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E-GOVERNMENT: TECHNOLOGY FOR GOOD GOVERNANCE, DEVELOPMENT AND DEMOCRACY IN THE MENA COUNTRIES

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Abstract

The MENA countries face a multitude of challenges, in particular relating to the efficiency, size and reform of the public sector. Large public sectors, highly centralised government administrations, complex regulatory structures, limited development of institutions and limited attention to promoting voice, transparency and accountability in government are characteristic of the situation in many MENA countries. The application of modern technologies and ICT in the form of e-Government could yield great benefits in the reform and modernization of the public sector. The experience of eGovernment in a number of developed as well as in developing countries has proven to be a tool for economic development, institutional and civil service reform, for greater efficiency and transparency and has led to higher productivity growth in government provided goods and services. The institution of e-Government can also be instrumental in achieving 'good governance', direct representation and voice, providing support for increased democracy. The paper discusses and assesses the extent of e-readiness of the MENA countries documenting the limited network readiness of countries and governments. We present a number of policy recommendations, outlining the components for a national and regional strategy to achieve the benefits of e-Government in the MENA region. Strong leadership is required to implement institutional reform both within government and at the national level to capture and internalise the benefits of e-Government. The paper reviews and provides references to some on-going projects and highlights new applications with high potential returns for the MENA countries. We call for increased investment in broadband technology, the institution of a General Digital Certificate to build e-Human Capital and the incorporation and imbedding of eGovernment within national e-Strategies. Countries in the MENA region need to act quickly to reduce the digital divide and use e-Government as a tool for good governance, economic development and democracy.

1. Challenges Facing MENA Countries

1.1 Introduction

The MENA and Mediterranean countries face a multitude of challenges. (a) Over the past decade, growth and development have been comparatively slow with per capita incomes stagnating or barely keeping up with high population growth rates. (b) Growth has resulted from factor accumulation rather than growth in factor productivity, reflecting low rates of technological progress and innovation and (c) a large 'digital divide' in media, information and communication technologies has emerged and is growing. (d) Water and environmental concerns are growing, with the region facing the prospect of increasing water shortages and potential water-rights related conflicts. (e) The region remains dependent on natural resource exports and is vulnerable to energy price shocks: both production and export diversification are limited. (f) The region displays a low level of international economic integration, in an era when technology is imposing extensive economic and financial linkages, increased globalization. The region has not been able to respond to these challenges and, in turn, the challenges have become more threatening as a result of: (g) a weakness of governance and a dominant role of the public sector in economic activity, despite the beginning of reform and privatization; (h) a series of debilitating and bloody conflicts and associated large military expenditures, as a result, mainly, of the absence of a settlement of the Arab-Israeli conflicts, and resulting in (i) high political and security risks, leading to high perceived investment risk and a brain-drain along with outward capital movements, capital flight.

Given these challenges and the preponderant role of the State in economic activity, this paper asks whether the advent and diffusion of new media, information and communication technologies (MICT) and their embodiment into e-Government could be an important factor in reforming the State and effecting an awakening, a renaissance in the region? Could e-Government as the title suggests, be a tool, become the embodiment of technology for "good governance", development and democracy in the MENA countries? Our answer is a cautious, qualified, yes.

1.2 An e-Government Promise?

The main theme of this paper is that e-Government, efficiently and purposefully implemented, can be an important tool for deep institutional reform in the public and private sectors, for civil service reform, for greater efficiency in the provision of public sector goods and services and in government procurement. eGovernment – as a major instrument for achieving "good governance" – accompanied by important investments in MICT *can* be an important source of productivity growth and economic growth along with economic development and democracy in the region. The emphasis in the previous sentence is on *can:* e-Government is not a panacea. It *can* provide a framework for organizing comprehensive e-reform, starting with government and the public sector. eGovernment and investment in MICT are enabling factors and tools that can, and should be, used to effect, implement wide-ranging policy reforms.

1.3 The Challenges of Globalization

The recent acceleration of globalization during the decade of the 1990s, with increased economic and financial interdependence, had a strong impact on policy-makers and on the conduct of policymaking, restricting the scope for sovereign independent policy action[1]. Increased globalization has raised a series of new challenges. Competition among economies has been heightened on both a macro and micro level. With increased openness of goods markets and unobstructed capital flows, countries are in competition in the global marketplace for investments, human skills, and the latest technological innovations. Where do the MDF countries, the MENA region stand on the globalization scale? How are countries responding to the pressures?

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[1] Obstfeld Maurice and Taylor Alan, "Globalization and Capital Markets", NBER, 2001.

Integration with the global economy, as measured by the extent of international trade, is relatively high for the MENA region, with the ratio of total trade to GDP running at 44.1 percent and 51.6 percent for 1999 and 2000 respectively, but mainly as a result of high oil prices. However, there is a failure in attracting foreign financial resources, foreign direct investment and capital flows: the region has only attracted some 3.1 percent of aggregate net resource flows in 2001.

The MENA region has suffered over several decades from political instability accompanied by a lack of security, which has increased perceived investment risk, reduced business confidence and resulted in a low level of FDI. Indeed the region is a net exporter of capital.

The MENA region only attracted $2,645 million in foreign direct investment in 2001 (some 1.6 percent of total FDI), compared to the Southern Asia region with $4,196 million (2.5 percent of total) and Sub-Saharan Africa region with $13,602 million (8.1 percent).

In this context, the events of September 11, 2001 and their aftermath – including in particular, perceived insecurity, increased barriers and higher transactions costs resulting from controls, regulations and legislation intended to combat money laundering and the financing of terrorism - have led to a sharp decline in external flows to the region and limited return capital flow. However, political risks and volatile security are not the sole factors affecting capital flows and investment. The MENA countries are also facing regulatory regime competition, and are expected to adopt more liberal and harmonized regimes for foreign trade and investment and meet international benchmarks of efficiency and "good governance". For many of the MENA countries, the economic, political and social consequences of adhering and complying with international codes, norms and standards in areas such as property rights, technical norms and safety standards, require policy reform and transition policies to be put in place, in order to minimize adjustment costs and encourage foreign direct investment.

1.4 The Role of the Public Sector and Public Governance

The MENA region is characterized by large public sectors, centralized governments, and a complex regulatory structure and regulations. The development and modernization of public institutions has not been a priority, and limited attention has been given to promote participation, voice and competition. Indeed, the evidence highlights the importance of administrative reform and the substantial potential benefits from e-Government throughout the MENA countries.

Central government expenditures on goods and services in the MENA countries represent some 50 percent of total expenditures, substantially higher than for middle-income and high-income group countries with a share of 37 percent and 29 percent respectively in 1999. This evidence on the effectiveness of MENA governments suggests that substantial benefits could be derived from greater efficiency and transparency in government procurement.

Similarly, the MENA public sector employs some 6 percent of the total population or 18 percent of the total labor force. While those ratios are within the range for middle-income countries, the evidence shows that the public sector wage bill in the MENA countries represents some 11.1 percent of GDP compared to 8.5 percent for Middle-income countries, while government and total public employment are the same. In addition, it consumes, on average, some 34 percent of central government expenditures compared with 23 percent for middle-income countries. The MENA country public employee wage bill is, comparatively, one of the highest in the world! The implication is that administrative and civil service reforms, with increased productivity growth in government provided goods and services could lead to significant reduction in the cost of government and an overall saving in resources.

1.5 Good Governance

While efficiency and effectiveness are the quantitative aspects of good governance, there also are qualitative ones. The adoption of good governance, defined as the traditions and institutions by which authority is exercised, policy conducted, and government managed, is

crucial, especially for the MENA region. A recent study by D. Kaufman, et. al[2], has constructed six indicators of "Good Governance". From their database for 175 countries, the authors construct quantitative measures for six dimensions of governance in 1998 and 2001: (i) Voice and Accountability;(ii) Political Stability; (iii) Government Effectiveness; (iv) Regulatory Quality; (v) Rule of Law; and (vi) Control of Corruption.

The indicators and estimates for the MENA region are presented in comparison to other income groupings in Annex Chart 1 and summarized in Table 1. There is, of course, substantial cross-country, variance in the indicators, as well as variance in the responses to each of the indicators for individual countries. The range, as indicated by the maximum and minimum for each indicator is particularly large for the MENA countries confirming and reflecting the large cross-country variance. Nevertheless, the indicators represent summary measures of the dimensions of governance. Voice and accountability being the process by which governments are selected, monitored and replaced clearly is the weakest point in good governance for the region. Political participation is limited and citizens' ability to participate in the selection of government is restricted. Regulatory quality and the control of corruption are also areas of weakness for the MENA countries.

The 'good governance' indicators and other empirical evidence[3], suggest that the establishment of a democratic culture and, in parallel, the institutional framework required to live democracy on a day-to-day basis, should be high on MENA governments' policy reform agendas. In this context, the concept of "good governance" plays an increasingly prominent role. The best possible management and orchestration of the interaction of institutions – both public and private – is a policy goal in its own right. Good governance can be seen as the exercise of economic, political and administrative authority to better manage affairs of a country at all levels, national and local. The objective is to make collective decision-making efficient, democratic and transparent, to achieve – among other things – better socio-economic outcomes and economic development and growth prospects.

2. Salvation through e-Government?

The section above illustrates the complexity of the challenges facing the MENA countries, their governments and policy-makers and the background underlying the adoption of e-Government. The issue is how and whether e-Government initiatives can help governments achieve better results in realizing their policy goals. Countries around the world –from low income to the highly industrialized– are adopting the network revolution and MICT and have introduced e-Government initiatives. The potential benefits of the network readiness of government are as substantial and varied as the importance of government in the lives of individuals, citizens and businesses. A network ready, on-line e-Government allows the:

- Elimination of barriers: to overcome the physical and virtual isolation of individuals and communities, allowing better information about the policies and processes of both central and local government.
- Promotion of efficiency: through reduced transactions costs and time allocated, and the streamlining of services and processes.
- Creation of opportunities: citizens, individuals and business have a wider choice set, more convenience and freedom to choose with government processes and services available 24 hours: "you can go on-line, instead of in-line!"
- Minimization of waste, elimination of graft, bribery and corruption, and to increase the transparency of government.
- Promote and enhance democracy through increased and improved information, and direct participation.

[2] Kaufman, D., Kraay, Aart and Zoi do- Lobaton, Pablo "Governance Matters II: Updated Indicators for 2000/1", The World Bank, 2001, Governance and Anti-Corruption | Publications | Governance Matters II.

[3] Arab Human Development Report, 2002.

A number of Arab countries have acknowledged the benefits of e-Government, even if they are only at the first stage, where governments provide information through websites. In half of these countries, more than 50 percent of ministries have web presence. Countries such as Jordan, Tunisia, Morocco and the GCC had 100 percent of their national ministries online at the beginning of 2001, whereas others such as Egypt (38 percent) and Syria (35 percent)[4] are gradually increasing the number of "e-aware" ministries. However, unlike national ministries, regional and local authorities are almost never present on the web. They are systematically under-equipped and under-represented with participation rates ranging around 18 percent, indicative of the under-development of local government representation and services in the centralized, hierarchical government organizational structures in many of the MENA countries.

2.1 ICT in Government

The "old" model of ICT in government consisted of automating the internal, back-office, and the workings of government by processing data, similarly to private sector enterprises. The "new model" is one of ICT supporting and transforming the *external* working of governance by processing and communicating information and data and providing interactive services through multiple channels. Chart 4 illustrates the dynamic, interactive links that can be created by network ready governments, including G2G. Network communication technology has revolutionized how agents in the economy interact, transact, and share information with each other – namely government, businesses, and households/citizens. Network technology now allows governments to offer multi-channel and multi-media access, communication and interaction, including, among others, the usage of Wide Area Networks (WANs), the Internet, as well as wireless and mobile computing networks.

2.2 Definition of e-Government

There is no unique, agreed definition of e-Government. Indeed, that would be surprising given the state of flux and dynamic change in technology. e-Government is being used extensively nowadays and refers to the use of MICT by government agencies. It is the application of MICT to improve efficiency and effectiveness, create transparency and accountability of informational and transactional exchanges within government, between governments and government agencies at national, municipal and local levels, (G2G), citizens (G2C) and businesses (G2B). It applies to the use of MICT to empower citizens through the interactive access and use of information. The widespread adoption of networks is altering fundamental relationships:[5]

1. e-Government is reinventing the business of government – through new ways of integrating information and making it accessible over networks and the Internet (engaging in business process re-engineering, procurement and delivering services).
2. It also transforms the nature of governance by affecting the roles and relationship between state and citizens and state and businesses.
3. It informs and engages citizenry, directly and without intermediation, thus providing the foundation of direct democracy. Improved two-way communications between constituents and representatives and better ways for citizens to engage in legislative process are part of becoming an e-Government.

