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ANALYZING ICT POLICIES AND STRATEGIES IN THE ESCWA REGION

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Abstract

This report reviews different methodologies developed in the literature on ICT policies and strategies. It considers a framework to review the information available on the ESCWA member countries declared ICT strategies and their implementations. Such a framework differentiates in a top-down approach between policy objectives, strategic priorities, key initiatives and specific actions. While doing so, key issues are identified including the resources made available for implementing the strategies, risk analysis, the selection of clear indicators for targets to be achieved and progress monitoring.

ESCWA countries situation and their approaches for building ICT development strategies differ greatly. They share several characteristics: the lack of a logical framework for a comprehensive strategy, focusing more on access than usage, the non-clarification of the resources and the institutional and financial schemes necessary to catch with the declared objectives:

This report should be considered as a discussion framework of ESCWA member countries ICT strategies, not really in the sense of establishing more articulated ICT strategies, but more to point out some of the critical issues that need to be addressed for accelerating ICT development. Its first discussion in a seminar held in May 2006, lead to 8 major recommendations for future ICT strategies development.

I. METHODOLOGICAL BACKGROUND

There are few documents that address the issue of analyzing and comparing ICT policies and strategies between countries, even in the course of the preparation for WSIS. Also, there is no common understanding of the need for a national strategy, and how this strategy should be elaborated. The available literature on the question can however be classified around 3 major questions:

- WHY an ICT strategy?
- WHAT is an ICT strategy?
- And HOW to elaborate such strategy? What issued should be addressed? And What about implementation?

On the WHY aspect, Hanna (2003) defines 8 issues for which a country needs to elaborate an ICT strategy (with some reorganization by the author):

- **Raising awareness**, resources and commitment to action;
- **Building coalition** for policy and institutional reforms;
- **Clarifying roles and responsibilities**, build public-private partnerships, and facilitate participation by all stakeholders, including NGO's;
- **Focusing** scarce resources on exploiting ICT for national priorities, and providing help in sequencing, phasing and **prioritizing** complementary investments;
- **Mobilizing and complementing market forces** to promote social applications, enable bottom-up efforts and ensure shared learning and **scaling up**;
- **Leveraging ICT**, addressing the special needs and dynamics of promising segments of the ICT industry for export and economy-wide competitiveness;
- **Reforming the national innovative system**, and re-orienting it to meet the substantial and cumulative technological learning requirements of ICT, as a general purpose technology;
- **Addressing coordination failures,** exploiting network effects, and securing complementary investments to use **ICT as empowerment and service delivery infrastructure**.

Also on the WHY issue, Ulrich and Chacko (2005) give nine major challenges that policy makers face in crafting ICT policies:

- A need for vision and leadership;
- **Consistency** with other national development goals;
- **Coordination** within government;
- Consultation for **consensus** on objectives and approaches;
- Implementation of **articulated and realistic plans** of actions;
- **Resources prioritized** and not based on mere wishful thinking;
- Supportive **legal framework** to enable ICT policies;
- Supportive policy frameworks to **facilitate implementation**, and
- Objectives against which to **monitor progress** and **produce defined results**.

And when they address the WHAT aspect, they provide specific and simple recommendations in formulating strategies:

- Be **specific** in setting **goals**;
- Do not re-invent what has already worked elsewhere;
- **Prioritize** your objectives;
- **Be patient**, strategies are made generally for 10 years, and few opportunities exist for leapfrogging stages;
- **Let government drive ICT** initiatives, with investment and with conducive policies;
- **Engage stakeholders**, as early as possible.

In its guideline for a national Information Technology Strategy, the Islamic Development Bank (IDB) 2003 draws, for the WHAT aspect, 5 pillars for an ICT strategy, as follows:

- Policies and regulations;
- Human resources development;
- ICT infrastructure;
- Content and community, and
- Innovation clusters.

It also identifies three critical success factors:

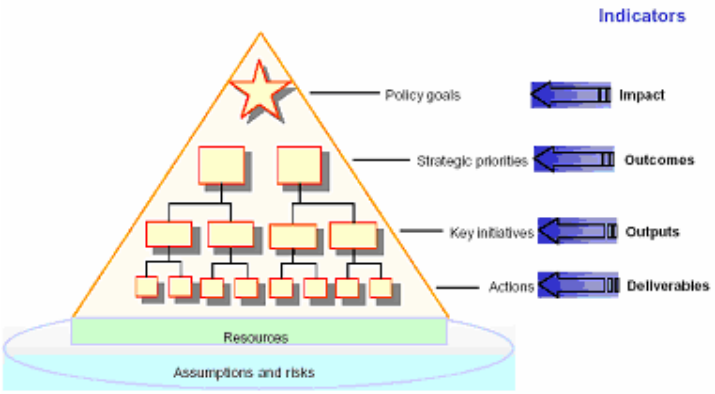
- Strong leadership and political will;
- Participative change;
- The right governance and management.

The most comprehensive approach for the WHAT and HOW for national ICT strategies has been developed by the World Bank (World Bank 2005), in the context of the establishment of a monitoring and evaluation toolkit for national ICT strategies. This comprehensive approach is based on 7 successive modules, which are developed hereafter with detailing by the author:

Module 1: Background and rationale

This module addresses the logical framework of a strategy, seeking answers on: *Why the policy? What strategy? And how to implement it?* It differentiates between the definition of **policy** objectives, **strategic priorities**, key **initiatives** and specific **actions** on a hierarchical base. Also, the logical framework addresses the **resources** of an e-strategy as one of its specific elements, as well as the analysis of the **risks** for its implementation. Aggregate indicators are attached to each level of this logical framework as in figure 1. These indicators go from the general economic and social impact indicators on the top (policies), to specific actions deliverables in the bottom.

Fig. 1: The logical framework of an ICT strategy



Source: World Bank 2005.

Module 2: A strategic approach to monitoring and evaluation (M&E)

This module recognizes M&E as an independent instrument of a strategy which can make it more meaningful and convincing for those who have the task to implement the strategy and to support it. The design of M&E requires a methodology in itself to elaborate the indicators at the various levels of the logical framework of a strategy. This design takes into consideration the necessity to deal with the complex institutional aspects necessary to implement a strategy, adapting to local constraints.

Adressing M&E allows to clarify that:

- Policy indicators are development focused and concern the impact of the strategy; their time horizon and causality should be clarified;
- Strategic priorities indicators are outcomes expected, on a shorter time horizon, linked to the analysis made on what to do and what not to do as a priority;
- Key initiatives indicators are specific deliverables, for monitoring, and where progress should be measured both in quantity and quality;
- Action plans indicators are interim deliverables, assessing in particular institutional build-up and capacity building;
- Also input indicators are necessary for resources, to monitor how they are used.

The institutional issue which arises logically at this stage is twofold:

- At a first level, it is necessary to solve who is responsible of implementing the strategy, especially as it can concern several sectors. In particular, the primary responsibility of the implementation of each key initiative or action plan should be clarified, as well as the way of interaction of the different institutions (per example ministries involved). Also to be clarified is the level of authority and backup that the responsible institution have for driving the implementation;

- At an another level, it is necessary to clarify who is responsible of M&E of the implementation of the strategy. For this, the process of elaboration and collection of data and indicators should be assessed: data access and ownership, process to elaborate perception indicators, etc.

For this second institutional level, the World Bank recommends the creation of a specific e-strategy M&E agency, with flexible forms, but with clear goals, as described in figure 2.

Fig. 2: Key Activities of an e-strategy M&E Agency

Management

- Develop a formal plan and business processes, including a budget and goals/targets for staff
- Develop human resource management systems, assessing training needs of other agencies
- Conduct regular training on ICT-related M&E
- Develop internal communications and team building.

Indicator development

- Assess existing data sources and their relevance to the strategy and implementation plan
- Recommend improvements in specific data series in terms of timeliness, coverage, or level of disaggregation
- Develop and publish new data series
- Ensure compliance with international standards for specific data items
- Create new data products, for instance, presenting existing data in new ways, or including new types of analysis and discussion
- Improve response rates for specific surveys.

Outreach

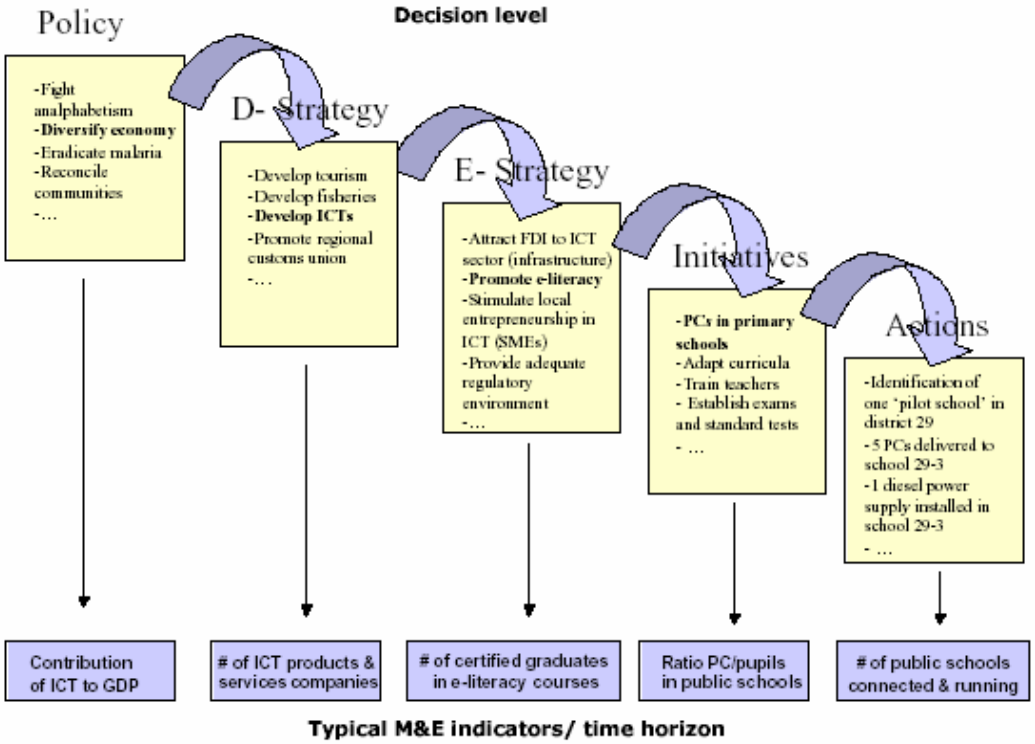
- Establish regular consultations between users and providers of statistical data
- Establish processes to receive regular feedback from customers
- Update statistical legislation
- Establish links with the media.

Source: World Bank, 2000. Adapted from Achikbache, B., Belkindas, M., Eele, G., Swanson, E. "Strengthening Statistical Systems." PRSP Source Book. World Bank.

