Crucial Factors for E-Government Implementation Success and Failure: Case Study Evidence from Saudi Arabia

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Abstract
This paper presents a case study of the e-Government implementation program of the Kingdom of Saudi Arabia (KSA) to identify the crucial factors which decide on partial or overall success or failure of e-Government. Subsequently the findings will be investigated on their previous awareness in literature and their generalizability beyond the single country of KSA. The outcome of this case study added details to the known influencing factors strategic framework, prioritization, as well as frequent reviewing and team design. Cooperation, accountability, transparent project tracking, sponsorship and ministries’ want for autonomy were identified as new crucial factors for e-Government implementation programs.

Keywords
E-Government, IT Project Management, Case Study, Implementation, Success, Failure

Introduction
For decades governmental administration has grown rapidly with the result that the growth of some individual organizations has taken on almost Kafkaesque traits with administrations administrating themselves. While these complex systems and structures often hardly ever changed despite the digital revolution, increasingly the citizen has experienced new, convenient and highly efficient e-Commerce choices. The need to take reduce operational and cost inefficiency on the one hand and meet expectations from citizens and businesses concerning the desire for efficient and convenient service provisions on the other hand (Cook 2000), created the need for a new solution to perform administration, especially in the context of new information and communication technology. This solution of processing governmental services and administrational tasks via electronic channels is called e-Government (von Lucke and Reinermann 2000), and having functional e-Governmental structures is now mandatory for every nation which wants to be competitive in the future world economy.

Thus, nearly every state worldwide runs projects on the topic of e-Government (UN E-Government Survey 2010; 2012). Knowledge about the critical factors of a successful implementation is a must for these adopting countries – not only before the actual implementation program but also during the implementation process itself – to ensure effective management. Likewise, knowing the critical failure factors is essential to be able to recognize and to cope with possible problems.

Due to their oil rich economies, the countries of the Arabian Peninsula play an important role in today's world economy. However, as with every natural resource, the supply of oil is finite. To be ready for and competitive in a post-petrol economy Arabian governments recognized early on the importance of effective and efficient governmental administration, and one way to streamline governmental administration processes and services is to implement e-Government structures.

Being one of the largest and most important emerging countries in the Middle East, the e-Government program of the Kingdom of Saudi Arabia (KSA) may serve as a leading example among the various e-
Government adoption programs of the region. Furthermore, many crucial factors identified here are not only valid in emerging countries or the Gulf States but also for implementations in other states.

This paper aims to identify the crucial factors within the adoption process of e-Government by analyzing the e-Government program of the Kingdom of Saudi Arabia on the basis of the First National e-Government and Action Plan, supplemented by first-hand information from expert interviews.

**Research Background**

Analyzing the existing literature about the various factors affecting e-Government adoption, it is helpful to categorize the factors beforehand (see EL-Haddadeh et al. 2010). Despite this categorization some of the factors can be associated with more than one of the four categories, but a comprehensive e-Government implementation should respect all the factors to be successful.

**Different Models of E-Government Adoption**

As indicated, several different stages of implementation are possible throughout the process of e-Government adoption. As the number and graduation of the stages varies within the literature, e.g. Janssen et al. (2008) we propose a model that aligns e-Government business models to each of the implementation levels.

To bring the original nature of the topic into focus – namely the implementation of e-Government structures in KSA – the following description of the adoption of e-Government techniques concentrates on the "Four Stage Model" by Layne & Lee (2001). They suggest a partition into four different stages: "Catalogue", "Transaction", "Vertical Integration" and "Horizontal Integration". The stages increase in complexity as well as in the completeness of their integration and implementation.

**Catalogue**: The "Catalogue" stage contains a simple online presence of a governmental agency to provide clients with information and possibly downloadable forms. To actually get serviced, the client still has to hand in these forms to the respective agency.

**Transaction**: The "Transaction" stage of the model adds more possibilities compared to the "Catalogue" stage, as it includes databases which support online transactions, thus complete services can be provided electronically.

