E-Government Implementation in Oman: A Comparative Study of Three Public Agencies

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ABSTRACT

The concept of electronic government has established as an effective mechanism for increasing government productivity and efficiency and a key enabler of citizen-centric services. In Gulf countries, public sector transformation efforts are focused towards increasing accessibility, availability, competitive advantage and enhancing services in civil administration. The Sultanate of Oman is one such example of 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 attempts to answer the question why the progress of e-government has been slow in some governmental ministries, whereas other ministries have implemented e-government in a successful manner. The paper investigates the improvements that have been made to facilitate these electronic services in three public ministries and their resulting impact within the organisations. The results of the empirical study reveal some of the generic issues faced by the Omani government in implementing e-services and how other specific challenges faced by the individual ministries such as top management support, integration and IT staff skills and capabilities are impeding e-government in the Omani public sector.

Keywords

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

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 (Stoltzfus, 2004; 2005; Karunanada and Weerakkody, 2006; Weerakkody et al., 2007).

While all developed countries have now implemented some form of e-government with advanced level of services and transactions (Al-Kibsi et al., 2001; Weerakkody et al., 2007), the majority of developing countries are beginning to follow suit (Karunanada and Weerakkody, 2006). Not surprisingly, wealthy Middle Eastern countries such as UAE and Bahrain have made plans to provide e-government services to citizens and businesses (Al-Busaidy and Weerakkody, 2008). As in many countries, the national e-government focus in Oman is to achieve the highest performance in executing governmental transactions electronically, through streamlining Government services to citizens and business, creating and nurturing knowledge-based industries, developing a local ICT sector, providing employment for Omani youth, Improving educational opportunities and enhancing social development using IT Making Oman a more attractive destination for foreign investment and conducive for business (ibid).

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 (Albusaidy and Weerakkody, 2009). The national e-government programme has been delayed more than once and its strategy and focus have also been changed in recent times (ibid). Moreover, there is very little published literature (apart from UN reports) that identifies the issues impeding e-government efforts in Oman. 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 why the progress of e-government has been laggard in some Omani governmental ministries while a few others have made exemplary progress to implement fully integrated and interactive e-government services. As such, the paper aims to determine the most salient factors that are influencing e-government progress from the perspective of the IT directors in three government ministries who are at various levels of e-government implementation in comparison to the normative literature on e-government evolution.

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 ministries.

**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, 2003; Weerakkody et al., 2007). In terms of Layne and Lee’s representation, it is fair to suggest that Western European countries such as the UK has realised many vertical level integrations and some horizontal integrations in their national e-government program (Weerakkody et al., 2007; Weerakkody and Dhillon, 2008).

To realise 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. 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 also mentioned different types 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. In this respect, according to Palanisamy (2004), there must be broadening and deepening of government’s professionalism and the way internal relationships are managed in terms of planning, delivery, management and governance of IT-enabled change. Many researchers, such as Homburg and Bekkers (2002), Irani et al., (2007) and Weerakkody and Dhillon (2008) found that top management motivations and IT knowledge of government officials could affect the development of e-government initiatives. Further, Thong et al., (2000) argued that the presence of top management support is a significant issue that influences e-government development and implementation from an organisational and employee perspective. Further, training employees and reskilling IT staff is widely associated with improving overall development of e-government to achieve higher levels of success (Ezz and Papazafeiropoulou, 2006).

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. 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 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).

Also, Bwoma and Huang (2003) identified integration of technologies between government agencies as a major obstacle for e-government implementation. According to Irani et al., (2008), one of the e-government implementation principles is the need to restructure the entire administrative operation, activities and processes to realise the effects and benefits of e-government and to focus on the interaction between government organisations. However, to achieve such change, the support, coordination and cooperation between different government organisations must be present. 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 and interoperability standards are needed to avoid any hardware and system barriers that would hinder the implementation of e-government system (Borras, 2004). Several researchers such as Elliman et al., (2007), Irani et al., (2008), Weerakkody et al., (2007) identified IT standards as a major factor during the implementation of various integration technologies like e-government. 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).

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 utilising the e-government cases used in this study. The choice of multiple case studies 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. Interviews represented the main data source in the case study and acted as the main tool of qualitative research for data collection (Walsham, 1995; Dix et al., 2004). They were conducted between July and September 2009 by visiting the interviewees in their government departments in three different ministries in Oman. All case studies were with large governmental agencies that are responsible for delivering services to a large number of people in Oman.