Module 3: Building an e-strategy on a sound foundation

This module recognizes the in-depth link between an e-strategy and the development strategy (d-strategy) of a country. This relates specifically to the **formulation** of some e-strategy goals, which have to be made at a level of decision which is higher than the e-strategy. This also relates to the necessity of **integration** of the e-strategy as an element of the global d-strategy of a country, and of **sequencing** of objectives at the various levels of decision making. This is illustrated in figure 3.

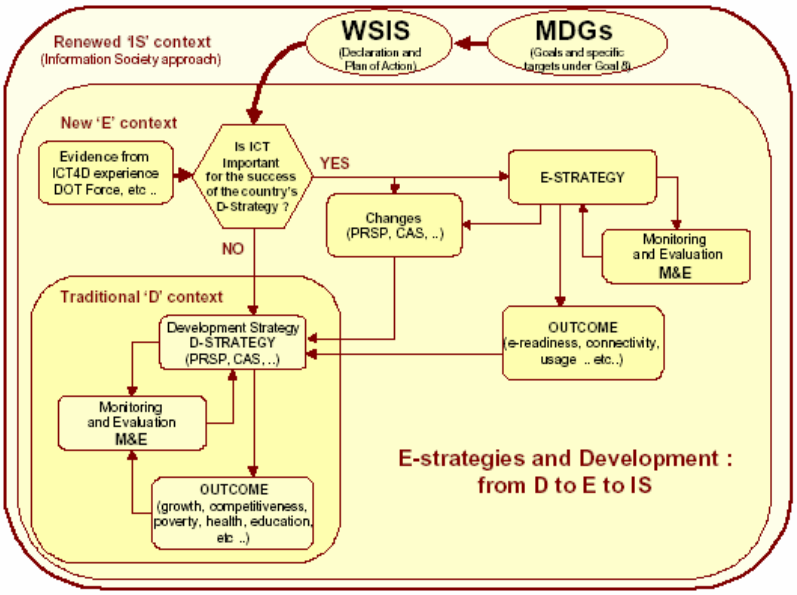
Fig. 3: Linkage between policy, d-strategy and e-strategy



Source: World Bank 2005.

The same search for sound foundations applies to the interaction between the e-strategy and the efforts for building the information society, including the work for the Millennium Development Goals with international collaboration. This interaction is schematized herebelow in figure 4.

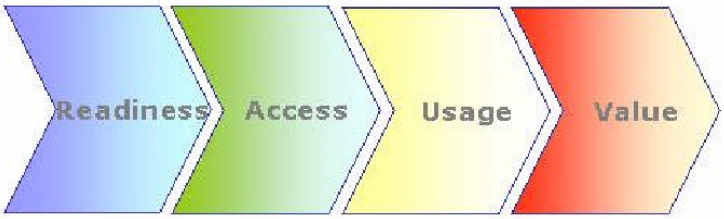
Fig. 4: Linkage between the e-strategy and the Information Society building efforts



Source: World Bank 2005.

Finally, the ICT strategy should clearly recognize that **ICT is a tool and not an end** by itself. The **focus** should be made **on access more than usage**. The efforts to put the ICT strategy on sound foundation should seek for getting the highest value possible, when answering the questions of what to do and how much to do? The relation between readiness, access, usage and value is illustrated in figure 5 herebelow.

Fig. 5: the chain from readiness to value



Source: World Bank 2005.

Module 4: ICT Infrastructure

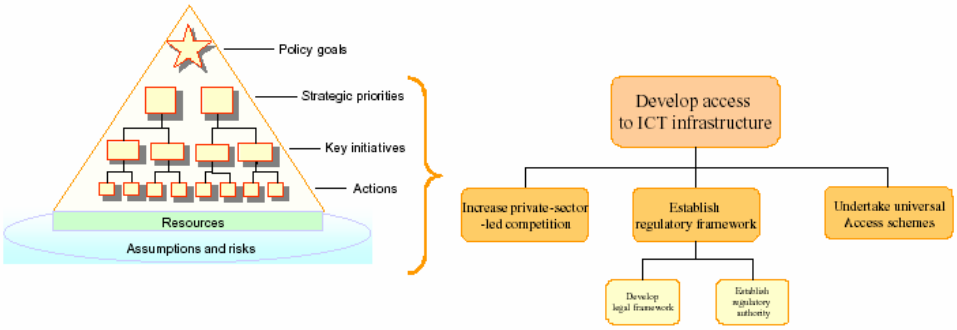
This module puts the **infrastructure at the core of an e-strategy**, as it should not be limited to a "happy" few to play an effective role in economic and social development, and to enable real e-development. Access is then a major issue in terms of both **geographic coverage** and **affordability**. The e-strategy should then address the organization and the financing of the ICT sector in order to insure both, taking into account the question of "universality of access" (or in other terms the notion of "public service"). This implies a strong role of the state, in regulation and in insuring such universality of access, even in the case of full privatization (as recommended by the World Bank, despite any judgment on such recommendation). It is worth noting that on a worldwide basis, 82% of the internet revenues, 69% of the mobile phone revenues and 58% of the fixed phone revenues, are generated from the high income population, which only constitutes 15% of world population.

An e-strategy should then address, for infrastructure, 3 major concerns or pillars (figure 6):

- **Increase private sector led competition**, believed to be the major drive for growth, addressing issues of how to license private providers and how to establish real competition, even when some actors are state-owned;
- **Establish a regulatory framework**, necessary to insure proper and healthy technical and economical development of infrastructures; and
- **Undertake universal access schemes**, taking into account the fact that there will be always some parts of a country and some categories of the population that will not be served if left to the market alone. Specifically, the schemes for financing this universal access should be considered, as well as their disbursement mechanisms, for both cases of private or state-owned providers.

These 3 pillars should be set for each of the ICT infrastructure domains: fixed phones, mobile phones, international calls, etc…

Fig. 6: Logical framework of an e-strategy on infrastructure



Source: World Bank 2005.

Module 5: ICT sector

This module advocates that the development of the ICT sector itself, is a main component of an e-strategy, which goals focus on **creating opportunities for outsourcing and exports**, and/or on **developing and meeting domestic demand for ICT's**. Also, this module recognizes the difficulty for an e-strategy to address directly the development of the ICT sector through policies for promoting the establishment of very large ICT companies in the country; such companies, particularly multinational companies, have their own strategies. Then, this module advocates for the development of ICT sector goals through the development of SME's (even in the case where no large ICT company should to implement its premises in the country) with 3 major concerns or pillars:

- Improve SME's regulatory environment, easing in particular business registration, contract enforcement, etc.;
- Improve SME's access to capital, through venture capital or credit facilities;
- Create business incubation services, incubating effectively and launching the incubated companies in the national and international markets.

For such, it is most useful to set the strategy on an in depth market analysis for the country, assessing demand and supply. In particular, it appears that fostering local demand and addressing how this demand will be supplied, is a best approach for creating a sustainable local ICT sector.

Module 6: e-government

This module is based on the paradigm shift which is introduced if e-government is considered as a core issue. E-government improves the way government operates (**administrative reforms**) and how society interacts with and views government (**governance**). E-government is then not primarily about automation of existing procedures, but mainly about changing the way in which government conducts business and delivers services to citizens and companies. Also, delays in implementing e-government is considered more damaging –to the economy and to the e-strategy- than any other. Therefore, e-government is then a driving force for the whole ICT strategy and a strong message of the political will of the authorities on the ICT strategy. And the policy goal for e-government is to **create an efficient, responsive and transparent government**. For this 3 major concerns/steps arise:

- **Publish**: provide valuable on-line information;
- **Interact**: engage society to improve government;
- **Contract**: Offer cost effective online services.

Implementing e-government is one of the most difficult tasks of an e-strategy, at it requires important prerequisites involving all the other aspects of an e-strategy, as well as other major aspects of socio-economic and political development in a country, as illustrated in figure 7 in the "ABCDE" of e-government.

Fig. 7: Prerequisites for e-government implementation

Prerequisite	Concern	Activity (typical indicators)
Access	Infrastructure, costs, competition/regulation (hence includes proper regulatory and competition frameworks)	▪ Equipment (PCs, kiosks, community centers) ▪ Teledensity ▪ Rule of law ▪ Pro-competitive ICT regulation (tariff and non-tariff barriers, competition in the ICT sector) ▪ Cost (fixed line calls and Internet access) ▪ Access for disadvantaged or excluded
Basic skills	Basic education, vocational training, ICT awareness	▪ Literacy (alphabetization rates) ▪ E-literacy ratios per age/group/sex/region ▪ Vocational training
Content	Value to government and citizens	▪ questionnaires on value to users/citizens and government ▪ content in local languages

Desire	Political leadership and will to reform	▪ Public statements/decisions ▪ Laws & regulations (perceptions of quality of legal system)
Engagement	Commitment of all components of civil society	▪ Broad involvement of civil society (questionnaire/survey) ▪ Local awareness of ICT potential for development (questionnaire/survey).

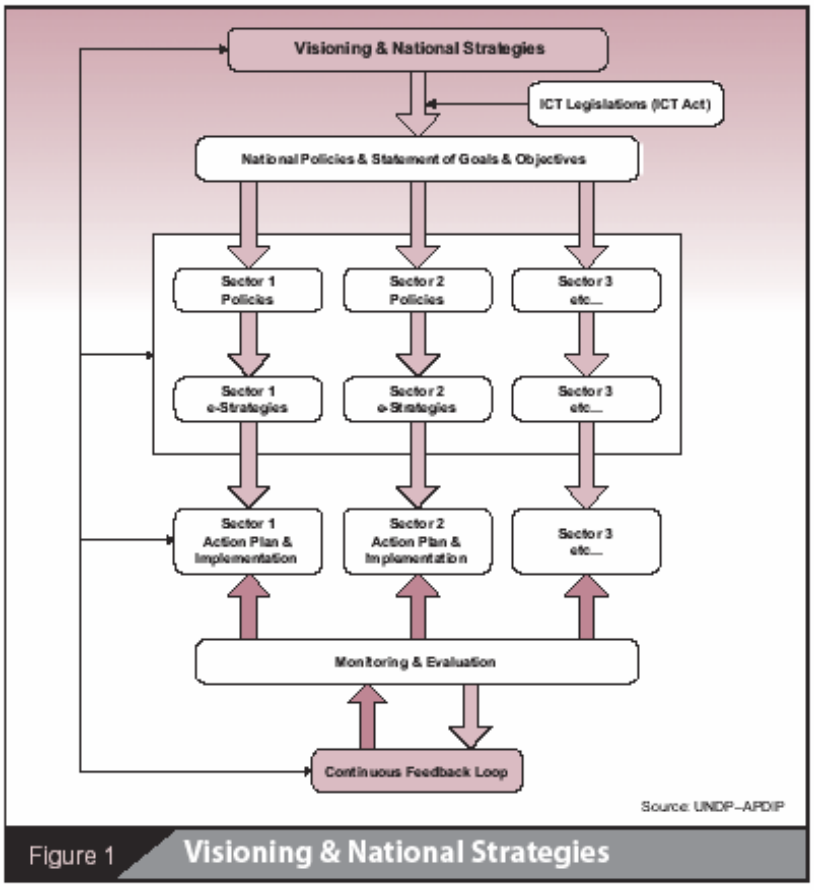
Source: World Bank 2005.