**Vertical Integration**: The stage of "Vertical Integration" additionally features local information systems linked to systems at higher levels within the administration. This stage already requires a more complete level of integration and has high requirements due to their technological and organizational complexity as the services, processes and probably some organizational units have to be redesigned.

**Horizontal Integration**: In addition to the "Vertical Integration", the "Horizontal Integration" complements integrated systems linked across different organizations and functions. Derived from the origins of pure e-Governmental tasks, the "Horizontal Integration" may even feature connections to the private sector to provide citizens with a "real" one-stop shopping experience.

The e-Government program in Saudi Arabia has extensive similarities to the model of Layne and Lee but does differ slightly from it. The Saudi Arabian program does not necessarily demand an advancement from one stage to another but interprets them as more or less equal modes of implementation. The original stages from Layne and Lee are thus renamed and enhanced: The KSA distinguishes between the adoption models "Communicator" (similar to the "Catalogue"-stage), "Enabler" (similar to the "Transaction"-stage), "Integrator" (similar to the "Vertical Integration"-stage; see below for more detail) and "Grower" (similar to the "Horizontal Integration"-stage). The four described e-government models according to the National e-Government Strategy and Action Plan (2006) are shown in figure 1.
The Integrator model is the Saudi’s choice for implementing their e-Government structures (First Action Plan 2006). This model includes services not only provided by an individual government agency but also offering a framework for implementing groups of services, involving multiple agencies. The services are “integrated across the agencies” (Wagner 2010) and thus it is possible to establish a “one-stop-shop”, for the first time. A one-stop-shop is a global access point (e.g. a central e-Government portal as used in KSA) which allows the user to gain all the necessary information and services without changing channels (Wimmer 2002).

**Methodology**

**Critical Incident Technique and Case Study Design**

For identifying success factors for e-Government adoption, the "Critical Incident Technique" by Flanagan (Flanagan 1954) is used to detect and analyze actually and nearly occurring errors. In this paper, the "Critical Incident Technique" is used as a multifunctional tool to identify critical factors of failure (or success) of particular projects by interviewing people directly involved. As it is used here, the focus is set on acquiring knowledge about possible or actual problems during the implementation of e-Government structures in Saudi Arabia and then reviewing the anticipated problems in the context of the available facts. Keeping the classification of the available facts for the Yesser program in mind, general success factors for e-Government will be localized and identified.

As first-hand information gathering, especially with a relatively small number of samples, can easily cause validity problems, Robert K. Yin shows in "Case Study Research" (2003) different ways to handle these problems concerning the internal and external validity as well as the validity of the construct itself. To improve the validity of the findings described in the explorative part of this paper, the statements from the experts introduced below will be supplemented by official information from the Saudi government and non-governmental sources. Using this approach, a valid picture of the Saudi e-Government program can be presented. To finally develop generalized success factors for e-Government adoption, the paper relies on analytical generalizations (see Yin 2003).

**The Interviewed Experts**

The case investigation was made by performing semi-structured, written interviews, partially supplemented by telephonic additions or clarifications. Moreover, this paper is based on official
documents from the Yesser organization and other Saudi governmental organizations, statistics of non-
governmental organizations as well as relevant scientific literature.

To reduce a possible political bias, the chosen experts are intentionally not citizens of KSA and will be
presented anonymously. They are all able to provide first-hand experiences. In fact, the three experts
presented in the following paragraphs are from Germany, Jordan and the United States, and work on
different projects and at different hierarchical levels. "People who work in e-government teams in Saudi
Arabia are an excellent source because they are qualified and they have experience in both e-government
and the public sector in the Kingdom of Saudi Arabia" (Al-Shehry et al. 2006).

HJW

Since 2011 HJW has worked for Transformation Consulting International GmbH at the Saudi Telecom
Company as a senior advisor for ICT consulting and project management. HJW studied computer
engineering and has more than 25 years of experience in various positions in the area of IT project
management for major projects.

From 2009 to 2011 HJW worked on assignments for the Deutsche Gesellschaft für Internationale
Zusammenarbeit GmbH (GIZ) in the Kingdom of Saudi Arabia on different projects as a senior project
manager / IT business advisor for the Yesser Consulting Group (YCG). His responsibilities included
analyzing the portfolio of Saudi services to identify and solve qualitative and performance-based problems
in transforming and providing eServices (HJW).

