6 RIGHT ON TIME: Understanding eGovernment in Developing Countries

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Abstract *Many, if not most, developing countries today engage in electronic government (eGovernment) projects. There are big hopes, not just for modernizing government and making it more effective and efficient; eGovernment is also expected to drive the general development toward the information society, both by examples of good practice and by major investment. However, many sources claim that the project failure rate is high. Reasons are found in many places, but it is reasonable to summarize them by saying that project goals are too ambitious given existing production capacity. Hence there is need to find ways of choosing and defining projects so that they meet the conditions in the country and sector where they are going to be implemented. To do so, this paper presents two tools, a checklist and a maturity model, for assessing the preconditions for eGovernment projects in developing countries. The underlying data sources are threefold: eGovernment readiness indexes, project experiences, and assessments of social and political conditions. The checklist matches requirements for successful eGovernment against supply and demand side factors, hence providing a guide in choosing which projects to initiate and which to avoid. The maturity model supports mapping projects on a wider development agenda, hence helping avoiding dead ends such as investing in unused technology, or supporting dysfunctional processes with ICT (information and communication technology) instead of first redesigning them and then putting in ICT that support the new and better processes. In particular, the tools show the close relation between eGovernment and other development agendas, for example education, investment policies, or telecom (de)regulation. Without alignment with such programs, eGovernment is likely to fail. The two tools help make factors pertinent to success and failure more explicit and hence improve decision making.*

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1 INTRODUCTION

Electronic government (eGovernment) is about applying information and information technology to all aspects of a government's business. One of the targets set during the Geneva summit was that all public centers and governments should have an online system of administration by 2015[1] and the UNDP (United Nations Development Programme) has made information communication technologies (ICT) one of its six priority areas.[2] ICT is generally considered to be a key ingredient for economic growth and for making businesses more efficient and competitive. eGovernment is seen as a trigger for a wider development. First, the major investments by government will help support, or initiate, a local ICT industry and stimulate foreign investments, such as telecom operators. Second, the government would set a good example by reforming government operation and governance structures. Governance is a wider term, indicating that not only government institutions are involved in government operations.

For the public sector, the mission is not only to make the organizations' internal operations more efficient but also to provide the citizens with information by facilitating greater transparency and responsiveness on the part of governments. It is believed that eGovernance in the developing world will improve the effectiveness of public service delivery and to ensure transparency and accountability of government operations.[3] However, the World Bank (WB) has estimated that 85 percent of all eGovernment projects in developing countries are total or partial failures (Sify 2004). An obvious problem, then, is how to know which projects to start and which to avoid. Clearly just copying projects from the developed world is problematic, as many of these rely on a relatively high level of administrative maturity and a comprehensive electronic infrastructure. Also, as governments are different in different countries, so must eGovernment be (Ciborra and Navarra 2003). Given the large amount of failures reported, there is clearly a need for more accurate project definitions, setup, and management. Our aim is, therefore, to provide usable guidance for project managers to better assess success potential and risks early on in eGovernment projects in developing countries. For this purpose, our research question is: *what factors need to be understood to decide how a country should embark on an eGovernment project*?

The paper proceeds as follows. After the method section, we provide a brief literature review of the eGovernment project situation in developing countries. After that we review literature from three types of sources to investigate "readiness" criteria at both micro and macro levels, which we condense into a checklist. We then construct a maturity model based on the criteria and partially validate the model by examples of success and failure. We conclude by discussing the potential application of the two tools.

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[1]"World Summit on the Information Society," 2005 (http://www.itu.int/wsis/).

[2]UNDP "Information & Communication Technologies for Development," 2005 (http://sdnhq.undp.org/it4dev).

[3]UNDP Global Sub-practice Workshop on e-Governance, "Action Reflection Note Template for Global E-Governance Workshop," Senegal, September 1-3, 2005 (http://www.sdnp.undp.org/egov/arns/Mozambique-arn.pdf).

2 METHOD

The approach is a literature study complemented with discussions with people in aid organizations and experiences from development projects collected from case descriptions, analyses, and assessments. The literature study covers factors for success and failure and various maturity models. The literature covers theoretical as well as model-based factors, provided normatively by, for example, development organizations and empirical accounts of project experiences and evaluations. Literature was found by a "snowball" model. We started with global actors engaged in development, such as the UN and the WB and researchers and research centers concerned with the topic. These have comprehensive Web sites listing literature, including project examples and stories, project evaluations, assessment methods, and indices measuring aspects of development and success or failure.