Module 7: Other strategic sectors:

An e-strategy can also address other strategic sectors, such as: e-business, e-education and e-learning, e-health. Such sectors shall be addressed in the comparison of the ICT strategies of ESCWA countries.

Comparing ICT strategies in a region with extremely different development levels has been conducted by UNDP for Asia-Pacific (Sayo & al. 2004). Whatever the level of development, all countries should share the same typical visioning exercise and logical framework by sector (see figure 8).

Fig. 8: ICT strategies and visioning Asia-Pacific



Source: Sayo& al. 2004.

Government commitment to such approaches has been discussed in the UNDP Asia-Pacific comparison (Sayo & al arguments), which has depicted 10 priority areas that ICT policies and e-strategies should address, as follows:

- ICTs within **Poverty-Reduction** Strategy Programs and MDGs;
- The Role of **Gender** in ICT;
- **Supportive Government Policies** and e-Government;
- **Infrastructure**, Access and Telecom Development;
- Building **Human Capacity** and Generating, Jobs in a Knowledge-Based Economy;
- Developing **Local Content** and Managing Knowledge;
- **Public-Private Partnerships** (PPPs): Mobilizing and Allocating Resources;
- **Regulatory Frameworks** and Privatization;
- Intellectual Property, **Legal Issues and Security**;
- Economic Development and **Competitiveness** in a Globalized Economy.

The UNDP study compared how Asia-Pacific countries have dealt with these priorities when elaborating there strategies. This was made through a questionnaire to policy makers. The result were exposed in terms of:

- ICT developments;
- ICT policy, or set of policies;
- WTO issues, and
- Regulatory frameworks.

While acknowledging this comparison effort, the authors prefer to address the issue of comparing the ICT strategies of the ESCWA countries on the basis of the logical framework issued from the World Bank, which is more comprehensive (with some adjustments by the author) than that used by the UNDP Asia-Pacific study.

II. THE ISSUE OF MEASUREMENT

The complex issues involved in elaborating and monitoring strategies require measurements at all levels.

The World Bank approach discusses the indicators of current ICT (as well as economic and social) status of a country, and of progress in e-strategies. These indicators are to be assessed in terms of quantity, quality and time. The availability of national indicators is by itself a major concern. So international cooperation has been established in order to group these indicators, to enable making comparisons showing the needs and the progress made.

Four major databases provide indicators relative to ICT strategies:

- The World Bank Institute's (WBI) Knowledge Assessment Methodology (KAM) and the Knowledge Economy Index (KEI);
- The Global Information Technology Report's (GITR) Networked Readiness Index (NRI);
- Orbicom's Index of countries' "Infostates";
- International Telecommunications Union's (ITU) Digital Access Index (DAI).

For the sake of the current study, the WBI database was used as it covers all ESCWA countries, integrates indicators collected by other international institutions such as the ITU, and covers also macro-economic and social indicators. This database shows comparisons and evolutions (for example comparing current situation with that of 1995) for 4 types of clusters:

- Economic incentive regime;
- Information infrastructure;
- Education, and
- Innovation.

More complex comparisons are made for a range of indicators involving: GDP growth, human development index, tariff and non-tariff barriers, regulatory quality, rule of law, telephone density, computer density, Internet users density, number of researchers in R&D, number of scientific and technical journal articles, number of patent applications granted by USPTO, adult literacy rate, secondary enrollment and Tertiary enrolment.

Appendix 1 provides the comparison extracted from this database for 11 ESCWA countries. Only Jordan and UAE have shown relative progress compared to the 1995 situation.

The GITR networked readiness index includes only 4 ESCWA countries (table 1).

Table 1

Countries	Network Readiness
Bahrain	0,37
Egypt	-0,24
Iraq	
Jordan	0,1
Kuwait	
Lebanon	
Oman	
Palestine	
Qatar	
Saudi Arabia	
Syria	
UAE	0,84
Yemen	
Israel	1,02
France	0,96
Korea	0,81
Tunisia	0,39
Morocco	-0,17
Algeria	-0,66
Turkey	-0,14

Source Duttal & al 2004

It should be noted that in most cases, these indicators, collected for global comparison, are general[1], and not always suited for M&E of ICT strategies. In fact, what is important in such strategies is the key initiatives and action plans, which depict the country choices function of local conditions. Specific indicators should be selected for the M&E of these initiatives and plans. The global indicators can only be used as mdium/long term target indicators for policies.

[1] Also, sometime their accuracy could not be assessed. In particular, comparing the readiness indicators in table 1 between countries could be misleading, on what are the achievements and priorities of the relevant country.

III. COMPARING ESCWA COUNTRIES ICT STRATEGIES

For the performance of this study, no formal and comprehensive ICT strategy documents were available for most of the ESCWA country. In fact, few of them have formally established detailed strategies documents, disseminated these documents and provide monitoring feedbacks for consultation. However, ESCWA have provided national profiles for the 13 member countries, and prepared a regional profile for the information society in Western Asia (ESCWA 2005/6), covering the following issues:

1. Policies & strategies
2. Legal & regulatory framework
3. ICT infrastructure
4. ICT capacity building
5. Building the ICT sector
6. Application in government establishments
7. Digitization of information
8. Applications in education
9. Application in commerce and business
10. Applications in healthcare
11. Digital Arabic content

The information provided in the national and regional profile cannot replace formal strategy documents and monitoring feedbacks, which would enable the comparison of strategies on the light of the methodology adopted in this study, namely on the basis of the logical framework of the World Bank document
(WB 2005).

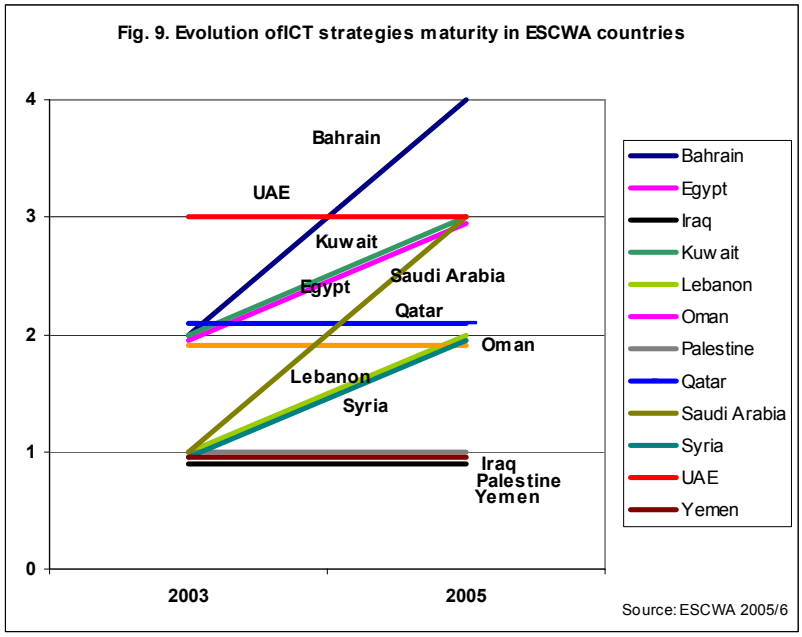
Furthermore, the approach of the present study is different from that of the regional profile (ESCWA 2005/6), which has classified the ESCWA countries in 4 levels of maturity:

a) maturity level 1, which indicates the absence of a clearly articulated vision and national ICT strategy, and limited implementation plans and initiatives;

(b) maturity level 2, which indicates the existence of a clearly articulated vision and national strategy, albeit with limited implementation plans;

(c) maturity level 3, which indicates the existence of a clearly articulated vision and advanced national strategy, in addition to moderately effective implementation plans; and

(d) maturity level 4, which indicates a clearly articulated vision and advanced national strategy, and effective implementation plans.



The results of such classification are depicted in figure 9. One can note that such a method give an idea on progress, but more detailed analysis is needed to assess this progress.

IV. BACKGROUND AND RATIONALE OF ICT STRATEGIES

A first issue in assessing ICT strategies in ESCWA countries is then to see if the concerned countries have found in fact the necessity of formally elaborating such strategies. In fact, most ESCWA countries advocates to have established some kind of national ICT strategy (see table 2), having or not developed ICT infrastructures.

The case of Jordan is to be highlighted as the national strategy has been formalized since 1999 (REACH[2]), disseminated, and continuously updated according to the evolutions, both in the ICT sector and with new rising issues. This case is also unique on other aspect, as a non governmental body, the IT association of Jordan, grouping private sector stakeholders, has elaborated the strategy, while the Ministry of ICT is outlining government policies in the sector. The strategy has also obtained the direct support and involvement of the highest authority in the country, the King.

Table 2. Status of ICT strategies in ESCWA countries

Countries	Status of ICT strategies	Year	Formal document	Elaboration	Level of approval
Bahrain	Yes	?	No	Central information Organization	Government
Egypt	Yes	?	No	Ministry of Communication & Information Technology	Government
Iraq	No		No		
Jordan	Yes (REACH)	1999	Yes	IT Association of Jordan (INTAJ)	Government
Kuwait	No		No		Government
Lebanon	Yes	2003	No	Office of the Minister of State for Admin. Reform	
Oman	Yes	1996	No	National Committee for Information Technology	Government
Palestine	Yes	2006	No	Government	Government
Qatar	Yes	2004	No	ICT Qatar	Government
Saudi Arabia	Under prep.		No	King City for Science & Tech. & Min. of Planning	Government
Syria	Yes	2004	Yes	Ministry of Communications & Technology	Government
UAE	No		No		
Yemen	Under prep.		No	National Information Center	

Source: ESCWA regional and national profiles.

However, in most ESCWA cases, the declared strategy has not always been set within a logical framework of policy objectives, strategic priorities, key initiatives and actions.

- In Bahrain, no policy objective is set for a country having one of the highest ICT penetration in the region. The strategic priority is being e-government, with different key initiatives defined.
- In Egypt, the policy objective seems to be the developing of the IT sector to boost exports. An autonomous agency is entrusted of this mission by the government, in addition to the specific efforts of the Ministry of Communications and Technology.
- In Jordan, similarly the national strategy aims at developing an export-oriented information technology services sector, with clear strategic priorities derived.
- In Kuwait, e-government seems also to be the focus, while no specific strategy and implementation plan were formulated.
- In Lebanon, the strategy document has put 32 key actions grouped under 7 key initiatives.
- In Oman, a road map with 11 key initiatives was introduced.
- In Qatar, 6 key initiatives were introduced.

