Towards a formal framework of impact assessment of E-Government systems on governance

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Abstract: - There is an implicit agreement among the community of researchers that eGovernment systems enhance the good governance in general. We argue that one needs to have a formal methodological framework and measurable indicators to support this claim. As far as we know, no empirical studies have been performed so far to explicitly address this issue and formally demonstrate this relation. In this paper, we present the preliminary results of a methodological approach of impact assessment that is being developed by a Moroccan/Canadian research team, in the framework of a pilot eGovernment project for the city of Fez in Morocco.

Key-Words: - eGovernment, Good Governance, Impact assessment, Case study from Morocco.

1. Introduction

Fez-eGovernment is a project that aims to develop a pilot E-Government system to provide the municipal government of Fez in Morocco with an advanced Information and Communication Technologies (ICT) platform that enables online delivery of citizen-oriented services to the local community.

Further to its technological challenges (developing a platform that enables online delivery of services to citizens), the main research goals of this project include the elaboration of a road map to support the development of E-Government systems in Morocco and the assessment of the impacts of such systems on Moroccan’s everyday life and on governance in general. This last issue represents the main topic of this paper.

In fact, it is commonly agreed that eGovernment systems enhance governance but we do not have enough empirical/experimental evidences to build on this hypothesis. Such evidences would definitely benefit decision makers, at the top political level, to foster the deployment of eGovernment systems as an asset of good governance.

In this paper, we start by investigating how international agencies, such as the United Nations (UN) and the World Bank, define the concepts of governance, good governance, and e-government. Then, we present different indicators, as proposed by these agencies, to measure good governance and how it is linked to e-government. We present an outline of the eGovernment Project. Finally, we propose a preliminary proposal of a methodological framework to practically assess the outcomes of Fez e-Government project related to the improvement of good governance.

II. Governance/Good Governance

The concept of Governance has been found to have varying definitions depending on authors and contexts. TheFreeDictionary.com, an online encyclopedia (), considers governance as a term that “describes the process of decision-making and the process by which decisions are implemented (or not implemented). Hereby, public institutions conduct public affairs, manage public resources, and guarantee the realization of human rights”. This definition suggests that governance is how domestic affairs are administered within a country.

The World Bank defines Governance in terms of how “…power is exercised through a country’s economic, political, and social institutions…” [The World Bank 2004a]. In this sense, governance deals with the way political and socio-economic structures operate within a state.
The United Nations Development Program (UNDP) provides a more elaborated definition of Governance as follows: “the exercise of economic, political, and administrative authority to manage a country’s affairs at all levels. It comprises mechanisms, processes, and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences” [TUGI 2003]. This definition indicates that governance has two major players: a country and its citizens. Governance is how a political entity (i.e. state) organizes and administers its functions through exercising power via its various establishments. In addition, governance includes the sum of procedures, actions, and entities available to citizens (the people of a country) in order to enable them to conduct numerous operations, such as communicating their concerns, applying their rights, satisfying their duties, and arbitrating their disputes.

The Global Development Research Center [GDRC 2004] gives a further definition for governance. This is defined as: “the science of decision-making. The concept of governance refers to the complex set of values, norms, processes, and institutions by which society manages its development and resolves conflict, formally and informally. It involves the state, but also the civil society at the local, national, regional and global levels”. This definition shows that GDRC considers governance as how a country manages its internal affairs. In addition, it identifies the actors of governance as including the state (as a political entity) and the different levels of civil society.

Clearly, definitions of governance vary according to institutions and context. Nevertheless, they all agree on the fact that governance is not synonymous of government. Rather, government is just one governance actor whose internal and external interactions with the other actors, such as civil society, private sector and the general public, shape governance.

Similarly, the concept of “good governance” has also different definitions and interpretations. For instance, the World Bank considers good governance as “epitomized by predictable, open and enlightened policy making; a bureaucracy imbued with a professional ethos; an executive arm of government accountable for its actions; and a strong civil society participating in public affairs, and all behaving under the rule of law” [The World Bank 2004a]. In this definition, the World Bank highlights four elements that make up the building blocks of good governance. These include openness and predictability in policy making, professionalism in bureaucracy, accountability of government and participation of civil society while abiding by the rule of law.