In parallel with the literature study we visited some countries in Africa—Egypt, Uganda, and South Africa—and discussed ICT and development issues with people from universities and government, and people involved with ICT4D (ICT for development) projects. We also had discussions with university people in Indonesia and Bangladesh, as well as SIDA (Swedish International Development Organization) project officers and project leaders in conjunction with ICT4D projects there. Further, we attended, and took part in, a WB conference concerning eGovernment examples, assessment, and assessment methods.

The checklist and the maturity model presented below were then presented to and discussed with eGovernment experts at the WB, including consultants from the developing world. They have provided considerable feedback on, in particular, the checklist, which has been revised accordingly. These individuals wish to be anonymous, as this model is not a WB product and they cannot in their capacity of being employees endorse tools produced elsewhere.

Finally, we have tested the model by using it to evaluate eGovernment maturity in a number of countries. The results are published in a report (Grönlund et al. 2005), presented and discussed at a SIDA project conference in June 2005.

3 BACKGROUND: eGOVERNMENT DEFINITIONS AND FINDINGS

3.1 eGovernment

The term *eGovernment* emerged in 1999, but the activities to which it refers are much older and parallel the computing history in business organizations. What all recent definitions by major actors share is that they (1) acknowledge the need for organizational reform to go hand in hand with technology implementation, and (2) focus on the role of government in society, that is, governance. According to the WB,

> E-Government refers to the use by government agencies of information technologies 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* (WB 2006, emphasis added).

Although focusing on different types of countries (developed and developing), definitions of eGovernment are unanimously socio-technical: organizational change, skills, and technology are *together* the key to success.

3.2 eGovernment in the Developing World

eGovernment projects target a wide range of topics, including infrastructure development, the legal environment surrounding eGovernment development, policies (national, regional, local), digital divide issues, literacy, education, accessibility, trust (in technology as well as in government), transparency, interoperability (among government agencies), managing records, sustainability, public-private cooperation and partnerships, cost structures, and incentives. While most of these topics are found in developed as well as in developing countries, in the latter more attention is paid to issues like telecommunications liberalization, ICT sector development and investment, trade promotion, local software and content generation, satellite technology, telemedicine and healthcare, and local development through, for example, development of telecenters.[4]

From these projects, and associated as well as independent research, a number of critical issues have emerged, which have been found crucial for success and problematic to overcome. These include political commitment, project design and leadership, implementation, financing, local development, and sustainability. Sustainability here means the ability of an effort to be sustained beyond the period of project funding. Today it is common wisdom that focus should be on engaging, "embedding," user communities in the area of concern as sustainability is the key. Sustainability is hence implicitly defined as adopted in actor–networks' regular operations. Hence, today considerable attention is paid to involving local communities. A UNESCO report from 2004 concludes that championship and responsive organization are crucial:

> ICT and media initiatives...must be as responsive, creative and innovative as the users have shown themselves to be...organizations [must be] responsive on the basis of sensitive, location-specific knowledge (research and experience) both of local media use and of the local structures, dynamics and meanings of poverty in their community....these connections are diverse and often unpredictable; they need to be identified in the actual processes of project development rather than derived from general and abstract models of the

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[4]African Information Society Initiative, "Africa's Digital Agenda," 2004 (http://www.uneca.org/aisi).

> properties of technologies or of poverty or of the connections between them. (UNESCO 2004, p. 93).

The report points to the risk of old mistakes being repeated; there is a need for methods well adapted to local conditions. There is an obvious risk that developing countries are in for much the same failures as have occurred in countries a step ahead in eGovernment development. For this reason, aid organizations are today focusing more on support from and relevance for local communities and less on central governments. The focus is also more on partnerships than on a donor-recipient relation.

In addition to the abundance of projects, there are many attempts to assess eGovernment development. These cover various geographical areas as well as various topics. Many of these studies are showcases or directories, but there are also studies attempting analysis. Many are qualitative detailed case studies of successful eGovernment projects (Devadoss et al. 2002; Golden et al. 2003).