[2] See Int@j 2004.

- In Syria 7 policy goals were specified and 7 key initiatives defined, 2 under the responsibility of the Ministry of Communications and Technology, and 5 national initiatives.

The logical frameworks of ESCWA countries ICT strategy vary then greatly. The cases of Jordan and Egypt are worth noting as they both focus on export as a policy objective. Rarely, the increase of local demand and consumption is set as a policy objective explicitly. Also, worth noting are the case of UAE where no formal national strategy has been estimated necessary, while practically the country has made spectacular achievements in terms of ICT development.

Also, ESCWA countries ICT strategies differ greatly in setting clear indicators for their strategy policies, strategic priorities and key initiatives. They differ also in defining the time frame to implement the target indicators. Syria per example set penetration target indicators to reach in 10 years. Other countries include indicators derived from their 5 year plans, while others set such indicators within visions for 2020.

More importantly, almost none of the ESCWA countries ICT strategies discuss explicitly the resources allocated for implementation and the risks incurred and how to alleviate them.

The major remarks of present ICT strategies of the ESCWA countries can the be summarized as follows:

- the strategies are not always formalized, and set on a logic of targets and associated indicators, with clear timeframe;
- it is not always clear how governments are approving and implementing strategies from an institutional point of view, and how the necessary resources are identified and allocated;
- the strategies are not always placed on economic ground, with development policy objectives and analysis of local market demand/supply;
- The reasons for choosing key initiatives is not always explicated and placed in a logical framework.

Box 1. Syrian ICT Strategy

The Syrian Ministry of Telecommunication and Technologies has elaborated with the assistance of the UNDP a national ICT strategy (UNDP 2004). This strategy aims at specified targets in the horizon of 2013:

- In infrastructure, achieving 30% penetration for fixed phones, 30% for mobiles, 20% for Internet subscribers, and 30% for computers penetration;
- globally progressing with the Digital Society Indicator from 28% in 2003 towards 65% in 2013.

The investments necessary to achieve these targets have been estimated at US$ 8 billions (4% annually of the GDP in average). The share of government investment is estimated at US$ 2 billion, much below the tax and royalties revenues of the ICT sector.

The strategy is based on a demand/supply analysis, where the local demand is to be fostered particularly for e-government, banks and financial institutions, production and services companies, as well as for individual customers. For that 22 strategic "approaches" (priorities) are formulated.

For the implementation of these strategic priorities, a framework is defined, comprising two action programmes (Responsibility of the Ministry) and 5 national initiatives (overall responsibility of the government):

Action programs:

- The programme for restructuring the Telecommunications Sector: including the corporatization of the national fixed telephone company, the creation of an independent regulator, and the opening for competition of the fixed and mobile phones operations;
- The programme for building the ICT sector: including promotion of the dissemination of Internet, formulation easy regulations for the sector, helping the buildup of independent IT associations and activating the popular computer project through public-private partnership.

National Initiatives:

- The national e-government initiative
- The national initiative for technological parks
- The national initiative for sectoral centers of excellence
- The national ICT capacity building initiative
- and the national knowledge society initiative (including the embracing of the recommendations of the Arab Human Development Report 2003, and promoting Arabic content on the Internet).

The strategy has been adopted by the government, and a set of indicators (and their sources) has been adopted for its monitoring (see UNDP 2005-2).

V. MONITORING AS AN INSTRUMENT FOR STRATEGIES

As shown hereabove in table 2, some ESCWA countries have established independent bodies specifically in charge of setting national ICT strategies. The remaining relies on ministries of telecommunications and technologies. However, it was not possible to assess the mission definition, the driving institutional mechanism, and eventually the real performance, of these different bodies for the implementation of a strategy which normally implies the involvement of different ministries, private companies and social associations and has complex institutional issues.

Also, it was not clear how these independent bodies have worked specific indicators to monitor the implementation of the ICT strategy, in terms of policies, strategic priorities, and mostly in terms of the chosen key initiatives and actions. Most frequently, the documentation on strategies refer to ITU or other internationally agreed indicators, not specific for the monitoring of the chosen strategy.

The case of Jordan seems in this regard exemplary, as it sets for the policy objectives indicators such as number of ICT jobs created, volume of ICT exports, and cumulative foreign direct investments. Those specific indicators are monitored and lead to regular revisions of the strategy and of the implementation plans (see Box. 3 herebelow).

VI. BUILDING STRATEGIES ON SOUND FOUNDATIONS

In all cases, the formulation of ICT strategies in ESCWA member countries has been imbedded in the general development strategy. In many cases, the national plans have included or replaced specific ICT plans. Moreover, the driving mechanism for elaborating ICT strategies and plans has been in fact the country's participation in international frameworks discussing the WSIS objectives and the Millenium Development Goals.

However, this integration has in most cases not resulted in an explicit sequencing and quantification of the relation between policies, d-strategies and e-strategies. Then, rarely the policy was explicited and quantified in terms of policy objective of per example the ICT sector reaching a defined share of the country GDP in a defined year. Such quantification could have lead to define and quantify the necessary development strategy to build the ICT sector in terms of companies to be created, employment in the sector and capacity building.

All countries seem to be fully aware of the importance of ICT for development. However, in few cases the policy objectives were formulated and quantified in terms of how to imbed the ICT strategy in the development of a local demand or on how to develop an ICT sector taking into account the international or Arab regional developments and export markets.

In other words, the ICT strategy is mostly seen in terms of access and not usage. Access is key, as it is a prerequisite to usage; while usage better defines how the economy profits from ICT in terms of GDP growth, competitiveness, etc. and how the society profits also in terms of poverty alleviation, employment, health and education. Table 3 shows the usage index for individuals, businesses and Government for the available ESCWA countries (Dutta 2005), with international and regional comparisons. It seems that the concerned ESCWA countries have concentrated their efforts on usage for government, where they are generally well-ranked from an international perspective. The ranking in all ESCWA cases is weaker for business, which indicates that in the future the strategies should focus on driving ICT usage in the business sector. Finally, the ranking is even weaker for individual usage, showing that the development of the information society should be a major concern, even in those ESCWA countries that have rightly chosen e-government as a driving mechanism and have high access indicators.

Table 3. Comparison of Usage Indexes

Countries	Individual	R	Business	R	Government	R
Bahrain	0,3	37	0,47	39	0,49	30
Egypt	-0,7	75	-0,08	56	0,57	26
Iraq						
Jordan	-0,5	65	0,4	41	0,49	29
Kuwait						
Lebanon						
Oman						
Palestine						
Qatar						
Saudi Arabia						
Syria						
UAE	0,75	29	0,81	24	1,46	7
Yemen						
Israel	1,08	19	1,48	8	1,31	10
France	0,94	22	1,12	17	1,12	15
Korea	2,56	2	0,96	22	1,06	19
Tunisia	-0,52	67	0,45	40	0,49	28
Morocco	-0,64	73	-0,07	55	0,11	46
Algeria	-0,77	78	-1,28	92	-0,37	56
Turkey	-0,13	49	0,38	42	-0,02	52

Source: Dutta & al 2005

To major remarks on the ICT strategies of ESCWA countries can then be summarized as follows:

- The IT sector, as an industry, does not always seem to be a target economic sector by itself;
- The ICT strategies does not always result from the analysis of the needs for the development of other sectors (per example textile).
- And the ICT strategies does not stress enough usage and concentrate mostly on access.

VII. ICT INFRASTRUCTURE

All ESCWA countries recognize that developing ICT infrastructure is a major policy goal, focusing as discussed on access. However, the situation varies among the countries on how this is translated into strategic priorities with targeted indicators. The necessity for such a strategic priority also varies depending on each country and on the infrastructure concerned. Most importantly, it is not clear for the countries with medium or low penetration or Digital Access levels (see table 4), if clear targets with timeframes have been fixed in order to close the digital gap, such as:

- Increasing penetration *to a certain level* for fixed, mobile phones and access to the Internet;
- Reducing wait time for calls *to a certain value*;
- Reducing price of local fixed and mobile phone calls *to a certain level*;
- Reducing price of Internet services and penetration of ADSL or other broadband technologies, *to a certain level*.

Table 4 showing a direct correlation between access and income could seem as a fatality, while in its a strategy is a way to break such fatality.

Table 4 : Classification of ESCWA countries by level of income and Digital Access level

Income Level	*Digital Access Level*				
	DAI not available	*High Access*	*Upper Access*	*Medium Access*	*Low Access*
High Income			Bahrain Kuwait Qatar United Arab Emirates		
Upper-Middle Income				Lebanon Oman Saudi Arabia	
Lower-Middle Income	Iraq			Egypt Jordan Palestine	Syrian Arab Republic
Low Income					Yemen

Source: UNICTTF 2005.

As discussed in the methodology, the typical strategic priorities for developing access to ICT infrastructure are based on 3 pillars: increasing private sector led competition, establishing a regulatory regime, and developing universal access mechanisms.

1. *Increasing private sector led competition*

For most ESCWA countries, such strategy has not been set as a priority. Fixed phones continue to be viewed as a monopoly for a unique state-owned service provider. Mobile phones have been opened mostly to duopolies, often created on the basis of political criteria, what does not encourage competition. Only the ISP market has been opened for competition, as well as the VSAT.

Of course, the World Bank orientation towards privatization could be criticized, as being "ideological" than development oriented, or not feasible on the short term, especially for what concerns the privatization of fixed phone services which involves complex issues and mechanisms relative to the liberalization of the infrastructure, in which major long term investments are required. But whatever are such

critics, many ESCWA countries have already committed on liberalizing of base fixed phones and data infrastructures in the next 5 to 10 years, within the framework of their free trade agreements, particularly the Euro-Mediterranean partnership agreements. Also, the spectrum limitation argument is often used by ESCWA countries authorities to justify monopolies or duopolies in mobile phones, while this has been solved in most countries, including developing countries.

Being public or private sector, what is important is the lack of clarity on how the member countries will deal with their strategies regarding the following issues:

- Achieving the targets of the policy goals for the infrastructure, in particular by clarifying the needed costs and how such costs shall be funded from the budget;
- Defining more clearly the strategic priorities in terms of increasing competition: Is it for ISP's only? More competition in mobile phones? When base infrastructure shall be liberalized in accordance with the signed free trade agreements? And justification of this approach and its timeframe through a cost benefit analysis for the country and the population;
- How the licensing environment should be made for the sectors that are open for competition in order to reach full market mechanisms, reducing the prices for the consumer?
- How this sector is economically analyzed in terms of taxation? Is there any particular targets defined for taxation revenues (license fees, operators' taxation) for this sector (especially for the mobile phone activities which can be considered economically as rent seeking)?