While on-line information and service delivery is the first step in e-Government, it implies much more than delivering services on-line. A broader grasp of e-Government is imperative for leaders to position their governments, citizens, businesses, and communities for sustainable strategic advantage.

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[4] WWW indicators, Esis Extension/Mediterranean countries synthesis, 1999-2000. http://www.eusis.org/esis2www/synthMED7.htm ,

[5] Gage, John, "Some thoughts on How ICTs Could Really Change the World", chapter 1 in *The Global Information Technology Report 2001-2002 Readiness for the Networked World*, the Centre for International Development, Harvard University, 2002.

2.3 Dimensions of e-Government

The table below summarizes some of the potential uses of MICT in G2G, G2B and G2C activities, as well as some of the applications available or applicable to the MENA countries.

It is clear that the new e-Government paradigm has the potential of being an all-inclusive, all-encompassing framework, as the example of the Government of Singapore one-stop **e-citizen service portal site** ***SINGOV: Singapore Government Online Portal*** has effectively demonstrated.

2.4 Challenges to a successful implementation of e-Government

In order for the MENA governments to reap the full potential of benefits of e-Government, a number of conditions, a number of building-blocks, are necessary: leadership, connectivity and network readiness, business environment, human capital, privacy, trust and security.

2.4.1 E-leadership → is the Leadership and strategic thinking ready?

e-Government initiatives require substantial investments and innovation before they are ready for public use. e-Government implies administrative and civil service reform as part of the business-process re-engineering of government. Strong, high-level leadership – typically at the level of the head of state – is needed to supply the vision, establish a national e-Strategy and ICT task force and rally support from the public and private sectors. In countries with weak or diffuse political consensus, and where governments play a preponderant role such as in the MENA countries, it is up to them to prioritize and implement initiatives. This has been the case in Jordan (with King Abdallah), Egypt (President Mubarak), Syria (President Dr. Bashar Assad) and the UAE (Sheikh Zayed) where in each case the head of state leads the initiative. In more developed countries, governments may react to pressure from constituents and stakeholders (citizens, corporations, interest groups) to implement e-Government initiatives.

2.4.2 Access, Connectivity & Network Readiness – is the technological infrastructure ready?

Reliable, accessible and secure telecommunication infrastructure is key to the development of e-Government. This includes the availability of telecommunication services, community access centers and network readiness. The main challenge obviously is the pricing, affordability and reliability of network access. Efficient networks should also be designed to benefit from interoperability and interconnection, lowering service and transactions costs to consumers and business.

Overall, the MENA region infrastructure availability indicators are close to those available in the Low Income countries, below world average. The low average availability of infrastructure is a reflection of the absence of telecom sector reform – that is sector liberalization and private sector participation- in the majority of the MENA countries, where government telecommunications monopolies are the rule and where investment has largely been in voice telephony, whereas data and media communication are more important for knowledge-based economies and societies.

In the race to bridge the digital divide or more accurately to avoid falling off the digital cliff, there are two classes or clusters of countries and two definitions: *"The digital divide is the continuum of use of Internet and other digital media that separates those that choose, for whatever reason, to use such media from those who choose not to use such resources. The digital divide is the cliff that separates the five billion people who cannot, for whatever reason, choose to use Internet and other digital media from the half billion or so people who can choose to use such resources".*[6] The clear danger exists for the majority of MENA countries to fall off the digital cliff[7], that they will not be able to achieve convergence with high growth, networked societies.

[6] Foulger, Davis, "The Cliff and the Continuum: Defining the Digital Divide", http://pages.prodigy.net/davis_foulger/articles/cliffandContinuum.htm. See also Annex Chart 2 showing the digital divide in broadband technology.

[7] See the cluster analysis table in the appendix to the Davis Foulger piece, op.cit. included in the annex to this paper.

The picture is not entirely bleak. First, even though the countries within the MENA region still lie far behind in infrastructure projects, there has been a recent acceleration of investment. Investments in the telecom sector have risen 43.4 percent from $3,809 million in 1999 to $6,728 million in 2000. However, it is important to note the skewed distribution of investment within the MENA region. Only few countries are benefiting from infrastructure projects with private participation, namely Egypt, Morocco, Lebanon (in mobile telecommunications), Jordan and finally Gaza as is shown in the table.

Second, the cost of setting up a large-scale technological infrastructure has declined rapidly. For governments in developing countries, there is an advantage from being adapters, of following the leader: they can benefit from the experience of what to do, and more important, of what not to do. They can and should leapfrog and avoid legacy technologies. For example, the implementation of broadband technology becomes feasible even with small budgets. Egypt is an example for successfully boosting the technological infrastructure. In the late 1990s, the government invested $1bn on an advanced telecom infrastructure. As a result, in 2000, the IT Ministry achieved a 67 percent increase in Internet subscribers and a 60 percent reduction of access fees. Going forward, the government wants the private sector to play a more prominent role, for example, in the networking of the 3000 post offices.

2.4.3 e-business climate – is the institutional infrastructure ready?

e-Government can only succeed in an environment where the appropriate framework supports the development of e-initiatives. Political stability, financial soundness, government policies and enforceability will affect competitiveness in the field of ebusiness and the network readiness of the MENA countries. A comprehensive, coordinated approach should include:

- Economic and financial policy:
  - An open attitude towards investment and trade, to allow foreign direct investments into e-business, into MICT.
  - A financial system ready to invest into ebusiness ventures[8], and promoting e-business itself by integrating it with electronic payment systems, e-payments.
- "Rules of conduct" for e-initiatives:
  - Allocation of domain names
  - Predictable regulation and enforceability
  - Legal protection and enforcement of intellectual property rights
  - A transparent policy for allocating spectrum rights, including a system for auctioning licenses, especially for mobile networks
- Telecom sector reform leading to a liberalization and privatization of the telecom sector. Competition policy should aim to keep minimize barriers to entry, giving incentives to service providers to offer new services and compete through lower prices. For example, Internet service providers charge $27 on average in the MENA countries, compared with $17 for the middle-income countries and $11 for high-income countries.

Successful case studies of countries having set up an attractive environment include the United Arab Emirates, where Dubai's Internet City attracts substantial FDI due to clear, transparent rules of conduct and other incentives.

[8] E-economy investments require specialized project based and cash flow finance, in addition to venture capital, risk-taking funding.

2.4.4 E-Human capital: Is the population e-aware and e-ready?

A major building block, a critical factor for success is a country's human capital. People need to be able to use MICT, but also to understand, create local content and manage e-initiatives and their environment. Governments can through their public education policies influence the formation of a new type of human capital: ***e-Human capital***. The MENA countries should aim to:

Reform educational curricula to include computer and ICT literacy and through the definition of a core e-literacy curriculum. High quality ICT training opportunities should be set up, including on-the-job-training, and distance learning. ICT education should start in primary schools, thus laying the foundations for a high ICT skill level in the population, can enhance the creation of e-human capital. A survey[9] on primary and secondary school websites in the MENA countries shows that they are severely under-equipped, with only 6 percent on average having a website. As for library websites, rates are ranging from 10 percent for most countries, to 40 percent for Lebanon. The setting up of a website is a typical first step in many projects related to e-human capital and education. Projects such as school-net or e-learning universities are relatively well equipped, with a first group – Morocco and Lebanon located above 50 percent[10] – then a second group between 20 to 30 percent equipment rate (Jordan, Palestine, Tunisia and Algeria).

The other major challenge is for MENA governments to generate the financial resources for human capacity building, for e-human capital. ICT student loan packages and investment tax credits for investment in ICT skills and education can and should be designed and set-up. Similarly, distance learning, regional and international educational alliances and networks can promote investment in e-human capital. The accompanying Box summarizes the recent empirical evidence and practical experience in the form of ten lessons for ICT and education in the MENA countries and the developing world: introducing ICT into schools works, but should be part of the curriculum, with trained teachers and is most efficient using wireless networking.

Box 1: Ten Lessons for ICT and Education in the Developing World

What defines a quality education in today's global information-based economy? Has education kept pace with a rapidly changing world? Are they good models for reform that we can follow?

[9] WWW indicators. Esis Extension/Mediterranean countries synthesis 1999-2000. http://www.eu-esis.org/esis2www/synthMED7. htm,

[10] See the description of *Lebanon School-net* in N. Saidi, "e-Government: Lebanon 2000, an eBook" published in December 2001 and in the e-Lebanon conference: Welcome to Banque du Liban.

📖 Lesson 1. Computer labs in developing countries take time and money, but they work

Despite of many limitations (lack of adequate hardware and software, unreliable Internet access), schools squeeze as much use as possible out of poor connectivity through technical solutions such as store-and forward e-mail, caching Web pages locally, extensive use of CD-ROMs, and pulling Web pages though e-mail. Teachers have learned to manage their classes to work with these limitations.

📖 Lesson 2. Technical support cannot be overlooked

Getting computers into schools is relatively easy; keeping them working is a greater challenge.

"Kids on the Block" initiative in Namibia: Schoolnet Namibia works with youth to provide them with the technical training necessary to refurbish, install, and maintain the school computer labs.

📖 Lesson 3. Non-competitive telecommunications infrastructure, policies, and regulations impede connectivity and sustainability

Emerging wireless technologies is a regulatory area that needs attention. Governments need to evaluate their spectrum allocation and licensing policies to ensure that satellite connectivity options allow for a broad range of choices for the connection of underserved areas of the country.

Mauritania: the Ministry of Education has made a commitment to connect the six pilot schools participating in the World Links program with dedicated leased lines providing high speed access twenty-four hours a day.

Chile: the Ministry negotiated a deal with the Compañía de Telecomunicaciones de Chile, a prominent telecommunications firm, to provide free Internet connectivity for up to 6,500 schools for 10 years.

📖 Lesson 4. Lose the wires

World Links has found that the most effective technology for connecting schools in developing countries is wireless.

📖 Lesson 5. Get the community involved

Lack of financing is one of the greatest challenges to connecting schools in developing countries to the Internet.

How does a school in a country like Uganda, with a per capita income of US$310, afford US$250 per month for an Internet connection? Part of the answer is to share the facilities and the costs with the broader community.

📖 Lesson 6. Private-public sectors partnerships are essential

Karnataka: the state government has equipped seven hundred schools with ICT labs in an astonishingly fast time frame – only forty-five days! How was this feat accomplished? Through a partnership with NIIT, a private computer training institute.

📖 Lesson 7. Link ICT and education efforts to broader education reforms

While many ministries of education around the world have made the commitment to computerize schools, few have developed coherent strategies to fully integrate the use of computers as pedagogical tools in the classroom. One of the significant bottlenecks that World Links has encountered is the lack of a clear policy in ministries of education with regard to use of computers in education.

Ministries must make a commitment to helping teachers effectively integrate computers and Internet technologies into their schools by aligning curricula, exams, and incentives with the educational outcomes that they hope to gain.

📖 Lesson 8. Training, training, training

The professional development of teachers sits at the heart of any successful technology and education program. Teachers need not only formal training, but also sustained and ongoing support from their colleagues to help them learn how best to integrate technology into their teaching.

📖 Lesson 9. Technology empowers girls

A girl from Mauritania states: "We get our freedom from the Internet, since in our society girls are not allowed to go wherever we want…the Internet takes us out to other people, places and realities…it is our way of escaping from our closed society. It is vital to us, it gives us liberty".

📖 Lesson 10. Technology motivates students and energizes classrooms

When schools are connected to the Internet, teachers are taught to rethink their teaching methods, and students empowered to use technology, the impact can be profound.

A student in Senegal noted that: "our teachers, because of our participation in collaborative projects and Internet access, have to do a better job. They carefully prepare their lessons before coming to class. We challenge them; we are no longer passive receivers of information. We analyze and question things".

Adapted from Robert J., Hawkins, "Ten Lessons for ICT and Education in the Developing World", World Links for Development Program, The World Bank Institute, 2002.