For the UNDP, good governance is described as being: “among other things participatory, transparent and accountable. It is also effective and equitable. And it promotes the rule of law fairly. Good governance ensures that the voices of the poorest and the most vulnerable are heard in decision-making over the allocation of development resources, and that political, social and economic priorities are based on broad consensus among the three stakeholders - the state, private sector and civil society” [TUGI 2003]. This definition identifies the attributes that comprise the concept of good governance. These include the adoption of a participatory approach, transparency and openness, accountability through assuming responsibilities for actions, effectiveness, equity and fairness, endorsement of the rule of law, openness of decision-making to the input of vulnerable social segments, as well as the formulation of national agenda through a consensus between state, private sector, and civil society, which serve as the stakeholders in governance.

III- Measuring the quality of Governance

The quality of governance or good governance, at a country level, can be assessed using a number of indicators, which have been identified in different ways. For instance, Weiss [Weiss 2000] lists a number of attributes for evaluating good governance. In addition to “multiparty elections, a judiciary and a parliament”, Weiss names additional features of good governance which include: “Universal protection of human rights; non-discriminatory laws; efficient, impartial and rapid judicial processes; transparent public agencies; accountability for decisions by public officials; devolution of resources and decision making to local levels from the capital; and meaningful participation by citizens in debating public policies and choices” [Weiss 2000].

The World Bank provides another list of five indicators to measure good governance [The
World Bank 20004b]. First, government should be evaluated in terms of its structures. This evaluation should highlight the extent to which judicial, legislative and executive powers are separated within a government. Second, political leaders should be assessed in terms of accountability. In other words, the second element deals with gauging to which degree political institutions, processes, and procedures are open to the general public. Third, the management of public sector should be measured in terms of a set of attributes. These include efficiency of civil servants in carrying out public policies, managing resources, and delivering services. Fourth, the competition of the private sector should be assessed in terms of the extent to which an elite of economic operators can or cannot protect its economic interests and concerns. This can occur through having these operators strengthen their economic performance and use it as a political leverage to protect and maintain their gains.

From another perspective, the UNDP lists nine underlying characteristics of good governance [TUGI 2003]. They are presented in the following table:

<table>
<thead>
<tr>
<th>1) Participation</th>
<th>“All men and women should have a voice in decision-making, either directly or through legitimate intermediate institutions that represent their interests. Such broad participation is built on freedom of association and speech, as well as capacities to participate constructively”</th>
</tr>
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<tr>
<td>2) Rule of law</td>
<td>“Legal frameworks should be fair and enforced impartially, particularly the laws on human rights”</td>
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<tr>
<td>3) Transparency</td>
<td>“Transparency is built on the free flow of information. Processes, institutions and information are directly accessible to those concerned with them, and enough information is provided to understand and monitor them”</td>
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<tr>
<td>4) Responsiveness</td>
<td>“Institutions and processes try to serve all stakeholders”</td>
</tr>
<tr>
<td>5) Consensus/Orientation</td>
<td>“Good governance mediates differing interests to reach a broad consensus on what is in the best interest of the group and, where possible, on policies and procedures”</td>
</tr>
<tr>
<td>6) Equity</td>
<td>“All men and women have opportunities to improve or maintain their well-being”</td>
</tr>
<tr>
<td>7) Effectiveness and efficiency</td>
<td>“Processes and institutions produce results that meet needs while making the best use of resources”</td>
</tr>
<tr>
<td>8) Accountability</td>
<td>“Decision-makers in government, the private sector and civil society organizations are accountable to the public, as well as to institutional stakeholders. This accountability differs depending on the organization and whether the decision is internal or external to an organization”</td>
</tr>
<tr>
<td>9) Strategic vision</td>
<td>“Leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the historical, cultural and social complexities in which that perspective is grounded”</td>
</tr>
</tbody>
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Table 1: The UNDP nine underlying characteristics of good governance [TUGI 2003]

The table above lists the UNDP’s nine indicators of good governance. First, participation refers to the act of involving people, regardless of gender, to voice their interests in the decision-making process. Peoples’ participation can be either direct or indirect, through using institutions that serve as channels articulating their interests. Second, rule of law designates the act of justly and objectively putting laws in place. Third, transparency is based on limitless release of information. In addition, it rests on providing stakeholders with free access to institutions, operations and information. Fourth, responsiveness refers to institutions and operations answering requests of stakeholders. Fifth, consensus orientation suggests that good governance arbitrates clash of interests in order to establish agreements based on optimal interests of stakeholders. Sixth, equity indicator of good governance refers to the act of providing people, irrespective of gender, with chances to foster the quality of their welfare. Seventh, effectiveness and efficiency denote institutions achieving optimal use of resources while serving stakeholders. Eighth, the accountability aspect of good governance refers to managers and decision-makers of the three stakeholder groups (government, private sector and civil society institutions) held liable to the community. Ninth, the strategic vision indicates that managers and people have a
long-run view with regard to governance. This view should be realistic and practical in the sense that managers and the general public should be aware of contextual obstacles related to history, culture and society [TUGI 2003]. Even if the indicators of good governance vary from an institution/author to another, it is agreed upon that the quality of the government institution is involved in assessing the governance quality. In this sense, good governance does not seek to reduce the role of government. Rather, good governance calls for “a more appropriate government” [Weiss 2000]. This means that an improved role of government remains important for good governance to take place.

