THE E-GOVERNMENT IMPLEMENTATION DIRECTIONS IN OMAN: A PRELIMINAY INVESTIGATION

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Abstract
Electronic government has established itself as the primary enabler for transforming the way government services are offered to citizens. In the gulf countries, public sector transformation efforts are focused towards increasing accessibility, availability, competitive advances and enhancing services in civil administration. The Sultanate of Oman is one such example of the Gulf countries where large investments have been made since 2003 to implement electronic services in the public sector. Using a qualitative research approach, this research investigates the improvements that have been made to facilitate these electronic services in three public organisations, and their resulting impact within the organisations. The empirical results reveal that among others, top management support, integration and IT staff skills and capabilities are the most important factors that facilitate e-government initiatives in the Omani public sector.

Keywords: E-Government, Supports, Integration, skills, Oman.

1   INTRODUCTION

The explosion of digital connectivity and the significant improvements in ICT's is changing the way most governments in the GCC region interact with citizens, deliver their services and how they compete with other governments in the region. The emphasis has now changed from internal government focused processes to more open and transparent citizen focused processes that aim to offer more accessible and user-friendly services to citizens. This shift has been facilitated largely as a result of the availability of innovative and cost effective ICT solutions and the evolution of the Internet. While developed countries have exploited the power of the Internet to successfully e-enable public services and entice citizens, developing countries have been comparatively slow in developing successful e-government strategies (Stoltzfus, 2004; Abanumy, et al,. 2005; Karunanada and Weerakkody, 2006; Weerakkody et al., 2007).

For many countries, e-government implementation efforts began in the late 1990s. The e-government led implementation of ICT in public administration during the last ten years has offered better, faster and more transparent means for citizens and businesses to interact with government organisations (Weerakkody, et al., 2008). Given that the public sector is often classified as bureaucratic, inefficient and less technology savvy, e-government can be considered as a revolution that was waiting to happen, particularly in a developing country context. Given this context, e-government has the potential to radically change public sector agencies and offer many benefits that were previously not envisaged (Moulder, 2001).

E-government is the short form for electronic government, and it is also referred to as digital government, online government and even transformational government (Riley, 2003). E-government

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discusses the manner in which governments make use of the exchange of information and services that are pertinent with regards to citizens, individual businesses, and other governmental agencies to name a few (Welch, 2005). When e-government is implemented successfully, it will ensure that there is improvement in processes within government agencies, efficiency is achieved, and public services are better managed and delivered (Riley, 2003).

However, for e-government implementation to be widespread and successful, exemplary strategies and practices need to be identified in addition to establishing and prioritizing processes to be e-enabled. Furthermore, every e-government programme needs to have a clear idea of the proposed benefits to citizens, what challenges need to be overcome and the level of institutional change that needs to take place for it to be successful in a given context (Hazlett and Hill., 2003). While many developed countries have identified successful strategies and overcome obstacles to pioneer the e-government concept (Jones et al., 2007), developing countries such as Oman have much to learn in this context. However, there has been little research done to examine, for instance, the reasons for the lack of progress since the initiation of the national e-government project in Oman in 2003. Moreover, there is very little published literature (apart from UN reports) that identifies the issues impeding e-government efforts in Oman. Therefore, from IT directors' perspectives, this paper aims to examine key issues that are currently influencing the implementation of e-government in Oman in relation to e-government implementation and diffusion. As such, the Authors intend to determine the most salient factors that are influencing e-government progress from the perspective of the employees.

This paper aims to examine key issues that are currently influencing the implementation of e-government in Oman. The study aims to address the question of what are the underlying dimensions that constitute the construct of government employees' knowledge in relation to e-government implementation and diffusion. As such, the paper aims to determine the most salient factors that are influencing e-government progress from the perspective of the employees.

In order to achieve the aforementioned aim, the paper is structured as follows. The next section briefly examines the benefits and challenges of e-government as published in the literature. This is followed by a brief overview of Oman and e-government implementation efforts in that country in section three. Next, an overview of the research approach used for this study is offered. The research finding is placed in section five. In section six, a comparison of case studies and related issues influencing and affecting the progress of e-government implementation in Oman is offered. The paper then concludes by discussing the most important issues currently influencing e-government implementation in the Omani governmental units.

2   E-GOVERNMENT: A LITERATURE PERSPECTIVE

E-government has evolved since its inception during the late 1990's from offering basic government information on the Internet to more value added transactions. The evolution of e-government is captured by Layne and Lee (2001) in four stages that illustrates the various development levels in relation to the growth of technological and organisational issues related to e-government aspects. The four-stage are defined as Catalogue, Transaction, Vertical Integration, and Horizontal Integration. These stages are explaining the degree to which the properties of ICT have been used to enable the delivery of integrated services electronically. In this context, the first three stages in Layne and Lee's four-stage growth model outlines: a) the importance of establishing an online presence (cataloguing); b) need to allow citizens to electronically transact with government institutions by connecting internal government systems to online interfaces (Transaction) (Vasilakis et al; 2003); and c) the need to offer more integrated services by improving local government's connectivity to central government (Vertical Integration) (Reffat, 2003). The challenge here is to achieve compatibility and maintain interoperability between various databases (Layne and Lee, 2001). In the final stage, *Horizontal Integration*, the realisation of a one-stop e-government system is proposed capable of homogenous information delivery by integrating different functions of government (Layne and Lee, 2001; Reffat,

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2003; Weerakkody et al., 2007). In terms of Layne and Lee's representation, it is fair to suggest that the UK has realised many vertical level integrations and few horizontal integrations in their national e-government program (Weerakkody et al., 2007; 2008). To realize the final stage of e-government as suggested by Layne and Lee (2001), public sector organisations require radical redesign of established business processes and legacy systems utilizing techniques such as BPR as suggested by Hammer and Champy (1993); this is a complex undertaking (Hazlett and Hill, 2003; Halachmi, 1997).

