutions

These are programs and projects and need to be commenced on with speed, even if the earlier two stages have not been achieved. The question of who shall implement such pre-requisites remains a critical challenge for this Stage.

7.5 Stage 5: Implement Priority Programs and Solutions

Out of the wide range of Programs, Solutions and Recommendations, it may not be possible at this stage to identify with precision which projects are of a top priority nature. Many factors affect such a ranking.

An exercise was carried out where 8 experts were asked to evaluate the 70 solutions according to criteria defined in Document 6.

The evaluations were then consolidated by weighting and averaging them. A ranking was arrived at which was used to identify a set of solutions that are considered important to commence with.

After the final ranking was completed, an attempt was made to select 2 – 3 Solutions from each of the 7 Initiative.

The following list shows the selected Programs and Solutions.

Note: The ID refers to the numbering used in Document 6 which presents all Programs, Solutions and Recommendations include the pre-requisites. In that document, it is clarified that the Solutions are not listed in any special order. A Help File is delivered with this document that allows for multi-purpose indexing of the Solutions.

Note: The Appendix in Section 13.0 shows the mapping between the above Programs and Solutions and the 32 Policies presented earlier.

7.5.1 Priority Programs

ID	Programs
9	Top Ten eGovernment Projects
11	Encourage International ICT Exhibitions and Fairs in Lebanon
12	Capacity Building for Public Sector ICT Staff
13	Public Sector Data Definition and Exchange
14	Promote and Improve Lebanon as a Training Venue
16	Free Information Access Points
20	Develop Specific eLearning/CBT Content for Lebanon
21	Combat Illiteracy through Computer Based Training and eLearning
26	Prepare Lebanon to be an ASP Center
27	Deregulation of Telecommunications Sector

Figure 11: Priority Programs

7.5.2 Priority Solutions

ID	Solutions
2	Activate and Speedup Online Banking
3	Multipurpose Community Telecenters (MCTs)
7	Educational Career Counseling
8	Launch Project/Entity to Gather and Publish ICT Data
11	Lebanon Business Promotion Entity
14	The Internet Hub Project
15	The Citizen's Guide to Health Information and Services
16	Whats On in Lebanon
17	Setup Information Decision Support Center
21	The Citizen's Guide to Governmental Procedures
26	Setup Business Startup Advisor
27	Provide Comprehensive Electoral Information Online
28	Publish Terms of Tenders and Bids
35	The Citizen's Guide to Consumer Protection
39	Youth Network
46	Setup Data Entry and Transcription Centers
52	Agrobus
59	ICT Skills Portal
60	Launch National ICT Professional Association
74	ICT Training and Incentives for Public School Teachers

Figure 12: Priority Solutions

7.6 Stage 6: Monitor and Evaluate Implementation

Public sector projects need to achieve their objectives and to achieve sustainability. A critical project management technique is that of monitoring and evaluating the following:

- Project activities
- Schedules
- Budgets
- Objectives
- Performance of various parties
- Quality of products and project
- User acceptance and use

The National eStrategy implementing Entity should be responsible for such Monitoring and Evaluation. Furthermore, it would also have the responsibility of addressing issues such as analysis of poor performance in all of the above aspects as well as proposing solutions to eradicate problems and improve performance.

8.0 Roles and Responsibilities

Due to the variety of programs and solutions to be implemented as well as to the wide scope of the implementing Entity, it is important to define the roles and responsibilities of related parties. Most of the stakeholders would come from the following.

8.1 The Government

As it is expected that the implementing Entity is part of the Government, the Government then becomes directly responsible for the National eStrategy for Lebanon. It remains the catalyst for a proper implementation:

- The Government needs to ensure that the proper and efficient institutional structure is in place as a pre-requisite for most of the National eStrategy activities.
- The Government has to be responsible for the initiation and implementation of all legal framework requirements.
- Economic openness is high amongst its responsibilities. This would lead to an easier entry into Knowledge Based Economies.
- The Government is the prime driver behind social programs.
- The Government should be the prime driver for securing funds and allocating resources for the implementation of the National eStrategy. This can be sourced from the Budget, international donors or the private sector.
- The Government has a strong coordinating role between all stakeholders.
- The Government would be responsible for initiating and cementing all partnerships required for the implementation.
- To promote the raising of awareness for the project and hence ensure its acceptance and the contribution and participation of all stakeholders.
- The Government has the role of launching drives for ICT and organizational standards and ensuring they are implemented.
- Along with specific parties in the private sector and Academia, the Government would be responsible for monitoring and evaluating the progress of the National eStrategy implementation.

