

## Association for Information Systems AIS Electronic Library (AISeL)

AMCIS 2009 Proceedings

Americas Conference on Information Systems  
(AMCIS)

2009

# Factors Influencing eGovernment Progress in Oman: An Employee's Perspective

Moaman Al-Busaidy

*Brunel University*, [moaman.albusaidy@brunel.ac.uk](mailto:moaman.albusaidy@brunel.ac.uk)

Vishanth Weerakkody

*Brunel University*, [vishanth.weerakkody@brunel.ac.uk](mailto:vishanth.weerakkody@brunel.ac.uk)

Yogesh K. Dwivedi

*Swansea University*, [y.k.dwivedi@swansea.ac.uk](mailto:y.k.dwivedi@swansea.ac.uk)

Follow this and additional works at: <http://aisel.aisnet.org/amcis2009>

### Recommended Citation

Al-Busaidy, Moaman; Weerakkody, Vishanth; and Dwivedi, Yogesh K., "Factors Influencing eGovernment Progress in Oman: An Employee's Perspective" (2009). *AMCIS 2009 Proceedings*. 262.

<http://aisel.aisnet.org/amcis2009/262>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2009 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# Factors Influencing E-Government Progress in Oman: An Employees' Perspective

**Moaman Al-Busaidy**  
Brunel University  
Moaman.albusaidy@brunel.ac.uk

**Vishanth Weerakkody**  
Brunel University  
Vishanth.Weerakkody@brunel.ac.uk

**Yogesh K. Dwivedi**  
Swansea University  
y.k.dwivedi@swansea.ac.uk

## ABSTRACT

*While most early e-government efforts were concentrated on developed countries, in the recent past, it has also become popular in many developing countries. Most notably are the Middle Eastern countries that have continued to invest significantly into e-government initiatives in the last five years. However, compared to the West, the progress of e-government implementation and diffusion has been laggard in the Middle East region. The Sultanate of Oman is one such example, where, although large investments have been made since 2003 to facilitate the implementation of electronic services in the public sector, only limited progress has been made in terms of realising fully functional e-government. The aim of this paper is to identify the factors that are currently influencing the development and implementation of e-government in Oman using a quantitative survey-based empirical study in three key public service agencies. The research identified thirteen different factors that were influencing the progress of the national e-government project, e-Oman, from the viewpoint of government employees. The most salient of these factors were the Omani IT workforce capability and the citizens' trust and confidence in using e-services.*

## Keywords

E-government, Developing Countries, Oman, IT workforce Capability, Trust, Confidence

## **INTRODUCTION**

The explosion of digital connectivity and the significant improvements in Information and Communication Technology's (ICT's) is changing the way most governments in the Gulf Cooperation Council (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 (Karunanada and Weerakkody, 2006). 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; Weerakkody et al., 2007).

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 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. 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 the factors affecting the progress of Omani e-government implementation is offered. This followed by an analysis of the survey results in section seven. The paper then concludes by discussing the most salient issues currently influencing e-government implementation in the context of eOman.

## **E-GOVERNMENT BENEFITS AND CHALLENGES: A LITERATURE PERSPECTIVE**

The purpose of e-government according to Kostopoulos (2003) is to build a digital state where public services and information can be offered to citizens electronically. 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 organization 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.

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-Khoury 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-Khoury 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 are privacy and security (Al-Khoury and Bal, 2007; Al-Joobri, 2006; Bwoma and Huang, 2003), accessibility (Al-Joobri, 2006; Abanumy et al, 2005; Choudrie and et al, 2004; Chesi et al., 2005), infrastructure (Al-Khoury and Bal, 2007; Bwoma and Huang, 2003; Chesi et al., 2005), and IT workforce capability (Bwoma and Huang, 2003; Chesi et al., 2005). 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). 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).