Choudrie et al., (2004) suggests that e-government has the potential to improve external and internal relationships among the various stakeholders involved in the government services delivery process (including citizens, government employees, external businesses etc) and facilitate sharing of knowledge among these stakeholders. For many governments, particularly in developing countries, reducing expenditure and cutting down the cost of running government institutions is also a major concern (Bwoma and Huang, 2003). For instance, e-government will eliminate the expenditure needed for building more physical premises and agencies around the country to provide government services to citizens. Also, mismanagement and poor organisation particularly in developing countries is common and affects public expenditure. In this context, e-government can cut costs by making operations constrained online. Moreover, e-government will encourage the improved interaction and communication between governments and its citizens (Kostopoulos, 2003). Furthermore, e-government will also establish an environment where public agencies can remain open for 24/365 to serve their citizens and help establish a new line of services for the citizen (Bwoma and Huang, 2003). This environment will therefore reduce the need to directly contact government agencies thereby reducing the cost for government and improving services for the citizens (Awan, 2003; Stoltzfus, 2004; Martin, 2000).

Most researchers have mentioned similar type of relationships in e-government which revolve around Government to Government (G2G), Government to Business (G2B), and Government to Citizen (G2C) (Bwoma and Huang, 2003; Stoltzfus, 2004; Ndou, 2004; Chesi et al., 2005). However, Bwoma and Huang (2003) noted one more type of relationship G2E, which explain the relation between the government and their employees. The G2E relationship is particularly relevant for this research as it investigates the factors influencing e-government as seen by the employees from a service provider's perspective.

While e-government in its simplest form can be seen as moving government interaction services online, in its broadest sense, e-government refers to the technology-enabled transformation of government services. It is the governments' expectation to reduce costs (Bwoma and Huang, 2003), improve efficiency and development (Reynolds and Regio, 2001; Davison and Martinsons , 2003), increase transparency (Danielson et al., 2005), improve service delivery (West, 2004), and facilitate the advancement of infrastructure in public administration (Ndou, 2004). Researchers and practitioners also assert that e-government offers many benefits to citizens. Among the greatest benefits of e-government is improving IT infrastructure and reducing logistical costs, based on data integration of various government agencies (Al-Khouri and Bal 2007; United nation, 2003; Ndou, 2004; Chesi, 2005). For example, collecting all data require for citizens in one portal can ensure that citizens have the ability to explore and use all services from home or work. Moreover, there are many other benefits offered by e-government such as, improved business processes, globalization and increased use of the internet (Al-Khouri and Bal 2007).

Although there are vast advantages in implementing e-government, efforts have been obstructed by a number of challenges in developing and implementing e-government systems. Many challenges have been mentioned in different articles published in the last five years. Most common challenges in respect to developing countries include privacy and security (Al-Khouri and Bal, 2007; Al-Joobri, 2006; Bwoma and Huang, 2003), accessibility (Al-Joobri, 2006; Abanumy et al, 2005; Choudrie et al., 2004; Chesi et al., 2005), infrastructure (Al-Khouri and Bal, 2007; Bwoma and Huang, 2003; Chesi et al., 2005), and IT workforce capability (Bwoma and Huang, 2003; Chesi et al., 2005). Wilford et al., (2004) argues that researchers in the field of e-government consider security and

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privacy as one of the most important key challenges for the implementation of an e-government system. Security issues commonly consist of computer security, privacy and confidentiality of personal data (Al-Khouri and Bal, 2007; Al-Joobri, 2006; Bwoma and Huang, 2003). Conklin and White (2006) justify that information that is stored in databases and systems remain very valuable. In this case, security and privacy issues should be monitored and reviewed continuously. Underestimating the importance of this factor can result in unauthorized access to sensitive information and loss of citizens' trust, which might lead to e-government failure. Therefore, building a solid trust environment by providing a high level of data privacy, data integrity and user authorisation will ensure electronic transaction security and online identity authentication (Al-Khori and Bal, 2007; Conklin and White, 2006).

Also, Bwoma and Huang (2003) identified integration of technologies between government agencies as a major obstacle for e-government implementation. In this context, using interoperability standards for building e-government systems will increase the flexibility of integration with other systems (Borras, 2004). According to Layne and Lee (2001), e-government implementation is expected to provide the access to citizens and other users from one single integrated gateway. Also, it requires participating government agencies to share their data to serve and achieve the citizens or e-government system users' needs. Therefore, information technology standards are needed to avoid any hardware and system barriers that would hinder the implementation of e-government system. However, although there is a real need for a common language to complete this process of integration, still many government agencies have their own regulatory environment and strategic priorities (Borras, 2004).

Furthermore, Abanumy, et al., (2005) also note that website accessibility is a good measurement for e-government success, but at the same time serves as a barrier, because web accessibility will mean allowing universal use for the information. Thus, the success of e-government will depends on "how user-friendly government websites will be" and "what the website ability is" as well as "how familiar the users are with various web based technologies" (Kostopoulos, 2003).