In its above roles, the Government needs to have an open and liberal view of the overall implementation.

8.2 The Private sector

The private sector is a key player. It is the main partner of the Government. Being the source of technology resources and experience, its participation and contribution are necessary and critical for the success of the implementation.

Here are the responsibilities expected from this role. The first set covers those that can be provided by the general private sector:

- Partnership with the Government on key projects. This partnership not only ensures sustainability, but creates the necessary mechanisms for continued improvements.
- To provide proper human resource development for the ICT workforce
- Reengineering of the business processes currently in place in order to cope with the requirements of the National eStrategy.
- To develop an openness to international trading practices and objectives.

- Advise and play an active role in the implementation strategy

The following responsibilities are specific to ICT companies:

- To be the vehicle for the transfer of leading edge technology to Lebanon.
- To be the main provider of training and experience in ICT skills. This responsibility is shared between training companies and other ICT companies.
- To adopt modern ICT good practices and standards.

8.3 International Organizations (+Donors)

International organizations have been crucial in developing visions that relate to various initiatives in Lebanon and other countries. Their role has been crucial in the launch of the National eStrategy project. It is therefore expected that Lebanon should lean on international organizations for continued support and review of the visions developed for National eStrategies:

- International organizations need to financially support various eStrategic initiatives.
- International organizations are the main players in the field of analysis and collection of national data.
- To promote issues related to the National eStrategy through publications, conferences and seminars.
- To assist Lebanon in the building of its human capacity as relates to the National eStrategy
- To introduce knowledge concepts, training, tools in the implementation of projects
- To coordinate all ICT and knowledge activity funding to Lebanon
- To introduce Knowledge concepts, programs and tools in all their projects.

8.4 NGOs

NGOs vary widely in scope and objectives. Their contribution and participation in the National eStrategy is also crucial:

- To incorporate elements of the strategy in their activities when appropriate and relevant
- To participate in generating aggregate demand for knowledge at the community level
- To preserving indigenous knowledge and contribute to the development of local content
- To participate and contribute to the National eStrategy's socio-economic objectives.
- Incorporate elements of the eStrategy in their activities
- Advise and play an active role in the implementation strategy

8.5 Academia

Academia's role is crucial, particularly due to the main opportunity provided in Lebanon by their quality and maturity. Academia covers general primary and secondary schooling, vocational training, university and special purpose education.

Their role is:

- To introduce the concepts and culture of knowledge into their curricula, research and teaching methodologies
- To advise and play an active role in the implementation of the strategy
- To develop effective and close co-operation between universities, the private sector
- To be the safe guardian of both general formal as well as ICT specific education.
- To join with the private sector in advancing technological research and innovation in Lebanon.
- To ensure that the new generations of the Lebanese workforce (ICT or otherwise) is ready for the envisaged Knowledge Based Economy.
- To assist the Government in its revision of the legal framework as required by the National eStrategy.

8.6 The Media

The media covers TV, Radio, the press and increasingly, the web. Lebanon' media is a strength that needs to be exploited in various aspects of the National eStrategy. The media plays a role in the following:

- To assist the public and private sectors in raising technological awareness in Lebanon
- To provide the National eStrategy implementing Entity with a platform through which it can promote the project's aims and gain acceptance of its main objectives.
- To assist academia and the private sector in the ongoing process of improving human capacity.

Lebanon' media is a strength that needs to be exploited in various aspects of the National eStrategy.

9.0 Critical Success Factors for the National eStrategy

As a prelude to the policies and objectives of a National eStrategy, and to its implementation, this section lists those that are considered as Critical Success Factors.

- Government leadership
- Involvement of the active stakeholders
- Administrative reform and development
- Pragmatic implementation
- Consensus and commitment
- Partnerships between the public and the private sectors, NGOs and Academia
- A properly implemented legal framework
- Sustaining the programs and solutions
- Learning lessons from other countries

The above critical success factors are detailed in Document 5.