MEA

The Jordanian MEA has worked as a business analyst consultant within the Yesser-program since 2009.
His focus is on eTransformation-projects using several differing approaches. He has eight years of
experience in the private and public sectors in Jordan and Saudi Arabia, not only as a consultant but on
managerial and also technical levels (MEA).

MB

Since October 2010, MB, Ph. D., has been senior advisor in e-Government at the center of excellence for
research and development. As part of the Yesser-program it is affiliated to the Ministry of Communication
and Information Technology. MB studied communication and media studies at the University of Alaska in
Fairbanks and later history, anthropology, social science and polar studies at the University of Cambridge.
He has 20 years international experience in the sector of e-Government, including holding the post of
State Chief Technology Officer of Alaska as well as working as consultant for major technology companies
at various global e-Government-projects. MB has worked on the Saudi e-Government-program at the
level of senior manager since 2008 (MB).

The Case

“KSA’s geography, highly segmented social (tribal) heritage, and deep desire to grow into a
modern Nation places both external and internal needs on government to develop easier ways
to obtain government services and engage the public. [...] The need for e-government is high.”
(MB)

As MB states above, there are different internal and external needs guiding the Saudi government’s
implementation of e-Government structures. One of the external needs mentioned by MB is the
geography of KSA and the fact that more than 80 percent of its people live in metropolitan areas; besides
the capital Riad the most important areas are Jeddah, Mecca, Medina and Dammam, so citizens living in
rural areas often have to deal with long distances to the nearest responsible administration. Moreover,
providing governmental services in an electronic way offers the chance to reduce discrimination and
corruption. HJW adds:

“All important aspects of life (social, education, schooling, working, business, healthcare,
residency permissions, etc.) are processed centralistic via ministries without exceptions.” (HJW)
This strong bias towards centralization confronts the citizen with a slow-reacting bureaucracy and creates distance between the citizens and the state. Furthermore, these structures - in combination with outdated and paper-based processes - lead to long runtimes in those processes (MB). Furthermore, Alsheha (2007) also remarked on a "lack of professional work" in "any government agency". This leads to problems of accountability caused by the poor monitoring of governmental agencies.

Sustainable structural projects – like the establishment of competitive e-Government structures – are a suitable way of creating a solid foundation for a Saudi post-petrol economy which can be competitive in globalized markets. Finally, as MB states in the opening quote, KSA sees itself as transforming into an information based and knowledge based society. Hence, e-Government structures that work well are an obvious tool for making the public sector more effective, more efficient and more productive, while it can also improve the quality of governmental processing and shorten process runtimes (Wagner, 2010).

Objectives of the First Action Plan

The ambitious targets in the first "National e-Government and Action Plan" identified 150 services and administrative processes as the most important and thus these services were to be transformed and provided electronically to offer high quality and usability. In the context of the notably high mobile penetration, the (anticipated) eServices were to be designed in a way that they can be accessed at any place, anytime. In terms of quality, the defined target was to achieve user satisfaction of 80 percent as well as an adaption rate of 80 percent (First Action Plan 2006). Moreover, internal communication within state authorities and governmental agencies was to be increasingly paperless so as to accelerate information flow, improve the availability of information in different agencies and reduce redundancies. Parallel to these projects, a system for eProcurement was to be established.

Summarizing, implementing the e-Government structures defined in the "National e-Government Strategy and Action Plan", will lead to a better flow of new information and thereby make information available more easily. The existing knowledge would be used more effectively to sustainably improve the productivity of public administration by a more efficient use of material as well as immaterial resources. All these activities are aimed towards the long-term target of transforming KSA into an information society.

Implementation Approach

Strategical Framework

To have a functional framework for their e-Government implementation, several issues had to be adressed and solutions had to be put into place as components of this framework (see figure 2). The components of the framework were as follows (First Action Plan 2006):

Vision and objectives: "Clearly stated objectives" (see 4.3) and a "strong vision" to guide the initiative.

e-Services: The primary goal of the initiative is to actually deliver improved e-services to the different users.