Another important issue with e-government development is the technical and software infrastructure requirements. This is one of the most costly aspects of e-government as transferring traditional government processes to an e-enables state where services are reliant on efficient enterprise applications and network infrastructure (i.e. high speed Internet connections) requires huge capital investments (UN, 2008). Moreover, accountability of limited financial resources, particularly in developing countries is an important challenge that governments need to manage well. Therefore, the stance adopted by governments should be one that is geared more towards the effective utilization of relevant resources as well as any foreign aid that is offered to finance e-government related projects (Al-Nahas, 2006).

3   E-GOVERNMENT IN OMAN:

Official e-Government efforts in Oman (referred to as 'e-Oman') started in 2003 with the establishment of a government organisation called 'Oman digital'. This organisation is responsible for all e-government and e-commerce services in Oman. Initially, this organisation was responsible for identifying the information and technological needs for different government agencies in Oman to participate in e-government. Currently this organisation is developing the infrastructure and a national web portal for e-government in Oman; however this process has taken nearly half a decade to establish.

Research by Abanumy, at al., (2005) suggests that Oman e-government is still in the initial stage of building e-services, which concentrate on supplying information to the users (see Layne and Lee, 2001). The United Nations Economic and Social Commission for Western Asia described Oman's ICT e-participation policies and missions as average when compared with Saudi Arabia, and below

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average when compared with the United Arab Emirates. In 2008, the UN world e-government readiness survey showed that the Omani e-government efforts improved significantly since the 2005 survey by moving up from 112 to 84 in the rankings. However, according to the same survey Oman's e-government project was ranked last among Gulf countries (UN, 2008).

In addition to the discussion presented above, the lack of a legal framework to identify guidelines and regulations regarding the use of electronic data is one of the main limitations of Oman's e-government concept (UN, 2005). Furthermore, according to United Nations Economic and Social Commission for Western Asia, Oman needs to provide new laws to regulate the Internet, which will control the relations between service providers and users (Tigran, 2006). In addition, though Oman connected to the internet in 1997 the country still has only one internet provider, which means that not all towns and cities are covered by internet services (ibid). However, since of late with the establishment of 'Oman Digital' the government has ensured the formulation of national ICT strategy to enhance e-services such as e-procurement, e-payment and privacy (UN, 2005; Tigran, 2006). Nevertheless, sceptics have suggested that Oman lacks clear detailed plans for implementing e-government, which will affect their progress (Al-Jboori et al., 2006). Moreover, there are no software industries, which can grow with Oman's e-government needs. Other researchers have also identified common issues, such as, usability and information quality as factors affecting the efficiency of e-government implementation in Oman (Abanumy et al., 2005).

4   RESEARCH METHODOLOGY

In order to create a link between theory and empirical data, this research uses case study methodology comparing theoretical propositions with empirical data gathered from the research field. This view will support the existing literature by providing the effects of various elements of the case study in practice. It is important to explore the existing literature and theoretical propositions by running e-government cases used in this study. The choice of a multiple case study proposed here has compared and contrasted the findings derived from each of the case studies (Yin, 2003, Bryman and Bell, 2007). This allowed the researchers to understand the similarities and differences across the selected cases. The interviews represented the main data source in the case study and acted as the main tool of qualitative research for data collection. They were conducted between July and September 2009 by visiting the interviewees in their government departments. All case studies work with large governmental agencies concerned with a large number of people in Oman.

The aim of this study was to compare and contrast cases to highlight the salient themes and to elicit key lessons on the findings. The three cases used in this paper differed in the degree of implementation of ICT and technology in e-enabled public services. This degree of e-government implementation was based on many issues related to these three public organisations. The three cases revealed that significant further exploration, understanding and lessons had to be taken, contrasting and drawing the real reflection of Omani e-government.

Using a semi-structured interview method (Yin, 2003), three senior e-government stakeholders were interviewed in three different government ministries in Oman as part of this research case study. The chosen cases comprehensively illustrated the local administration services within the Omani government and were actively involved in e-government implementation. The ministries are responsible for delivering key public services and thus played an important role in the relationship between the Omani government and its citizens. The questions covered different roles played by each ministry in the last three years. The stakeholders interviewed were:

1. Head of IT section, Ministry of Higher education (MOHE).
2. Director of IT department, Ministry of Interior (MOI).
3. Director of IT department, Ministry of Manpower (MOMP).

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These managers were chosen because they participated in different projects relating to e-government initiatives. The authors assumed that the interviewees held insightful views of Omani e-government initiatives.

4.1 Data Collection and Analysis:

The interviews consisted of ten independent questions that were identified and structured around key themes recognised from the literature and an initial semi-structured pilot interview conducted with the Chief Executive Officer (CEO) of the Information Technology Authority (ITA) in Oman. The interview with the CEO was held in August 2009, and the questions that conduct of the cross-case comparison has suggested upon the current states of e-government in Oman. The questions identified a set of relatively standardised items to be described and analysed in each of the cases. This was done by having the participants discuss and choose among a set of propositions related to the ITA CEO's suggestions. Based on the interview results, a number of items could be considered important in a cross-case comparison. These questions are divided into four main areas, including phases of e-government, stages of e-government, future plans and challenges faced in current e-government development in Oman. Furthermore, regarding future research in the context of the Omani e-government, the CEO identified a few large agencies within the Omani government that are related to e-government practices. Based on his suggestions, this research conducted the interviews that are mentioned here. To ensure clarity and simplicity of the information gathered, the interviewees decided convenient times and were given enough time for the interviews. They were notified that they could stop and withdraw from the interview at any time if they desired.