2.4.5 Trust, Information security and privacy: Iis the legal infrastructure ready?

Without providing trust and security for its citizens and businesses, e-Government will not achieve its potential objectives. The confidentiality, integrity and security of data transmission, the processing and storage of networked information need to be trusted. This includes the strengthening of the legal framework to address privacy protection and prosecution of computer crimes, create and enforce certification authorities, authorize digital

signatures and enable public key/web of trust infrastructure. The legal infrastructure to support and implement e-Government should include a core set of laws:

- An *e-Government Law*, enabling government to conduct its administrative procedures, functions in electronic/digital form, including e-procurement
- A *Data Protection Law*, dealing with the protection and privacy of personal information
- A *Freedom of Information Law*, allowing wide access to public information
- An *electronic signature or electronic communication law*, that recognizes digital signatures and documents, and establishes an e-identity
- A Cyber crime and Computer Misuse Law, that protects digital property

Box 2 contains a survey of existing or legislation in gestation in the Arab countries[11]. Note that in nearly all cases there are either no laws, or there are draft laws. Compared to the OECD countries there is clearly a 'legal divide'. There is a clear and urgent need to introduce and implement legislation and regulation that provides the legal and regulatory enabling framework for the operation of digital economies and societies. In particular, for e-Government in its diverse dimensions to be successfully introduced requires the legal recognition of digital identities and documents in official records and transactions. Similarly, the development of e-commerce and e-services more generally, requires the core set of digital legislation. The initial step is to accept both traditional and digital identities and records to coexist and be equally acceptable and binding in law.

Box 2: Current Legislation/Initiatives on key issues affecting Government-Citizen Relation

Country	Freedom of information	Privacy/Data Protection	Administrative Procedure	Electronic Signature	e-Government Policy	Ombudsman
Algeria	NA	X[i]	NA			NA
Bahrain	NA		NA	Draft[ii]	X[iii]	NA
Egypt	NA		NA	Draft[iv]	X	NA
Jordan	NA	X[v]	NA	Draft[vi]	X[vii]	X[viii]
Kuwait	NA		NA	Draft[ix]	X[x]	NA
Lebanon	X[xi]	X[xii]	NA	Draft	X[xiii]	X[xiv]
Libya	NA		NA			NA
Morocco	NA	X[xv]	NA	Draft[xvi]	X[xvii]	NA
Oman	NA		NA		X[xviii]	NA
Palestine	NA		NA			NA
Qatar	NA		NA	X[xix]		NA
Saudi Arabia	NA		NA	Draft[xx]	X[xxi]	NA
Sudan	NA		NA			NA
Syria	NA		NA	X[xxii]		NA
Tunis	NA	X[xxiii]	NA	Law[xxiv]	X	NA
UAE	NA	X[xxv]	NA	X[xxvi]	X[xxvii]	NA
Yemen	NA		NA			NA

Source: privately commissioned by Alem & Co. For additional details see the legal annex. We would like to thank Me. Alem for providing us with the information on current legislation relating to the MENA countries. A similar study has been conducted for OECD countries in "Citizens as Partners: Information, Consultation and Public Participation in Policy Making", www.oecd.org, 2001.

Bridging the 'legal divide' is a challenge especially for promoting secure e-commerce. MENA region governments need to establish the legal and regulatory infrastructure to enable our countries to engage in e-banking, e-services, e-commerce and trade on-line both domestically, as well as cross-border, with their partners. This is a prime area for regional cooperation through the creation of a task force that would prepare "model laws" which can

[11] We are indebted to the good offices of Alem Law & co. for the survey.

be adapted for national requirements but allow for harmonization and common core standards.

3. MDF e-Government Strategy for Development: Work at National and Regional Levels

3.1 E-Readiness

The data on ICT in the MENA countries underscored the lack of e-Readiness[12]. Compared to the rest of the world, MENA countries have low Internet penetration rates, with the number of Internet hosts and users more than 60 percent below the world average. The "digital divide" is even more evident if the "outliers" – the United Arab Emirates, Bahrain and Israel- are removed from the sample. It is also clear that – similar to all emerging countries- that the digital divide is highly correlated and is to a large extent, the mirror image of the "telecommunications divide". Further, the limited local content and language are an obstacle to Internet hosting and users, in addition to inadequate infrastructure and the wide inequality in *e-knowledge* and digital-fluency or *e-fluency* in the region's populations [13].

In summary, the evidence and analysis of the existing situation and expected trends of the MENA countries' investment in MICT and the summary indicators of e-readiness shows that they are falling behind in 'network readiness' as well as in the institutional and legal technology infrastructure and indirectly in e-Government. To address and remedy these challenges and 'divides', there is a need to develop and implement remedial action plans both at the national and regional levels to yield better outcomes and start bridging the 'divides'.

3.2 National Level

The implementation of an e-Government is not simple. [14] There is no single blueprint incorporating "best practices" that can be used systematically across regions and across countries. Each government has its own priorities and based on these, will implement the appropriate projects that will help it achieve its goals. However, there are some core components inherent in any successful e-Government initiative, as mentioned above: leadership and vision, enabling resources and infrastructure, e-Human capital, a legal & regulatory environment generating trust and security, and supporting institutions.

3.3 Regional Level [15]

Introducing e-Government on a regional level is also important. Working at the regional level allows governments to benefit from and link up to global initiatives. Specifically, in the area of scientific and technical training, research and development, environmental, security and other issues, the creation of alliances with other institutions and governments will be invaluable. The establishing of a networked society for standardization, certification and other common policies will strengthen the position of the Arab and MDF countries. e-Government can be an important tool and enabler of the provision of *regional public goods* such as security and facilitating people mobility, and in monitoring the regional environment and public "bads" such as pollution. In addition, promoting regional dialogue among institutions will enhance coordination, political stability and inter-Arab cooperation to strengthen democracy through the extension of e-Government.

The importance of such a regional initiative has recently been recognized by organizations such as the United Nations Development Programme and the World Bank. UNDP has launched an important initiative, The Arab States Programme on Information (ASPI), which

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[12] The Centre for International Development at Harvard University has recently developed and published a "Network Readiness Index", (See Annex Table 2). Only three countries were included from the MENA region: Egypt, Israel and Jordan. The very fact that the other countries were not included for lack of information is itself an indication that the absent countries are not 'network ready'.

[13] Resnick, Mitchel on "Rethinking Learning in the Digital Age" chapter 3 in *The Global Information Technology Report 2001-2002 Readiness for the Networked World*, the Centre for International Development, Harvard University, 2002.

[14] Heeks, Richard, "Understanding e-governance for Development", i-Government Working Paper Series, Paper No.11, Institute for Development Policy and Management, University of Manchester, 2001.

[15] Saidi, Nasser, "?????? ????? ???µ T?? ??? ??? ? ? ?µ ?? ? ? ???????? ? ???? ", ?????????????? ??d ?G??? ", May 2002, Damascus, Syria.

has the main objective to support countries in the MENA regions by harnessing the use of ICT for human development. The programme will apply a "coordinated strategy leveraging education, knowledge exchanges and ICT applications to accelerate poverty reduction through equitable growth and employment generation as well as information creation, distribution and usage" (see Box 3).

The World Bank initiatives include a region wide analysis of the links between public sector institutions and economic performance and of the role of the public sector as a regulator. Another program is assistance to help strengthen a regional mechanism for collaborative research and discussion to help in voice and participation.

4. E-Enabling Reforms: What Needs to be Done

4.1 Importance of Institutions

The implementation of e-Government in the MENA countries has the potential to be a major instrument of reform of government and its activities, as well as enabling the private sector to fully participate in the MICT revolution. Government has the authority to establish marketplace rules and establish regulatory structures to ensure that citizens and businesses participate in and benefit from the growth of the knowledge economy. The private sector in the MENA countries has initiated a foray in e-Banking and e-Commerce. Governments should establish the enabling framework, undertake reforms and learn from the private sector.[16] Technological changes that have transformed business will also redefine the business of government, the delivery of public goods and services and the nature of public life. Governments are pressured to move faster towards e-Government and engage in both internal (business process re-engineering) and external reform to embrace new technologies. The transformation of government into e-Government will force the creation of new *institutions-such as a national ombudsman and a national authority for data protection and privacy-* in the MENA countries, greater participation by citizens in all aspects of government and ensure a more efficient and transparent administration, enabling governance to be based on 'rules rather than authorities'.

4.2 Internally

4.2.1 Integration and Business Process Reengineering

The potential benefits, cost reductions and externalities of e-Government initiatives will not be captured and 'internalized' if administrative processes (ministries, agencies) work in their "departmental silos", rather than in concert with each other. Therefore, a results-oriented re-organization is needed. A cornerstone of such reform is the integration of processes and systems around outputs, or services, rather than input and control-based unintegrated systems. In sum, governments in the MENA region need to undertake the 'business process re-engineering' of the goods and services they supply, to address and serve the needs of their citizens/clients[17]. This will require a fundamental change in mind set and approach at the level of policymakers and administrators in the MENA countries: they are there to serve citizens and businesses, and not to 'administer' them. Success can imply a substantial reduction in waste, graft and corruption in the provision of goods and services by government.

4.2.2 Administrative Reform and Improvements to Human Capital in Civil Service[18]

The introduction of e-Government through business process re-engineering will lead to some processes, which today are "manually" performed, to be automated while others will be eliminated and 'rationalized'. This in turn may lead to redundancies that are both necessary, given the bloated size and cost of most MENA administrations, and from a reform viewpoint,

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[16] As an example, Lebanon passed an electronic banking transactions law (Law 133/99), which sets the framework and gives authority to the central bank to regulate e-banking.

[17] The central bank of Lebanon, the *Banque du Liban*, will soon start the implementation of a **project, SeBIL, that will** provide secure information for a network linking the banking and financial sector with the BDL and require extensive 'business process re-engineering'.

[18] Saidi, Nasser, "???O????? ?? ??? ? ???µ ?? ???? ?????T???? ????? ??", ????????? ?O?? ?? ?????? , March 2002, Beirut, Lebanon.

politically desirable since they will reduce *clientelisme* and patronage. Efficient implementation implies reduction in the cost of government by increasing civil service productivity, by dramatically cutting the time for the processing of information and regulatory implementation, and through the wide implementation of e-procurement. Singapore among others (e.g. Korea, Finland) provides a good example: *"In Singapore, for example, the government spends approximately US$ 100 million per year on ICTs for the Civil Service. Studies have found that every dollar spent on this program has generated US$ 2.70 in returns due to expanded productivity and reduced operational costs. As a result, over 1,500 jobs have been eliminated from the public payrolls and an additional 3,500 jobs have been reoriented towards more productive outputs (UNESCAP, 1999)"*[19].

Box 3: ICT and the Better Use of Information

The Automated Systems for Customs Data (Asycuda) developed by UNCTAD, is now used by over 70 developing countries to manage tariff collection and reduce frontier corruption. The system speeds up goods movement, reduces transport expenses and costs only US$ 2 million to install (Mansell and Wehn, 1998).

The Indian Government Ministry of Information Technology supports the "India Image" Internet sight. Visitors can read transcripts of policy statements, parliamentary debates and draft laws; locate contact information for national, regional and local politicians and administrators; and access a wide array of information on trade opportunities and rules, national statistics, and other public information services. In addition, the sight maintains linkages to every department in the Indian bureaucracy, oftentimes with an ability to conduct government paperwork and submit requests online.

4.2.3 ICT as a new instrument for policy makers

There is an inextricable relationship between government's roles as a user of ICT and its capacity to formulate public policy for the knowledge economy. Implementation of e-Government in the region will act as a spearhead for the greater access and use of ICT in our societies and economies. Further, eGovernment can improve policy decision-making and enable better policy implementation. The reason is that ICT enables a better use and management of information, more accurate and timely information, which directly improves decision-making and the implementation of good policies. A good case in point is the use of ICT for the delivery of health, education and other services, as well as in taxation, fiscal policy implementation and procurement.

4.3 Externally

4.3.1 Government to Business

The private sector in the MENA is leading the way using ICT in its business activities and taking advantages of ICT by introducing new services, cost cutting and engaging in e-services[20]. To harness the growth potential of e-commerce, governments in the MENA region should implement a series of enabling and complementary reforms. These include:

eProcurement, the purchase of supplies or the online tendering of public sector projects, has the potential to save billions for governments and the community, by standardizing product specifications and cutting out waste and corruption.