IV. The Fez eGovernment Project

This project aims to develop a pilot E-Government system for the city of Fez that will allow citizens to request and receive governmental services in an easy and efficient way. It will significantly contribute to: 1) Simplifying procedures to request and receive services; 2) Speeding up the delays of requesting and receiving services; 3) Achieving equal opportunity for processing requests and delivering services; 4) Increasing transparency/Visibility of administrative procedures; 5) Allowing online access to general information about Fez regarding a variety of domains (tourism, economy, history, architecture, weather, etc.); 6) Making efficient use of the government human resources by simplifying or reorganizing tasks.

In parallel to these direct goals, the project also intends to investigate a series of research questions concerning the social impact, the political implications and the technical feasibility of e-government systems in Morocco: 1) good governance; 2) users and Usage of e-government services; 3) access to services and technological appropriateness [Kettani et al. 2004].

The Fez E-Gov. system has been implemented towards initiating the introduction and the use of ICTs in municipal service delivery, especially the delivery related to the bureau of “Etat Civil” (BEC). Though this bureau has daily and direct contact with the local community by providing citizen-oriented services, it has remained archaic. The service delivery is conducted in a manual paper-based manner. Accordingly, the project aims as automating the back-office and enabling an electronic front-office. As a first service, the team worked on computerizing the BEC citizens’ records for the back office, and on developing a portal and a related kiosk, for the front office, available for public use and adapted to illiterate end-users in order to facilitate the request of birth certificates.

Developing the BEC application was a very sensitive task since the application should respect the existing paper based system and be reproduced exactly as it is, due to legal aspects and restrictions. Since there were a lot of inconsistencies in the existing system (data and business rules), we heavily relied on the help of the officers in order to come up with the database design depicted in Figure 1. Another set of tables (that we do not show here because of space limitation) is needed to represent the change in the civil state of citizens. These changes are represented in the manual system as marginal mentions. There are many events that may happen and that lead to a citizen file change.

It is important to note that the BEC application that we have developed is unique in Morocco for many reasons:

• it fully supports Arabic;
• it totally respects and complies with the manual process of recording citizens data;
• it has a graphical user interface that has been proposed and validated by the commune citizens;
• it has been developed with a close cooperation with employees,
• it is functional and citizens data is officially being entered by the commune employees (even if this process is very long due to the lack of keyboard easiness among these employees…);
• it totally respects current legislation of the BEC and has been approved by Fez officials;
• it demystifies common enigmas among cities officers’ in Morocco related to the impossibility of ‘automating’ this ‘holly’ office of civil state of citizens.
We needed to rationally (using benchmarking, reviews and feedback on experiences) select the technology enablers that are suitable and appropriate for our project needs. Based on an in-depth study of the state of the art related to eGovernment-oriented software, we opted for an N-tiers architecture using J2EE as a web platform, MySQL as DBMS and JBuilder as an IDE (Integrated Development Environment). Then we designed the system architecture. This aimed mainly to set up and arrange the components of the e-government theme in an efficient and secured way. In this regard, the identification of technology enablers as well as the conceptualization of the system’s architecture were the technology prerequisites for the remaining technology related activities. These include, among other things, platform design, Security & Authentication, samples of e-Government systems, identification of public services that could be delivered online, database design, as well as the design of Graphic User Interface

To test and validate the ICT platform selected for Fez e-Government System, we chose to develop and fully implement one high-priority online public service. Such an implementation would enable us to gain practical knowledge and learn lessons with respect to adapting the platform to the social and organizational contexts of the local government of Fez. Therefore, based on the feedback/suggestion of BEC officers and employees, it was agreed upon to start with birth certificate online delivery. Since then, we have been working on the implementation of the online birth certificate and we expect the first birth certificate to be online delivered on October 15th 2005.