It is to be noted that in many countries, and in particular in Europe, the telecommunication sector has been deregulated, what has led to a significant development of competition and the reduction of prices, taking into account the progress of the technology (Voice over IP per example) and the introduction of the market of several different means to transfer efficiently data (especially for broadband). None of the ESCWA countries ICT strategies analyze the European example of deregulation of the infrastructure and derives the possible openings arising when it is applied at the local level.

2. *Establishment of a regulatory authority*

Many ESCWA countries have moved towards establishing a regulatory authority. However, the strategy documents do not show a common understanding on the base nature of such regulatory authority, which is a necessity for creating a clear environment to attract private investments in ICT infrastructure, particularly for:

- The adoption of laws governing private investment in infrastructure;
- The establishment of a non-political and independent regulatory authority to ensure that laws and regulations are enforced, in particular setting tariffs, managing the radio spectrum for mobile technologies, developing deregulation rules, resolving disputes, and ensuring universal service access.

It is, however, important to note that WTO agreements, that all ESCWA countries have applied to join, specify a regulatory framework for the ICT infrastructure sector, to comply with[3]. Here also, ESCWA countries do not explicitly state how they intend to comply with such framework.

The technical competency of the regulator is also an issue, as well as its independence from both operators and the political process. The strategy documents do not clarify how such independence would be achieved through its composition, the clarification of its financing resources and its accountability (transparency of the decision making process).

[3] See http://www.ictregulationtoolkit.org/files/573_file_3663066.pdf.

In most ESCWA countries, the lack of clarity in the strategies on these regulatory issues is an impediment to the development of the infrastructures. Another impediment is caused by mixing between the three sub-sectors[4], which have very different characteristics, namely: fixed phones being high capital-cost long-term low-return investments, mobile phones rent-seeking medium capital-cost short-term return investments, etc. The cost/benefit analysis is then very different for each sub-sector, as well as the schemes for financing and taxation.

3. *Developing Universal access*

All policies should target to service populations with low income, as well as the sparsely populated regions, which offer low volume traffic. Increasing private participation for delivering information services and thus in building infrastructures, offers usually the occasion to formalize this issue more clearly[5]. One can assume that servicing poor populations at low prices (which is rarely done in ESCWA countries) and expanding infrastructure coverage to remote areas are in principle not cost efficient, and not appealing for private investments. The government budget should then finance the incurred losses, which is normally done when it plays the role of the developer of infrastructure with its state-owned telecommunication company which advocates working for social justice.

Then when private entrepreneurship acts for developing infrastructure, financial schemes should be created, from the budget, to finance the incurred losses, to continue providing this social justice. And in fact several such financial schemes have been practiced around the world. They mostly consist of establishing a fund, financed generally from the regular budget or specifically from mandatory contributions of the telecommunications operators. On the other side, disbursement mechanisms are elaborated from the fund to the operators providing such services, such as the output-based aid scheme.

For the sectors open to private competition (i.e. mobile phones and Internet services provision), most ESCWA countries e-strategies do not develop universal access mechanisms, or at least set it as a strategic priority. No case of universal access fund was found, except in Egypt but with still non clarified schemes. Also, no specific indicators are defined for access for unfavored regions or communities: for example a percentage of the population with no fixed phone to reduce, mobile signal reaching remote areas, or Internet access. **Since many ESCWA countries have low ICT infrastructure penetration, this issue constitutes a major shortcoming of the ICT strategies.** The unfavored regions and populations are quite large; and not addressing this issue through a financial scheme, even for the state-owned operator, makes all nice strategies seem as wishful thinking.

When analyzing ESCWA member country ICT strategies, no formalization of the universal acces schemes is made in most cases for sectors not open to private sector intervention (i.e. fixed phones). The cost, budget and time frame for the development of the infrastructures are often not identified as such and not put explicitly as strategic priorities. Many ESCWA countries profit however from donors aids and loans for increasing penetration of fixed phones services, as well as for the creation of Internet low cost access points in rural and poor areas.

Finally, and more globally, the national strategies in the ESCWA region, while all recognizing that developing access to ICT infrastructure is a major policy goal, do not discuss the risks involved. The three strategic priorities, namely, increasing private sector led competition, establishing a regulatory regime, and developing universal access mechanisms, are not discussed in terms of:

- the right timing to attract foreign investors in the ICT infrastructure sector, function of world developments (major world oligopolies, stock markets development, etc.);

[4] If one goes to details, there are much more than 3 sub-sectors to care about.

[5] When a government delivers through a public company such universal services, the formulation and cost of universal services are implicit.

- the implications and consequences of delaying the development of the infrastructures and of the choices made on the country economy and the business environment.;
- also the implications and consequences of not developing broadband on a large scale, enabling new services, are not discussed, while many neighboring countries and regions are moving towards a leapfrog transformation in that respect.

A global overview on the ESCWA countries situation and strategic approaches for infrastructure is shown in table 5 hereafter.

	Table 5. Overview of ESCWA countries ICT infrastructure situation and strategies												
Countries	**Bahrain**	**Egypt**	**Iraq**	**Jordan**	**Kuwait**	**Lebanon**	**Oman**	**Palestine**	**Qatar**	**Saudia**	**Syria**	**UAE**	**Yemen**
Information Infrastructure (1)	**6,73**	**3,35**		**4,49**	**6,6**	**5,46**	**4,06**		**6,89**	**5,66**	**3,22**	**6,79**	**1,68**
Telephones per 1000 people (1)	**113,80%**	**24,40%**		**39,40%**	**96,20%**	**42,80%**	**35,60%**		**110%**	**51,60%**	**27,50%**	**112%**	**9%**
Fixed Phones													
Penetration Fixed Phones ()	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**
Nature of Fixed Market (2)	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**	**Monopoly**
l Private and Foreign Share of Revenues 2003 (2)	**53%**	**0%**		**45%**	**0%**	**0%**	**0%**	**100%**	**35%**	**20%**	**0%**	**40%**	**0%**
Mobile Phones													
Penetration Mobile Phones (2004) (2)	**92%**	**11%**	**5%**	**31%**	**88%**	**24%**	**30%**	**24%**	**65%**	**40%**	**14%**	**85%**	**6%**
Competition in Cellular Phones (2)	**40%**	**50%**	**NA**	**67%**	**44%**	**43%**	**23%**	**85%**	**20%**	**31%**	**42%**	**14%**	**55%**
Nature of Cellular Market (2)	**Duopoly**	**Duopoly**	**Monopolies**	**Competitive**	**Duopoly**	**Duopoly**	**Monopoly**	**Competitive**	**Monopoly**	**Monopoly**	**Duopoly**	**Monopoly**	**Competitive**
l Private and Foreign Share of Revenues 2003 (2)	**53%**	**37%**	**100%**	**68%**	**55%**	**0%**	**0%**	**100%**	**35%**	**20%**	**46%**	**40%**	**53%**
Internet													
Penetration Internet (2005) (3)	**27,70%**	**4,30%**	**0,10%**	**7,90%**	**22,40%**	**11,20%**	**7,50%**	**3,60%**	**18,30%**	**6,90%**	**3,30%**	**30%**	**0,50%**
Nature of ISP's Market													
Regulatory Framework													
Regulatory Authority	**YES**	**YES**	**YES**	**YES**	**NO**	**NO**	**Yes**	**Yes/No**	**NO**	**Yes**	**NO**	**NO**	**NO**
Regulatory Depth	**xxx**	**x**	**x**	**xx**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**xx**	**x**
Date	**2002**	**2005?**	**2004**	**1995**			**2002**	**1996**		**?**			
Regulatory Quality (1)	**0,71**	**-0,58**		**0,13**	**0,10**	**-0,49**	**0,43**		**-0,16**	**-0,34**	**-1,21**	**0,95**	**-1,04**
Universal Access Schemes													
Universal Access Obligations	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**
Universal Access Funding	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**	**?**

(1) WBI data

Sources (2) Arab Advisors Group Strategic Research Service, 2005, http://www.arabadvisors.com/

(3) Internet Usage Statistics for Africa and in the Middle East, July 2005, http://www.internetworldstats.com/stats1.htm, http://www.internetworldstats.com/stats5.htm

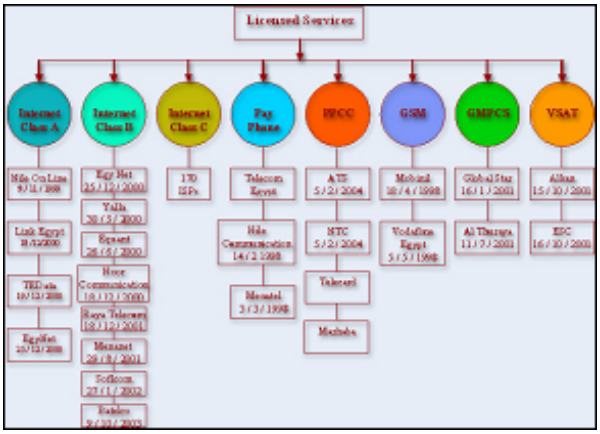
Box 2. Egypt initiatives for developing Internet usage

Egypt has made the ISP market since the beginning very competitive, regulated by a national authority. Three classes of ISP's licenses were provided (AFRISPA 2005):

- Class A: These are the largest and most established ISPs. They include LinkdotNet, Internet Egypt, GegaNet and Nileonline. These ISPs are allowed to deploy networks country wide and provide Internet access either directly to users or by re-selling or leasing bandwidth to smaller ISPs;
- Class B: These ISPs are also known as data-network providers. They are licensed to deploy networks but can only provide Internet access directly to the end user, and cannot sell services to other ISPs. Noor and MenaNet fall into this category; and
- Class C: This class of ISP is required to buy or lease bandwidth from a Class A in order to provide Internet services to customers.

This has led to an ICT sector organized as in figure 8. More than 200 ISP companies operate in the market. The market also shows an increasing degree of consolidation. Orascom, one of the shareholders in the leading cellular operator MobiNil, is also the biggest player in the Internet service provision market and also owns 75 per cent of Egypt's largest ISP, LINKdotNET (AFRISPA 2005).