Another area of criticality is the practices followed during implementation. Here are some recommended best practices:

- Implement best ICT practices
- Ensure ownership of projects
- Set concrete goals and take small achievable steps
- Set up monitoring and evaluation of projects
- Open up to regional perspectives and cooperation
- Position the government as the key champion, user and legislator of ICT
- Adopt policies that avoid risks from globalization
- Adopt issues at the National level
- eStrategy Evaluation by independent parties

The above implementation best practices are detailed in Document 5.

10.0 Challenges while Implementing the National eStrategy

A project of such a scope is bound to be labored by various risks and challenges. This section identifies the key pitfalls that may encumber the project during its launch and its ongoing realization.

- Inappropriate choice of an implementing Entity
- Delays in the development and implementation of the related legal framework.
- Implementing the various programs and solutions as ICT projects without due regard to the eStrategic objectives.
- Territorial attitude prevalent in many private and public sector agencies as implementers, owners or beneficiaries.
- Laws and regulations issued to allow for progress that might work against such progress.
- Inappropriate funding or curtailing funds in the middle of projects
- Political interference
- Insufficient planning and design
- Unclear objectives for the Solutions
- Insufficient top-level commitment
- Limited level of beneficiary participation
- Limited level of stakeholder participation
- Lack of availability of data on related eStrategic issues or data of low quality, validity and reliability.
- More focus on technology than on processes, people and organizations

The challenges are detailed in Document 5.

11.0 Appendix A: Challenges and Opportunities for Lebanon

This section summarizes the findings of the UN and the CDR for the challenges that Lebanon faces and the opportunities it must exploit.

11.1 The Challenges Identified by UNDAF

The following is a list of development challenges (and therefore, requirements) identified by the UNDAF. As can be seen, there is a strong stress on social development:

1. **Governance (Capacity Development)**
Rule of law in different components: constitutional, legal, penal and judicial
Transparency and accountability
Government effectiveness
Administrative and institutional development of Government
Basic public services
Public sector management and privatization
Aid coordination and management
The competitiveness of the private sector
Globalization
Empowerment and voice
2. **Poverty, wealth and well being**
Strategy for poverty eradication
Resource degradation and pollution
Satisfaction of basic needs
Social security coverage
Efficient and widespread public health
Educational coverage and accessibility
Information and knowledge
Unemployment
Upholding of human rights

Addressing these issues is crucial for Lebanon. The National eStrategy aims at using ICT to respond to most of these challenges.

11.2 The Challenges Identified by the CDR's Three Year Development Plan

The study concentrates on the private sector and analyzes the challenges facing Lebanese firms. It groups such firms into four classes: industry, agriculture, services and tourism. It presents various specific challenges (and therefore, requirements). These were grouped in terms of sectors and services:

- Policy, regulation and procedures
- Government efficiency and effectiveness
- Taxes and tariffs
- Access to capital
- Electricity
- Transport
- Telecommunications
- Market information

- Education
- The Environment

The Plan goes on to develop a few projects to address some of the above sectors and services such as trade efficiency, modernization of ministries, social security reform, etc.

The CDR defined the following incremental recommendations for Lebanon:

- Continuous improvement of management and industry expertise
- Improved access to specialized skills and resources
- Improved access to capital
- Continuous improvement of firm knowledge, competencies and strategy
- Heightened level of local competition
- Improved access to markets
- Upgrade of product and service sophistication
- Continuous upgrade of technology and constant innovation
- Reaching for higher levels of coordination among the players in an industry

It can be seen that there is a high focus on incremental improvements and not quantum leaps. Furthermore, there is little stress on using ICT for such improvements.

11.3 The Opportunities Identified by UNDAF

The United Nations Development Assessment Framework presents two goals for Lebanon. The two goals are broadly broken down into various opportunities:

Goal 1: Enhanced National Decision Making Capacity

1. Promote national commitment to a strategic development vision
2. Strengthen rule of law for increased transparency and accountability
3. Promote government effectiveness:
 - Reform civil service: policy making and management capacity
 - Get ready for globalization
 - Coordinate aid and manage support
4. Expand access to and encourage use of gender sensitive socio-economic data and information for policy making and programme management in support of human development.

Goal 2: Rights based approach to development promoted and implemented

1. Assess and monitor discrepancies between the national law and international conventions and agreements
2. Clarify core content of the basic human rights packages: education, health, employment and environment.
3. Improve efficiency in resource allocation and administration for human development.
4. Improve democratic and participatory processes.
5. Foster equity and equality through legislative change, policy initiatives and action plans for disparity reduction.