5 CASE STUDY FINDINGS

5.1 Case study 1 – MOHE

This case study was concerned with e-education around the state of Oman. In particular, six university colleges of applied sciences were under the supervision of this ministry. Additionally, this ministry was responsible for sending students on scholarships to study in colleges and universities, whether within or outside Oman.

This ministry was run by the primary development of the Higher Education Centre (HEAC) team and the IT team in the ministry itself. The ministry claimed that it had basically been established to overcome the challenges by having partnership with universities and colleges and also to ensure educational stability. E-government officials (ITA) considered that the Ministry of Higher Education (MoHE) had succeeded in providing certain capabilities and expertise related to e-government and e-education in the country. The IT Head said, *"So, we have followed a sharing plan between three different partners, the ministry, universities and colleges and students to achieve our objectives for implementing e-government and e-education."* Furthermore, the head of the IT section in MOHE clarified that *"the electronic services have been implemented in the organisation since 2006 by the higher education admission centre. This centre targets the students who have graduated from secondary schools and are registered to get scholarships. Nevertheless, there is a lack of communication between the higher education ministry and six cultural attachés in the online system. However, there are still lots of services that can be automated as electronic services for the public that will take at least a year to launch."* The main objective of MOHE is to automate and integrate different information and data from the cultural attachés in the different countries with the main databases of MOHE to simplify and maximize the benefits of e-government and technology used.

Regarding the challenges facing MOHE, the IT section head stated that *"changing paper work to electronic work requires the ministry staff to possess computer skills. In addition, the IT staff needs more skills to develop these services, or the ministry will outsource to a few companies to complete the work. Sometimes this has played an important role since the IT staff's skills and experiences are limited and there is essential need for outsourcing."* Given this context, the IT staff lack the

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professional skills needed to interact with technological developments introduced with e-government. Also, the head of the IT section in MOHE added that "*if there had been continuous support from top management from an early stage, we could be further in our development in relation to various technologies. However, with some sporadic support that we have received, MOHE has showed reasonable development of e-government services. Now, our ministry is assessed as the first case in the Gulf to implement the centralised admission for the higher education institutes. Therefore, we move rapidly towards online services and to be more precise, the whole online phase will establish with full automated system in a year's time.*" These comments explained the need for top management support and understanding of e-government benefits. Along those lines, the IT section head in MOHE mentioned that the support of top management and government officials towards the e-government project varies from time to time in the Ministry of Higher Education. Nevertheless, in general the overall support and commitment for e-government can be described as satisfactory for MOHE.

5.2   Case study 2 – MOI

This case was an interesting study for this research. Mainly, this ministry (ministry of interior) was concerned with the G-C model of e-government. Although the main concern of this ministry was citizens, the organisation has failed specifically in implementing various online services. The IT director in MOI stated, "*Our organization is still in the initial phase of e-government, where the infrastructure is being prepared. There is currently no network between the local agencies and the organization itself, and we are still planning various procedures and software implementations.*" He also stated, "*We will be implementing the e-government phases in three stages, and this will include connectivity to internet. But the plan will not take less than three years.*"

The major challenge of MOI towards e-government is the top management support. It was found that e-government is given less attention by senior management and the priority for implementing e-government is not as high in this ministry when compared to MOHE. According to the IT director in MOI, the organization has its own plans, priorities and objectives other than online services. Also, he stated that "*the ability of higher management to embrace change and support online services was the main barrier towards implementing and transferring traditional services to online services. However, this is not the only challenge. The availability of reliable Internet lines in required speeds for local government to deliver e-government services was another issue that is hindering implementation of e-services.*" Furthermore, the differences in employing e-government between government agencies are coming from the implementer and adopter of e-government itself, because leaders of some organisations have now realised the future benefits of transferring to electronic services. Therefore, he added, "*The dissimilarities of adoption and diffusion of electronic services in Omani public agencies depends on individual approaches and experiences of each government agency. Nevertheless, these plans cause a need for better awareness in the top management, which in turn will help management to understand and deliver the required resources provided for any project.*"

Furthermore, the IT director explained that a new strategy has been initiated recently which will consist of separate phases to e-enable and adopt e-government services within a period of three years. He said, "*In the next three years, we plan to deliver our e-services through the Wali offices [local agencies in different cities] that will help to provide the necessary awareness to the public, improve the MOI online services and provide a good medium to enhance the service delivery through the Internet.*" The IT director highlighted many other factors, such as staff capabilities, skills, availability of services and public awareness as impeding e-government implementation in Oman. Finally, he highlighted essential issues in his last statement, saying that "*we will be able to go along with other government units once the necessary legal issues for the MOI are sorted out. This will improve the common trust issue between this government unit and different stakeholders.*"

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5.3   Case study 3 – MOMP

The Ministry of Manpower is mostly concerned with G2C, G2G and G2B. The objectives of this ministry are: preparation of draft laws and systems regulating the labour market and vocational training sector in Oman, assurance of regulations and decisions to implement the same, protection of national labour force and availing all potentials which help develop the capabilities of this national labour force.

