

E-Government Readiness Assessment Model

Ahmed Al-Omari and Hussein Al-Omari
Computer Science Department, Applied Science University, Amman, Jordan

Abstract: This study presents a general framework model for E-Government Readiness Assessment. There are six necessary key factors to implement any E-government initiative worldwide. These factors represent the basic components to be assessed before launching the "e-initiative" to guarantee the right implementation in the right direction. The organization building blocks need to be assessed are: Organizational Readiness, Governance and leadership Readiness, Customer Readiness, Competency Readiness, Technology Readiness and Legal Readiness^[1]. In the Organizational readiness, bureaucratic nature of E-Governments, business process, long process delay and need for re-engineering will be discussed. In the Governance and Leadership Readiness, the importance of leadership and governance for the e-initiative, the importance of procedures, service level agreement, the way public officials perform, commitment and accountability for public jobs, all will be shown. In the Customer readiness, the main public concerns regarding accessibility, trust and security will be highlighted. In the Competency readiness, the lack of qualified personnel in the public sector and the different alternatives to overcome this issue will be discussed. In the Technology readiness, too many issues worth to be considered, such as hardware, software, communication, current technology, legacy systems, sharing applications and data and setting secure infrastructure to exchange services. The last factor is the Legal readiness where the adoption of the Jordanian Temporary law No 85 in the year 2001 "Electronic Transaction Law" ETL paved the road towards the big shift for e-initiative and privacy. Some of these will be discussed in detail. The need for this detail arises from the fact that all government activities are governed by law. For this reason, it is important to start from this key factor.

Key words: E-government, e-readiness, legal readiness, e-model, Jordan

INTRODUCTION

Most Governments share some common characteristics; basically, they are oriented for public services. The relationship between citizens and governments is strictly managed by law; moreover, government agencies may be required by law to share information with other agencies or with the citizenry. In many parts of the world, citizens' trust in governments is inherently suspicious. Bureaucracy also is one of the major marks of public sectors. These are not the only characteristics of general governments; many others are beyond the scope of this study.

The necessary pre-conditions for e-government depend upon the most important needs of a society. For example, the level of technical infrastructure, legal framework and professional skills needed for e-government, vary with the objectives being pursued; but if requirements vary, how can a government assess readiness for e-government?^[2]

Readiness for e-government is not restricted to the governmental body. It is also important to assess society, government institutional frameworks, human resources, existing budgetary resources, inter-department relationship, national infrastructure, economic health, education, information policies,

private sector development and other issues related to e-government readiness. The fact is e-government has multiple dimensions. Each dimension demands leadership, strategy, cross-coordination and know-how, all combined with a technology strategy to take vision to reality^[3].

E-Government planning methodology consists of four phases: Strategic Planning, Readiness Assessment, Implementation Plan and E-Government Plan^[1]. Since the first phase has been launched by the Jordan Government and the goals, objectives and vision have been set (Launching E-Government in Jordan, 2000), so the next phase is Readiness Assessment, the main subject of this study.

As the Jordan Government has identified the basic building blocks of e-government (Launching E-Government in Jordan, 2000), it is important to design a framework model that can be used by different government organizations, the main building blocks mentioned in the initiative report findings are:

- * E-Service Applications Identification (Through Fast-Track Projects).
- * Technology Infrastructure Development.
- * Legal and Regulatory Framework Development.
- * Education Reform and Skills Development.

* Management and Organizational Structure Development.

This shows the importance of this study in contributing to the of E-Government readiness assessment.

Organizational readiness assessment: Organizations, particularly Government organizations, are typically structured in a top down bureaucratic style, forcing customers to develop knowledge of the structure to be able to seek services^[4]. The bureaucracy nature of governments^[5], long process delay, complex procedures, duplicate of work and efforts, duplicate of documents and data and process redundancy are also holds. In addition to that, inherited hate of dealing with governments creates barriers between constituents and governments. It is not enough to automate government business processes but also it is important to create a revolutionary business environment (i.e. a comprehensive Business Process Re-Engineering "BPR")^[1]. The two main points to be mentioned here are Business Processes and Organizational Hierarchal.

Business processes: The bottleneck is the process flow itself, which is set by high level management and domain experts, to facilitate the process application. The process outcome is governed by law. Once the process flow has been set up and approved, it is not easy to change that process flow where the process improvement is possible.