Additionally, the national culture should be considered as an important element when preparing legislation regarding government transactions, particularly in an online context (Ndou, 2004; Lam 2005). For instance, Brooks et al., (2008) suggests that enabling acceptable legislation and cultural terms and conditions will often ensure that government and its citizens will trust each other. This is particularly pertinent in countries like Oman in the Middle Eastern region where national culture and social values influence the way citizens adopt new technology and innovations (Albusaidy and Weerakkody, 2008).

## **A BRIEF OVERVIEW OF E-GOVERNMENT IN OMAN: CURRENT PROGRESS AND CHALLENGES**

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

Research by Abanomy, et 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. Sadly, though, 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 (Abanomy et al., 2005).

## **RESEARCH APPROACH**

The quantitative sample for the research reported here was drawn from 105 IT knowledge workers in the Omani government. This sample was composed of 35 employees from the Information Technology Authority, 50 employees from the Ministry of Manpower and 20 employees from the Tender Board. Our sampling strategy in these three Omani government agencies gives a sense of "how effective and efficient the use of electronic services in government" were in meeting the Omani citizens' requirements.

All three selected ministries were actively involved in e-government and had some transaction level e-government services. The questionnaire offered perspective on the broader issues influencing e-Oman and represents a realistic picture of the current state of e-government in the Sultanate of Oman. The three participating organisations were very supportive of the research and assisted the researchers to identify relevant employees to disseminate the questionnaire.

## **Data Collection**

The data collection strategy used for this paper relied primarily on data that was collected through a survey-based questionnaire administered to IT field workers in middle management and operational level employees at three different ministries in the Sultanate of Oman. The secondary data was gathered through a review of the published academic literature and other relevant Omani government and United Nations publications.

To identify the questions set out above and understand the context of the e-government initiative in Oman, a preliminary semi-structured interview were conducted with three employees from Information Technology Authority in Oman during July and August of 2008. The interviews lasted around 90 minutes and provided the context to formulate a detailed survey questionnaire that was to be used to investigate the employees' perceptions of e-government initiatives in Oman.

The survey questionnaire was distributed to 105 government employees in three different Omani ministries between August and September 2008. The basis for selecting the three ministries was their level of involvement and influence in the e-Oman initiative; all three selected ministries were actively involved in e-government and had some transaction level e-government services (see for instance Layne and Lee (2001) for the levels of e-government development). The questionnaire offered perspective on the broader issues influencing e-Oman and represents a realistic picture of the current state of e-government in the Sultanate of Oman. The three participating organisations were very supportive of the research and assisted the researchers to identify relevant employees to disseminate the questionnaire. The questionnaires were administered and followed up by the researchers to ensure that an adequate number of responses were obtained. Of the 105 questionnaires administered, 35 questionnaires per organization, 98 respondents returned the completed questionnaire for a response rate of 93.3%.

## **Data analysis**

The questionnaire survey consists of thirteen independent variables that were identified and structured around key themes recognized from the literature and an initial semi-structured interview conducted with the Chief Executive Officer (CEO) of the Information Technology Authority (ITA) in Oman (Albusaidy and Weerakkody, 2009). These variables are accessibility of services, “use of email to communicate with citizens,” security, operational efficiency, cultural obstacles, privacy, legislation, user confidence, IT workforce capability, private sector partnerships, trust, e-services availability, and information exchange between government agencies. To ensure clarity and ease of completion, the questionnaire was written in English as well as Arabic for those who cannot understand English.

In order to measure the influence of usefulness, capability and service quality towards e-government activities, the data had to be transformed in the following manner. Each factor with Likert scale questions was computed and then subsequently used. For example, security had five key statements (i.e. Satisfactory, “To a Large Extent”=5, “To a Reasonable Extent”=4, “Somewhat”=3, “Weak”=2, and “Not at All”=1), which were averaged to compute a mean score.