Set up a legal and regulatory framework for the private sector allowing it to expand in a secure environment. Governments need to:

- Establish ground rules for e-commerce activities and consumer protection
- Set up certification and standardization rules to ensure quality,
- Disseminate information to the businesses sector

[19] Grace J., Kenny C., and Qiang C. with Liu J., and Reynolds T., "Information and Communication Technologies and Broad-Based Development: A Partial Review of the Evidence", The World Bank, Working Paper, February 2001.

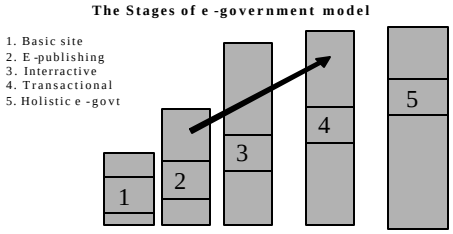
[20] See the examples provided by private sector participants and the authorities in the volume of the proceedings of the conference, "e-Lebanon, e-Banking and e-Payments" Banque du Liban, June 2001.

4.3.2 Government to Citizen / Government to society

The "good governance" indicators reviewed above suggest that the MENA region is characterized by limited political participation and democratic practice.

An e-Government initiative will challenge traditional non-involvement of citizens. e-Government implies a "direct" link between citizen and government, without passage through intermediaries. This is evident in the case of government provision of services, such as licensing, registration and other administrative tasks. The introduction of e-Government services thus has a 'liberating' effect for citizens and businesses: you no longer need the intermediary services of politicians or informal 'brokers' to obtain government services or access to public utilities.

Box 4: Government on the Web



E-Government is seen here as a process with five stages, which follow on from each other in increasing order of implementation difficulty, desirability for citizens, customers and society, and the levels of sophistication of systems which are demanded. The stages are supposed to be, in order:

1. A *basic site* holds electronic versions of the agency's major print documents for public consumption (sometimes dismissively called 'brochure-ware'). It gives basic information about the agency, or serves as an on-line advertising hoarding. Contact with the agency is by phone or mail, not e-mail. Site users cannot download forms or accomplish anything substantial on-line. The site has few pages.

Example: Yemen, Iran, Oman, Qatar, Syria (between 1 & 2 stage) have limited number of ministries on line.

Example of real stage 1: Algeria, Egypt, Jordan, Kuwait, Lebanon, Palestine, Saudi Arabia

They have all their ministries on line and provide all information on line. You can download information but you cannot interact with the government except through writing emails and requests.

2. Electronic publishing occurs when the agency develops its external Web site as an important element of its overall communications strategy. The site becomes extensive, with hundreds or thousands of pages, and the agency begins to put a substantial part of its information on-line, but in a linear, one-track fashion that has to be followed in the same way by all users. Citizens/firms can download forms to fill in and post back, but cannot do on-line submissions. The agency supports e-mail contacts. The external Web site still doesn't link in any significant way with the agency's back-office systems. Example: UAE has the more advanced sites

3. Interactive e-publishing is reached when users can personalize in a useful way in which the site works for them via effective search tools. For instance, users can specify their address or postcode and see only relevant local information, culled from the agency's databases. The agency's external Web site links extensively to at least some back-office systems. All the agency's forms are downloadable, and some can be submitted on-line also. Extensive e-mail contacting of officials is encouraged and responses are timely and well organized. Perhaps there are e-mail alerting services to let users know about new Web content. The agency also has a full or partial Intranet (a closed private network operating in a Web-like manner). All staff is routinely trained on how information is presented on the Web site and can answer questions from the public about it.

4. A *Transactional Web-site* exists when users can accomplish specific dealings with the agency on-*line*. Users can authenticate themselves to the agency and register their identities reliably. They can then undertake a complete transaction with the agency on-line, for instance, making secure payments for a service, fee, fine or tax. There are two levels of sophistication for such a transaction. One-off transactions, in which the system does not use prior information about the user, are simplest – for instance, paying council tax via a local authority Web site using a Giro bank facility. In more complex applications users can interrogate the agency's databases at various levels of security, for instance, to

track the progress of an application they have made, or to bid for a contract. The most difficult applications would let users manage their own 'account' or file with the agency, covering a whole set of dealings – similar to Internet banking and demanding high security. At this stage users can download and submit all forms on-line (although there may still be stages like issuing ID numbers or collecting signatures which are carried out via the mail). The external Web site links fully to most of the agency's back-office systems. The agency has a full Intranet for internal staff, linked to the Web site. It may also have an 'extranet' which offers many of the same facilities to outside organizations who work closely with the agency, for instance, other government agencies or contractors.

5. Joined-up e-governance is achieved when public sector web sites facilitate "one-stop shop" services on-line for citizens. Sites provide transparent access not just to the agency where people have logged on, but across central government agencies. Where necessary they also connect with other fields or tiers of government, especially regional and local ones. Users can see their own accounts, and manage their relationships with the agency wholly via the Internet (and e-mail). Many agency processes use 'zero touch technologies', where transactions do not require active intervention by a human employee to be accomplished. Agencies carefully research, analyze and anticipate the needs of their users, for instance by alerting them proactively to opportunities for them to improve their welfare or to meet given deadlines (so-called "zero stop shops").

Adapted from National Audit Office (NAO) Report on Government on the Web

4.3.3 e-Democracy

The implementation of e-Government also enhances participation in the democratic process. Democracy and political representation entails more than merely holding elections at regular intervals, it must be lived in daily life, through institutions, through the provision of goods and services, through the transparent operation of rules and regulations. e-Government can help in the establishment of a democratic culture and, in parallel, the institutional framework needed to live democracy on a day-to-day level.

Governments should be challenged to provide citizens with access to information and knowledge about the political process, about services and about choices and options available. The second challenge is to enable the transition from passive information access to active citizen participation by informing the citizen, representing the citizen, encouraging the citizen to vote, consulting the citizen and finally actively involving the citizen. ICT can be particularly powerful in giving a voice to individuals who are isolated, invisible, and without voice. ICT can contribute to the political empowerment of minorities, of citizens: they are tools for networking to perform social and political advocacy, to break away from traditional patriarchal political modes, to strengthen participation in the political process, to improve the performance and accountability of elected officials, to improve access to government and its services and to disseminate knowledge.As Chart 6 illustrates, citizens with more and better information improve the efficiency of the political market process, of political markets. In turn, this generates greater and more effective representation and participation, leading to better governance and democracy.

For the MENA countries, eGovernment can fundamentally recast the relation between individuals and their governments. It therefore makes government far more responsive and accountable to the will of the people by enabling citizens to participate in the democratic process and be pro-active, leading to tangible improvement in the 'good governance' indicators reviewed above. e-Government links people not just to each other and the e-commerce marketplace, but also to the public market place of ideas, debate, priorities, initiatives, and innovation. The MICT promise of direct democracy puts ownership of government truly in the hands of the people. For the MENA countries, e-Government can make an important contribution and holds the promise, if effectively implemented, of a more participatory democracy, or e-democracy.

Box 5: Initiatives for e-Government: The Arab State Program Information – ASPI

The ASPI intended outcome is to contribute to the reduction of human poverty by fostering, through ICTs and targeted activities, a more capable information-enabled society. A coordinated strategy will be implemented around four main themes:

ICT Awareness raising:

Horizontal exchanges at regional and international level, Exchanges at National level, Exchanges

across existing donor-driven ICT projects, High-level Seminars for Decision Makers, Workshops for public sector Managers, Establishment of National Information Technology Advisory (NITA) Bodies, Participate and engage in regional and international conferences and forums, Monitor progress of participants post event

Growth and employment generation:

Small and Medium ICT-related Enterprises (SMEs) creation, Retooling of managers, Impact and best practices information

Human Capital Creation:

Support in the inclusion of ICTs in the school curricula, Support to establishment of national school nets, Create demand for Arabic language, Extension of ICT training to remote areas, Organization of Corporate training.

Dynamic Poverty Reduction Interventions:

Information Technology for Poverty Reduction, Project Packaging and Partnerships, Expert Technical Assistance, Information for peace and stability, Media engagement.

See ***UNDP*** Bureau for Development Policies, *www.undp.org*

5. Recommendations for the Successful Establishment of e-Government in the MENA Region

The MENA region is at the early stages of establishing and institutionalizing e-Government. It is useful to distinguish up to 5 stages in the evolution of e-Government.[21]

Most MENA countries lie in Stages 1 and 2, with some provision of information, but limited interaction on-line. How do we move forward? A two-pronged strategy is proposed: active national e-Strategies combined with a Regional e-Strategy, linking to international initiatives.

5.1 An MDF/Arab Regional Strategy

In implementing MICT investments and e-Government, the MDF/Arab countries can benefit from economies of scale, network economies, as well as from harmonization of laws and regulations. Given that most states in the MENA region are at a similar state of MICT development, regional co-ordination can enhance and accelerate the process of establishing MICT and e-Government. Common language, Arabic, further strengthens this opportunity for regional collaboration. In particular, the Arab League could, by forming an MICT Task Force, play a catalyzing role in regional collaboration.

We call for combining efforts in the following areas:

- **ICT infrastructure**. The region is not on the network map of the world. We have to act purposefully and jointly to network the region and link it to the rest of the world. This is best achieved through ***investing in broadband technology*** to provide wide capacity high-speed access and link up our countries, and requires a public-private partnership. The proposed regional broadband network, **Mediterranean-Net**, could be extended to become a **Euro-Mediterranean Net,** and would be comprised of national broadband networks. The latter can be wireless systems, which have become a low cost, reliable technology providing coverage and access across diverse geographic and climatic conditions. The key vision and tool is linking up countries, regions with countries, governments, cities, villages, schools, businesses, and individuals.

Box 6: Initiatives for e-Government: The "E-Government for Development" Plan of Action

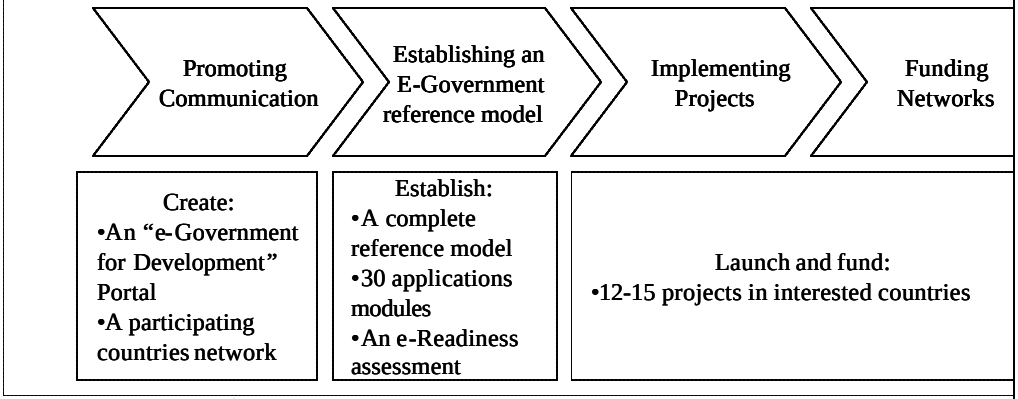
"E-Government is a crucial factor for narrowing the gap between the developing countries and the industrialized world"

Lucio Stanta, Minister for Innovation and Technology, Italy

The government of Italy, together with the private sector and civil society, has launched a comprehensive initiative, E-Government for Development. The initiative will contribute toward the

[21] National Audit Office, "Government on the Web II', Box 1. www.nao.gov.uk

implementation of e-Government in countries that have not – or have only partially – exploited the use of ICTs to transform public administrations into efficient, transparent and enabling instruments for social and economic development. Italy has started working with five initial countries: Albania, Jordan, Mozambique, Nigeria and Tunisia. The aim is to implement specific government applications of a reference model of the functions and services of a digital public administration in priority areas defined by those countries. As part of this initiative, Italy hosted an international conference in Palermo (April 10 and 11, 2002) on EGovernment for Development, where participants from 96 countries exchanged knowledge and information on e-Government best practices. The Italian government is strengthening its internal capabilities and resources in order to progressively extend the reach of this initiative to new beneficiary countries, beginning in the second half of 2002.
Working with 5 initial countries, the Italian Program runs as a virtuous circle, consisting of:



http://www.palermoconference2002.com/

- **Legal & Regulatory Infrastructure**. A new **Lex Electronica** comprising a harmonized set of laws and regulations including a basic core of la
- ws: e-Government, Data Privacy, Freedom of Information, and e-Identity. The latter would also establish the systems and procedures for verifying and authenticating individuals and their transactions through a public key or web of trust infrastructure[22]. The proposal here is that the MDF/MENA countries develop – with the assistance of the UN or other international initiatives – a set of 'model laws' that could be adapted for national use but whose core would be common to the region. A regional Lex Electronica would reduce transactions costs for individuals and business, and facilitate the development of domestic and cross-border e-commerce, e- services and e-transactions in general.
- **E-Readiness**. The MDF countries can cooperate on designing and instituting a common core ICT curriculum. In particular, we propose the institution and acceptance of a **General Digital Certificate, GDC,** which would certify that the holder has attained a minimum level of competence and fluency in ICT. The GDC would be the outcome of a high school, core ICT, curriculum.
- **Regional/International Initiatives**. We recommend that the MDF constituency focus on maximizing the benefit from the resources of various regional and international initiatives. In particular, three recent initiatives require pro-active policy actions:
  - The **Arab States Program for Information (ASPI)**, which will focus on raising ICT awareness, support eHuman capital formation and seek to use ICT as a tool for poverty reduction (see Box 5);

[22] For information on public key infrastructure see, for example, Baltimore technologies for a discussion of the 'web of trust concept".