With regards to e-government, the IT director in the MOMP states that *"we already started implementing e-government a long time ago. Our aim in implementing e-government services was to improve the relationship between public and private sectors and obtain the maximum benefit for job seekers"*. The Ministry of Manpower has reached the fourth stage of e-government according to Lyne and Lee's (2001) classification of e-government evolution. Their website has multi-functional activities provided for all its customers and stakeholders. The IT director added, *"We established e-government long ago, even before the government officially started the e-Oman. I think that we are currently in the stage of expanding the e-services, which according to my thoughts will transfer all our services—even identification and authorisation—online in the near future."*

IT skills and budget played an important role in impeding the progress of implementing e-government services in the MOMP. The director of IT department in MOMP said, *"In my opinion, the availability of skilled human resources and budget were the main challenges in transferring traditional services to online services. Also, I think this is the reason behind the dissimilarities of implementing electronic services in Omani public agencies."* According to his experience, the main factors to eliminate the gap of culture and improve the public adoption of e-government are simplicity, awareness and availability. He added that "*the public could be an advert channel for your online services by making it very simple for them to use, so they will tell other people. Thus, this will enhance awareness.*" Additionally, the interviewee explained the ministry's future plan for expanding e-government. He stated that *"in the coming year we look mainly to inflate our infrastructure and integration with other important government agencies in the state of Oman."*

6   DISCUSSION

The above discussed findings of the three ministries is summarised in table 1 to highlight the main challenges faced by key public services in Oman in implementing and delivering e-government. The research specifies a broad classification of implementation challenges that have impeded the development of e-government initiatives in the past and those challenges currently facing e-government progress in the three ministries researched for this study. In the past, the common challenges between the cases revolved around the level of support from top management, integration and information exchange among various governmental units and the skills and capabilities of IT staff to implement e-government. Recently, issues relating to external consultancy and outsourcing, infrastructure, legal issues and awareness are the most common challenges that were evident across the three cases.

E-Gov Unit	Implemented models	Implementation Challenges	
		Past Challenges	Recent Challenges
MOHE	G-G, G-C*	Internal Integration among ministry offices, top management support and commitment	The need for External consultancy and outsourcing, IT staff skills and capabilities, lack of communication among government ministries
MOI	G-G, G-C**	Top management	Top management

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		support and commitment, Infrastructure, Internal integration among the ministry offices, Standard IT applications, Plans and strategies to support e-government, lack of Internet access.	support, Infrastructure, integration, legal and regulation issues, trust and related issues (privacy and confidence)
MOMP	G-G, G-C, G-B	IT staff skills and capabilities, budget	Expand the current infrastructure, External integration among various governments' units, simplicity of the services offered, awareness and availability of e-services

*Most of the citizens are student where there ages between (17 - 24)
**The citizens are in various ages; however most of them are (> 20)

Table 1.   Shows the concerns and major challenges of implementation and adoption in each of the case study in the context of e-government.

In Omani governmental ministries, in the last four years, top management support, integration and IT staff skills and capabilities were crucial in the success of e-government initiatives. In practice, top management draws future strategies and plans for the organisation. The MOI is a good example. For instance, the MOI has classified e-government implementation as a lower priority compared to other plans and projects. In this context, in comparison to MOMP for instance, in terms of e-government implementation success and the availability of e-services, the MOI is lagging behind. Therefore, it is important to highlight the key findings and lessons drawn from the three case studies as they provide useful insights into understanding e-government implementation in Oman. In this respect, the key challenges that emerged from the case studies can be themed into three topics that will influence the success of e-government initiatives in Oman.

6.1   THEME 1: Top management support

Top management support emerged as the most salient theme that was influencing e-government implementation across all of the three ministries investigated. There was a huge difference in the level of top management support between the three ministries. In the first case study although the MOHE needed continuous top management support for e-government, due to change in leadership this was sporadic throughout the last four years. During the interview with the head of IT in MOHE top management support was cited as being strongly required throughout the implementation of an e-government project. Continuous approval and support was needed from the top management to maintain and to continue without any unexpected delays or project failures. Also, the head of IT said, *"Top managers should fully understand the strategic objectives of e-government and the associated benefits."* Further, top management support would enable IT teams and various developers and programmers to implement the project with more confidence.

The second case study showed that the e-government initiative in MOI had a low level of support from top management in the same government unit. Therefore, e-government initiatives had not been implemented yet. The interviewee commented, *"There is a strong need to develop e-government to satisfy citizens' requirement. Therefore, the need to adopt the e-government strategy as top priority by*

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the top management is important. Unfortunately, this is lacking in our ministry" Interestingly, the interviewee from the most successful unit among the case studies (MOMP) did not have any concerns with top management and indicated that top management support was offered or the degree of top management commitment of various implementation of e-government was adequate.

6.2   THEME 2: Integration

Apart from top management support, the lack of integration and information exchange between different public agencies was flagged as one of the key challenges faced for eOman. For instance the MOMP and MOI were concerned with the citizens when compared with MOHE which was more concerned with information exchange between the different cultural attaches and itself. The IT director in MOMP commented, *"We recognize that the Integration is much needed for our development in both initial and advanced implementation of e-government. This will enhance our exchange of information between different government units and facilitate speedier implementation of e-government."* The head of IT section in MOHE described the important role of integration among the organisation: *"I can say that one very important step for my organization is connecting with the various cultural attaché belonging to my organization, and there would be many chances to implement electronic services."*

In total, the three case studies gave detailed views of the required level of application integration internally and externally for initial, complex and transformational e-government development, as it has been described by Layne and Lee's model for integration among different agencies (Layne and Lee, 2001). While the MOMP required external integration between government units to update their information and databases, conversely MOHE required internal integration to help and support their customers, upgrade system and improve the online services.