Figure 8. ICT sector organization in Egypt



Egypt launched several initiatives to develop Internet usage. They include (Hashem 2005):

- Subscription-free Internet services: Launched in 2002 in collaboration between the Ministry of Communication & Information technologies, the regulatory authority and the (around) 200 ISP's operating in the country. The cost of access to the Internet was reduced to that of local phone calls (US$ 0.2 per hour), the billing being made on regular phone bills. The initiative has permitted to reach 1 million new households in 3 years, with an estimated 4 million users.
- PC for every home: Launched in December 2002, between the Ministry, Telecom Egypt, two major state-owned banks, and 17 local companies. Every phone owner is eligible, and payments financed by the banks were collected with the phone bills. Around 100,000 new computers were sold up to 2005.
- Broadband initiative: Launched in May 2004, as a three year joint public-private initiative. The cost of an ADSL link starts at about US$ 25/month for 256 kbps. Around 50,000 new subscribers were reached in one year.

VIII. ICT SECTOR

All ESCWA member countries recognize that developing the ICT sector is a major policy goal, and clarifies that this concern mostly IT as the telecommunications are dealt with in the infrastructure issue. This

should mainly consist of fostering the development of private enterprises, especially SME's, in providing opportunities for outsourcing and exports, and to meet domestic demand. This includes providing goods, softwares, consulting services and ICT-enabled services. However, rarely ESCWA countries formalize targets or indicators for specific strategic priorities for the sector, such as:

- specific total sector revenues;
- significant contribution of the sector share of the GDP;
- number of patents files;
- total number of people employed by the sector.

Moreover, few ESCWA countries (e.g. Jordan, Oman and Syria) recognize explicitly that the development of the sector is mainly an SME issue, and not that of major companies in mobile phones or other services. The absence of such a specific focus on SME's in the ICT sector leads, in most cases, ICT SME's to become part of the informal sector, which is usually large in the ESCWA region. Consequently, ICT SME's cannot develop to become serious actors in economic development.

More importantly, ESCWA countries grounds strategies for the IT sector on an economic analysis of demand and supply, differentiating institutional (companies and government) demand from individual (consumer) demand. Thus the strategies do not address how to develop local companies which can act on the supply side.

The elements of the declared policies of ESCWA countries vary greatly on how they cope with the issues necessary for achieving ICT sector goals, as indicated in table 6.

Table 6: Elements of declared ICT policies in ESCWA countries

Countries	Incubation	Financial Support	Business Regulation	Infrastructure	Human Capital	Networks	Stimulating demand
Bahrain			xx	xx			
Egypt	xxx	x	xx	xx			
Iraq							
Jordan	xxx	xx	xxx	xxxx	xx	xx	xx
Kuwait	x		xx	xx	xx	x	x
Lebanon	x			x	x		
Oman	xx			xx	x		
Palestine	x			xx	x		
Qatar	x			xx	x		
Saudia				xx	x		
Syria	x			xx	x		
UAE	x			xx	x		
Yemen	x			xx	x		

Source: Compiled by author from ESCWA regional and national profiles

Typically, a policy goal of growing the domestic ICT sector is based on three3 strategic priorities/pillars: improving SME's regulatory environment, improving SME's access to capital, and creating business incubation services.

1. *Improving SME's regulatory environment*

The little recognition of the key role of SME's in developing the sector, makes that the way the regulatory environment is addressed does not focus on the typical nature of SME's activities and risks, particularly in:

- Streamlining business creation and registration procedures, in order to encourage entrepreneurs to create start-ups, testing and hopefully profiting from their ideas. SME's need much easier and flexible procedures than what large companies or offices of multinationals can afford;
- Recognizing and protecting local intellectual property rights (IPR), in order to enable the SME's to profit from the time and money spent in their developments. For this, SME's, with little resources, need government support to identify recognizable IPR's and assistance for filing these copyrights locally and internationally. On the contrary, most ESCWA countries are either timid on IPR's or only enforcing IPR's of multinationals under international pressures and WTO rules;
- Recognizing the risk inherent on SME's in ICT, and establishing specific employment regulation, access to credit support and appropriate easy procedures to close businesses.

For what concerns the business procedures, rarely ESCWA countries address the issue in term of creating a one-stop shop for all regulations, which could be preferentially online with low cost. One could expect in the case where this constitutes a strategic priority that it would be accompanied with appropriate factual indicators to be measured, such as: number of hi-tech SME's to be launched per year, total start-up costs, ongoing regulation compliance costs, number of IPR's developed by local companies filed, as well as perception indicators on the laws regulating ICT's and the overall administrative burden.

It is worth noting that the UAE, which is the most active ESCWA country in developing the ICT sector, has fostered this development by encouraging the implementation of subsidiaries of foreign companies to service the region and not really by addressing the issue of creation and development of local SME's for the sector. The Jordanian initiative (REACH), led by the private sector (mostly SME's) has been more successful in this respect, recognizing at stage 4 of revisions that local demand is a key driver (see box. 3).

2. *Access to Capital*

Venture Capital (VC) has been a major success factor behind the growth of the ICT sector in many countries, in particular in the United States. ESCWA member country strategies have avoided dealing with this issue, like most international e-strategies.

Generally, Governments lack the experience and expertise in assessing business proposals, and the disbursement and management of VC funds are usually made by private agents, in dynamic stock market environment. Typically, the shares in the ventures are to be sold in the market after the company products and services have been successful in the market.

However, the stock markets in the ESCWA countries are weak except recently in the Gulf countries; and these stock markets are less keen on investing in high technology risky assets. One could have expected that the governments or the regional development funds, such as AFESD, could have worked, in collaboration with other international development organization, such as the joint World Bank/International Finance Corporation ICT initiative, on creating VC funds addressing SME's. The experience of the last years (see GICT 2005) has shown that most of the focus of such initiatives has been on large private ventures in mobile phones and media. The Egyptian initiative for a Regional Information Technology and Software Engineering Center (RITSEC)[6] produced extremely limited results in view of the funds involved and the publicity made.

The ESCWA region is still in urgent need for such VC funds, which can foster the development of ICT SME's. And the impact of such VC funds can typically be measured by assessing:

- the fund value evolution from its creation;

[6] See the web site http://www.ritsec.org.eg/.

- the number of hi-tech companies supported;
- the share of these companies which has been successful and operational after some years of operation;
- and the return on investment of the fund.

3. *Establishing business incubators*

In national ICT strategies, the creation of incubators is often taken as a means to address all business issues concerning SME's, providing a friendly business environment and indirect funding in the form of services provided to new ventures. In ESCWA countries, only Egypt and Jordan, and somewhat Oman, have taken significant steps in developing such incubators as part of their ICT strategy.

However, in assessing the value proposition of incubators, are of importance: the physical infrastructure provided, the business and management expertise and the access to networks of other start-ups, research, established businesses, investors and development institutions. The latter item is recognized to be the most valuable. And for such networks, the access should be thought of an international level, or at least at a regional Arab level for what concerns Arabic content.

It is worth noting that ESCWA has launched an initiative to network incubators and technology parks[7] in the concerned countries. However, the synergy created is still weak, as most incubators contain few companies (20 in Bahrain, around a 100 in Egypt, etc.).

4. *Assumptions and risks*

Access to reliable high bandwidth infrastructure and the availability of skilled workers are key ingredients of the development of a domestic ICT sector. The ICT strategies of ESCWA member countries acknowledge the importance of human resources, but rarely stress the importance of the availability of broadband infrastructure. Also, rarely the strategies assess whether or not infrastructure and human resources (for example the number of students graduating with state-of-the-art technical qualifications) are sufficient to meet the demand of the ICT sector growth.

Otherwise, the ICT sector is mostly presented as a key sector for developing exports. Rarely, initiatives to boost sustainable domestic demand are explicitly analyzed and fostered. It is true, that the ICT sector addresses by definition a world size market, or at least an Arab market for Arabic content. However, only a sustainable and dynamic local market can create the basis for a healthy ICT sector development (see per example for the Arabic content market estimated at US$ 9 billions in 2004, E/ESCWA/ICTD/2005/4).

Box 3. Jordan REACH Initiative

In 1999, the Jordan Computer Society (INT@J) introduced to the King the REACH IT strategy framework, with the support of the Access to Microfinance and Improved Implementation of Policy reform (AMIR) project of the US Agency for International Development (USAID). The report was intended as "a national strategy to develop a vibrant, export oriented Information Technology Services Sector" in Jordan. The projected economic impacts were used as specific targets to be achieved in 2004:

- 30,000 IT-related jobs (20,000 direct);
- US$ 550 millions in annual exports;
- US$ 150 millions in Foreign Direct Investment.

For this, six strategic thrusts were defined, with detailed actions, and clear identification of the role of the government, of the industry and other stakeholders:

- IT industry development;
- Policy and regulatory strengthening;
- Human resources development;

[7] See http://www.escwa.org.lb/ntpi/.

- Capital and financing;
- Infrastructure development.

The framework included direct monitoring of its implementation. Each year, a report is published on the achievements and on the challenges to meat (see http://www.reach.jo) . The latest revision (REACH 4 in early 2004) reviewed the results and the actions still needing to be performed. New targets have been defined for 2006:

- 30,000 IT-related jobs (20,000 direct);
- US$ 100 millions in annual exports;
- US$ 550 millions in annual domestic revenues;
- US$ 170 millions in foreign direct investment.

The domestic market has been the fastest market to develop (22% in e-government alone, and 20% in e-education for 2002). UAE and Saudi Arabia have been the major export outlets (US$ 40 millions in 2002), with e-education applications as a major component (28%), followed by hotels and restaurants and health care. The IT sector employed 8,000 professionals in 2002, and 12,000 in 2004.

IX. E-GOVERNMENT

As Strategies are developed by governments, e-government is a natural point of entry and a core element of e-strategies. It has several major benefits:

- improving the proper operation of government administrations, as the implementation of e-government lead to the reengineering of such operations;
- improving the services delivered by the government to businesses and citizens, leading to visibility of e-strategies implementation, as well as more efficiency and transparency;
- creating a rather large initial local market for ICT applications and services in the country, which shall help the development of the ICT sector.

And as described in the methodology, the e-government implementation towards citizens and companies consists of 3 successive stages: publish, interact and contract.

Most world e-strategies contain a large e-government share (see Conradie 2002), deeply integrated in the functions of governments, administration and public services. Its purpose is viewed in terms of efficiency, provision of new services, responsiveness, accountability and participation. However, the failure to meet deadlines in e-government implementation is estimated to be more damaging than in most other areas. This is because it is one of the areas which are the most subject to direct measurement of progress and to direct visibility. It is also a measure of the political will of the authorities to implement the declared ICT strategies.

The implementation of e-government requires, as prerequisites, that the country ICT development attain a certain level in accessibility, affordability and e-literacy. It also requires strong political will to improve government processes and engagement with the society. The World Bank summarizes these prerequisites by the e-government "ABCDE": Access, Basic Skills, Content, Desire and Engagement (see Figure 7 above).