To achieve process improvement, the current process efficiency has to be re-evaluated based on some common criteria from different perspectives, i.e. Citizens, Government, Business and Employees point of view. The efficiency metrics guidelines for process assessment are^[1]:

- * % Process Automation
- * % Process Electronic Delivery
- * Average number of Journeys to receive the service
- * Average Time to Complete the Service Delivery
- * Average Number of Stations visited by the citizen to complete the service.

Organization hierarchal structure: The process improvement certainly will lead to a significant change on the organization itself, such as the hierarchal structure, the new roles of employees, the new role of the organization itself, as well as the laws that govern the organization. All other dependencies (i.e. other organizations) related to the process has to be set-up again. Process-Technical integration is also required, which means that underneath process integration is technical infrastructure integration^[6].

Leadership and governance readiness assessment: Its quite obvious that through Leadership and Governance e-government will be accomplished, full

support and adoption from different levels of leadership is highly required,. Leadership represents the main factor to maintain and coordinate the body of rules, agreements and standards that set the basis for inter and intra relationships and functions within the organisation.

E-government, cannot be achieved simply by drafting a law or issuing an order from leadership. It requires changing how officials think and act, how they view their jobs, how they share information between departments (G2G), with businesses (G2B) and with citizens (G2C). It requires re-engineering the government's business processes, both within individual agencies and across government^[2].

Governance or management from science and technology perspective defined as a good management at different levels^[7]. "IT Governance specifies the decision making authority and accountability to encourage desirable behaviors in the use of IT. Over 75% of businesses today have ineffective or non-existent IT governance. For IT to move forward rapidly in the business-driven environment, IT governance must change radically and swiftly to maximize the business value of IT. Most enterprises should "blow up" their existing governance models and start over from scratch"^[8]. In order to achieve a certain level of service delivery agreement by e-government, it is important to set and identify the roles of leadership and governance. That could be done taking into consideration some guidelines that would help in this regard^[1]:

- * Identify a **Service Manager** with end-to-end responsibility for service delivery.
- * Identify a **Service Level** agreement, the time, quality and cost, evaluation and customer service satisfactory.
- * Develop **new Policies**, functional and non-functional requirements.
- * Define **business continuity** planning and **content management** processes.

Customer readiness: Electronic Government is directed toward all citizens and businesses that public administration has a mission to serve, including individuals that are handicapped due to physical, social, economic, geographical, or cultural factors. Customers cannot be treated as a homogeneous group and therefore readiness depends on accessibility, culture and economic status of diverse groups^[1]. The main concerns regarding customer readiness are Accessibility Concerns and Trust Concerns.

Accessibility concerns: The ability to access government services offered by e-government, that includes Social, Cultural, Disability and Economic concerns, the Social concerns where some people prefer to conduct the simplest business transaction in

person contact. The Cultural concerns includes language and literacy barriers. The Disability concerns means people with disabilities cannot be discriminated against. The Economic concerns, involves taking in to considerations the issue of the digital divide, limited public access to the internet, lack of relevant skills amongst public and public servants and the poor people who are un able to buy devices to access the Internet.

Trust concerns: Trust is a central defining aspect of many economic and social interactions. It is the belief that the other party will behave as expected in a socially responsible manner; and in doing so, it will fulfill the trusting party's expectations. Hence, trust reduces the social complexity that is the result of people being independent agents whose behavior cannot always be controlled or anticipated^[9]. There are a lot of concerns about the privacy of information that is collected and used by public organizations. These concerns are listed as:

- * Confidentiality: to assure no one is prying on my data.
- * Privacy: to assure my data is going to be treated only for the purpose it was asked for and no one else is going to use it other than the recipient.
- * Authentication: to verify the identities of both parties.

All of these demands can be achieved around implementing the Public Key Infrastructure PKI, which simply means "Building trusted means of communication over public and private networks", all e-initiatives will be dependent on digital signatures and digital certificates. PKI is about securing the access to networks and movement of data and information of those networks. PKI addresses threats in the areas of authentication, privacy, integrity and non-repudiation^[10].

Competency readiness: Competency readiness means the existence of qualified personnel in the public sector, those valuable resources could be permanent public servant, outsourced resources, contract negotiation skills, change management, relationship management, contract administration skills and project management.

For the long run, the government has to think about preserving all kinds of required skills as a public servant, or as external entities from the private sector.

Technology readiness: Technology readiness involves all necessary technologies to enable the e-initiative that includes hardware, software, communication and networks infrastructure, Internet penetration, software application, legacy systems and the current organization's technology and electronic systems.