6.3   THEME 3: IT staff skills

The employees in any organisation require many skills to improve their work; IT staffs especially require many technical skills. Alsebie and Irani (2005) argued that an IT employee's skills were considered as an important factor when implementing e-government. The MOI case study findings showed that there was a limitation of IT staff skills and capabilities to implement e-government. The director of the IT department linked this issue to weakness in top management strategy where information technology projects and developing IT skills and capabilities were not considered as a priority for the ministry. Also, the MOHE case study highlighted a very important issue in this regard. The interviewee in MOHE described the requirement of IT skills as: *"IT staff skills and experiences are limited in our organisation and with regards to my experiences there is a real need for outsourcing in addition to intensifying training courses for most of the programmers in MOHE".*

Additionally, the investigation in the MOMP case study showed that e-government implementers and developers were fully aware of the importance of IT staff skills in facilitating successful e-government implementation. The IT director in MOMP commented, *"In our e-services strategy, we took care, first of all, of the human resource skills and capabilities to design the best e-services for citizens. After that, equipment, designing tools and IT standards are treated as our next priorities."* Moreover, all interviewees from the three case studies shared the same perceptions of the IT staff skills and viewed it as a one of the key challenge of e-government implementation.

7   CONCLUSION

This research conceptualized the value of e-government factors that influence either success or failures in the context of the e-Oman initiative. The literature review identified a number of factors such as management support, infrastructure, and IT workers' skills as influencing the government's efforts towards implementation of e-government services. From an empirical perspective, this study

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explored three Omani government ministries who are involved in e-government implementation. The case study findings indicated that recent implementations of e-government in the three ministries studies have continue to follow the guidelines and procedures set by the national government for implementing e-government. Nevertheless, it was clear that the three ministries were at different level of e-government implementation, faced many different challenges and   thus full implementation may proceed well beyond the government's vision of 2020. From the governmental IT managers' perspective, issues such as top management support and commitments and IT team skills were impeding the organisations from implementing e-government services. However, it was clear that these issues can easily be overcome if there is commitment and strong official support from top management in the different Omani ministries.

The case study findings identified the need for expanding the current infrastructure, simplicity of the services offered, awareness and availability of e-services as some of the most recent challenges that the Omani government is facing. The disparities in e-government implementation progress made by the three different ministries investigated in this study indicate that these challenges have to be comprehended and treated carefully for the Omani government to successfully develop and implement e-government. Moreover, the case study results showed that the e-government initiative in Oman was impacted by the lack of internal and external integration, especially between government agencies. However, new strategies are in place to rectify this issue by introducing various ICT solutions, architectures and standards to facilitate better integration between systems in different government agencies. Though, according to Virili and Sorrentino (2009), reliable and integrated infrastructure may be the most difficult part of e-government development and implementation, especially in developing countries in obtaining a higher level of e-government diffusion to facilitate the adoption for all citizens alike.

The practical implications of this study are those factors and issues behind e-government success identified in table 1. We could notice that the most successful case, MOMP, has tackled the challenges it faced over the time of implementing e-government. For example, the key challenges that were faced by MOMP in the time of establishing e-government initiatives revolved largely around IT staff skills and capabilities and budget restrictions. At present, those challenges have been overcome to implement transactional level, citizen friendly e-government services. On the other hand, the ministry of Interior (MOI) has faced the same challenges over the period of four years they have been involved in e-government implementation. The most rationale explanation for this can be that the three themes mentioned earlier are not understood and managed appropriately in these ministries. Nevertheless, as new services and features continue to be added to the e-government initiatives in all of the ministries investigated, it is fair to state that the Omani government will ultimately continue to make slow progress in the development and implementation of e-government. Future research is planned to track the progress of e-government in the three ministries discussed in this paper and to explore the reasons behind the disparities in e-government implementation and success in these ministries.

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REFERENCES

Abanumy, A., Albadi A. and Mayhew, P. (2005) 'e-Government website Accessibility: In-Depth Evaluation of Saudi Arabia and Oman', *The Electronic Journal of e-Government*, 3 (3), pp 99-106

Albusaidy, M. and Weerakkody, V. (2009) 'Factors Influencing E-Government Implementation Progress in Oman: A Discussion', in Sahu, G.P., Dwivedi, Y.K., and Weerakkody, V. (2009), *E-Government Development and Diffusion: Inhibitors and Facilitators of Digital Democracy.* IGI Global, Hershey, PA, USA [ISBN: 978-1-60566-713-3]

Albusaidy, M. and Weerakkody, V. (2008) 'Factors Influencing E-Government Implementation Progress in Oman: A Discussion'*, Paper presented at the Proceedings of the 2008 European and Mediterranean Conference on Information Systems* (EMCIS), Dubai, UAE

Al-Amer, M.A. (2003) 'Kingdom of Bahrain: e-Government Program' [Internet], Available from: <http://unpan1.un.org/intradoc/groups/public/documents/UNESCWA/UNPAN015 333.pdf> [Accessed Jan 5th, 2009].

Al-Jboori, A. (2006), 'E-Government in Saudi Arabia: Can It Overcome Its Challenges?', *eGovernment Workshop*, Brunel University, September 2006.