All e-strategies ESCWA countries declare putting e-government as a major policy goal. And in fact, this is where they have focused their efforts (see table 3 above for the good indicators for government usage). However, typically e-government applications implemented are mostly turned inward, i.e. for internal efficiency (per example for ID cards and security issues) and not as services to businesses and citizens. The ABCDE's for a service oriented e-government in ESCWA countries still contain major obstacles. And the declared strategies often do not specify how such obstacles will be efficiently removed.

In defining targets and implementation for servicing citizens and companies, most ESCWA countries have focused on the publishing component of e-government (one way communication G2B or G2C),

creating Web sites for most of the government institutions and public organizations. However, fewer efforts have been dedicated to interaction (two ways communication) or to contracting on-line. For example, it was not possible to assess how the e-government strategies in ESCWA countries address the major services listed as targets for e-Europe Plan 2005, as indicated in Table 7. Most of these services go beyond publishing to contracting.

It is worth noting that e-government is by nature a drive for the development of Arabic content on the Internet and other ICT communication tools, since the language used by the population in the region is Arabic. Also, e-government applications have to inform, interact and contract with citizens and businesses in Arabic. Today Arabic content in ESCWA countries is mostly made of news and entertainment, as well as by religious and cultural information. E-strategies in ESCWA countries do not address e-government as a way to develop Arabic content and companies of the ICT sector which deal specifically with the Arabic language.

Table 7: Interactive public services for citizens and Businesses included in the e-Europe Plan

Public services for Citizens	Public services for Businesses
Income taxes	Social contribution for employees
Job search	Corporation tax
Social security benefits	Value Added Tax
Personal documents	Registration of a new company
Car registration	Submission of data to statistical offices
Application for building permission	Customs declarations
Declaration to the police	Environment-related permits
Public libraries	Public procurement
Certificates (birth, marriage)	
Enrollment in higher education	
Announcement of moving	
Health-related services	

Box 4. UAE e-government portal

The UAE federal government has formulated a specific e-government strategy[8]. It provides for 7 strategic objectives:

- Facilitate collaboration between federal government entities;
- Establish focus on policy formulation;
- Create, share and distribute data between federal entities;
- Assist factual based federal decisions support;
- Share and allow external access to federal government information;
- Focus on appropriate and relevant best practice examples worldwide;
- Reduce cost, maximize internal operational efficiency and effectiveness.

An e-government portal has been launched as a unique "point of access" to all government information and services (http://www.government.ae/gov/en/index.jsp). The information provided covers for residents (citizens and non-citizens): employment, education, cars and transport, healthcare, housing, family affairs, women and gender. Also, a larger share of information is delivered for businesses: environment, statistics, laws and regulations, license forms, government tenders, etc.

The portal has started also to provide interactive services, such as car fine payment for individuals or the inquiry and follow up of governmental procedures for businesses online.

Source: World Bank 2005.

[8] See http://www.government.ae/gov/en/gov/projects/strategy.jsp.

It is worth recalling that the countries that have experienced significant ICT growth has made investments at levels much higher than the local consumption of ICT. Most of these investments resulted from voluntary government investments in e-government applications.

X. E-EDUCATION

An e-strategy in education for ESCWA countries is another drive for the development of Arabic content. It can involve two major aspects:

- the development of knowledge and skills required for the a knowledge based economy;
- the application of ICT in education administration, delivery and teacher training.

For the first aspect, international organizations, including ESCWA, have put a lot of efforts to help ICT capacity building in the ESCWA countries. These efforts have been integrated into national e-strategies. However, in most countries:

- the dissemination of ICT in primary schools is still limited to few cases, and no systematic strategic priorities have been set to extend this dissemination to all schools in the foreseen horizon;
- the focus was on developing ICT curricula in universities. But in most cases, these efforts have lead to the establishment of theoretical curricula in a rapidly changing sector. Only in few cases this type of education has been implemented in campuses grouping universities, research centers, incubators and development centers of large ICT operating companies.

In that respect, the establishment of an e-education strategy is one of the most difficult tasks in any country. It requires in fact a comprehensive view on the sector in all its dimensions.

For the second aspect concerning the use of ICT for the administration and management of educational institutions, as well as the delivery and teacher training, there have been few examples of good practices in ESCWA countries. And there is no known example of a systematic effort to rationalize the administration of education ministries in ESCWA countries for better rationality and efficiency, noting that, like in other countries, education has a sizable share of the budget.

In many cases, the slow development of ICT in ESCWA countries is justified by the lack of ICT illiteracy. It is worth noting that most of the ESCWA countries population is young, and which is eager to use information technology. An investment in ICT education could lead to more rapid results than in countries suffering from the aging of their population.

XI. E-HEALTH

E-health is another important application driver for Arabic content in the region, and in a sector having typically a sizable share of national budgets.

ICT applications entered the health sector in the ESCWA countries, especially in private hospitals, for management of healthcare and more efficient diagnosis and treatment, at an early stage. These applications are spreading to public hospitals and remote areas clinics at different paces.

However, no ESCWA country has considered strategically ICT as a mean to establish a comprehensive healthcare system for its population. While the social security number constitutes the citizen reference in modern countries, the ESCWA countries are still all lacking comprehensive healthcare strategies

for all, where public and private healthcare providers, public social security and insurance companies are integrated in an overall system.

XII. CONCLUDING REMARKS

This above review of ESCWA countries e-strategies shows, despite the involvement of these countries in the Millennium goals and the international commitment to build information societies, that:

- Most ESCWA countries have still not build comprehensive e-strategies based on a sound logical framework with clear policy objectives and strategic priorities, with monitoring and evaluation for the achievement of targets;
- Most declared e-strategies in ESCWA countries are seen in terms of access and not of usage, with no clear strategic drives for accelerating ICT usage for the large population and businesses;
- The core aspect of developing infrastructures is still lacking a comprehensive approach allowing the identification of sources for financing of such development, including how to provide universal access schemes. Except for ISP's, the infrastructure sector is still led by public and private oligopolies, with unclear regulatory frameworks to foster private sector investments and the necessary accompanying public investments.
- The ICT sector has rarely been addressed in ESCWA countries as one built on developing local demand, as well as export. No major research center or production premise of large ICT multinational has been implemented in an ESCWA country. The efforts have been so far devoted only to foster the implementation of commercial units of such multinationals. Also, the e-strategies has not sufficiently addressed the ICT sector as essentially based on SME's development, creating the necessary friendly regulatory, financing and incubating environment.
- While most ESCWA countries have focused on e-government in their strategies, this focus is still made on publishing information and one way communication. The e-strategies still lack the necessary drive for pushing e-government applications towards interaction and contracting with citizens and businesses, for better delivering services, which necessitates addressing all other aspects from access to engagement.
- ESCWA countries e-strategies are still timid, even in oil rich countries, with respect to e-education and e-health. These two sub-sectors offer tremendous opportunities for fostering local demand and for indicating clear commitment of country strategies towards the knowledge society and servicing the population.

The ESCWA countries, in their efforts to reassess and improve their ICT strategies, should in priority tackle with 3 major issues:

- **The institutional issue**: As in fact the process of decision making in the strategies need to be clarified and set on workable procedures. The financial and human resources for implementation should be defined as the ways to disburse them. And the agencies responsible of implementation and of monitoring should be clearly discussed in the strategies; and their processes and authority clearly set. Also, the strong link between the ICT strategies and administrative reforms should be clearly set.
- **The economic issue**: To be credible, the ICT strategies should be supported by a realistic demand/supply economic analysis of the ICT sector in the country, fostering mainly on the local demand and supply. This must lead to clarify the resources needed for the implementation of the strategy and the share of each of government, institutional private sector and consumers spending in the demand side. In particular, the return on investment for government spending merits to be clearly identified, in particular comparing on the

medium run spending with taxation revenues from the sector, and assessing the effects of ICT investments on productivity and growth in the country.

- **The technico-economic issue**: Also, in a rapidly changing international environment, the strategies should tackle with the issue of how to position on new emerging technologies (example voice over IP) and with the international large companies acting in the sector. The strategies should specifically discuss how a country could build a national competitive advantage and positive position in the globalization process operating in the ICT sector.

The discussion of this report during an ESCWA seminar held on May 2-4, 2006 grouping responsibles of ICT strategies has lead to the following 8 recommendations for cooperation and priority orientations for next activities:

1. **Foster on policy making of ICT**: assessing the institutional issue in each country, the processes and the stakeholders;
2. **Foster on deregulation/deglobalization as major driving mechanisms**.
3. **Foster on broadband for all initiatives**: as it can, by the issues that it poses, lead to leapfrog changes if implemented.
4. **Foster on IT business cases**: clarifying in particular incubation methodologies and identifying funds for promoting incubation with regional cooperation.
5. **Fostering on economic ICT demand**/supply analysis: sharing between ESCWA countries the experience of building ICT strategies on clear economic grounds.
6. **Fostering on consumers advocacy:** in particular on ways to develop coverage and affordability, increase competition to reduce prices, and establish universal access schemes.
7. **Fostering on monitoring of strategies with specific indicators:** sharing experience on the development of institutional arrangements for monitoring, and on the indicators developed for such, in particular perception indicators and those made through polls and investigations.
8. **Fostering on developing models for regional cooperation in the ICT sector:** which may lead if developed towards a more integrated Arab ICT strategy.

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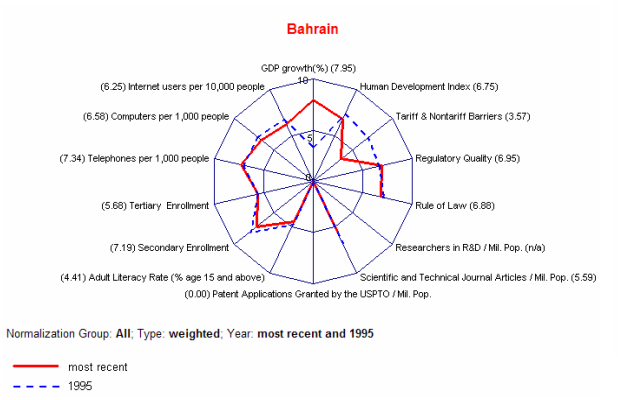
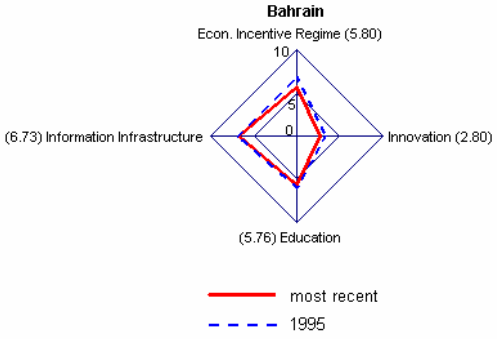
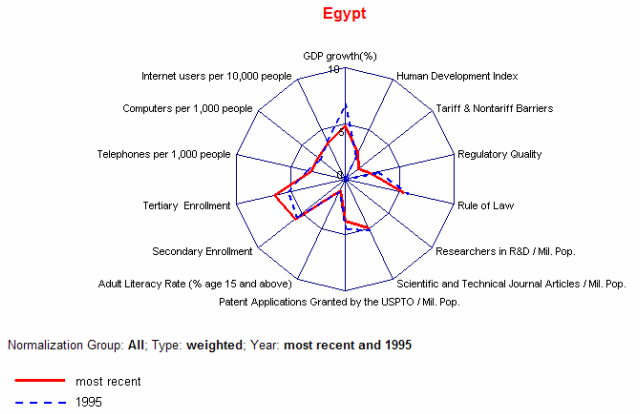
Annex 1