There are a number of more or less recurrent *benchmarking studies* covering various areas, the European Union, the United States, and worldwide (e.g., Accenture 2005). These cover various issues ranging from implementation of services to multidimensional "e-readiness" indexes.[5]

There are also *critical studies* focusing on how and when to measure success (De 2004), and on the connection between eGovernment development in the service area and economic and/or democratic development (Accenture 2005; Bertelsman Foundation 2002).

Different studies use different measures of eGovernment activity, as they focus on different aspects. We now continue to review the attempts to systematically measure the readiness for eGovernment.

4 A CHECKLIST FOR eGOVERNMENT IN DEVELOPING COUNTRIES

The brief review above suggests that, given the diversity of the literature, there is reason to look for factors critical to success or failure in three types of sources. The first is national statistics and derivatives from these, such as e-readiness and eGovernment readiness indexes. A second source is project experiences, roadmaps and handbooks. A third and final source is assessments of social and political developments critical to eGovernment.

National statistics include records on Internet users, the infrastructure, etc. Sources used are the CIA World Fact Book, the Economist Intelligence Unit, and the

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[5]Examples are the Economic Intelligence Unit's 2004 e-readiness rankings (http://graphics.eiu.com/files/ad_pdfs/ERR2004.pdf), the World Economic Forum's networked readiness index report for 2003-2004 (http://www.weforum.org/pdf/Gcr/GITR_2003_2004/ Framework_Chapter.pdf), and the study by Steyaert (2004).

World Economic Forum.[6] E-readiness and eGovernment readiness indexes are derived from national statistics presented in the UN Global EGovernment Readiness Report, in the Economist Intelligence Unit e-readiness rankings, and as the Networked Readiness Index.[7] These indexes are based on factors such as the number of telephone lines, the business environment, and maturity of IT industry in the country.

Experiences from eGovernment projects have been another source for finding important factors critical for the success of eGovernment projects. There are several lists on project benchmarking including success and failure stories.[8] and several handbooks on project experience.[9] Typical factors found here have to do with management structure, organizational culture, user acceptance and requirements, etc. Stories of what happened and how problems were solved, make up vivid pictures of the nuts and bolts of ICT projects in developing countries.

Assessments of the social and political development critical to eGovernment are made by national and international donor agencies and nongovernment organizations (NGOs) and typically focus on the context in which eGovernment projects take place. They stress the importance of the socio-political situation (the level and nature of democracy, of corruption, etc.), social networks, local users, local organizations, partner organizations, social and financial sustainability, goals and visions of the government.[10]

We have combined these criteria to create a tool to be used for assessing candidate projects. We have combined known success factors and established measures into a checklist to be used by practitioners to overview the situation. The point is that the checklist will give the practitioner an overview of the problems to be addressed, and where to look for the information required to assess the size and nature of the details of these problems.

As discussed above, much information needs to be validated using perspectives from several kinds of sources. For example, statistical figures on Internet subscriptions need to be complemented with knowledge of cultural patterns, such as collective or individual access. The latter can be found in social accounts, but need to be complemented with experiences on what are the practical keys to enabling ICT to make use of cultural patterns, something to which handbooks are a guide. The checklist consists of

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[6]CIA World Fact Book (http://www.cia.gov/cia/publications/factbook/index.html), Economist Intelligence Unit (http://www.eiu.com/), and World Economic Forum (http://www.weforum.org/).

[7]Economist Intelligence Unit (http://www.eiu.com/), Transparency International (http://www.transparency.org/), Human Development Reports (http://hdr.undp.org/statistics), and World Economic Forum (http://www.weforum.org/).

[8]Europe's Information Society (http://europa.eu.int/information_society/activities/atwork/index_en.htm), Information for Development (i4d) (http://www.i4donline.net/feb05/contentimg.asp), and the Heeks (2002) report.

[9]For instance, the CDT and *infoDEV* "E-Government Handbook" (http://www.cdt.org/egov/handbook/).

[10]African Information Society Initiative, "Africa's Digital Agenda," 2004 (http://www.uneca.org/aisi); Amnesty International's 2005 report (http://www.amnesty.org/); the SIDA (Swedish International Development Cooperation Agency) development cooperation projects (http://www.sida.se/Sida/jsp/polopoly.jsp?d=352); and the UNESCO report by Slater and Tacchi (2004).

important aspects concerning the demand side and the supply side. An earlier report (Grönlund et al. 2005) presents our checklist in more detail.