The beginning of the data analysis stage involved checking the responses and assigning a unique identification number to each response. The second stage consisted of using statistical applications to obtain actual values and better understanding of each factor considered in this survey. In this way, the authors used the SPSS application (version 15.0) to analyse the data. The results of the survey were structured around the thirteen key themes identified above as outlined in the next section.

## **RESEARCH FINDING**

### **Respondent's profile**

This section describes the research findings; out of the 98 completed questionnaires that were returned from the 105 that were distributed, four questionnaires were discarded because of incomplete answers. The remaining 94 questionnaires made up the final sample that was used for subsequent analysis. All 94 respondents were from IT backgrounds and had knowledge of the electronic services offered by their respective government organisations. The key themes from the findings are summarised in the following paragraphs.

#### *Accessibility for all citizens*

This notion is a way of offering better and more accessible services to citizens in order to develop successful e-government strategies (Choudrie and et al, 2004; Chesi, et al., 2005). In terms of accessibility, the results revealed that 38.3% of respondents felt that e-Oman was somewhat accessible and 38.3% felt the levels of accessibility offered were reasonable. However, the result also illustrated that 2.1% of the government employees were ‘not at all’ satisfied with the accessibility aspects of the e-Oman services. Nevertheless, since the majority of respondents perceived accessibility as good or satisfactory, it can be argued that accessibility will not negatively affect the use of e-government services in Oman.

#### *Use email to inform citizens/ individual business about the e-government services*

The use of email by government to communicate with citizens was seen as weak by only 6.4% of the respondents, which indicates that only a few government agencies are not using email adequately to communicate with citizens. However, the majority of respondents’ views showed that most government agencies were using email on a regular basis to communicate with their citizens; 21.2% of respondents reported a high level of email usage and 47% reported a good level of email usage indicating that the usage of email services is increasing significantly in the context of e-Oman.

#### *System security*

Many researchers have suggested that issues like security remain a major barrier for e-government, and the low level of online security will affect e-government adoption (Wilford, 2004; Ndou, 2004). In terms of security, the results revealed that 25.5% of respondents were somewhat happy, 57.4% were reasonably happy and 10.0% were satisfied to a large extent. However, the results illustrate that the majority of respondents tend to have a positive attitude toward security, which indicates that security issues may not affect the citizens’ usage of e-government services in Oman.

### *Operational efficiency*

When e-government is implemented successfully, it will ensure improvement in processes and efficiency (Riley, 2003; Carter and Belangerm, 2004). While examining the efficiency of government websites, the majority of respondents (85.2%) felt somewhat or reasonably satisfied. Additionally, 6.4% of the respondents mentioned that efficiency in usage of government websites was highly satisfactory. These results indicate a good level of operational efficiency in the e-Oman initiative.

### *Internal culture obstacles*

When implementing any new technology, one of the major problems that arise is the peoples' attitude towards this technology, which is often influenced by their culture (Davison and Martinsons, 2003). Concerning cultural obstacles in adoption of e-government services, only 2.1% of respondents felt that culture would be a major obstacle to e-government adoption, while 54% felt that culture would pose some challenges to e-Oman. Of the remaining respondents, 18.1% felt that culture may not affect e-government and an equal percentage felt the opposite (i.e. that culture would be a major obstacle for e-Oman). Here, the respondents' views were split, making it difficult to make any assumptions on the impact of culture on e-government adoption.

### *Citizen privacy*

As shown by the survey, the average scores for respondents' attitude towards citizens' privacy in e-government services ranged from 3.68 to 3.78. This means about 70%, which is the majority of the respondents, agreed on the methods that were used to protect citizens' privacy in government websites. These scores are quite high and respondents had a positive attitude toward privacy issues. Therefore, we can argue that norms, beliefs and values in Oman might not affect peoples' attitudes towards using e-government services.