- The Italian Government's comprehensive initiative of **"e-Government for Development"**[23] which builds on Italy's successful experience (see Box 6);
- The dotforce.org initiatives, **Global Digital Opportunity Initiative** (GDOI), the Partnership for Global Policy Participation and the International eDevelopment Resource Network (see Box 7).[24]

In particular, the MDF countries should act on the generous offer of Italy to establish and implement national e-Government strategies.

Box 7: Initiatives for e-Government: Strengthening Readiness for e-Development

The DOT Force has piloted three major, interrelated initiatives, which are designed to develop national e-strategies and increase global ICT policy participation.

- International e-Development Resource Network (IeDRN)
- Global Digital Opportunity Initiative (GDOI)
- Partnership for Global Policy Participation

5.2 National e-Strategies

5.2.1 ICT Strategy

Governments and public institutions are the main stakeholders in promoting e-Government. Not only are they the operators of e-Government sites, but also their role is to advance the development of private sector initiatives that complement e-Government and thus make it a success. Through their public policy acts governments and public institutions must demonstrate their commitment to the cause of ICT and e-Government. This should happen at two levels: at a higher level, public institutions must set up a National e-Strategy –including an e-Government plan of action-which includes the vision and prioritizes initiatives. Different committees must be set up to deal with the different aspects of the National e-Strategy. At a lower level, a number of committees and institutes will be charged with a detailing of the strategy and with its implementation.

5.2.2 Regulatory and Policy Environment

e-Government can only achieve success with private sector involvement and support. To attract and provide incentives for private sector initiatives, an enabling micro-economic policy environment needs to be put in place. This includes reform of the telecommunications sector and policies favoring investments in ICT – for instance, tax breaks or subsidies for ICT and e-Readiness investments and for incubators – as well as an overall competitive framework that leaves space for new market entrants. The regulatory and policy environment is the de facto implementer of the ICT strategy.

5.2.3 ICT infrastructure

ICT and e-Government can only thrive when the necessary technical infrastructure is available. Sufficient investments need to be made into setting up wide-reaching backbone networks, broadband access and the required systems and networks. Depending upon where they actually stand, MENA governments may consider to "kick start" investments into ICT infrastructure, to leave it to the private sector at a later stage. Investment in MICT infrastructure (telecommunications, networks and systems) is the main bridge for individuals, business, institutions and government to information and knowledge societies and digital economies. Delay in developing the telecommunications sector, in putting in fast and secure ICT networks to encompass voice, data and media, will damage the economic prospects of the MENA countries, deepen and widen the digital divide between our countries and the rest of the world and retard the process of innovation and technical progress. For these reasons, we need to de-regulate and liberalize the telecommunications sector, remove regulatory barriers, install and link ICT networks between our countries and actively promote private sector participation in the provision of ICT infrastructure. Establishing a modern and secure

[23] See the papers and presentations on the Palermo conference site, http://www.palermoconference2002.com/.

[24] The dot force task force has recently issued a number of relevant reports, www.dotforce.org

telecommunications and networks infrastructure, an info-structure, relying on an efficient and developed telecommunications sector, will be a determining factor in economic development, and in raising total factor productivity growth. The MENA countries should establish domestic **broadband networks** linked to the regional Mediterranean-Net backbone, enabling us to reduce our existing technological marginalization, and to gain a presence on the world digital map, generating commercial, financial, economic (including services and tourism), cultural and social benefits. It is well to recall in this connection that telecom sector reform and efficient private sector participation in telecommunications in a large number of countries, has generated more competition, more job opportunities, generating higher investment rates in the strategic sectors of the media, telecommunications and IT, as well as vitalizing the financial markets as a result of share ownership in privatized entities and the financing of new companies.

5.2.4 e-Human capital

For the success of e-Government, citizens, corporations and institutions need to be able to handle the technologies that come with it. Therefore, it is crucial to invest in e-human capital. The two most prominent ways to achieve this include an institutionalization of e-learning – that is the usage of ICT in all areas of education – and the advancement of education in the field of ICT. This should include education at all levels, that is from universities down to primary schools, with degrees and certificates to be earned in the field of ICT, as well as the General Digital Certificate. Just as important as the type of education is the quality of education: governments and educational bodies should therefore direct their expenditures toward programs that further the level of proficiency and research, (See Box 1 on the Ten Lessons for ICT and Education in the Developing World).

6. Conclusions

This paper has (a) reviewed and assessed the evidence and information on the extent of e-Readiness in the MDF/MENA countries, in the light of the variety of challenges facing the region. We highlight that there is a network readiness, e-Readiness divide as well as an 'e-legal divide': core laws supporting the implementation of e-Government need to be introduced. The countries of the region need to take action to bridge both divides. (b) National e-Strategies need to focus on investing in network infrastructure and info-structure, on the Business Process Re-engineering of government, and on investing in e-Human Capital. The paper has advanced some specific proposals, including the establishment of a broadband network, a Mediterranean-Net, the introduction of a General Digital Certificate, and wider cooperation with the Italian e-Government for Development project.

The governments, peoples and communities of our region face a multitude of daunting challenges in achieving sustainable economic growth and development. Building institutions that will promote wide, participatory democracy and good governance is both an objective and a determining factor of economic development. Setting an e-Strategy encompassing e-Government is a practical and efficient policy and provides instruments for addressing both traditional challenges – such as institutional reform, civil service reform and creating an efficient public sector – and the more recent pressures resulting from globalization and the adoption of new technologies. It has the potential to benefit all constituents: citizens, private sector and governments themselves. However, e-Government is neither a panacea nor an end in itself, but a potent implement, a powerful tool useful for addressing complex policy issues. For e-Government to be a realistic promise and bring a valuable prospective to help achieve the objectives of good governance, development and democracy in the MENA region, it should be a component of comprehensive, national e-Strategies, signaling willingness by leadership to adapt to new technologies and to overcome multiple obstacles – political, educational, technological, and infrastructural. Economic growth, empowered constituents, reformed institutions and more efficiency and effectiveness in policymaking and administration are a range of potential benefits from a successful implementation of e-Government initiatives in the MENA countries. As such, e-Government action plans should be a priority on Arab and MDF constituency government agendas, with its potential to

streamline, cut red tape, eliminate waste and corruption and ensure greater participation, transparency and accountability of government, and to implement e-Democracy.

This paper has highlighted the main ingredients of a successful e-Government strategy and argues that e-Government should be an integral element of a growth and development strategy, of institution building and of a democratic revival in the MENA region and the Arab world. Our region could do worse than achieving through e-Government the Andra Pradesh motto of a Simple, Moral, Accountable, Responsible, Transparent, SMART, Government.

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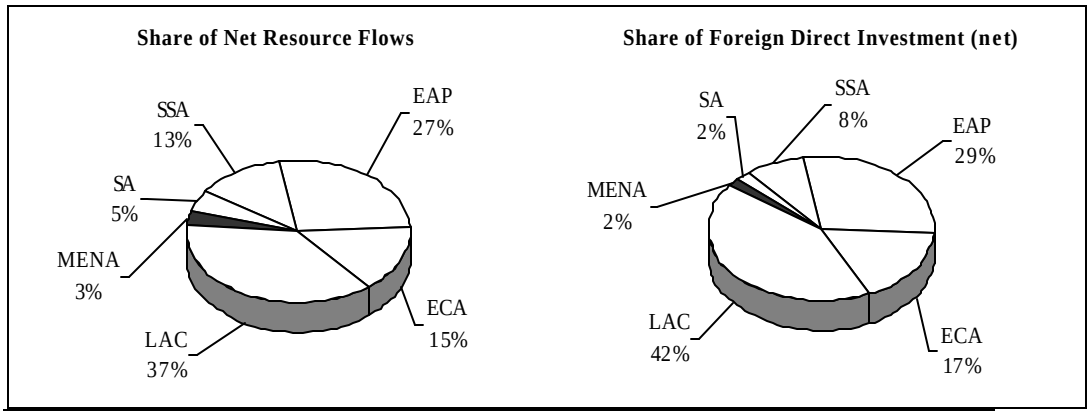
http://www1.worldbank.org/publicsector/egov

http://www.developmentgateway.org

http://www.cdt.org (The Centre for Democracy and Technology)

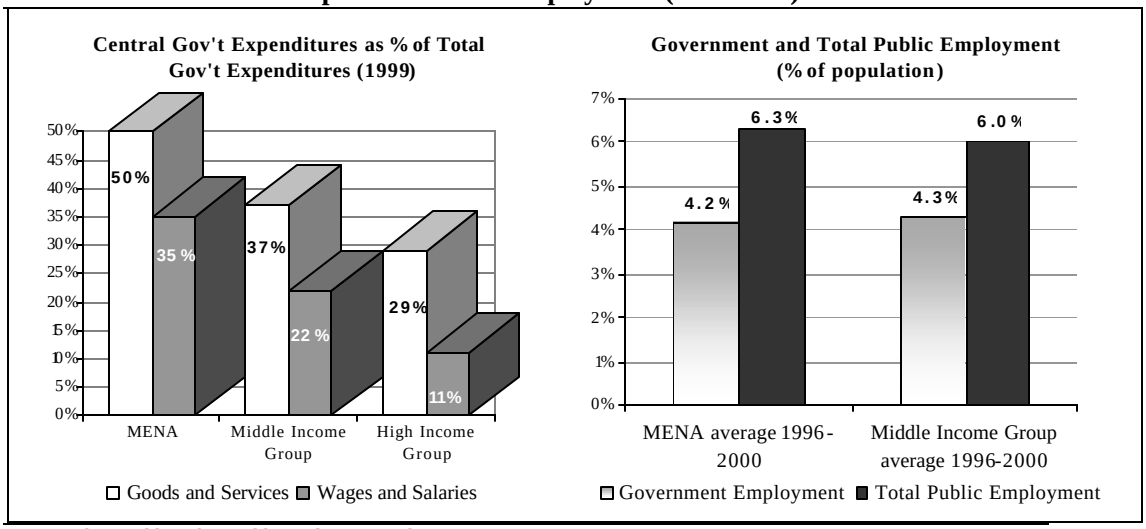
http://wwwinfodev.org
http://www.worldbank.org/wbi/knowledgefor development/
http://www.dotforce.org/

Chart 1: Share of Net Resource Flows and Foreign Direct Investment (2001)