V. Towards a formal model of measuring the impact of eGovernment on eGovernance

E-government has been an important notion within the discipline of public administration [Moon 2002] since the late 90s. In the research project “Benchmarking E-government: A Global Perspective,” the United Nations (UN), (Division for Public Economics and Public Administration) as well as the American Society for Public Administration (ASPA), provide a definition of e-government. This refers to “virtually all information and communication technology (ICT) platforms and applications in use by the public sector”. In this sense, e-government exists when the public sector employs new information
technologies. The UN/ASPA elaborates on this definition: e-government refers to “utilizing the internet and the world-wide-web for delivering government information and services to citizens”. This suggests that e-government is in place when the public sector provides citizens with web-based information and transaction services via technologies such as the internet and the world-wide-web.

Based on several studies, e-government systems have been found to produce a number of benefits that foster good governance. For instance, the World Bank defines e-government by listing its benefits. In this regard, e-government is defined as “the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions” [AOEMA 2004].

E-government further promotes the responsiveness of government institutions, including growing citizens’ demands to have improved access to the needed public services, as well as concerns about fostering public institutional efficiency and improving security measures [O’Connell 2003].

E-government systems reduce government institutions’ costs. Nute [Nute 2002] investigated how using the internet makes local government purchasing operations cost-effective. Sending web-based purchasing proposals to a list of suppliers through a simple click of mouse helps local governments save time since they no longer need the “time-consuming administrative steps of photocopying, folding, addressing and mailing bid packages” [Nute, Jan 2002]. In this respect, the time for making and communicating those proposals becomes a matter of minutes, as opposed to hours. This is because suppliers’ lists can be shared by different government agencies while frequent bids’ modifications can be done easily and quickly online. Thus, the use of the internet eliminates the slow manual chain of repetitive actions.

It is interesting to notice that all studies that we have consulted (only few of them have been mentioned in this section because of space constraints), address the link between eGovernment systems and Governance on a fragmentary, contextual and, in many cases, theoretical basis. They are mostly local (specific to a given country, city or community) and theme-oriented (cost reduction, organizational change, better service to citizens, etc.). This means that they don’t consider Governance as a system that cannot be reduced to one of its constituents or aggregated using particular features of several of its elements. This is why these studies are not relevant for generalization purposes. Rather, what we need is a structured framework, based on a systemic approach that considers the Governance in all its aspects and with all its constituents, without reference to a specific experience results or a specific context description.

In our project, we are developing a methodological framework that is context independent. It consists of assessing the impact of eGovernment on Governance by assessing the impact of eGovernment on each constituent of Government taken individually. In fact, the impact I of an event E on a system S, can be assessed by summing up all the sub-effects of E on each individual constituent of S. Symbolically, this is equivalent to:

\[ I(E, S) = \sum_{1..n} I(E, S_i) \]

Now, the challenge is to find a set of constituents that allow to aggregate the concept of governance. As we have mentioned in Section 3, there are different indicators/ and features that are widely used to measure good governance and that can be used to ‘practically’ aggregate the concept of Governance. Given its simplicity, exhaustiveness and appropriateness, we believe that the list of indicators/features provided by the UNPD is a good candidate to start with and can be used as a basis for the elaboration of a methodological framework to assess the impacts of a specific project on good governance.

The introduction of various ICT functions in the Fez municipal administration will transform the municipal archaic service delivery into a modern E-government organization. This project will have a number
of defined outcomes which need to be scientifically assessed in order to generate knowledge about the implementation of such projects and hence propose a general framework for impact assessment. This led us to the creation and refinement of a systematic analysis method.

We present here an outline of this method.

During the elaboration of the outcome analysis method we identified five major outcome categories that need to be assessed. These include: technology, organization, citizen, regulation, and good governance related outcomes. Accordingly, operationalizing the outcome analysis method will generate five major reports. Figure 2 shows the main outputs of the proposed outcome analysis method:

**Fig.1 The Five Main Prospective Outputs of the Outcome Analysis Method:**

The process of operationalizing the method involves five main sub-processes that intend to assess the five outcome categories (Figure 3)

**Fig.2 The process of operationalizing the outcome analysis method**

For illustration purposes, we only present here how our outcome analysis method enabled us to assess good governance related outcomes. In order to assess how the project activities and outputs generate outcomes with respect to the different attributes of good governance, we proceeded in a systematic way. Based on the UNDP definitions of the attributes, we attempted to link the attributes to the project by developing working definitions. Then, we determined how the project is generating outcomes influencing the good governance attributes. Yet, we found that the project is not influencing three of the nine attributes: participation, consensus orientation, and strategic vision because they are not involved in BEC functioning, which is oriented towards providing citizen-related services (Table 2). Finally, we developed measurable indicators for the six identified project outcomes. We
need to consider the expected outcomes of this project and confront them to the attributes/indicators of reference. Because of outcomes might significantly vary from one project to another, a tuning of these attributes/indicators is needed to link them directly to the project context. This implies the need for a working definition that is more functional, more precise and contextualized to the project under evaluation. For instance, the UNDP attribute ‘Transparency’ is being considered in our project as ‘the Visibility of workflows as seen by citizens’, which is directly related to ‘Visibility of workflows for citizens via Fez-eGov Portal’.