National applications: Only with nation-wide, cross-departmental applications, can the initiative increase the effectiveness and efficiency of governmental agencies.

Infrastructure: A strong and reliable physical infrastructure has to be established to enable the governmental agencies to actually deliver e-services and to establish a working data communication between the various governmental agencies.

Organization: "[T]he overall challenge of the implementation of such a complex initiative requires a dedicated organization to be in place from day one, which is embedded in appropriate governance and funding model and addresses change management issues." (First Action Plan 2006) This also included the workstreams of Governance, Funding and Change Management.
Figure 2 Components of the e-Government framework of KSA (see First Action Plan 2006)

YESSER

The YESSER Program is the unit responsible for governance for KSA’s e-Government initiative as it was YESSER who primarily developed the First Action Plan in advance. YESSER is composed “of the Supreme Supervisory Committee, the YESSER Steering Committee, the YESSER Program Directorate, the Advisory Group to the YESSER Program and decentralized e-government committees in various government agencies involved in the implementation of Saudi’s e-government initiative” (First Action Plan 2006). The YESSER Program should ”enable and facilitate” the implementation of the e-Government initiative ”by ensuring an appropriate level of coordination and collaboration between the implementing agencies” (First Action Plan 2006). Within the implementation process, YESSER’s responsibilities and functions included the implementation of infrastructural projects, the ”definition of common standards” for all the involved agencies and projects and carrying out the necessary coordinational and supportive work to facilitate the implementation of e-services and the projects belonging to the complex of national applications. Moreover, YESSER was to introduce the change management and be responsible for the ”[p]lanning of the project portfolio as well as coordination and evaluation of newly proposed projects decentrally planned by individual government agencies and submitted for co-funding.” (First Action Plan 2006) These evaluations of single projects as well as of the whole e-Government program itself were also made by YESSER (Wagner 2010).

For the first implementation of a e-Government structure, the Saudi government decided for an integrative model. The central e-Government portal – www.saudi.gov.sa – would not only provide the requested services to the external users (citizens and business organizations) but at the same time it was to be an intranet portal for internal users (different governmental agencies).
The e-Services

The selected 150 services (see 4.3) were rated in the two following dimensions to identify the services with the highest priority, assuming a previous process redesign, e-Enablement and successful implementation:

- **Impact**: Depending on the assumed degree of improvement for the users of the rated service as well as for the country at large.

- **Readiness**: Depending on the conditions in which the service itself as well as the providing agency (or agencies) are, considering a successful process redesign, e-Enablement and a successful implementation of the service within the given timeframe.

<table>
<thead>
<tr>
<th>Project/Service</th>
<th>Employment service</th>
<th>Expat labour request</th>
<th>Work permit service</th>
<th>Payment order service</th>
<th>Commercial Registration</th>
<th>University admission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Matching of Saudi job seekers with job vacancies at private sector companies</td>
<td>Issuance of expat labour approvals for Saudi private companies</td>
<td>Issuance of work permit for expatriates to Saudi private companies</td>
<td>Issuance of payment order by Ministry of Finance for government agencies</td>
<td>Commercial registration of establishments and companies at commercial register</td>
<td>Admission of students at King Saud University</td>
</tr>
<tr>
<td>Host agency</td>
<td>Ministry of Labour</td>
<td>Ministry of Labour</td>
<td>Ministry of Labour</td>
<td>Ministry of Finance</td>
<td>Ministry of Commerce and Industry</td>
<td>King Saud University</td>
</tr>
<tr>
<td>Type</td>
<td>G2C</td>
<td>G2B</td>
<td>G2B</td>
<td>G2G</td>
<td>G2B</td>
<td>G2C</td>
</tr>
</tbody>
</table>

**Figure 3** Category 1 services (see First Action Plan 2006)

Parallel to the redesign, e-Transformation and final implementation of the various Services, and the serveral mentioned initiatives for national application establishment and improvement of e-infrastructure were started. Among these was the development and implementation of the central e-Government portal (www.saudi.gov.sa) and other projects aiming at the unification of communicational and security standards (Wagner 2010).
Accomplishments of the First Action Plan

KSA’s own presentation of its accomplishments is understandably very positive:

“Good progress has been made during the first five years [...].” (Second Action Plan 2012)

And indeed, some governmental agencies were already capable of providing over 50 percent of their services electronically after the first five year plan (Second Action Plan 2012). Furthermore, HJW points out good progress was made in the sectors of work permit, education and housing (HJW).