The UNDAF opportunities address a variety of socio-economic development opportunities. It is therefore wider in scope than those raised by the Three Year Development Plan which concentrates on the growth and competitiveness of the private sector.

11.4 The Opportunities Identified by the CDR's Three Year Development Plan

The aim of the Three Year Development Plan (TYDP) is to enhance the growth and competitiveness of Lebanon. Stress is placed on rejuvenating the economy without much attention to social development.

The Three Year Development Plan concludes that there are strong areas for growth and competitiveness (opportunities) in several sectors and services⁴.

The main competitive sectors were noted as:

- Printing and publishing
- Agriculture
- Food processing
- Chemicals and pharmaceutical production
- Furniture, jewelry and miscellaneous manufacturing

The main competitive services were noted as:

- Commercial and retail banking
- Professional services
- Wholesale/retail
- Entertainment and media
- Education
- Hotels and restaurants
- Health

The opportunities the Plan identifies need to be merged with those of the UNDAF for a wider implementation of the National eStrategy.

11.5 The United Nations Millennium Development Goals (MDG)

At the Millennium Summit in September 2000⁵ the states of the United Nations reaffirmed their commitment to working toward a world in which sustaining development and eliminating poverty would have the highest priority. The MDG grew out of the agreements and resolutions of world conferences organized by the United Nations in the past decade. The goals have been commonly accepted as a framework for measuring development progress.

Here are the goals:

- Goal 1 Eradicate extreme poverty and hunger
- Goal 2 Achieve universal primary education
- Goal 3 Promote gender equality and empower women
- Goal 4 Reduce child mortality
- Goal 5 Improve maternal health
- Goal 6 Combat HIV/AIDS, malaria, and other diseases
- Goal 7 Ensure environmental sustainability
- Goal 8 Develop a global partnership for development

As will be seen, some of the above goals directly address issues of concern to the National eStrategy and would be requirements for Lebanon.

12.0 Appendix B: Knowledge Based Economies

This section is an introduction to the fourth requirement for Lebanon, the transition into a Knowledge Based Economy. Refer to Section 5.0 where such requirements are presented.

12.1 The Rise of Intangible Assets (Knowledge)

During the 19th century and well into the 20th, industrial production was largely based on tangible assets such as capital, labor and natural resources. In such economies, knowledge and technical progress were “outside” the system. In the past few decades, a shift resulted in an increased reliance on intangible factors for growth such as knowledge, information and organizational culture.

This set of new “goods” became the basis for the shift into a Knowledge Based Economy.

The authors of *The HR Scorecard*⁶ plotted the ratio of market to book value of Standard and Poor’s 500 companies. The state of these companies is usually a good indicator of the state of the leading economy of the world.

The following graph shows the trend of a financial ratio for the Standard and Poor’s 500 index (a select group of 500 companies). The ratio is that of the market value of the SP500 stocks to their book value:

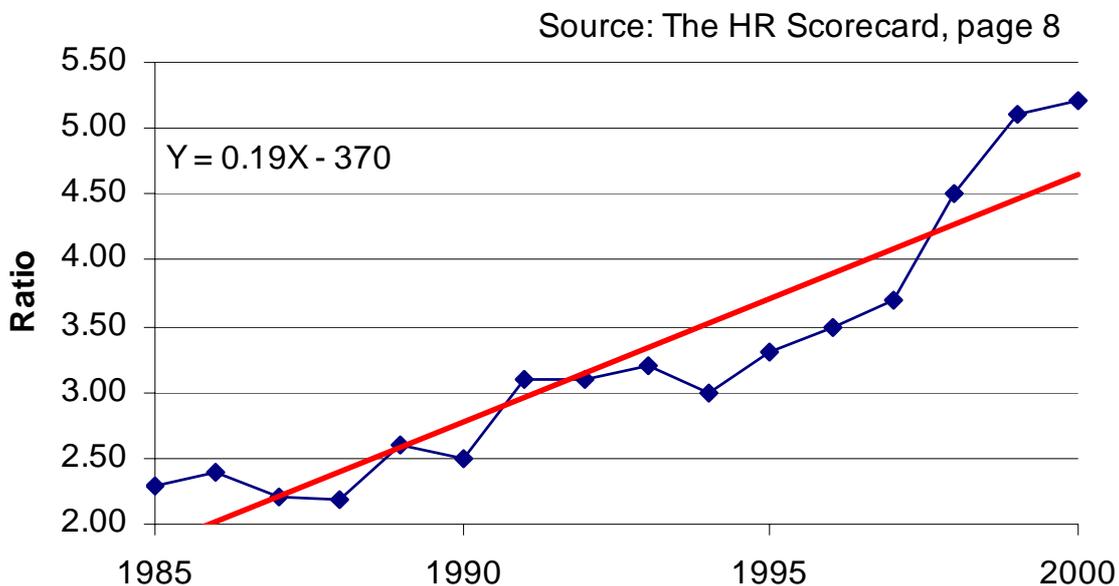


Figure 13: The Ratio of Market to Book Value

Starting with 1985, the market value of these companies is 2 times their book value. In the year 2000, it reaches a ratio of 5 times showing a yearly growth of 20%. The conclusion is that these 500 companies have intangible assets that are of a greater value than simple or financial assets, the basis of the “book value”.

To confirm their findings, the authors present the results of a survey carried out by Ernst and Young⁷. The results show the top ten criteria that financial analysts use to evaluate such firms as those on the S&P 500. The results were ranked as follows:

1. Execution of corporate strategy
2. Management credibility
3. Quality of corporate strategy
4. Innovation
5. Ability to attract and retain talented people
6. *Market share*
7. Management expertise
8. Alignment of compensation with shareholder's interests
9. Research leadership
10. Quality of major business processes

All the criteria except the 6th, market share, are strongly based on knowledge processes in an institution. Each of these criteria (except the 6th) is also valuable in evaluating the performance of a public sector institution.

An article quoted in *Training Magazine*⁸ shows that for the past two decades, the value of intangible assets has increased from 40% of the total market value of US corporations to 80%.

12.2 What is a Knowledge Based Economy?

A Knowledge Based Economy is an economy in which the production, distribution and use of knowledge is the main driver of growth, wealth creation, and employment across all industries⁹.

- It is not simply about gaining more knowledge.
- It is about the more effective use and exploitation of all types of knowledge in all economic activities.
- It goes beyond such definitions as de-industrialization, globalization, the information age, the digital or weightless economy.
- A Knowledge Based Economy relies on a Knowledge Society. It follows that a KBE emphasizes both social and economic development

A Knowledge Based Economy is a more general phenomenon. It is not restricted to activities classified as high-tech or knowledge intensive.

12.3 The Main Drivers of a Knowledge Based Economy

Knowledge became important because of the following:

1. **Progress in ICT:** Reduced costs, rapidly emerging technologies, converging technologies, technologies that access the whole world and the ease with which these technologies are being exploited and standardized.
2. **The rapidity with which knowledge is being generated:** Achieved through R&D, dissemination and application of knowledge.

3. **The increase in global competition:** Facilitated by reduced communication costs, reduced international transport costs, the increased size of available markets and the ease with which knowledge can be transferred.
4. **Changing demand:** Product life cycles are shorter due to exposure by the media. Choices are more varied due to increasing competition. Markets became more responsive. Consumers became more sophisticated in their demands and knowledge. They are also less loyal due to the widening “disintermediation” or distance from the source of supply. Reduced loyalty increases opportunity.
5. **Social changes:** The Knowledge Based Economy also addresses social issues such as poverty, health and education through their increased demand for information and knowledge. Addressing and resolving these issues become pre-requisites for a KBE.
6. **Governance:** New demands are placed on democracy and governance. The use of knowledge improves both.

The drivers of a KBE are there for every country. It remains for each country to enhance them in order to transit into a Knowledge Based Economy.