Now we turn our attention to the checklist, divided into supply side factors and demand side factors, with examples of information for each type of factor. As the strategy and political foundation factors show, eGovernment must be integrated with other agendas to be successful. For example, wiring schools without educating teachers and revising curricula is likely to be less successful. The checklist can be used as an information gathering tool for assessing a specific country's technological and administrative maturity (see the maturity model presented later).

- **Demand side factors**
  - Infrastructure (e.g., broadband access, number of phone lines, availability of mobile phones, internet hosts, costs as well as quality)
  - Users (level of education, skills, motivation etc.)
  - Partners (ICT business sector structure, local business culture, etc.)
  - Consumer and business adoption of e-services (business environment, legal and policy environment, reasons for Internet use, etc.)
  - Time available (plans and investments for infrastructure, project management, organizational culture, etc.)
- **Supply side factors**
  - Strategy and political foundation
    - Government goals (e.g. investments, government culture, democracy)
    - Political leadership (political organization, political culture, degree of control, etc.)
    - Government decision making system (e.g., departmental structure, communities of practices, corruption)
    - Strategic plans (investments, projects, strategies and policies, etc.)
    - Government communication policies
    - Other policies (investments in related fields, thrusts of policies, etc.)
    - Regulatory system/legal framework (cyberlaws, information laws, regulations, etc.)
  - Organizational preconditions
    - Government organization (departmentalization, practices, developments, etc.)
    - Organizational culture (bureaucratic instructions, incentives, etc.)
    - Administrative maturity (government functions, professionalism, etc.)
    - Staff skill (education level, experiences and attitudes, etc.)
    - Staff cost (salary, efficiency of staff, ethical assessments, etc.)
    - Government on-line presence (eGovernment) readiness indexes, quality of on-line systems, access, etc.)
  - Business setup
    - Partnership (national ICT business structure and volume, professionalism, market requirements for the ICT sector)
    - Balance between cooperation and competition (telecommunications deregulations, local entrepreneurial culture, requirements in rural areas, etc.)

- Economy
  - Funding (e.g., financing and budget allocation, savings, cost sharing)
  - Monitoring and evaluating framework (development goals, audit practice, project assessments and tools, user/social requirements, etc.)
- Technical environment
  - ICT infrastructure (national infrastructure measurements, social/political assessments, etc.)
  - Supporting e-services (e.g., ICT business sector structure and volume, capacity and competence)

5 CHARTING EGOVERNMENT PROGRESS: THE MATURITY MODEL

In this section we present a maturity model based on the criteria related to strategy and political foundation, organizational preconditions, and technical environment presented in the checklist in the previous section. As will be seen in the examples, the model can be applied not only to nations as a whole, but also to individual sectors. Hence, one purpose with the model is to complement the checklist with a general road-map of the path toward increased administrative maturity. This is clearly not a reflection of the whole set of criteria we discussed above. For example, the demand side is omitted. This is because the model focuses on what can be done. Whether or not there is demand for a service does not matter much if you can not provide it. Clearly demand for public e-services is important, but it is more difficult to assess as it tends to grow with supply; for example, public demand for social services has a bigger and louder voice in Sweden than in Bangladesh, and this is not because the need is greater. Also, while in Western countries, slow eGovernment uptake has been seen as "failure," the high failure rate refers mainly to limited production capacity, such as budget overruns, lack of skill, poor ICT communication, etc. A problem with eGovernment is not only to assess individual projects, but also to create a good mix of projects so that, together, they contribute reasonably well to general development, something which the model also can help assess.

eGovernment is a comprehensive term covering a maturity process of public administration becoming well-structured and hence better able to serve citizens and to become more transparent (see the definitions in section 3). This process can start anywhere, something the talk of "joined-up," "24/7" government might conceal as the terms are often used to allude to a relatively mature administration with a high level of ICT penetration. Figure 1 illustrates the process, from low administrative maturity and low technological sophistication toward high administrative maturity and high technological sophistication. By "e-infrastructure," we mean a coherent set of working procedures across the whole government. This includes technical standards making all media interoperable (technical infrastructure), standardized or compatible data definitions, well-organized metadata definitions (information infrastructure), and well-defined business procedures implemented in the electronic medium. Other terms, such as enterprise architecture, may be used.