However, regarding the overall achievement of objectives HJW states:

"The First Action Plan has the aim of an 'Adaption Rate of 80 percent'. This is [...] clearly not accomplished." (HJW)

Actually, only about one third of the planned e-Services was fully available, whereas 29 percent was still under development or consultancy. 39 percent of all planned service projects did not even start during the first five year plan (Wagner 2010).

Figure 4 visualizes the actual progress of implementation of the e-Government services at the end of the first Action Plan:

![Figure 4](image)

Whereas the e-Services could meet some expectations, the progress of the national applications, clearly missed expectations. Some studies were made by service owning agencies which showed that not only were no implementations accomplished but it was not even possible to start any of the planned national applications projects.

However, during the first period a working infrastructure was able to be established successfully. Of course, an e-Government infrastructure needs continuous investment to stay competitive and fulfill the agencies’ demands.

Regarding the preliminary accomplishments of the Saudi e-Government initiative by the end of the First Action Plan, HJW states:

"Measured on today's status, [...] a considerable potential is still existing." (HJW)

And even the official Second Action Plan admits:
“There is still great opportunity for further improvement to increase the speed of implementations, and build on the momentum that has been established.” (Second Action Plan 2012)

Discussion

This section reflects on the lessons learned from the case study together with the findings of the related work. Subsequently, the findings will be analyzed on the basis of their respective generalizability for other e-Government projects.

Lessons learned

The experiences of the first five-year plan suggest that the presence of a clear strategic approach (the First Action Plan) may provide a sustainable framework for the process of e-Government adoption. However, it has shown that a good plan alone does not guarantee success. The plan should be flexible enough to be adapted to external and internal challenges, especially considering how IT-projects are set in a continuously advancing environment (see also: Bertot et al. 2008). HJW confirms that already existing plans could further facilitate the implementation of e-Services (HJW).

As the new workstream “e-Participation” suggests, the First Action Plan had a problem of insufficient consideration of the citizen, which had to be emended in the Second Action Plan. HJW and MB both identified this as a major problem (HJW, MB). The public presence as a crucial factor for e-Government success was also identified by Lee et al. (2005) as it may increase the overall acceptance of e-Government. The communication with (and where useful – feedback from) citizens must not be underestimated as it is the citizen who is the ultimate beneficiary of e-Government services. Therefore, a citizen-centric approach for the design and development of e-Government services improves the overall success of the whole e-Government implementation as recognized by Parent et al. and Al-Sebie and Irani in 2005. Furthermore the quality of the e-Services may be improved by citizens' participation (Bertot et al. 2008).

HJW states that the success largely depended on the level of organizational skill of the responsible ministries and whether these had "well skilled people in the key positions" (HJW). Project teams should be assorted interdisciplinarily with process specialists as well as specialists for legal and technical issues.

Constructive cooperation between the governmental agencies should be mandatory since it avoids redundancies and gives an opportunity to use synergies in the most effective manner. MEA states:

"[T]he success implementation factor will be an integrated and collaborative efforts from different governmental agencies to work together for implementing an e-service [...]." (MEA)

Interestingly, HJW amends that the success of projects was often influenced by the existence of a "sponsor [...] who drove the topic"; and furthermore he states that "sometimes (as frequently in KSA) personal contacts played a role" (HJW) for the success of some projects. This issue of political interference is probably influenced by the lack of democratic structures in KSA. It may also be mediated by a matter of culture. Keeping this potential political interference in mind is important especially for foreign service providers.