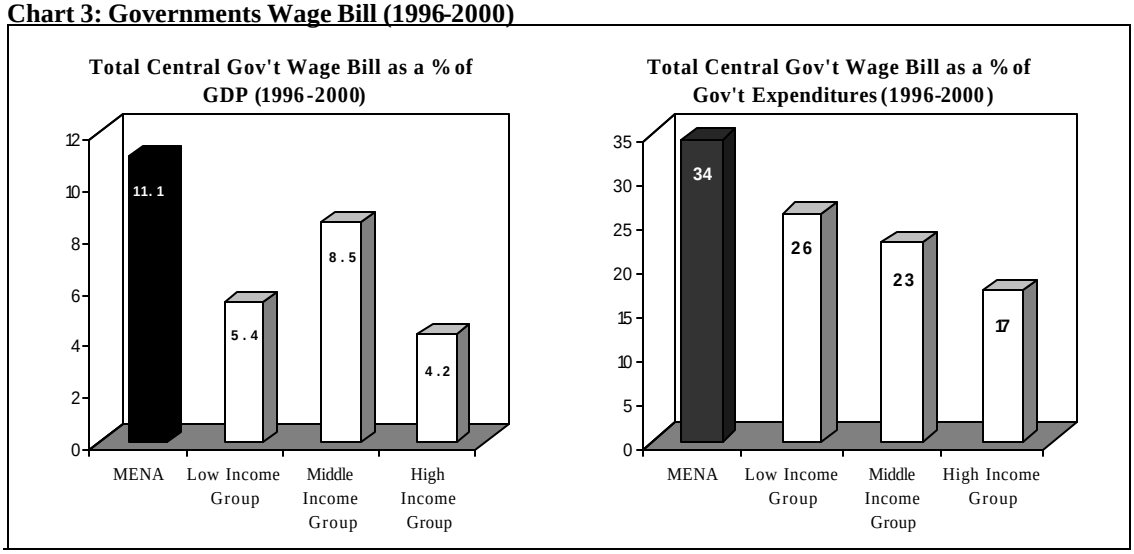
Source: The World Bank, Global Development Finance, 2002

Chart 2: Government's Expenditures and Employment (1996-2000)



Source: The World Bank, World Development Indicators, 2002

Chart 3: Governments Wage Bill (1996-2000)



Source: The World Bank, World Development Indicators 2002

Chart 4: e-Government: "Go on-line instead of in-line"

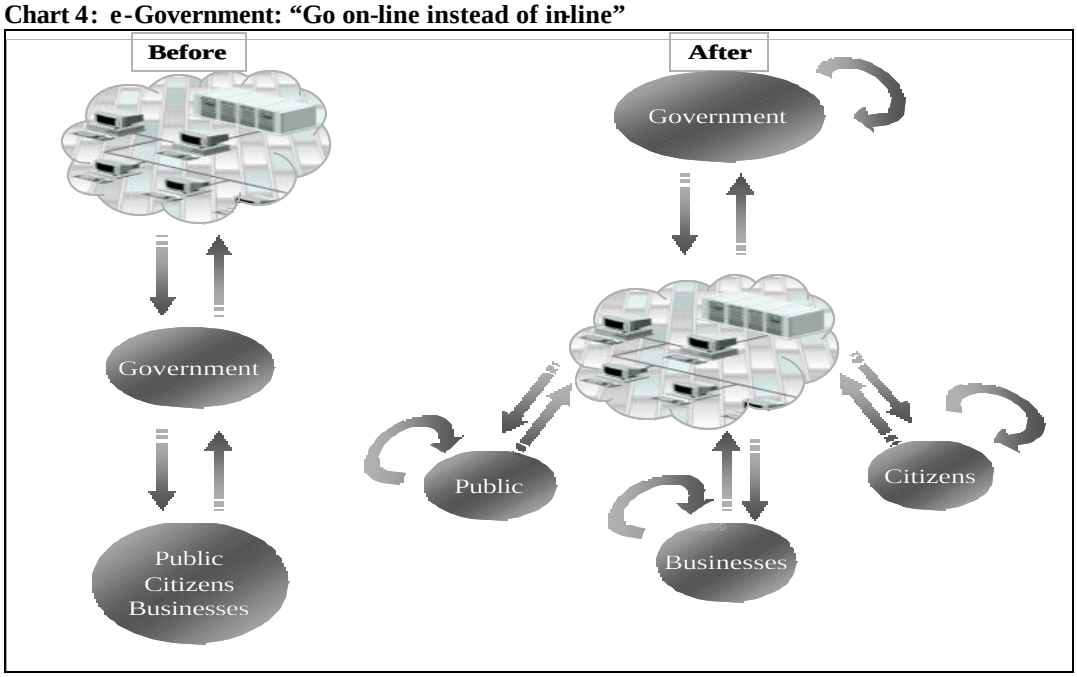
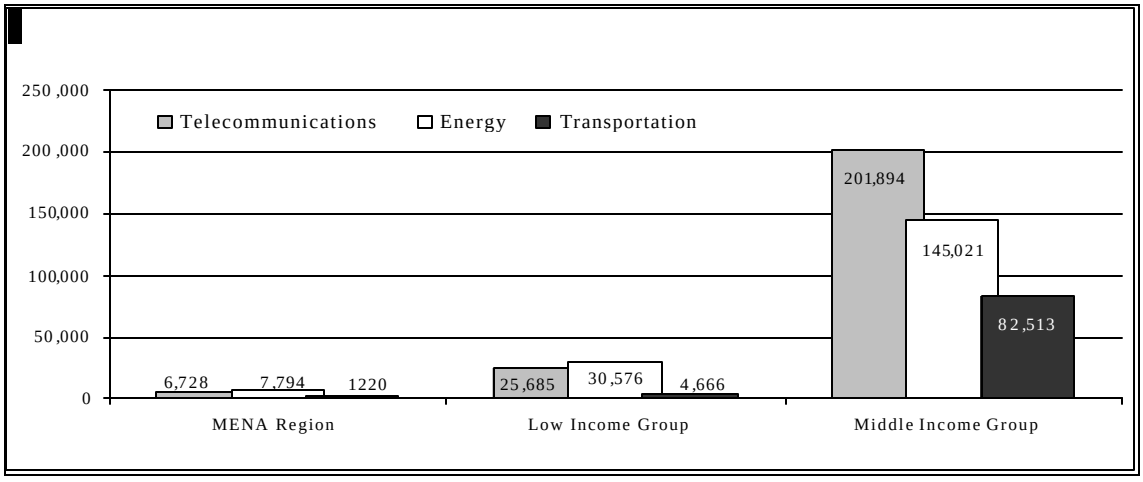


Chart 5: Investment in Infrastructure Project with Private Sector Participation (1995-2000) in USD millions



Source: The World Bank, World Development Indicators, 2002

Chart 6: Building e-Democracy

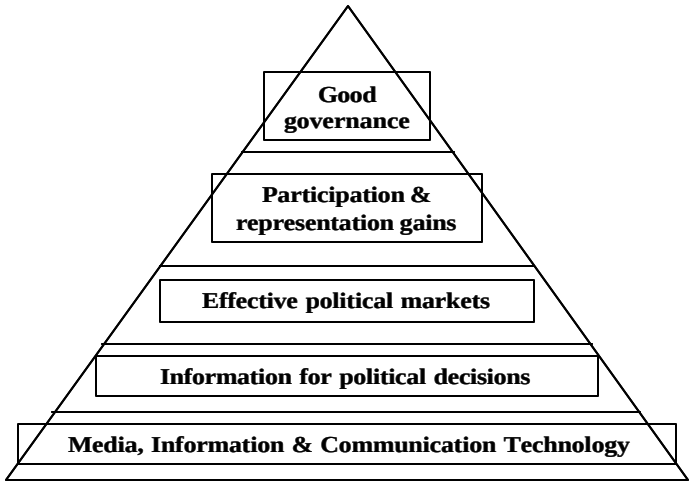


Chart 7: Global Internet Map: Broadband Technology Divide

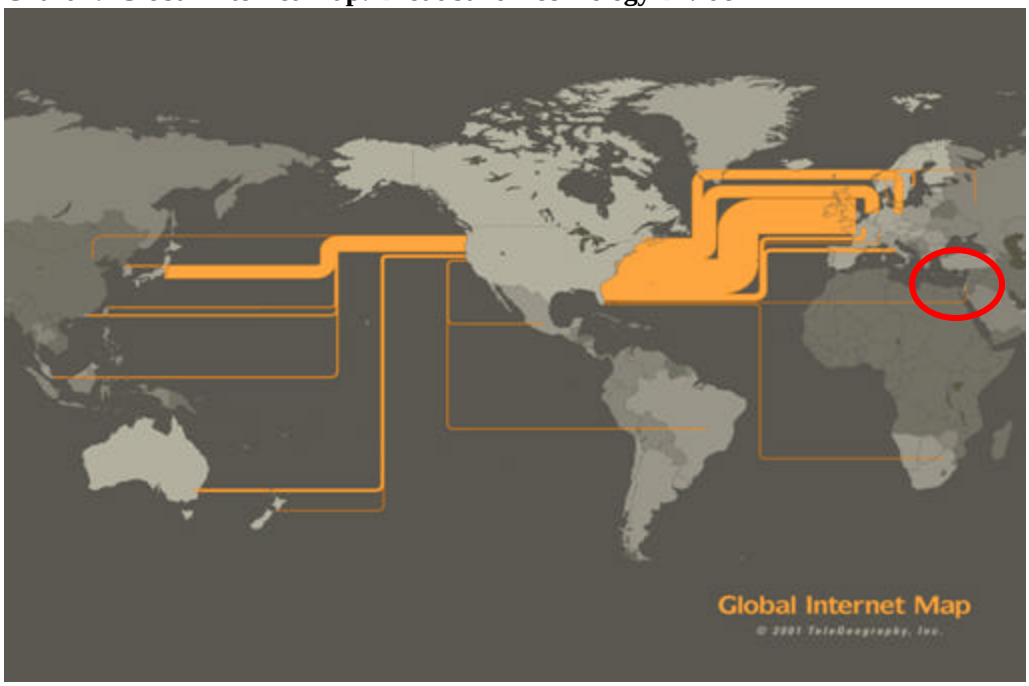


Table 1: Good Governance Indicators, 2001

	Low Income	Lower Middle Income	MENA Region			World Average	Upper Middle Income	High Income
			Min.	Average	Max.			
Voice and Accountability	31.5	45.4	1.1	32.6	77.6	50.4	61.3	82.0
Political Stability No violence	27.7	42.5	4.3	49.7	95.7	50.4	63.2	86.4
Government Effectiveness	26.5	42.5	3.8	53.8	88.8	50.5	62.7	87.4
Regulatory Quality	28.5	42.9	1.8	49.4	82.8	50.6	65.6	83.4
Rule of Law	27.0	42.6	1.8	55.7	84.1	50.5	62.7	88.6
Control of Corruption	27.8	43.9	5.0	51.6	83.9	50.6	60.9	86.3

Source: The World Bank, http://www.worldbank.com/

Table 2: Websites Presence in the Mediterranean Countries – January 2001 (Number of websites / number of institutions, per categories) **

	Primary and Secondary Schools	High Schools and Universities	National Ministries	Regional and Local Authorities	Hospitals and Clinics	Museums	Libraries
Algeria	0%	28%	47%	33%	1%	31%	3%
Cyprus	6%	38%	100%	n.a	8%	11%	1%
Egypt	1%	7%	38%	n.a	0%	8%	6%
Israel	17%	85%	91%	99%	52%	24%	5%
Jordan	0%	22%	100%	0%	7%	0%	0%
Lebanon	3%	74%	73%	12%	8%	75%	40%
Malta	6%	4%	35%	21%	20%	21%	2%
Morocco	0%	75%	136%	1%	25%	n.a	n.a
Palestine	0%	36%	29%	8%	4%	0%	6%
Syria	0%	25%	35%	0%	0%	0%	0%
Tunisia	1%	33%	95%	0%	0%	60%	0%
Turkey	1%	100%	100%	4%	6%	30%	8%
Average	3%	44%	73%	18%	11%	24%	7%

Source: Esis Extension/Mediterranean Countries

Notes: ** that an institution may have more than one website.