### *E-government Legislation*

Research suggests that when there is a lack of legislation to govern the implementation, management and delivery of online services, web sites are often shuttered (Stowers, 2003). When examining legislation regarding government transactions, the survey results revealed that only 9.6% of respondents were somewhat unhappy whereas the majority (80.9%) was highly satisfied. These results pointed out that the majority of respondents tend to have a highly positive attitude towards legislation regarding online government transactions, which indicates that legislation issues may not affect the citizens' usage of e-government services in Oman.

### *Citizen confidence with government*

Authors such as Carter and Weerakkody (2008) identified public confidence as a major cultural problem that might affect e-government usage. While examining citizens' confidence in the usage of government websites, the results revealed that 59.6% of respondents felt confident in using online services and 21.3% felt highly confident. However, the results also illustrate that 4.3% of the government employees felt citizens were less confidence in using of e-government services. Nevertheless, since the majority of respondents perceived citizens' confidence as good or highly satisfactory, it can be argued that confidence issues would not negatively affect the use of e-government services in Oman.

### *Internal IT workforce capability*

All respondents acknowledged that there was limited resource capability and experience within the government IT field workforces. Fifty-two respondents confirmed that the IT workforce needed to improve their knowledge and experience, while 28 respondents stated that the IT workforce had reasonable experience and knowledge related to e-government technologies. Therefore, these results indicate the need for training and leveraging experienced workforces to implement various stages and services required to improve the e-Oman strategy.

### *Private sector partnerships*

This is a unique factor in this research because it examines the current relationship between the public and private sectors in Oman. The descriptive statistics show a high level of participation and arrangement between the public and private sectors; 83.0% of respondents reported that the private-public sector relationship was very satisfactory in the context of e-Oman.

### *Citizen trust of government*

Trust is classified as one of the major factors that contribute to e-government adoption (Gefen et al., 2002; Carter and Weerakkody, 2008). With regards to citizens' trust in using e-government services, the results revealed that 20.0% of respondents felt that citizens trusted e-government web sites, while 47.9% felt that citizens were reasonably satisfied in terms of trust issues. However, the results also illustrated that 26.6% of the government employees felt that citizens were somewhat less trusting of online government transactions. Nevertheless, since the majority of respondents perceived citizens' trust as good or highly satisfactory, we argue that trust issues would not negatively affect the use of e-government services in Oman.

### *E-services Availability*

The availability of e-services in Oman was seen as weak by only 10.6% of the respondents, which indicates that only a few government agencies have not started e-government initiatives. However, the view of the majority of respondents showed that most government agencies were starting to implement e-government on a regular basis to communicate with their citizens electronically; 48.9% of respondents thought that e-services were somewhat available and 30.9% reported a good level of e-services availability within Omani government agencies. These results indicate that the availability of various electronic services is increasing significantly in the context of e-Oman.

### *Information exchange between government agencies*

When examining the information exchange between government agencies, the survey results indicate that the integration between different government agencies is still in the initial stage. These results indicate the need to integrate processes and systems between different government organisations and agencies within the Omani government environment. Since all of the respondents were from the IT domain in Omani government ministries, this observation is particularly relevant for e-government implementation.

## **A COMPARISON OF FACTORS AFFECTING THE PROGRESS OF E-GOVERNMENT IMPLEMENTATION IN OMAN**

This section will briefly summarise the survey finding and present two different level categorisations of the factors influencing e-government progress in Oman that are drawn from the empirical findings. The first category is the relationship between accessibility, efficiency availability, and confidence. The second category is the relationship between security, privacy and citizen trust.

With an aim of comparing the aforementioned factors, this research can identify good practices in relation to the implementation of e-government services. Nevertheless, there are other factors, which are not considered in this research, such as leadership and financial resources, which can affect the progress of e-government in Oman.