Al-Khouri, A. and Bal, J. (2004) 'Electronic Government in the GCC Countries', *International Journal of Social Sciences*, 1 (2), pp.83-98

Al-Nahas, N. (2006) 'The Role of Knowledge and Capability Evaluation in E-Business Strategy: An Integrative Approach and Case Illustration', *SAM Advanced Management Journal*, Vol. 71

Al-Shafi, S. and Weerakkody, V. (2008) 'ADOPTION OF WIRELESS INTERNET PARKS: AN EMPIRICAL STUDY IN QATAR', *Paper presented at the Proceedings of the 2008 European and Mediterranean Conference on Information Systems* (EMCIS), Dubai, UAE

Awan, M. (2003) 'E-Government: Assessment of GCC (Gulf Co-operating Council) Countries and Services Provided', *Lecture Notes in Computer Science 2739*, pp 500-503

BeGA, (2009) 'Bahrain eGovernment Authority', *Bahrain Government Portal*, [online], http://www. ega.gov.bh/en/initiatives.php, [Last Accessed: 18/04/2009]

Borras, J. (2004) 'International Technical Standards for e-Government'*, Electronic Journal of e-Government*, Academic Conferences Limited [online] http://www.ejeg.com/volume-2/volume2-issue2/v2-i2-borras-pp75-80.pdf [accessed 02/01/09]

Boujarwah, A. (2006) 'E-government in Kuwait: from vision to reality', *proceeding on The 8th International Conference on Information Integration and Web-based Application and Services*, 4 - 6 December 2006, Yogyakarta Indonesia

Moaman Al-Busaidy and Vishanth Weerakkody
The e-government implementation directions in Oman: A Preliminary Investigation

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Brooks, L., Weerakkody, V. and Agyekum-Ofosu, C. (2008) 'THE ROLE OF TRUST IN E-GOVERNMENT ADOPTION IN THE UK', *Presented in eGovernment Workshop*, September 8 2008, Brunel University, West London

Bwoma, P.O. and Huang, Z. (2003) 'An overview of critical issues of E-government'*, Issues of Information Systems, 4* (1), 164-170.

Carter, L. and Bélanger, F. (2004) 'The utilization of e-government services: citizen trust, innovation and acceptance factors'. *Information Systems Journal, 15*, 5-26.

Carter, L. and Weerakkody, V. (2008) 'E-government adoption: A cultural comparison'. *Information Systems Frontiers* 10:4, 473-482

Charif, H. and Ramadan, M. (2003), E-government Attempts in ESCWA Member Countries, In (Eds) Wimmer M.A. Knowledge Management in Electronic Government, Lecture Notes In Computer Science (Book Series), Springer Berlin / Heidelberg, DOI: 10.1007/3-540-44836-5_33, p 310-318

Chesi, F., Pallotti, M. and Oreste, S. (2005) 'A Working E-Government Experience: The Citel Project', *CMG Poland Annual Conference*, Warsaw, 9-10 May, 2005, [online] Available from <http://www.w3c.it/papers/ cmg2005Poland-egov.pdf > [last accessed 12/03/2009].

Choudrie, J., Ghinea, G. and Weerakkody, V. (2004) 'Evaluating Global e-Government Sites: A view using Web Diagnotic Tools', *Electronic Journal of E-Government*, 2 (2). Pp 105-114,

Conklin, a. and White, G. (2006) 'e-government and cyber security: the role of cyber security exercises', *proceedings of the 39th annual hicss*. Ieee computer society.

Das, H., Das, M. and McKenzie, F. (1995), Assessing the "Will of the People": An Investigation into Town Delivery Satisfaction, Canadian Public Administration 38(1), pp 77-93.

Danielson, M., Ekenberg, L., Grönlund, Å. and Larsson, A. (2005) Public Decision Support Using a DSS to Increase Democratic Transparency, International Journal of Public Information Systems 1, pp. 3-25,

Davison, R. and Martinsons, M. (2003) 'Guest Editorial, Cultural Issues and IT Management: Looking Ahead', *IEEE Transactions on Engineering Management,* 50 [1], 113-117.

Elnaghi, M., Alshawi, S., and Missi, F. (2006) 'A leadership model for e-government transformation', *Paper presented at the proceedings of the 2007 european and mediterranean conference on information systems(emcis07)*, valencia, spain

eMag, (2008) 'Bahrain Show Distinct Experiments During Kuwait ITC Exhibition', *'e'Magazine - Bahrain eGovernment Forum 2008* [online] http://www.emagazine.gov .bh /eMag/article.php?id=29 [last accessed 11/02/2009]

Gefen, D., Warkentin, M., Pavlou, P.A. and Rose, G. M. (2002) 'EGovernment Adoption', In: *8th Americas Conference on Information Systems,* Dallas, USA.

Moaman Al-Busaidy and Vishanth Weerakkody
The e-government implementation directions in Oman: A Preliminary Investigation

13

Hazlett, S. and Hill, F. (2003) 'E-government: the realities of using IT to transform the public sector', *Managing Service Quality*, Vol.13, No. 6,

Heeks, R. (2001) 'Understanding e-government for development', IDPM, University of Manchester, Manchester,

IctQatar, (2009) 'The Supreme Council of Information and Communications Technology (ictQATAR)'. [online], http://www.ict.gov.qa/output/page10.asp,[last accessed: 19/04/2009]

Lootah, R. (2005) 'eGovernment's mDubai portal', *Dubai eGovernment* [online], http://www.egov.dubai.ae, [last accessed: 12/02/2009]

Jones, S., Irani, Z. and Sharif, A. (2007) 'E-Government Evaluation: Reflections On Three Organisational Case Studies', *Hawaii International Conference on System Sciences* , hicss,pp.105, 40th Annual (HICSS'07)

Lam, W. (2005) 'Barriers to e-government integration', *Enterprise Information Management, Emerald Group Publishing limited,* Volume 18, Number 5, May 2005, pp. 511-530(20).

Layne, K. and Lee, J. (2001) 'Developing Fully Functional E-government: A four-stage model'. *Government information quarterly, 18*(2), 122-136.