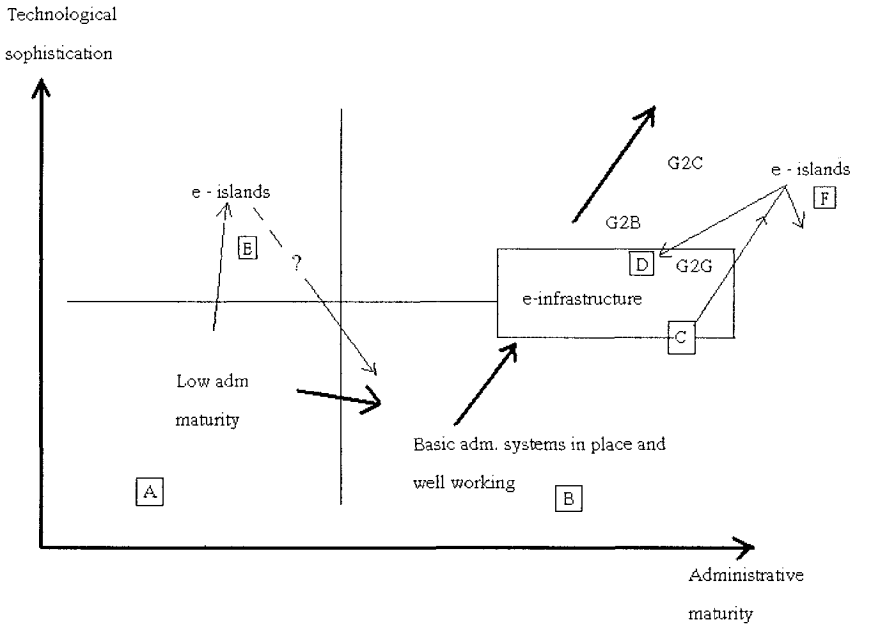

Figure 1. Different Opportunities at Different Development Levels
(Technological sophistication is the degree of informatization and technical inter-operability in government. Administrative maturity is the equivalent as concerns the basic design and availability of data and procedures.)

Below we will describe some of the archetypical positions in Figure 1 and at the same time give examples of how our analysis was created, thus illustrating how the checklist and the maturity model can be used. Factors from the check-list are italicized.

Level A: This is where many developing countries are. Administration is primarily manual, and standardization is low. Assessed at the country level, Uganda, Rwanda, and Indonesia belong here, although some government sectors may be in other positions.

The example of Uganda: Uganda was classified as an A-level country because of its lack of *key technologies* and shortage of *standardization* in the administrative units. The importance of considering the factors *administrative informatization/computerization* is illustrated by several examples of donated and abandoned computers given to rural areas that lack the infrastructure required to deliver anything apart from rudimentary eGovernment services.[11] Not many local government offices at the A-level

[11]See the eGovernment for Development Design-Reality Gap Case Study No. 5,"An Integrated Information System for Defence Force Management in the Middle East," January 2003 (http://www.e-devexchange.org/eGov/defenceiis.htm) and the Women of Uganda Network's "ICT Policy Issues in Uganda" (http://www.wougnet.org/ICTpolicy/ug/ugictpolicy.html).

have electricity and the institutions *with power access* often have old and rarely *networked computers*. In Uganda, the government is pursuing a *decentralization policy*. But when comparing the *service delivery* of rural and urban local governments, we find that rural areas are less attractive to *qualified staff* and that elected members are less likely to be well *educated*. This also illustrates the importance of *staff skills*.

A-level countries typically strive to move into the B-level but short-cuts are sometimes taken to level E.

Level E: This is the technological opportunity in combination with political hopes. There are many opportunities to take over working systems tried elsewhere. This may be good and bad. It is good if the systems brought in this way can later be integrated as components in the maturing administrative and technical infrastructure. It may be a costly mistake if they cannot.