### **Relationship between Accessibility, Efficiency, Availability and Confidence**

What is apparent in this research is the strong relationship between four different factors: accessibility, efficiency, availability and confidence. The survey results indicate that realising the first three factors (accessibility, efficiency and availability) will lead to a high level of confidence among citizens. The survey results illustrate that the majority of respondents had a positive attitude toward these three factors. As outlined in Figure 1, the results revealed that 76.6% of respondents tend to have a positive attitude toward accessibility, 85.2% of respondents tend to have a positive attitude toward efficiency and 79.8% of respondents tend to have a positive attitude toward e-services availability. Finally, the survey outcomes showed a percentage of 76.6 as positive attitude towards citizens' confidence (figure 1). Therefore, from this observation, we can offer the following proposition:

*When there are improvements on accessibility, efficiency and availability of e-government services, the citizens' confidence in e-government will improve.*



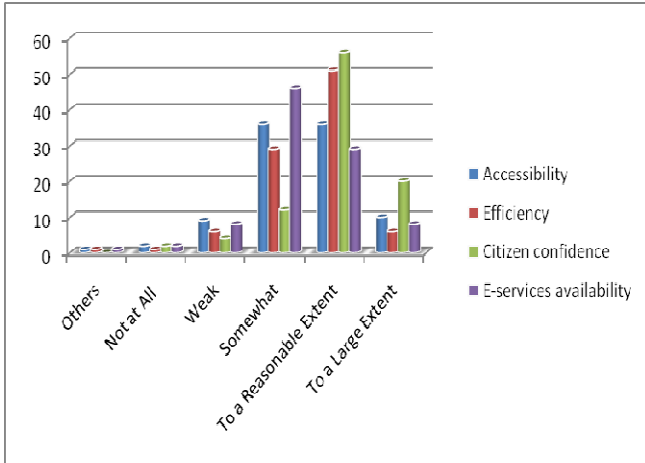


Figure 1. relations b/w accessibility, efficiency, availability and confidence

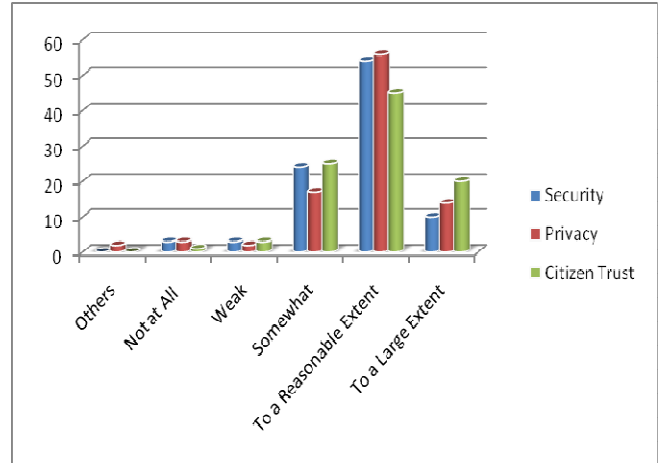


Figure 2. relations b/w security, privacy and trust

**Relation between Security, Privacy and Trust**

With regard to issues of information security and privacy, the survey shows that 68.0% of respondents tend to have a positive attitude toward security and 74.5% of respondents tend to have a positive attitude toward privacy. As outlined in Figure 2, the survey outcomes show that 67.9% of respondents have a positive attitude towards citizens’ trust (figure 2). Therefore, from this observation, we can offer the following proposition:

*When there are improvements on e-government security and privacy issues, the citizens’ trust will improve.*

**Other Relationship**

As outlined from the survey, another relationship emerges when comparing both the IT workforce capabilities and the information exchange between government agencies (figure 3). This relationship indicates another observation that formulates the following proposition:

*An experienced IT workforce will facilitate better process and systems integration between different government agencies.*