12.4 Recognizing the Knowledge Based Economy

The following list shows other indicators that confirm the importance and growth of Knowledge Based Economies. (The web contains many resources that substantiate the growth of such indicators¹⁰):

- The share of international trade accounted for by high technology industries has increased. This trend extends to services as well.
- ICT hardware and software have been the most dynamic area of capital investment.
- R&D in ICT is increasing.
- R&D in related knowledge management areas is also increasing.
- The use of ICT is diffusing very rapidly.
- The technologies are converging very rapidly.
- Business use of the Internet is increasing rapidly.
- National and multi-national collaboration between business and non-business entities is rising.
- Knowledge is being acquired through the migration of highly skilled workers as well as through outsourcing, both of which are increasing (local, regional and international).
- Knowledge based services are growing (post and communications, finance and insurance and business).
- eCommerce is emerging as a major factor in the economy (both Business to Business and Business to Consumer).
- There is a constantly increasing volume of knowledge.
- Governments are increasingly concerned with resolution of social problems such as health, poverty, gender disparity, education and others. More and more, these national issues are being addressed through ICT.
- Governments are increasingly concerned with governance issues such as accountability, transparency, predictability and participation. More and more, these national issues are being addressed through ICT.

Knowledge management became a key driver for such organizations showing how they have adjusted their business practices to suit a Knowledge Based Economy.

12.5 Characteristics of Knowledge Based Economies

Knowledge Based Economies are characterized by the following:

- All sectors become knowledge intensive, not just those associated with high technology.
- Society must have the ability and the capacity to capture and generate new knowledge. It must also be able to access, absorb, share and use information and knowledge efficiently.
- Society must view knowledge and information as global public goods.
- Competitive advantage is no longer based on low labor costs but on the skills, knowledge and innovation of society.
- The economy is networked, relying on ICT for most of its operations.
- The economy must be able to enable the infra and the superstructures of ICT.
- The sectors of services and goods converge. Practices in one sector invade the other. Service companies capitalize their knowledge and their workers. Goods companies rely on services to promote their goods. Both use Knowledge as the basis of their operations.
- Technologies converge so that most products can communicate with one another. Furthermore, different services can be supplied by single sources.
- In a Knowledge Based Economy, the state of an organization is highly sensitive to knowledge changes. This is caused by the volatility of knowledge. In the past, industries and trade could not manage to leapfrog their situation. Changes, to the better or to the worse, were slow. In a KBE, "leapfrogging" is common.
- Knowledge is highly retentive or lossless. Once an organization acquires knowledge in its cultural stream, that knowledge is virtually undestroyable. However, as per the previous characteristic, it may not always be relevant.
- There is a high focus on education and lifelong learning.
- Such economies have an openness to new ideas and innovation based on their commitment to R&D.
- Knowledge based economies do not separate the economic from the social. Developments in both areas affect each other.

12.6 Knowledge Based Economies and the National eStrategy

Knowledge Based Economies are related to various initiatives that form part of a National eStrategy. This Section discusses some of these relationships.

12.6.1 Knowledge Societies and Information Societies

There is no agreed upon definition of an "Information Society". In general, the term arose in the late 90s to describe a new society that is an involved user of ICTs. The term was used in parallel with the now defunct "Information Highway".

The term remains a "description" of a society which has diffused ICTs at all levels of economic and social life. It follows that an Information Society is a description of a society and not a dynamic process.

In the recent past, the term “Knowledge Society” has also come into use. It is used to shift the stress from ICT as a driver of change, as it used to be considered in Information Societies, to ICT as an enabler of change. ICT do not create the transformations in society but are used to enable social and economic development.

12.6.2 Knowledge Based Economies and ICT for Development (ICT4D)

During the 1990's, ICT was transformed from an enabler of institutional performance to a major tool that advances human development. Initiatives driven by the United Nations, the World Bank, G8 countries and other organizations stressed the importance of ICT for Development (A brief list is mentioned in Section 14.0 in the end notes¹¹.)

In general, the term “development” is used to mean socio-economic development. However, there are cases where development is used strictly in terms of economic development¹².

The aims of ICT for Development call for ICT to:

- Provide universal access to information and communication services
- Provide cost-effective ways to produce, acquire, store, analyze and distribute information for development purposes.
- Narrow the Digital Divide(s)
- Maximize the potential of ICT for all socio-economic sectors: education, health, economy, trade, etc.

These objectives are aligned with, and can be considered as part of, the goals of a Knowledge Based Economy.

12.6.3 Knowledge for Development (K4D)

The World Bank has launched a “Knowledge for Development” (K4D) program that addresses the above characteristics of KBEs. A framework is presented on their site¹³ supported by various programs, tools, and projects to assist countries in their transition to a Knowledge Based Economy.

The framework is a superset of ICT for Development but differs in the strong focus on socio-economic issues of the latter.