The example of Indonesia: In Indonesia, the government is in the process of introducing a rather ambitious *national program* to improve governance through eGovernment, with the aim of giving *public access* to *government services* via the Internet. Considering the not fully formed *administration* and the *deficiency of technology*, the plans for eGovernment have so far been too ambitious. What has happened (while waiting for this national program) is that 369 government offices have *published* their own Web sites. This is all very good but, unfortunately, only 85 of them are running (Abhiseka 2003). On the other hand one, does not know what benefits may come from these abandoned Web pages; they may not be a total waste as the projects that produced them may have lead to other positive effects.

Level B: This is where some developing countries are. Administration is relatively well organized in some government sectors, however it is still mainly built on manual procedures. Some records may be computerized but standardization of data definitions may be low and hence preconditions for interoperability may be a concern. Assessed at the country level, Bangladesh belongs to a B-level, although some government sectors may be in other positions, including levels A and F.

The example of Bangladesh: When assessed on the basis of our factors, we found Bangladesh scoring low on their *availability of key technologies* but with a higher degree of *administrative maturity* than Uganda and Indonesia which motivates the "B." Bangladesh's *government on-line presence* is emerging even though they generally only offer *static information* about the organization (Ahmed 2003). Bangladesh has one of the lowest *telephone penetration rates* in the world but there is a remarkable growth in the *use of mobile phones*. The *business adoption of e-services* is growing where the business actors use WAP to enable use of the Internet through mobile phones. One factor that slows down development is the lack of *laws covering the Internet* (Hasan 2003). Other influencing factors to consider are *user aspects* such as *literacy* and *homogeneity*. As a part of introducing e-governance, the Ministry of Communication in Bangladesh launched several Web sites to enable citizen access to government information. These sites only provided information in English (Ahmed 2003) which is unsatisfactory considering that 95 percent of the population speaks Bengali. Another factor that has a great impact in Bangladesh is the *political leadership*. As for local governments, Bangladesh has a long historical tradition of *decentralized administration*, but local governance in Bangladesh is subject to domination by the central government. It does not really muster *local resources* and has a lack of participation by the rural poor in the decentralized units.

Level C: This is where most eGovernment projects in developed countries started. These countries had well functioning administrative systems in place, they were mostly computerized (the lower end of the e-infrastructure box), but not connected and not Web-enabled (which infrastructures in the upper part of the box are). Over the past decade, these countries have spent enormous efforts connecting these systems to the Web, which is the easy part and by now more or less completed, and making them interoperable, which is the hard part and only well developed in some niches (e.g., procurement, police, and customs systems). Assessed at country level, Egypt belongs here, although there is some development in "D," and some in "B" and "F" (see the example of the government portal below). South Africa also mainly belongs here, although some government sectors are venturing into the "D" position.

The example of Egypt: Egypt has a reasonably modern *telephone system*; *Internet access* and *mobile services* are available in most parts of the country and there has been a tremendous improvement of the *infrastructure*. The Egyptian government is issuing a new *E-signature law* because they want to provide faster and cheaper public services at any time (Hassanin 2003). Egypt has taken a great step in *coordination and integrating government information* and services and in 2004 they launched their *one-stop eGovernment services portal* containing 700 services. The portal is in both English and Arabic and includes services from requesting a birth certificate to paying your electricity bill on line.

In countries starting from level C we often find "e-islands" as described below.

Level F: When the World Wide Web was invented, organizations rushed to put information online, starting from level C, which means the e-infrastructure was not sufficiently in place to support the integration of these new services with back-office operations. The result was many closed projects and many obsolete Web pages, but at the same time the effort spent on this unleashed much creativity in finding new opportunities, and certainly a sufficiently high amount of these efforts succeeded well enough to put pressure on the government to enhance the infrastructure necessary to take these services further.

This is what has happened with the *government portal* in Egypt. It has taken over 3 years to build this portal and *the time it takes* to integrate all government sectors has been seriously underestimated. The integration between other government sites has actually not worked, so there is no link to the site from any other Web site; *"The site simply could not be found or accessed by going online to other government Web sites - a user would have to have prior knowledge of the portal itself"* (UN 2004). It also illustrates the importance of looking into the *Government decision making system* because we found that there is a need for a *leading agency*, both at the political level and at the operational, that can both implement policy and allow developments based on emerging technologies and local initiatives.