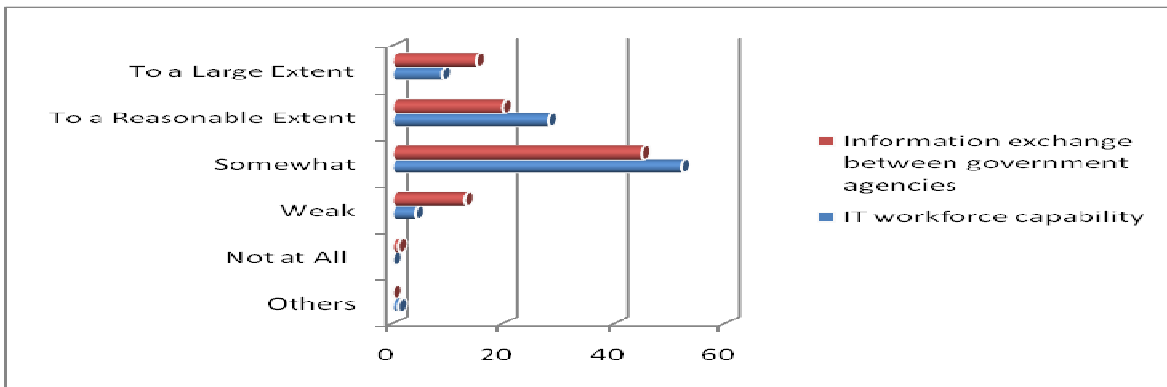


Figure 1. relations b/w IT workforces and Information exchange

The reason for the aforementioned positive attitude and outlook about e-government can be explained by the strong public-private sector partnership in delivering e-government services. Most public service organizations in Oman are considered as semi-private where the board of directors are. Therefore, the citizens have trust and more confidence towards government decisions. In addition, most of the public services in Oman are provided by either government organisations or semi-private companies (Tigran, 2006).

**FACTORS AFFECTING IMPLEMENTING OF E-GOVERNMENT IN OMAN: DESCRIPTIVE STATISTICS**

**Descriptive Statistics**

Governments are becoming increasingly aware of the importance of implementing e-government to improve the delivery of public services to their citizens. For this reason, the thirteen factors were assessed across the public services. Our empirical research, outlined in Table 1, shows that the average scores for how respondents perceived the thirteen factors ranged from 2.84 to 3.94, (where 1 = “Not at All” and 5 = “To a Large Extent”). Descriptive statistics show that about 67.8% of respondents agreed on the methods that government agencies used to present government websites. These scores are quite high and respondents had a positive attitude toward government initiatives. Therefore, we can argue that norms, beliefs and values in Oman might not affected peoples’ attitudes towards using e-government services.

<b>Table -1</b>		
Factors	Mean	Std. Deviation
Accessibility for all citizens	3.43	.956
Use email to inform citizens	2.84	1.091
System Security	3.69	.830
Operational efficiency	3.55	.838
Internal culture obstacles	2.95	.821
Citizen privacy	3.74	.994
E-government Legislation	3.85	.939
Citizen confidence with	3.94	.840
Internal IT workforce capability	3.41	.809
Private sector partnerships	3.44	.797
Citizen trust of government	3.85	.829
E-Services Availability	3.32	.907
Information exchange/sharing between government agencies	3.37	.950
Note that : Scores range from 1 to 5, where 1 = 'Not at All' and 5 = 'To a Large Extent'		
<b>[Table 1- Descriptive Statistics]</b>		

**Correlations between factors**

According to the relationships discussed in the previous section, the first relationship contains four factors; the factors represented accessibility, efficiency, availability and confidence. To measure the relation between these factors, we will use the correlation. Table 2 shows that the correlation is significant to the aforementioned factors: perceived accessibility (0.299), perceived efficiency (0.333), perceived availability (0.266), and perceived citizens' confidence (0.415).