Table 3: Issues and Impact of e-Government Initiatives

	Activities (G2B -G2G -G2C)	Impacts	Examples of good practice
Administration ▪ Civil servant quality ▪ Service delivery ▪ Process costs ▪ Management process reengineering	▪ eProcurement ▪ Joined up government ▪ On-line permits and licenses	▪ Cut costs ▪ Improved services ▪ More convenient - faster - 24h ▪ Better management- more effective use of resources ▪ Better efficiency	▪ National ID system in Egypt ▪ HR and Payroll system for public servant in Tanzania ▪ Better tax return filing for citizens in Chile
Economic ▪ Funding ▪ Cost saving ▪ eCommerce ▪ Business models	▪ Policies to promote ICT ▪ Competition between Internet Service Providers ▪ Lower communication costs	▪ Encourage foreign investment ▪ Reinforce local IT industry ▪ Improve customs (procedures, costs) ▪ Better tax return	▪ Philippine Customs Reform ▪ Beijing's Business E-Park ▪ Dubai Ports and Customs Authority ▪ Jamaica Customs Automated Service Online
Social ▪ Level of education ▪ Employment ▪ Income ▪ Digital divide ▪ Literacy ▪ IT skills ▪ Rural areas v/s cities ▪ Gender divide	▪ Support distance learning ▪ Expanding knowledge base ▪ Empowering farmers through information and services kiosks ▪ Free internet course evaluation	▪ Better education ▪ Better skilled people ▪ Empowerment of women	▪ Sri Lanka access model ▪ Argentina ▪ Nairobi
Political ▪ Laws and regulations ▪ Decision making process ▪ Strategies and policies ▪ Leadership	▪ E-participation (concerted action) ▪ Connecting government to citizens ▪ Joined up government (decision making)	▪ Democratization reforms ▪ Strengthen accountability ▪ Speed up decision making ▪ Improve quality of decision making ▪ Enable innovative approach to government ▪ Increase transparency ▪ Create empowerment ▪ Strengthen capacity to investigate, develop and implement strategy and policy ▪ Anti-corruption drive	▪ Supporting Free and Fair Elections in South Africa ▪ Ireland

Table 4: MENA Main Access and Connectivity Indicators, 2001 (unless otherwise specified)

	Basic Indicators, per 100 inhabitants				Teleaccessibility (Y 2000)		Telecom Investment, per main line, in USD (Y 2000)
	Year 2001		Projections for Year 2005				
	Telephone subscribers	Cellular mobile subscribers	Telephone subscribers	Cellular mobile subscribers	Residential main lines per 100 households	Public telephones per 1,000 inhabitants	
Algeria	6.4	0.3	6.1	10.1	28.8	0.2	72
Bahrain	67.2	42.5	22.7	84.8	over 100	3.0	486
Djibouti	2.0	0.5	1.6	0.8	4.9	0.1	222
Egypt	14.6	4.3	10.7	21.0	31.9	0.4	94
Iran	18.7	2.7	16.3	5.6	56.1	1.4	10
Israel	128.5	80.8	43.6	102.9	over 100	3.6	140
Jordan	27.1	14.4	9.4	22.6	55.7	1.5	350
Kuwait	48.8	24.8	23.0	27.9	over 100	0.3	922
Lebanon	40.7	21.3	18.8	25.5	65.9	…	...
Morocco	19.6	15.7	3.2	31.6	21.0	1.7	161
Oman	21.3	12.4	8.2	51.0	…	1.6	291
Palestine	16.8	9.1	8.4	8.8	…	0.7	266
Qatar	56.8	29.3	26.7	63.6	over 100	1.4	232
Saudi Arabia	25.8	11.3	14.5	38.9	51.5	6.8	...
Syria	12.1	1.2	11.1	5.5	43.0	0.3	133
Tunisia	14.9	4.0	11.7	9.2	32.2	2.0	208
Turkey	58.7	30.2	28.1	44.5	97.0	1.1	34
UAE	111.7	71.9	34.4	108.7	over 100	11.1	535
Yemen	3.0	0.8	2.2	1.6	8.9	…	138
World	32.8	15.6	17.8	27.2	54.9	2.6	209

Table 5: MENA Main Access and Connectivity Indicators, 2001 (unless otherwise specified)

	Information Technology			Network Growth (2000-2001), in thousands		
	Internet hosts per 10,000 inhabitants	Internet users per 10,000 inhabitants	Estimated PCs per 100 inhabitants	New telephone lines added	New mobile subscribers added	New Internet hosts added
Algeria	0.2	19.3	0.7	118.7	14.0	0.6
Bahrain	24.4	1,988.7	14.2	2.9	93.9	0.6
Djibouti	-	51.3	1.1	0.2	2.8	-
Egypt	0.3	93.0	1.6	1,166.4	1,433.9	-0.4
Iran	0.4	62.7	7.0	519.2	522.2	1.7
Israel	220.8	2,304.9	24.6	79.0	860.0	-36.6
Jordan	4.2	409.1	3.3	40.0	356.6	1.3
Kuwait	17.4	1,014.7	13.2	5.3	13.2	0.1
Lebanon	20.0	858.0	5.6	-	-	-
Morocco	0.8	131.5	1.3	-233.7	2,429.7	0.6
Oman	17.8	457.5	3.2	9.9	160.2	4.0
Palestine	…	181.2	…	4.1	15.0	…
Qatar	2.1	655.7	16.4	7.3	57.9	0.1
Saudi Arabia	5.1	134.4	6.3	268.2	1,152.8	7.7
Syria	0.0	36.1	1.6	132.3	170.0	-
Tunisia	0.2	412.4	2.4	101.1	270.1	0.2
Turkey	16.1	377.2	4.1	505.7	3,866.6	36.6
UAE	288.5	3,392.4	15.8	32.8	481.2	42.2
Yemen	0.0	8.9	0.2	76.5	120.0	-
World	232.7	820.8	7.7	58,763.2	200,027.7	34,638.2

*Source: Table 4 and 5- International Telecommunication Union, *www.itu.int*

Appendix: Survey of ICT Legal Developments in the Arab Countries

Current Legislation/Initiatives on key issues affecting Government-Citizen Relation

Country	Freedom of information	Privacy/Data Protection	Administrative Procedure	Electronic Signature	e-Government Policy	Ombudsman
Algeria	NA	X[i]	NA			NA
Bahrain	NA		NA	Draft[ii]	X[iii]	NA
Egypt	NA		NA	Draft[iv]	X	NA
Jordan	NA	X[v]	NA	Draft[vi]	X[vii]	X[viii]
Kuwait	NA		NA	Draft[ix]	X[x]	NA
Lebanon	X[xi]	X[xii]	NA	Draft	X[xiii]	X[xiv]
Libya	NA		NA			NA
Morocco	NA	X[xv]	NA	Draft[xvi]	X[xvii]	NA
Oman	NA		NA		X[xviii]	NA
Palestine	NA		NA			NA
Qatar	NA		NA	X[xix]		NA
Saudi Arabia	NA		NA	Draft[xx]	X[xxi]	NA
Sudan	NA		NA			NA
Syria	NA		NA	X[xxii]		NA
Tunis	NA	X[xxiii]	NA	Law[xxiv]	X	NA
UAE	NA	X[xxv]	NA	X[xxvi]	X[xxvii]	NA
Yemen	NA		NA			NA

Source: Alem & co.

1. **The law 303 of the penal code (see Art. 47 and 48 of the Posts and Telecommunications code: legislative part) punishes all violation of secret correspondence trusted to the service of telecommunications. The confidence of conversations through shared lines is assured (Art. 311 of the Posts and Telecommunications code: regulation part). All Internet service providers must keep confidential the privacy of their subscribers and submit all project of use of any encryption system. They must assume the responsibility of the content of the Web sites and data servers that they develop and that host. They must ensure a constant watch of the accessible server content to their subscribers (Art. 14 of the ministerial decree No. 98-257 of August 25, 1998 defining conditions and appropriate modes for using and operating Internet services).**
2. **The final draft of an e-commerce law that will provide businesses in Bahrain with the legal infrastructure needed to transact business over the Internet and conclude deals in a paperless environment with electronic signature verification and all protection is now before a special committee prior to being presented to the Cabinet.**
3. **On July 2002, Oracle Corporation announced that the Government of the Kingdom of Bahrain has gone live on Oracle E-Business Suite 11i. Bahrain Ministry of Finance and Nation al Economy lead the first of its kind in the region project signaling the e-Government transformation in Bahrain.**
4. **Draft Law approved by the Egyptian Cabinet on July 15, 2002.**
5. **The Telecommunications Law of 1995, Chapter XII – Concluding Provisions provides privacy, data protection and consumer protection.**
6. **Through a Project called REACH2, the government is currently working on draft laws on e-signature, however, it was not clear whether the draft was submitted to Parliament.**
7. **The Telecommunications Minister was responsible for overseeing the implementation of a national e-Government strategy endorsed by the Economic Consultative Council (ECC). In September 2000, the ECC launched its first action plan for e-Government envisaging its completion between the next three-five years ad the implementation of a few fast track projects within the next 12-**

18 months. The seven fast-track projects will involve services in government-to-business (G2B), government-to-citizens (G2C) and government-to-government (G2G) transactions. The Jordanian Economic Consultative Council has elaborated a "E-Government strategy".

8. **Telecom Regulatory Commission.**
9. **Draft prepared by the Kuwaiti Chamber of Commerce.**
10. **Kuwait has established the National Committee for Implementing e-Governments, to assess the current technology status in the country and to establish a mechanism for creating an e-Government in Kuwait. In March 2002 The Government of Kuwait posted a Tender while in the process of implementing the E-Government project to link various governmental services and to facilitate offering services to the public. For this purpose, the government created the Secretariat for the Central Technical System. The Secretariat invites local and international companies and consulting offices specialized in consulting services and information systems, which possess technical capabilities, resources, and appropriate application expertise, and which are aware of the nature of governmental activities, to submit their offers to prepare the comprehensive strategic plan to implement the E-Government Project, together with the consulting support services and the supervision of implementation. The offer should contain the technical dimensions including the in formation secrecy and security, the educational, security, legal, social and administrative perimeters.**
11. **For the Telecom Sector. The new Telecom Law grants public access to information concerning the Telecom Regulatory Commission.**
12. **COBTI is preparing a proposed regulation to be issued by the Central Bank concerning Data Privacy and to be applied to banks and financial institutions. Such proposed regulation for Data Privacy is mainly based on the European Directive on Data Protection.**
13. **National Information Technology and Strategy (OMSAR). The Office of the Minister of State for Administrative Reform has integrated the objective of developing and implementing an e-Government strategy into the work plan of its project with UNDP for the year 2002. The purpose behind the proposed e-Strategy for Lebanon is to lay out the roadmap for the enabling building blocks for a national e-society covering information and communication technologies (ICT) infrastructure, institutional and legal frameworks and human resources from both the service user and service provider perspectives. This roadmap will for example allow for realizing in addition to eGovernment, e-Commerce/e-Business, e-Learning and e-Banking applications.**
14. **Telecom Regulatory Authority.**
15. **Building an information society, the main goal of any telecom development policy, requires an appropriate legal and regulatory environment which creates confidence and provides a framework for the use of information technology, and which is capable of adapting to fast-paced technological change. The Secretariat of State's action programme in this area consists in improving and adapting legal and regulatory texts related to:**
    a. **The protection of privacy, by instituting disclosure and authorization procedures for the creation and use of personal files, and an entitlement for citizens to access their files and make corrections;**
    b. **The confidentiality and security of electronic communications and transactions;**

c. **The evidentiary weight of electronically transmitted data and electronic signatures;**

d. **Consumer protection;**

e. **Adaptation of the tax system and customs code to e-commerce.**

16. **The "e-commerce initiative" was launched with the drafting of regulatory texts on electronic data exchange and electronic signatures, and approval for three Moroccan companies to provide e-commerce services on national platforms.**

17. **The "on-line government" initiative, aimed at linking all departments and their staff, was announced by the Government Council on October 28 2001; however, such initiative was not fully implemented till date.**

18. **Oman's Cabinet has established, in 2001, the National Task Force, formed by 12 members and chaired by the head of the Ministry of Finance. The assignment of such Task Force is to move towards "e-Oman", which consists of e-Government, e-commerce, e-learning and other e-services. The Task Force is currently assessing best practices that have been deployed in a number of e-Government projects elsewhere.**

19. **Qatar is in the process of implementing its E-Government Strategy.**

20. **A international Law Firm was contracted to draft a proposed regulation on electronic Commerce (2001). A technical committee was set up to formulate e-commerce regulations in Saudi Arabia. The committee consists of five members, chaired by the Deputy Minister of Commerce. The other members are the Deputy Minister of Finance & National Economy, the Vice Chairman of KACST(5) the Deputy Governor of SAMA(6) and the advisor to the President of Saudi Telecom. Online financial services in Saudi Arabia are also being object of a legal and technical framework. The responsibility of SAMA is overseeing five projects under the control of its eWorking Group in respect of online financial services.**

21. **The Saudi Ministry of Commerce and the Ministry of Finance & National Economy are working on the formulation of a coordinated policy for Kingdom-wide e-Government.**

22. **Following the meeting between Syrian President Bashar Assad and British Prime Minister Tony Blair last autumn, the UK Government agreed to sponsor the development of an IT strategy for Syria. This was carried out by Charles Lowe, an IT consultant with substantial expertise in working with both governments and business. The initial visit identified some areas for action and plans, among which, the establishment of a Syria-wide e-Government program. A possible new phase is now under consideration, which will provide expertise in implementing these plans.**

23. **Tunis Data Protection Electronic Exchanges and Electronic Commerce Bill regulates the gathering and processing of personal data applicable to Certification Service Providers.**

24. **A law regulating the electronic commerce was adopted on August 2000 (Law n°: 2000-83 – Electronic Exchanges and Electronic Commerce Bill. This law regulates the use of the electronic commerce as well as the electronic signature. This legislation comes to enclose three years of studies on the electronic commerce carried out by a national Commission since its creation in November 1997.**

25. **In the United Arab Emirates ("UAE"), although the Constitution and the Penal Code guarantee the right to privacy, the Civil Code in its current form does not**

allow private individuals to directly seek compensation for violations of their privacy rights.