Level D: This is the position many developed countries are now approaching by "joining up" their information infrastructure. This has required a lot of work on standards and converging processes. The first step is technical integration, using compatible technologies. This is helped by the ICT industry, which has a keen interest in their products being compatible with Web technologies. The more critical part is data integration and metadata definitions. To be interoperable without loss of data quality data definitions themselves must be standardized or convertible.

We have not classified any country as entirely level D. However, there are sectors in both Egypt and South Africa which belong here.

The example of South Africa: South Africa is a *middle-income* country and *technical environment* is relatively well developed.[12] The *government on-line presence* is *networked* with consolidated information and services across departments. South Africa has come far regarding *regulatory system* and *legal framework* (Accenture 2005) and they also have an *eGovernment policy* outlining a 10 year implementation plan for implementing eGovernment (Trusler 2003). South Africa's e-readiness is very high from the perspective of a developing country, The problem we identified is the uneven *access to telecommunications*. The *cost of using the Internet* is high and as the South African government puts more and more *services on-line* there is a risk that users who are without access are likely to be left behind. Disparities are severe and related to the level of income and the *general education level* (UN 2004). eGovernment solutions in South Africa are both initiated and implemented by the government and/or its agencies (*government decision making system*). Although it is important and has strong support from the government, there is a risk of a *top-down-approach* where solutions are built on governmental needs and the government's ideas about their citizens' needs.

6 SUMMARY

From the above examples, we have found support for our maturity model. A few points to be made here are the following:

1. Given a certain diagnosis on a country's position in the figure, there are possibilities and difficulties. But however long, the road toward "e-[countryName]"—a concerted development toward eGovernment—can be embarked on at any point, and the sooner the better, as avoiding it will likely lead to more disparate developments and as a consequence later setbacks.

2. Basically the "main route" should be followed, starting with improving administrative maturity, but this is typically helped by introducing some ICT components, as doing so enforces standards thinking. This means level B is not a goal; rather, level C should be aimed at directly. That is, maturity efforts should in most cases be combined with introducing ICT with a view of building an e-infrastructure, even if that ultimate goal may be far away. Today, certainly technical standards can be well defined as technology and business practices are converging. The harder part is data standards. In some sectors, such as international trade, these exist, but in other areas concerned with internal administration there is greater variation.

3. There is sometimes a trade-off between strictly following the long and boring route and introducing some "level E" factor as this may give some impetus, visibility, and

[12]SIDA (Swedish International Development Cooperation Agency) development cooperation projects (http://www.sida.se/Sida/jsp/polopoly.jsp?d=352).

spark more efforts along the maturity route. However, any such effort must be carefully considered in terms of future compatibility with the maturing administrative and technical infrastructure. Experience has shown many such initiatives to fail.

4. Although there are similarities between levels E and F, there are also significant differences. The differences have to do not only with the e-infrastructure but also with education and familiarity with technology. Although both may come out more negative in developing countries than in developed, there is in all countries at least a proportion of the population that is familiar with ICT. These are typically the younger generations, and therefore the demands from these groups will increase rapidly. Further, to be integrated in the world economy, being reasonably up-to date in some sectors where ICT is becoming a basic precondition, like international trade, or where human resources are concerned, such as basic education, is increasingly a must for any country.

7 CONCLUSION

We have reviewed a number of indexes for e-readiness and eGovernment readiness, with roadmaps and handbooks giving advice based on project experiences or based on policy, together with assessments of social and political developments. There are quite a number of more or less comprehensive and in-depth models of analysis. These typically include a number of similar factors but use different ways of measuring, ranging from interviews with key people to complex models calculating indexes from national statistics. We have chosen to create a checklist to be used for assessing candidate projects, and a maturity model to map projects onto a development map. This means we have combined known success factors and established measures into a checklist to be used by practitioners to overview the situation. The factors are established, but the combination and the checklist format is innovative and, judging from the great number of failures in eGovernment projects, much needed. Many projects fail because goals were not realistic or well specified, or methods were inappropriate. Clearly, the checklist and the model require good judgement to be used well. However, the two make up a tool that still lacks the ability to combine the disparate knowledge in the field into a comprehensive model that can, at least, be used to create a common perspective and so facilitate development and investment discussions.

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