The aim of this study was to compare and contrast different 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 the three different government ministries in Oman. 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. Director of IT department, Ministry of Civil services (MOCS)
2. Director of IT department, Ministry of Interior (MOI),
3. Director of IT department, Ministry of Manpower (MOMP).
These managers were chosen because they participated and project managed different projects relating to the e-government initiative in Oman. The authors assumed that the interviewees held insightful views of the Omani e-government initiative.

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 were constructed for the cross-case comparison was suggested upon the current status 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. The questions were divided into four main areas, including phases of e-government, stages of e-government, current challenges faced in e-government development in Oman, and future plans. Furthermore, the selection of the three government agencies for this research was based on insights and suggestions made by the CEO related to e-government practices and development by various agencies in Oman. To ensure voluntary participation, clarity and simplicity of the information gathered, the interviewees decided convenient times for the interviews. Before the interviews commenced, the interviewees were notified that they could stop and withdraw from the interview at any time if they desired. With permission from the interviewees, the interviews were audio recorded, later transcribed into a word file and emailed to the interviewees to confirm the transcripts and to clarify any information that was unclear.

CASE STUDY FINDINGS

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 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 given context, the interviews in the three ministries identified a number of different issues that were impacting the implementation and diffusion of e-government in Oman. As indicated below, the interview results also indicated that the three government ministries investigated in the study were at different levels of e-government implementation when compared to the literature on the evolution of e-government.

Case study 1 – Ministry of Civil Services (MOCS)

The services that the MOCS provides is largely concerned with the government employees in the public sector and therefore the main concern of this organisation is G2G and G2E models. In the context of these models, MOCS provides a range of public services, including:

1. Providing Ministry of Civil Service with an efficient mechanism in management of Human Resources through the use of Information Technology.
2. Unifying the observation and recording point of data in an accurate and integrated manner.
3. Mechanization or “automation” of the Law and Regulations in a way that facilities handling and applying of the same.

The number of the employees that are registered in public sectors is approximately 93000 located in fifty three different government agencies and there are various application used to handle different issues related to employment and locating of public sectors employees, such as payroll systems, HR systems, self services systems and discoverer reports (development
tools used for obtain reports by employees them self). All these systems are considered as part of the Human Resource Management system (HRMS). However, although the HRMS is currently running in thirty eight different government agencies only eight agencies are integrated fully with the system. Furthermore, the MOCS director justifies that “the HRMS is an innovative system that will take Oman and Omani employee management processes to a new level; the system will find the right ways to serve our employees both locally and globally. So, we have followed many approaches and models of HRMS to achieve the current model and our objectives for managing an electronic employee”. According to the IT director, the MOCS is progressing in the right direction of implementing different stages of e-government where the local systems are integrated across different functions and the HRMS system acts as a one stop location for the users in terms of the Human Resource needs. However, the next step for MOCS is to integrate the system among fifty three government agencies. It was clear that the HRMS system used in MOCS is fully influenced by the e-government initiative in Oman and is an exemplary practice particularly in the wider Omani national e-government context. Most significantly, the system has achieved horizontal integration as it is capable of integrating government agencies across local and national contexts.

The main aim of MOCS is to complete the full implementation of e-government (for G2G, G2E models) within five years and to create an environment where employees could get all their reports, transactions, required letters and have the ability to submit requests (such as annual leave, emergency leave and return etc.). In addition, as part of current services MOCS has established SMS services for advertising jobs, applying for a job, getting notifications and receiving job interview dates. The MOCS director highlights that “the challenge we faced can be classified into two parts, before we applied HRMS and after. The collaborations and discussions with a wide range of IT managers in other government agencies and sharing knowledge and ideas of the concept of e-employee was a big problem for us”. Given these comments, the biggest challenge that MOCS currently face revolves around collaboration and information exchange.

Case study 2 – Ministry of Interior (MOI)

This case was an interesting study for the research. The 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 at 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 e-government in three stages, and this will initially involve connectivity to the 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 MOCH (first case) or MOHE (third case). According to the IT director at 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 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 ministries once the necessary legal issues for the MOI are sorted out. This will improve the common trust issue between this government agency and different stakeholders.”
**Case study 3 – Ministry of Manpower (MOMP)**

The Ministry of Manpower is mostly concerned with G2C, G2G and G2B models of e-government. 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 the national labour force.

With regards to e-government, the IT director in the MOMP stated 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 initiative. 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 of individuals—online in the near future.”