<b>Table -2</b>		Accessibility for all citizens	Operational efficiency	E-Services availability	Citizen confidence with
Accessibility for all citizens	Pearson Correlation	1	.334(**)	.301(**)	.262(**)
	Sig. (1-tailed)		.000	.002	.005
Operational efficiency	Pearson Correlation	.334(**)	1	.232(*)	.433(**)
	Sig. (1-tailed)	.000		.012	.000
E-Services availability	Pearson Correlation	.301(**)	.232(*)	1	.055
	Sig. (1-tailed)	.002	.012		.298
Citizen confidence with	Pearson Correlation	.262(**)	.433(**)	.055	1
	Sig. (1-tailed)	.005	.000	.298	
** Correlation is significant at the 0.01 level (1-tailed). * Correlation is significant at the 0.05 level (1-tailed). <p style="text-align: center;"><b>[Table 2- Correlation-a]</b></p>					

Similarly, the second relationship contains three factors; the factors represented security, privacy and trust. Using this data set, Table 3 shows that the correlation is also significant between these factors: perceived security (0.295), perceived privacy (0.282) and perceived citizens' trust (0.308). These results indicate that there is a significant relationship between these three factors.

<b>Table -3</b>		System Security	Citizen privacy	Citizen trust of government
System Security	Pearson Correlation	1	.282(**)	.308(**)
	Sig. (1-tailed)		.003	.001
Citizen privacy	Pearson Correlation	.282(**)	1	.084
	Sig. (1-tailed)	.003		.211
Citizen trust of government	Pearson Correlation	.308(**)	.084	1
	Sig. (1-tailed)	.001	.211	
** Correlation is significant at the 0.01 level (1-tailed). <p style="text-align: center;"><b>[Table 3- Correlation-b]</b></p>				

**Regression analysis**

Regression analysis is suitable for testing cause-effect relationships between two variables. For instance, it was conducted with the use of “IT workforce capability” as a predictor variable and “Information exchange between government agencies” as a dependant variable. First, Table 4 shows that the F-test is statistically significant, which means that this model is statistically significant. The R-squared is 0.060, which means that approximately 0.6% of the variance of information exchange is accounted for by IT workforce capability. The t-test for IT workforce capability equals 2.419, which is statistically significant, meaning that the regression coefficient for IT workforce capability is significantly different from zero. Note that  $(2.419)^2 = 5.85$ , which is the same as the F-statistic. The coefficient for “IT workforce capability” is 0.287, meaning that for a one unit increase in “IT workforce capability” we would expect a 0.287 unit increase in “Information exchange.” In other words, there is a significant relationship between IT workforce capabilities and the information exchange between government agencies.

**Model Summary - ANOVA(b) - Coefficients(a)**

Table-4 Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.245(a)	.060	.050	.926	
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.023	1	5.023	5.854	.018(a)
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	2.391	.417		5.737	.000
	Internal IT workforce capability	.287	.119	.245	2.419	.018
<ul style="list-style-type: none"> <li>• a Predictors: (Constant), Internal IT workforce capability</li> <li>• b Dependent Variable: Information exchange/sharing between government agencies</li> </ul>						

**Table 4- Regression analysis**

**DISCUSSION AND CONCLUSION**

The research conceptualized the value of e-government factors that influence success in the context of e-Oman initiatives. Ninety-four responses from government employees were used to determine the thirteen different factors that influence success of e-government initiatives. The paper sought to address a number of aims: The study gives a richness of data that provides the basis to demonstrate the current e-government initiatives in the context of e-Oman. The study also provides better understanding of the research question: what are the fundamental usages by Omani citizens of various e-services in Oman, as described by Omani government employees.

The research highlighted a number of factors facing the Omani e-government implementation. It indicated that the actual implementation of e-government has a good set of procedures and the complete task of e-government implementation may proceed well beyond the government’s vision of 2020. From the government employee’s perspective, issues such as accessibility, efficiency, availability, security and information privacy were impeding citizens from using e-government services, while issues such as confidence and trust can easily be earned from citizens when earlier factors are satisfied. Those

issues were compounded by two different needs: the need to integrate between various government agencies and the enhancement of IT workforce skills to facilitate the effective and efficient delivery of e-services.