12.6.4 Indicators for a Knowledge Based Economy

An important issue is to address the readiness of Lebanon to be in a Knowledge Based Economy. A similar exercise as that carried out for eReadiness can be carried out. At the moment, this is outside the scope of this project. However, referring to a position paper by Romania¹⁴, there is a comprehensive list of quantitative indicators grouped under the following headings:

- Standard indicators
- Measuring knowledge inputs
- Measuring the amount and flow of knowledge
- Measuring knowledge output
- Measuring knowledge networks

- Measuring knowledge and learning

The above indicators can be fruitfully used while monitoring and evaluating the implementation of the National eStrategy.

12.7 The UNDP, Knowledge Development Strategies and the HDI

The UNDP's Arab Human Development Report 2002 starts with a section on Strategy.¹⁵ The section starts with an assessment of the "times" the Arab World is going through:

"Success in meeting today's challenges will depend on the ability to shape, and adapt to, the demands of the new economies and the new politics. **Enhanced knowledge development**, broadly defined, and **advances in human freedom, exemplified by political and economic participation**, along with **a proper appreciation of the role of culture and values**, could together form the foundation of a human development path for the Arab region that responds creatively to people's aspirations for a better life and effectively taps the forces shaping the twenty-first century."

The above highlighted phrases point the way to key cornerstones of the National eStrategy Project.

The section in the UNDP report proceeds to highlight the importance of knowledge and places it as a **cornerstone of development** as well as making it a public good that underpins **economies, politics and societies**.

The Arab Human Development Report presents the key conclusion that:

"Knowledge development strategies need to be seen as being the concern of society as a whole and of socio-economic actors across the board: government agencies, the private sector and civil society"¹⁶.

The report suggests that Arab countries are currently facing a major knowledge gap. It proposes that addressing the knowledge gap will require simultaneous actions in three linked areas: knowledge **absorption, acquisition and communication**.

As another indicator of the importance of Knowledge in social-development, the NHDR presents the **Human Development Index (HDI)** for Lebanon¹⁷. First of all, it defines the HDR as being made up of three core indicators, Knowledge being one of them:

- To have a long and healthy life
- To be knowledgeable
- To enjoy a decent standard of living

The report highlights the importance of accelerating advances in human development using the above three indicators.

The report goes on to note that Lebanon's HDI ranked 65 in 1999 compared to its GDP ranking of 78 in the same year. Thus HDI is superior to Lebanon's economic performance leading the report to encourage increased rates of growth. In fact, Lebanon would gain by improving its HDI as well through various Policies that address the above indicators. Specifically, the National eStrategy for Lebanon would be addressing the Knowledge issue.

13.0 Appendix C: Mapping the Pre-Requisite and Priority Programs and Solutions to Policies

The following two tables map the Pre-requisite and high priority Programs and Solutions with the 32 policies defined earlier.

ID	Programs	Policies																																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
1	Launch ICT Enabling Legal Framework	Pre-Req																																		
2	Improve the Affordability of Internet Connection	Pre-Req	X	X	X	X																														
3	Improve Network Speeds in Lebanon	Pre-Req	X	X	X	X																														
4	Increase Internet Penetration	Pre-Req	X	X	X	X																														
5	Promote Proper Usage of the Internet	Pre-Req	X	X	X	X																														
6	Increase PC Penetration	Pre-Req																																		
7	Improve Electrical Power Quality	Pre-Req																																		
9	Top Ten eGovernment Projects	Priority					X																													
11	Encourage International ICT Exhibitions and Fairs in Lebanon	Priority						X		X	X														X	X	X									
12	Capacity Building for Public Sector ICT Staff	Priority					X								X	X	X																			
13	Public Sector Data Definition and Exchange	Priority					X																													
14	Promote and Improve Lebanon as a Training Venue	Priority					X		X	X	X														X	X										
16	Free Information Access Points	Priority					X											X																		
20	Develop Specific eLearning/CBT Content for Lebanon	Priority																																		
21	Combat Illiteracy through Computer Based Training and eLearning	Priority										X	X	X	X	X	X						X													
26	Prepare Lebanon to be an ASP Center	Priority										X																								
27	Deregulation of Telecommunications Sector	Priority					X	X	X	X	X	X																								