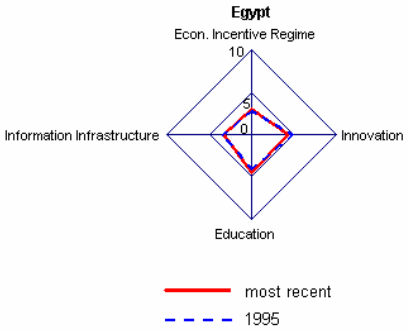
WBI INDICATORS FOR 11 ESCWA COUNTRIES

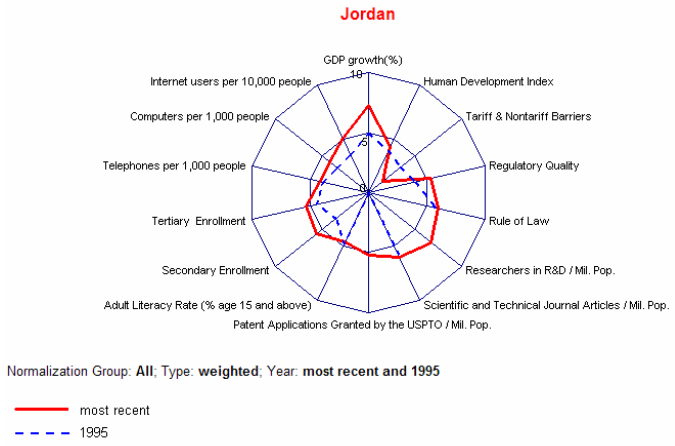
(Data for Iraq and Palestine not available)

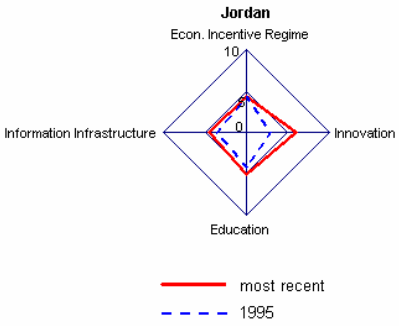












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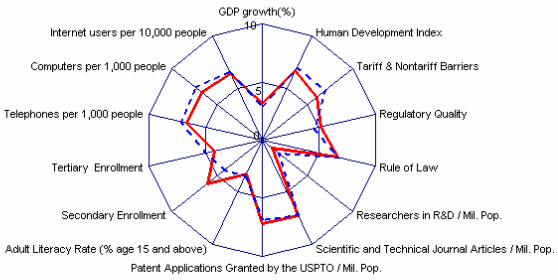

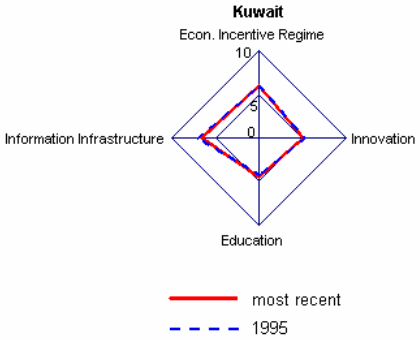

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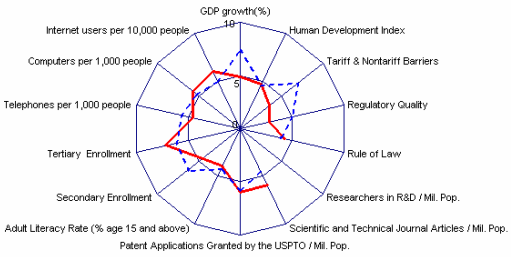

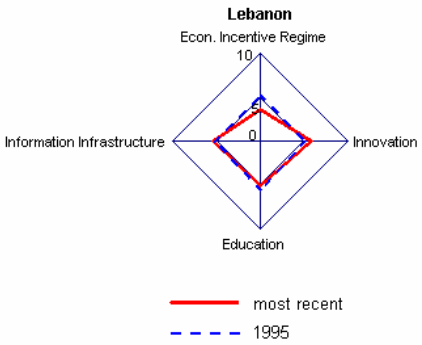

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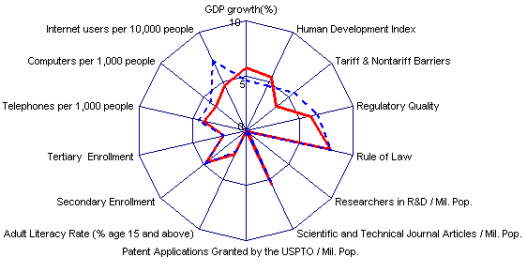

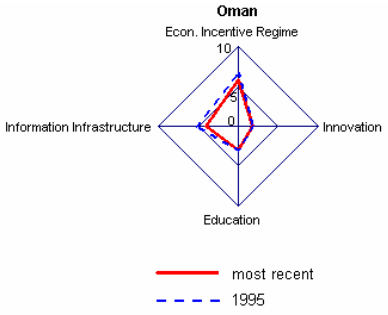

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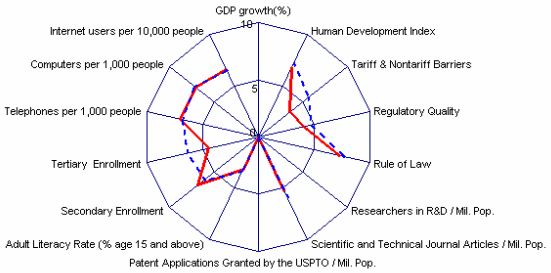

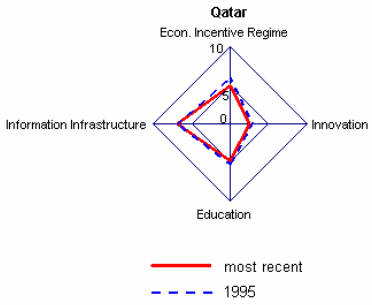

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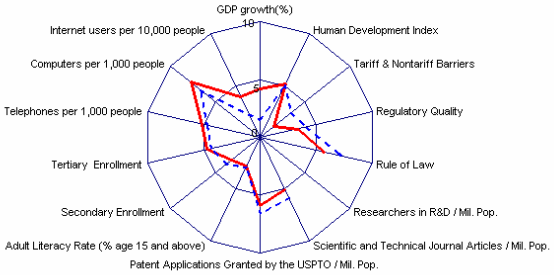

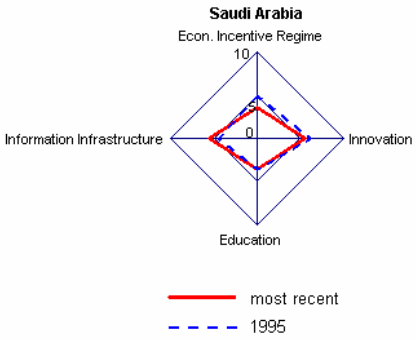

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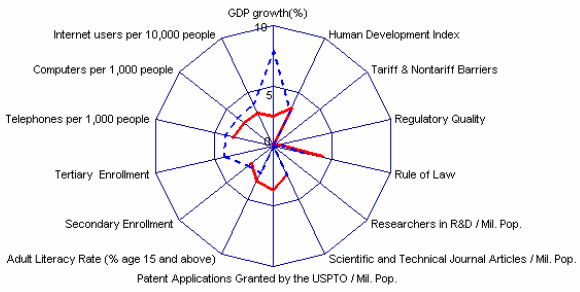

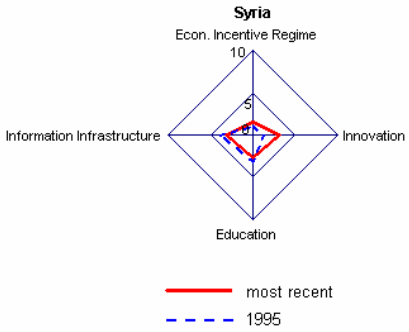

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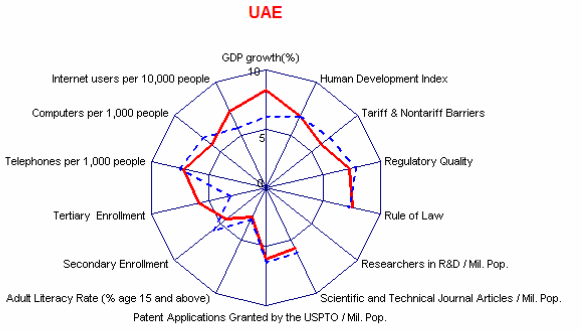

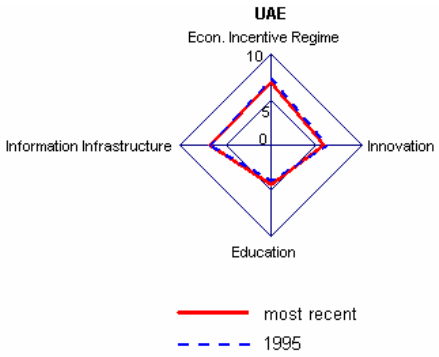

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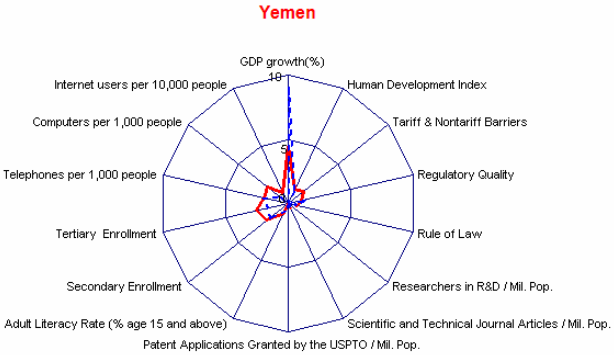

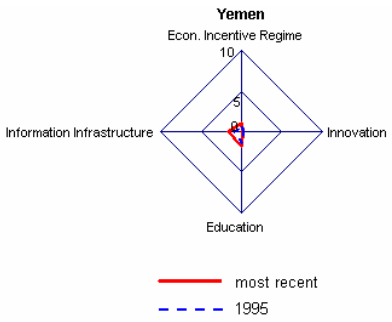

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