Karunanada, A. and Weerakkody, V. (2006) 'E-government Implementation in Sri Lanka: Lessons from the UK'*, Proceedings* of the 8th International Information Technology Conference (IITC), Colombo, Sri Lanka, October 2006.

Kok, A. (2008) 'Bahrain launches e-government portal', *FutureGov News*, [online], http://www.futuregov .net/articles/2008/nov/04/new-egovernment-gate-website-bahrain [last accessed: 12/02/2009]

Kostopoulos, G. (2003) 'E-Government In The Arabian Gulf: Avision Toward Reality, *American University of Sharjah*

Kumar, V., Mukerji, B., Butt, I. and Persaud, A. (2007) Factors for Successful e-Government Adoption: a Conceptual Framework Electronic Journal of e-Government, Volume 5(1), 63 - 76

Moaman Al-Busaidy and Vishanth Weerakkody
The e-government implementation directions in Oman: A Preliminary Investigation

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Mansar, L.S. (2006) 'E-Government Implementation: A comparative evaluation of websites maturity', *Proceedings of the European and Mediterranean Conference on Information Systems* (EMCIS), 6-7 July, 2006, Costa Blanca, Alicante, Spain.

Martin, J. (2000) 'E-Commerce Arrives. *The Middle East*, April 2000, Pp 34,

MOMP, (2008) 'Ministry of Manpower - Self Employment and National Autonomous Development', [online], *http://www.manpower.gov.om/sanad_en.asp*, Ministry of Manpower, Muscat.

Ndou, V.D. (2004) 'E-government for developing countries: opportunities and challenges', *The Electronic Journal on Information Systems in Developing Countries*, Vol. 18 No.1, pp.1-24.

Riley, T.B. (2003) 'Defining E-Government and E-Governance: Staying the Course'. *eGov Monitor*

Sahraoui, S. (2005) 'E-Government In The Arabian Gulf: Government Transformation Vs. Government Automation', *eGovernment Workshop '05 (eGOV05)*, September 13 2005, Brunel University, West London UB8 3PH, UK

Siddiqi, A. (2001) 'The United Arab Emirates: Financial Report', *The Middle East*

Sitkin, S.B. and Roth, N.L. (1993) "Exploring the limited effectiveness of legalistic remedies for trust/distrust." *Organisation Science, 4,* 3, 367–392.

Sutton, M. (2008) 'Bahrain e-government portal handles $2.5m in 2008', [online] *ITP.net- Middle East Technology News, Media Reviews and Business Resource,* [last accessed: 12/02/2009]

Stoltzfus, K. (2004) 'Motivations for implementing E-Government: An Investigation of the Global Phenomenon', *University of California*, Santa.

Thompson, S.H.T., and Shirish, C.S. and Li, J. (2008) Trust and Electronic Government Success: An Empirical Study, M. E. Sharpe, Inc. Armonk, NY, USA, 25(3), 99-132

Tigran, G. (2006) 'Economic and Social Commission for Western Asia (ESCWA) ', *United Nation Networking o f Expertise on Foreign Direct Investment in the Member States of the ESCWA.* http://www.escwa.un.org /divisions /pptcd/upload /EvaluationDA2.pdf, [last accessed 14/03/2009]

Tolbert, C. and Mossberger, K. (2006). The Effects of E-Government on Trust and Confidence in Government. *Public Administration Review* 66 (3): 354-369.

United Nations, (2003a) 'Benchmarking E-Government: A Global Perspective', *Assessing the Progress of the UN Member States.* from nettelafrica.org/docs/NetTel Safari@the Equator (Uganda 03)/Benchmarkingegovt.pdf

Moaman Al-Busaidy and Vishanth Weerakkody
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United Nations, (2003b) 'World Public Sector Report 2003: E-Government at the Crossroads'*, United Nations publication.* http://unpan1.un.org/intradoc/groups/public/documents/UN/ UNPAN012733.pdf [last accessed 03/03/2008]

United Nations, (2008) 'Global E-Government Readiness Report 2005 for E-Government to E-Inclusion', *United Nations publication,* http://unpan1.un.org/intradoc/groups/public/ documents/un /unpan021888.pdf. [last accessed 02/2008]

United Nations, (2008) 'United Nations e-Government Survey 2008'. *United Nations publication.* http://unpan1.un.org/intradoc/groups/public/documents/UN/   UNPAN028607.pdf   [last accessed 03/2008]

Weerakkody, V., Jones, S. and Olsen, E. (2007) 'E-Government: A Comparison of Strategies in Local Authorities in the UK and Norway', *International Journal of Electronic Business*, Inderscience, 5 (2), pp 141-159

Weerakkody, V. and Dhillon, G. (2008), Moving from E-Government to T-Government: A Study of Process Reengineering Challenges in a UK Local Authority Context, *International Journal of Electronic Government Research*, 4(4), pp 1-16

Welch, E.W., Hinnant, C.C. and Moon, M.J. (2005) 'Linking Citizen Satisfaction with E-Government and Trust in Government'. *Journal of Public Administration Research and Theory* 15[3], 371-391.

Wert, J.M.V. (2002), E-Government and Performance: A Citizen-Centered Imperative', *The Public Manager*, Vol. 31

West, D.M. 2004 E-Government and Transformation of Service Delivery and Citizen Attitudes Darrel M West *PAR* 2004 64(1) 15-25

Wilford, D., Sakals, M., Innes, J., Sidle, R. and Bergerud, W. (2004) 'Recognition of debris flow, debris flood and flood hazard through watershed morphometrics', *Springer Berlin* / Heidelberg, Volume 1, Number 1.

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