Figure 14: Mapping Pre-requisite / High Priority Programs with Policies

ID	Solutions		Policies																																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
9	Setup a Government Entity to Handle ICT Matters	Pre-Req				X	X																														
55	Resolve Administrative Anti-Patterns in the Public Sector	Pre-Req				X																															
76	Implement a National ID and Smartcard	Pre-Req				X																															
2	Activate and Speedup Online Banking	Priority				X	X																														
3	Multipurpose Community Telecenters (MCTs)	Priority				X																															
7	Educational Career Counseling	Priority																																			
8	Launch Project/Entity to Gather and Publish ICT Data	Priority				X	X			X	X																										
11	Lebanon Business Promotion Entity	Priority																																			
14	The Internet Hub Project	Priority	X	X	X	X	X			X	X	X																									
15	The Citizen's Guide to Health Information and Services	Priority				X																															
16	Whats On in Lebanon	Priority																																			
17	Setup Information Decision Support Center	Priority				X																															
21	The Citizen's Guide to Governmental Procedures	Priority				X																															
26	Setup Business Startup Advisor	Priority																																			
27	Provide Comprehensive Electoral Information Online	Priority				X																															
28	Publish Terms of Tenders and Bids	Priority				X																															
35	The Citizen's Guide to Consumer Protection	Priority				X																															
39	Youth Network	Priority				X																															
46	Setup Data Entry and Transcription Centers	Priority				X																															
52	Agrobus	Priority				X																															
59	ICT Skills Portal	Priority				X	X			X	X						X	X																			
60	Launch National ICT Professional Association	Priority				X	X			X	X						X	X																			
74	ICT Training and Incentives for Public School Teachers	Priority				X	X										X	X	X																		

Figure 15: Mapping Pre-requisite / High Priority Solutions with Policies

14.0 Appendix D: End Notes

¹ UNDAF: "*The United Nations Development Assistance Framework*", a Platform for Collaborative Action 2002 - 2006, the UN Resident Coordinator System in Lebanon, December 2001.

² "*Lebanon's Five Year Development Plan: The Growth and Competitiveness Programme*", The Council for Development and Reconstruction (CDR), January 2000.

³ "*The World Development Report*", 1999, the World Bank. This can be found at the following website: <http://econ.worldbank.org/wdr/>

⁴ "*Lebanon's Five Year Development Plan: The Growth and Competitiveness Programme*", The Council for Development and Reconstruction (CDR), January 2000. (Page 12 in the slides presentation).

⁵ <http://www.developmentgoals.org/index.html>

⁶ *The HR Scorecard*, by Becker, Huselid and Ulrich, published by the Harvard Business School Press, 2001, page 8.

⁷ *Measures That Matter*, Low and Siesfield, Boston, Ernst and Young, 1998, quoted in The HR Scorecard, page 9, referenced above.

⁸ "*Measuring Corporate Smarts*", *Delahousaye, Ellis and Bolch*, Training Magazine, Volume 4, Number 1

⁹ "*Towards Knowledge-based Economies in APEC*", Asia-Pacific Economic Co-operation Economic Committee 2000, APEC Secretariat, Singapore, <http://www.apecsec.org.sg/>

¹⁰ *OECD Science, Technology and Industry Scoreboard - Towards a Knowledge-Based Economy*, OECD, Paris 2001.

¹¹ The following initiatives have been launched in the past few years:

- G8's Digital Opportunity Task Force (Okinawa Charter on Global Information Society)
- The Digital Opportunity Initiative (DOI) with Accenture, and the Markle Foundation
- Global Network Readiness & Resource Initiative
- United Nations Information Technology Service
- United Nations' ICT Taskforce
- World Summit for Information Societies
- World Bank's Knowledge for Development initiative (K4D)

¹² "ICT for Development" by the Asian Development Bank, www.adb.org/documents/policies/ict/ict230.asp, 2003

¹³ World Bank Knowledge for Development site:

<http://www.worldbank.org/wbi/knowledgefordevelopment/index.html>

¹⁴ "Knowledge Economy: A Position Paper for Romania" presented at a World Bank Conference in Bucharest, 2002, pages 15-17. The paper can be downloaded from: <http://www.ipdevel.net/itc/it13.pdf>

¹⁵ *The Arab Human Development Report 2002*, UNDP, 2002, page 6.

¹⁶ Ibid

¹⁷ *The National Human Development Report Lebanon 2001 - 2002*, UNDP, July 2002, page 17.