The main concern in this part of readiness is the availability of professional government skills. Also it is

important to provide a variety of types of technologies to facilitate the implementation of e-government. In this regard, we are talking about web sites design and implementation, advanced web tools to ease the access to government portal, attractive look and feel portals, bilingual portals, less expensive devices to access the Internet and maintaining customer security and privacy. The government investment in current information technologies and the legacy systems has to be the main focus of the e-initiative. The other part of technology readiness is Communication Technology Infrastructure (CTI). The main communication carrier in Jordan is the Jordan Telecommunication Company. This company owns the communication facilities of wired connections. The government is already in a process to issue new licenses for other competitors. In the area of mobile services two companies provide the service. Also other companies are going to share the market very soon^[11]. The Communication Technology Infrastructure (CTI) needs improvements in some areas^[11], where:

- * The communication network was designed for voice transfer.
- * Low speed digital nation networks do not exist; which means barriers in developing data transfer.
- * The current network cannot provide advanced voice features.
- * The current network cannot provide video services.

Jordan has been leading the region in its strong innovation and leading edge service capability^[11].

Legal readiness: E-government readiness goes beyond Organizational, Governance and leadership, Customer, Competency and Technology issues. It involves the canonical form of the government performance. The legal part of e-government is very important, where the new procedures and other government activities have to be formally regulated. The implementation of BPR, organizational change, leadership and governance reform and the new channels of services, has to be legally issued. This includes laws, bylaws, directives and all other regularity issues that concern government service delivery. The legal umbrella is the safety valve for all government activities. Each organization that wishes to implement e-initiative has to do a separate legal assessment for its case^[11]. The legal issues include many parts; the most important parts among these are:

- * Legality of conducting business electronic transactions.
- * Legality of electronic documents exchanging.
- * Legality of sharing of application data across organizational boundaries.
- * Liability assignment for Internet transactions.
- * Legality of electronic payments.
- * Legality of notifications, management, physical services delivery and contracts.

* Verifying identifications, electronic signatures and authentication procedures.

To overcome most of these issues, the Government of Jordan has issued the Electronic Transaction Temporary Law N^o. 85 of 2001 (ETL) in the year 2001. The main objective of the law is to regulate electronic transactions conducted by electronic facilities. The ETL was launched nearly at the same time of launching the e-initiative. In order to facilitate and bridging the gap toward e-commerce arena, according to Article-3 of the ETL Law it applied on:

- * All electronic transactions, records, signatures or any electronic information letter.
- * All transactions regarding government and formal organizations, where it decided to adopt to use electronic means.

Article-4 of the ETL Law allowed a wide range of transactions to be conducted electronically either completely or partially. Also there are some exceptional cases where the transaction has to take place in the person's presence. The formulation of these are contracts requires certain formalities, such as agencies and power of attorneys related to personal status transactions like marriage, divorce, etc^[12]. Article-4 of the law has identified those cases as follows:

- * Initiation and modification of a will.
- * Initiation and modification of a religious endowment (Waqf).
- * Conduct transactions fixed assets, ownership titles, except contract of tenancies.
- * Transactions and agencies concerning personal affairs.
- * Notifications regarding contract detachments of water, electricity and insurance.
- * Notifications of decelerations, procedures and pleadings and court judgments.

Its obvious that these exceptional cases where the law forces the physical document exchange or the personal appearance to conduct the transaction, the ETL Law doesn't take into consideration the existence secure electronic means, like PKI, which provides Authentication, Identification, Privacy and Non-Repudiation, in this case a law amendment is required.

Article-11 of the ETL Law has approved keeping written documents for purposes of authentication, proof or review, or for any other purpose.

Article-6 of the ETL Law stated clearly that the ETL Law does not revoke other laws, but it provides new regulatory rules capable to shift the government towards the information age and to facilitate using electronic means.

Article-7 of the ETL Law imposes legality for all kinds of electronic transactions, as if they were carried out in written documents. The e-signatures, e-transactions, e-documents, e-mails, e-payments, e-

records and e-services have the full legal effects if the following conditions are satisfied (Article-8):

- * If the two parties agree to use electronic means.
- * If the recipient is able to save, retrieve, or print the content of the electronic transaction.
- * If there is a possibility to keep the received electronic record in the same form of it is initiation.
- * If the content of the electronic record can show the source, time and date of the sent transaction.