Indeed, it is not necessary that all these nine indicators/attributes of good governance be considered in a specific project assessment, since the scale and the scope of this project might or might not include all of them. Table 2 illustrates the preliminary results of the application of the proposed methodological framework in the Fez-eGov Project.

<table>
<thead>
<tr>
<th>UNDP attributes of G. Governance</th>
<th>UNDP Definition (refer to box1)</th>
<th>Project working Definition</th>
<th>Project Outcomes</th>
<th>Outcome Measurable Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>“All men and women should have a voice in decision-making, …. to participate constructively”</td>
<td>Not Applicable to the project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rule of law</td>
<td>“Legal frameworks should be fair and enforced impartially”</td>
<td>Visible/ explicit administrative rules</td>
<td>The transition from tacit rules/procedures to explicit rules/procedures</td>
<td>1) Manual of administrative procedures 2) Static compo-nent of the portal 3) Nb re of information pages published on the portal</td>
</tr>
<tr>
<td>Transparency</td>
<td>“Transparency is built on the free flow of information … to understand and monitor them”</td>
<td>Visibility of workflows for citizens</td>
<td>Visibility of workflows for citizens via Fez portal and kiosk</td>
<td>Online availability of workflow on relevant public services.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>“Institutions and processes try to serve all stakeholders”</td>
<td>Fez e-Government system has no negative effects on local community</td>
<td>Usable, accessible and acceptable Graphic User Interfaces (GUI)</td>
<td>Number &amp; types of citizens using Fez portal and its related kiosk</td>
</tr>
<tr>
<td>Consensus orientation</td>
<td>“Good governance mediates … procedures”</td>
<td>Not Applicable to the project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>“All men and women have opportunities to improve or maintain their well-being”</td>
<td>citizens served with increased equity</td>
<td>Citizens request and receive BEC services with equity</td>
<td>Decrease in bribery incidents</td>
</tr>
<tr>
<td>Effectiveness and efficiency</td>
<td>“Processes and institutions produce results that meet needs while making the best use of resources”</td>
<td>Efficiency: optimal use of resources for citizens to request &amp; obtain BEC services</td>
<td>Efficiency: optimal use of resources for citizens to request &amp; obtain BEC services</td>
<td>Citizens making time/money/effort savings in requesting and obtaining BEC services</td>
</tr>
<tr>
<td>Accountability</td>
<td>“Decision makers in government, the private sector and civil society organizations are accountable … organization”</td>
<td>Information on who is responsible for what</td>
<td>Citizens’ access to “Information on who is responsible for what” that is available online and via the kiosk</td>
<td>1) Access to Gov. organization charts; 2) public officials’ names, photos, contact information</td>
</tr>
<tr>
<td>Strategic vision</td>
<td>Leaders and the public have …. is grounded”</td>
<td>Not Applicable to the project</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2: Fez Project’ Outcomes Related To Good Governance**
VI. Conclusion

In this study, many issues related to concepts of governance, good governance, and e-government have been addressed. At the beginning, concepts were defined and contextualized. Governance has been defined as the sum of relations and interactions between government and players such as civil society and private sector. Good governance was mainly viewed as the quality of governance. E-government was defined as the public sectors’ online provision of information and services. This research also explored the attributes and indicators that can measure good governance. In addition, this study identified how e-government fosters the different aspects and indicators of good governance. Furthermore, guiding principles of e-government success were also investigated. Finally, this paper provided a method on how to assess the good governance related outcomes of Fez e-Government Project.

We are aware that the methodological framework that we propose is still in its early stage. We believe though that it has a strong potential in the sense that it explicitly addresses the link between eGovernment and eGovernance from a qualitative/empirical point of view. The preliminary results that we have obtained so far do not allow for generalization (due to the shortness of experimentation time), but they invite to optimism and to further investigation of the methodological framework that is being developed in the framework of Fez-eGov project.

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