The MOMP claimed that the ministry’s main focus is to ensure the labour market and training sector stability in Oman and to overcome the challenges faced in the sector by having partnerships with private sector and local citizens. The CEO of ITA (during the initial pilot interview) considered the MOMP as being highly successful in providing certain capabilities and expertise related to e-government and enabling e-services in the country. The IT Director at MOMP stated, “So, we have followed a sharing plan between three different partners, the ministry, private sector and citizens to achieve our objectives for implementing e-government and create a strong relationship with our users.” Furthermore, the IT director clarified that “the electronic services have been implemented in the organisation since 2001 by a high quality and experienced team of IT experts in the ministry. This team targets all kinds of users, especially large enterprise companies who have daily interactions and are registered in Green Card department. Nevertheless, there is a lack of communication between the ministry and various companies. Also, there are still many services that can be automated and provided as electronic services for the public and these will take at least a year to launch.” Furthermore, it was clear that the main objective of MOMP was to automate and integrate different information and data from the central databases of various governmental agencies with the main databases of MOMP to simplify and maximize the benefits of e-government and technology used.

Also, it was very clear that IT skills and budget played an important role in influencing the progress of implementing e-government services in MOMP. The IT director stated, “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 the IT directors’ 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.”

**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 diffusing 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 ministries 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. 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.

**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 MOCS needed continuous top management support for e-government, due to
change in leadership and resistance to change this was sporadic throughout the last four years. During the interview with the IT director in MOCS 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.

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 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.

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 MOCS which was more concerned with employees' information, their employment records and exchanging these between the different ministries. 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 ministries and facilitate speedier implementation of e-government.”

Overall, 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 described by Layne and Lee’s model for integration among different agencies (Layne and Lee, 2001). While MOMP required external integration between government ministries to update their information and databases, conversely MOCS required internal integration to help and support the public sector employees and to upgrade their system and improve online services.

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 MOCS case study highlighted a very important issue in this regard. The interviewee in MOCS 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 MOCS”.

Additionally, the investigation in MOMP 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.

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 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 studied 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.

This study identified a number of issues that contribute to the theoretical context of e-government research. Issues such as the need for expanding the current infrastructure, simplicity of the services offered, awareness and availability of e-services are some of the most recent challenges that the Omani government is facing that this study found which confirmed the literature. The disparities in e-government implementation progress in 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. These findings are consistent with the literatures which suggest that reliable and integrated infrastructure may be the most difficult part of e-government development and implementation (Virili and Sorrentino, 2009).

This research also highlights a number of practical implications which are focused on the factors and issues behind e-government implementation success. In table 1, we could notice that the most successful case in terms of e-government implementation (MOMP) has overcome many of the challenges it faced during the period of implementing e-government. For example, the key challenges that were faced by MOMP in the time of establishing e-government initiatives revolved around IT staff skills and capabilities and financial constraints or budget. At present those challenges have been overcome to implement transactional level services that demonstrate both vertical and horizontal level integration of processes and IT systems internally amongst the different departments in MOMP and between MOMP and other government agencies. On the other hand, the Ministry of Interior (MOI) has faced similar challenges over a period of four years of e-government implementation, yet these challenges have not been overcome to date. The reasons behind this can be attributed primarily to the lack of top management commitment and support as well as lack of knowledge sharing and learning between various government agencies in Oman.

The Omani governments should consider internal and external integration amongst various government agencies. Implementing reliable and integrated infrastructure between different governmental ministries may be the most difficult part of e-government development and evolution, especially in developing countries. Therefore, reengineering legacy IT systems and identifying appropriate interoperability standards are the most important technical considerations that need to be considered by the government.

With more awareness and a consolidated strategy, the government ministries that are lagging behind in terms of e-government implementation has the potential to improve their current portfolio of services in line with other ministries who have demonstrated good practice. This paper focused on an initial investigation involving three ministries and represents only the views of selected interviewees (who were mainly senior or middle management level in the organisation). Therefore, more research is planned in the summer of 2010 to revisit the three ministries for in depth case studies to explore in more detail the challenges identified here.

This paper has described e-government implementation and presented the views of IT directors (managers) responsible for implementing e-government in three key ministries in the capital city of Oman. The research has limitations as the data was collected using a limited number of interviews, official government documentation and observations. However, to increase the ability to generalise and utilise the empirical findings, the authors of this paper have planned to pursue further research in two other ministries during the fourth Quarter of 2010. Future research could target other cities in Oman to examine the willingness of other traditional ministries to shift to e-government services. Finally, the current study was not specifically designed to evaluate issues related to citizens’ perspective on adoption and value added by e-government services; thus, future studies could also target Omani citizens to measure the value added to users in terms of adopting e-government services.
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