26. **His Highness Sheikh Maktoum Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, has issued a local law for the Emirate of Dubai, Law No. 2 of 2002 Concerning Electronic Transactions and Commerce. The 39 articles Law is a combination of the United Nations guidelines and local specifications and is meant to facilitate e-correspondence through reliable e-books; remove any barriers to e-commerce and other e-transactions; facilitate submitting e-documents to government departments and institutions; reduce the number of submissions of e-correspondence and amendments thereto; set uniform criteria for documentation and security of e-correspondence; boost the public's confidence in security and validity of e-books and correspondence; and enhance development of e-commerce and other transactions, locally and internationally, through using e-signature.**

27. **In April of 2000, Sheikh Mohammed bin Rashid Al Maktoum, Dubai Crown Prince and the UAE Defense Minister passed a decree on e-Government which set a punishing schedule, giving departments and ministries just 2 to 3 weeks to assess business processes and develop ideas, a further 6 to 8 weeks to design pilots, and just four months to get pilots up and running. The final goal: e-Government in Dubai by October 2001 needless to say, the project has been launched under the umbrella site of www.Dubai.ae as scheduled.**

Statistical Appendix

Annex Table 1: Public Sector Data, 1996-2000[a]

	MENA average	Low Income Group average	Middle Income Group average	High Income Group average
National Labor Statistics				
Population (Thousands)	16,098.3	35,624	29,295	19,959
Labor force (% of Population)	33.0	45.7	42.3	48.3
Unemployment rate	16.2	3.8	10.0	7.5
Public Sector Employment				
General Government Total (% of Population)	4.2	2.3	4.3	10.5
Total public employment (% of Population)	6.3	..	6.05	..
Public Employee Wages				
Total Central gov't wage bill (% of GDP)	11.1	5.4	8.5	4.2
Total Central gov't wage bill (% of gov't exp.)	32.6	24.7	21.6	16.4
Central Government Expenditures*				
Goods and Services (% of expenditure)	46.0	..	32.0	29.0
Wages and Salaries (% of expenditure)	32.0	..	20.0	12.0

Source: The World Bank, World Development Indicators 2001

Notes: a. Data are for the latest year available

Annex Table 2: Networked Readiness Index (2001-2002)

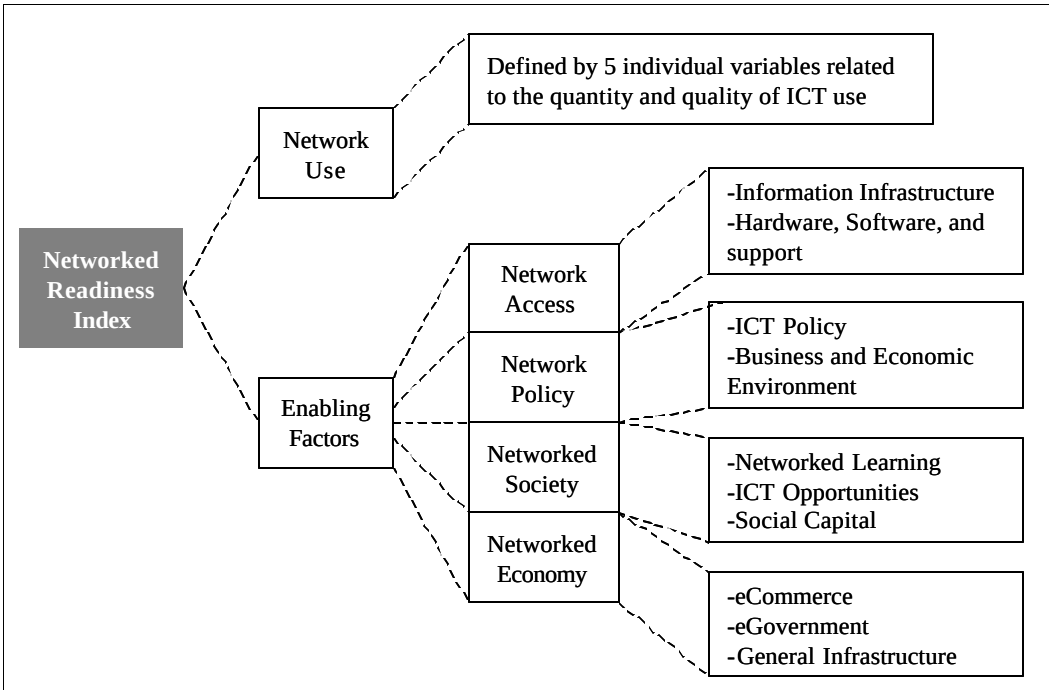
Country	Networked Readiness	NRI Rank
United States	6.05	1
Iceland	6.03	2
Finland	5.91	3
Sweden	5.76	4
Norway	5.68	5
Netherlands	5.68	6
Denmark	5.56	7
Singapore	5.47	8
Austria	5.32	9
United Kingdom	5.31	10
New Zealand	5.23	11
Canada	5.23	12
Hong Kong SAR	5.23	13
Australia	5.22	14
Taiwan	5.18	15
Switzerland	5.17	16
Germany	5.11	17
Belgium	4.90	18
Ireland	4.89	19
Korea	4.86	20
Japan	4.86	21
Israel	4.84	22
Estonia	4.73	23
France	4.71	24
Italy	4.70	25
Spain	4.62	26
Portugal	4.57	27
Czech Republic	4.38	28
Slovenia	4.24	29
Hungary	4.14	30
Greece	4.13	31
Argentina	4.01	32
Slovak Republic	4.01	33
Chile	4.00	34
Poland	3.85	35
Malaysia	3.82	36
Uruguay	3.80	37
Brazil	3.79	38
Latvia	3.78	39
South Africa	3.71	40
Turkey	3.67	41
Lithuania	3.59	42
Thailand	3.58	43
Mexico	3.58	44
Costa Rica	3.57	45
Trinidad & Tobago	3.52	46
Dominican Republic	3.52	47
Panama	3.42	48
Jordan	3.42	49
Venezuela	3.41	50
Mauritius	3.40	51
Peru	3.38	52
Bulgaria	3.38	53
India	3.32	54
El Salvador	3.30	55
Jamaica	3.29	56
Colombia	3.29	57
Philippines	3.27	58
Indonesia	3.24	59
Egypt	3.20	60
Russian Federation	3.17	61
Sri Lanka	3.15	62
Paraguay	3.15	63
China	3.10	64
Romania	3.10	65
Ukraine	3.05	66
Bolivia	3.04	67
Guatemala	3.00	68
Nicaragua	2.83	69
Zimbabwe	2.78	70
Ecuador	2.65	71
Honduras	2.64	72
Bangladesh	2.53	73
Vietnam	2.42	74
Nigeria	2.10	75

Source: Centre for International Development, Harvard University

The Networked Readiness Index (NRI)

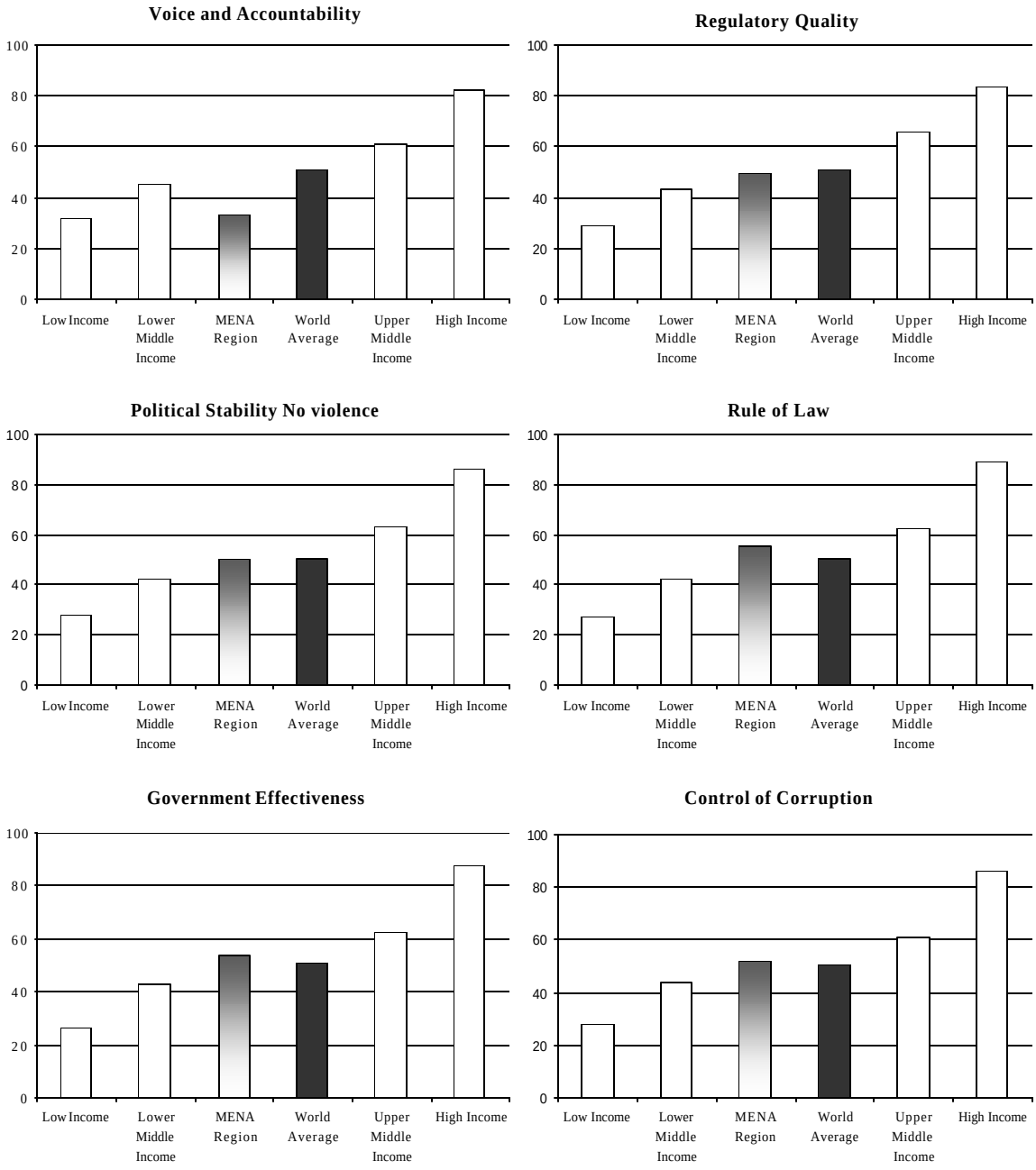
The NRI forms a summary measure that helps to focus attention on overall levels of ICT development. The NRI is defines as "the degree to which a community is *prepared* to participate in the Networked World", and moreover as a "community's *potential* to participate in the Networked World in the future": NRI is an aggregate index capturing broad Readiness trends.

The Structure of the NRI



For more information, go to http://www.cid.harvard.edu/cr/pdf/gitrr2002_ch02.pdf

Annex Chart 1: Good Governance Indicators, 2001



Source: The World Bank

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