Considering the e-Services, HJW asserts:

"The aims were simply set too high and too optimistically and the approach with the 150 e-Services was simply wrong (only the ministries can (and want to) decide on themselves which services have priority)." (HJW)

This shows clearly that the front-end experience of the ministries should be used for more practical results of the prioritization process. However, without the prioritization afforded the e-Services, the results probably would have been even worse. The best practice experience gained during the implementation of the six pilot project could facilitate the implementation of the other e-services.
As the new follow-up Second Action Plan addresses some of the problems that occurred, the rearrangements allow crucial factors for e-Government to be highlighted and more closely analyzed. One insight of the Second Action Plan is:

"The fundamental success factor for the Second Action Plan is the commitment and involvement of government agencies and other stakeholders." (Second Action Plan 2012)

To realize the stipulated "commitment and involvement", the Second Action Plan introduces a project management office including one person in charge for each ministry (Second Action Plan 2012), and more frequent reviews of the projects to "promptly take action" (HJW) where necessary.

**Generalizability of Findings**

Due to the particular characteristics of KSA, the findings above have to be revisited in relation to the question of whether - and if yes how far - they are generalizable.

As already asserted by EL-Haddadeh et al. (2010) and Rabiah and Vandijck (2009), a clear and reliable e-Government strategy is crucial for e-Government success or failure. Furthermore, it has to be added that the mere presence of an e-Government strategy does not ensure global success and that the strategy should be designed flexibly enough to be able to react to new conditions. This is valid for every e-Government implementation.

The same applies to the complexity of e-Participation. Awareness and public presence are key factors for e-Government success (Al-Shafi and Weerakkody 2007; Al-Sobhi 2010) not only in KSA, and also not just in the Gulf States but in every state adopting e-Government structures. Without citizens requesting and using e-Government services, e-Government may lack its own justification to exist.

In addition to EL-Haddadeh (2010), the analysis of the implementation process of the first 150 e-Services in KSA shows that a successful prioritization needs the front-end knowledge of the responsible ministries. Using this front-end information should also be considered as useful in other e-Government implementation programs.

While better skilled people always improve the overall project performance, the assembling of teams is even more important in emerging countries where the differences in education and skills vary more than in developed countries. If affordable, implementation efforts in emerging countries may benefit from building multinational teams with foreign experts. Developed countries can further concentrate on assembling interdisciplinary teams with different experts useful for the respective project.

 Likewise, more or less obvious political interference in projects is another issue which is more relevant for developing countries, especially those with a lack of democratic structures. As shown above, it does not necessarily slow down, but might also enhance, the progress of particular projects. Nevertheless, this practice undermines strategic aims and funding plans and should be avoided when possible as part of good leadership (Ke and Wei 2004; Elnaghi et al. 2007) and a suitable and transparent organizational structure.

An effective and efficient organizational structure provides a framework in which different governmental organizations have incentives to provide collaborative efforts and thus to create synergies. The use of synergies for working more efficiently should be adopted by all administrations regardless of the state of development of the respective country, especially in the context of e-Government adoption. Furthermore, the organizational design should create a culture of commitment and involvement among the respective stakeholders.

To cultivate these values, KSA introduced the Office of Strategy Management. This agency provides another crucial function: it monitors the progress of the various projects and frequently reviews the progress made thus far. The regular and frequent reviews are part of an effective leadership and help to align the projects to the strategic aims. As mentioned above, the Second Action Plan introduced balanced scorecards which help define transparent targets and performance indicators which are an advantage in the effective management of major IT projects in general.
### Crucial Factors for E-Government Implementation Success and Failure

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#### Figure 5: Success Factors For E-Government Implementation identified in this Case Study

**Limitations and Further research**

Despite the generalizability of the findings presented here, this paper focuses on the implementation program of a single country. A broader multiple case study (see Yin 2003) analyzing different countries in different regions could point out additional details or other critical factors.

Using expert interviews always runs the risk of various biases and the results are often somewhat influenced by the subjectivity of the interviewees, especially when using a small number of interviews (Yin 2003). However, these subjective influences are explicitly sought within this paper to complement and possibly question the official documents in a distinct manner where this seemed to be useful or necessary.
References:


In addition:

**First Action Plan, 2006:**

**Second Action Plan, 2012:**