Chapter-2 of the ETL Law includes all kinds of commercial notifications and acknowledgments such as e-commerce, e-trade, e-checks, e-payments and e-transfers.

Article-32 of the ETL Law sets the conditions for accepting the digital signature and considered to be fully authenticated if the following conditions satisfied:

- * Uniquely associated with the person involved.
- * Can identify the person involved.
- * It has generated by the involved person or by means related to him and under his control.
- * If the electronic transaction is tightly related to the signature where it is difficult to make any modification to the electronic transaction without affecting a change in the signature.

Article-10/b of the ETL Law considers the digital signature as authentication of the signer and the authenticity of an authenticated digital signature shall be assumed unless the contrary is proven.

Article-34-b of the ETL Law puts conditions to accept digital signatures if the digital certificate issued by a certificate authority, where the certificate will be adopted if:

- * If issued by a licensed authority in Jordan.
- * If issued by a licensed authority outside Jordan and approved in Jordan.
- * If issued by an authorized governmental department.
- * If issued by an authority which has been agreed upon by the parties.

Article-21 of the ETL Law allows payment through electronic means, i.e. e-payment and puts some conditions to proof the authenticity of the electronic transaction. It is the responsibility of the Central Bank of Jordan to monitor and regulate the payment process and issue the required instructions in this regard, as stated in Article-99-b of the Banking Law in Jordan.

The adoption of electronic payment or electronic transfer by the Government departments needs only issuance of specific instructions by the Minister of Finance in this regard.

CONCLUSION

E-Government readiness assessment is a very difficult job where each government has its own

objectives and priorities. The framework model presented in this study can help as a general guideline for the Jordan E-Government initiative. The issuing of the temporary law No 85 year 2001, Electronic Transaction Law "ETL" has opened the way towards implementing the initiative. The adoption of electronic means to provide the government services does not need passing a special legislation or amending existing legislations. It only requires issuance of written instructions by an authority, such as a minister, for the adoption of electronic means in providing the services without having any doubt in the basis of the adopted procedures.

In general, nothing in the current legal framework explicitly prevents electronic online transactions with the Government Ministries. On the contrary, current legislation would seem to support the adoption of electronic transactions where there is no doubt about the authenticity of the applicant. The exception to this, which demands personal presence of a client, will require a legal change if this barrier to electronic service delivery is to be removed.

In conclusion, as a preliminary assessment of the legal environment concerning the Jordan Government, it seems the E-Government initiative would not face major legal obstacles for its implementation if it considers the proposed model in this study. What is required is rather the adoption of administrative procedures, which adhere to the currently enforced legal structures of the country.

REFERENCES

1. Gartner Group, 2002. Gartner Group Report to The Jordanian Ministry of Information & Communication Technology (MoICT).
2. Anonymous, 2002. The Working Group on E-Government in the Developing World, Roadmap for E-government in the Developing World, Pacific Council on International Policy, www.pacificcouncil.org.
3. Caldwell, J., 1991. The Quest for Electronic Government: A Defining Vision, The Institute for Electronic Government, IBM Corporation. www.ieg.ibm.com.
4. Barreyre, P.Y., 1988. The concept of 'impartition' policies: A different approach to vertical integration strategies. *Strategic Management J.*, 9: 507-520.
5. Tambouris, E., S. Gorilas and G. Boukis, 2001. Investigation of Electronic Government.
6. Tambouris, E., G. Boukis, C. Vassilakis, G. Lepouras, S. Rouvas, R. Caadas, S. Eredia and C. Lpez Usero, 2001. SmartGov: A Governmental Knowledge-based Platform for Public Sector online Services.
7. Katib, H., 2001. Science and Technology in Jordan, Towards Sustainable Policies (Policies, Strategies, Financing and Governance), (research paper presented in The Seventh Jordanian Science Week).
8. Dallas, S., 2002. IT Governance in the Business-Driven Environment, Gartner IT EXPo, Orlando Florida.
9. Gefen, D., 2000. E-Commerce: The Role of Familiarity and Trust, *Omega: The Intl. J. Manag. Sci.*
10. Uday O. Ali Pabrai, 2002. PKI and Biometrics Concepts and Planning, Element K Press.
11. Ahmad Abu El_Haija, 2001. TeleCommunications for Enhancing Competitiveness), (research paper presented in The Seventh Jordanian Science Week).
12. Deloitte and Touche, 2002. Deloitte and Touche Report to The Jordanian Ministry of Information & Communication Technology (MoICT).