The originality of this research is represented in a quantitative survey to describe the current state of Omani e-government, and the mutual interaction between the government and its citizens, that examined the government's workforce experience base and daily interaction with the citizens. Government can be radically improved by exploiting e-government only if acceptable legislation and cultural terms and conditions are adopted in e-government initiatives. The consequence of this is that norms of citizens' trust and confidence will significantly improve, while the e-government carries the deployment of a high level of interaction and communication with citizens. Furthermore, most of the Omani e-government initiatives are currently focused on providing information, cataloguing and basic services; the authors of this paper believed that the success of e-government initiatives will largely depend on providing better accessibility, efficiency and availability of official government websites.

As outlined in the survey, a number of factors (such as accessibility, efficiency, availability, security and privacy) were identified from the extant literature and considered important for understanding citizens' attitude towards adopting e-government services. In line with the objectives of this paper, the most important and interesting conclusions that have emerged from the analysis presented in this study are the following three propositions:

- When there are improvements on accessibility, efficiency and availability of e-government services, the citizens' confidence in e-government will improve.
- When there are improvements on e-government security and privacy issues, the citizens' trust will improve.
- When IT specialists and controllers improve their experience, the integration between different government agencies will improve continually and the manner of information exchange will improve as well.

The result of the survey showed that the correlation is significant to two relationships, the first one perceived accessibility, efficiency, availability and citizens' confidence. The second one perceived security, privacy and citizens, trust. Moreover, the results showed that there is positive relationship between the independent variable (Internal IT workforce capability) and the dependent variable (Information exchange/sharing between government agencies). This implies that third proposition is consistent.

Finally, as new services and features continue to be added to e-government initiatives, triggered by emerging technologies, the Omani government will also continue the development and implementation of e-government.

### **Future Research**

Since this research has focused on the views of government employees, there was no real picture of their claims about the effectiveness of e-government. Government employees are generally more willing to participate in this type of survey, because they are more interested to draw a picture of their officials. Therefore, further research could possibly examine the effectiveness of e-government within the Omani citizenry. Furthermore, continued studies are needed to examine the progress of Omani e-government in order to ensure that the future development and implementation of different stages of e-government are achieved in the progress of the Omani vision for 2020. The survey was made in Muscat, the capital city of Oman; therefore, this research could be extended to ascertain the opinions of a wider section of employees of local government agencies from different cities in Oman.

## REFERENCES

1. Abanomy, 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
2. 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]
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
4. Al-Amer, M.A. (2003), Kingdom of Bahrain: e-Government Program [Internet], Available from: <<http://unpan1.un.org/intradoc/groups/public/documents/UNESCWA/UNPAN015333.pdf>> [Accessed Jan 5<sup>th</sup>, 2008].
5. Al-Jboori, A. (2006), E-Government in Saudi Arabia: Can It Overcome Its Challenges?. *eGovernment Workshop*, Brunel University, September 2006.
6. Al-Khourri, A. and Bal, J. (2004), Electronic Government in the GCC Countries, *International Journal of Social Sciences*, 1 (2), pp.83-98
7. 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
8. 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
9. Apostolou, D., Mentzas, G. and Stojanovic, N. (2006), Semantic-enabled Aglie Knowledge-based e-government, *American Association for Artificial Intelligence* [online], [http://www.imu.iccs.gr/\\_sweg/papers/SS0606StojanovicN2-sake.pdf](http://www.imu.iccs.gr/_sweg/papers/SS0606StojanovicN2-sake.pdf) [accessed 02/11/2007]
10. 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
11. Belanger, F. and Carter, L. (2004), Citizen Adoption of Electronic Government Initiatives, *Proceedings of the 37th Hawaii International Conference on Systems Sciences*.
12. Borrás, 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 02/01/08]
13. Brooks, L., Weerakody, V., and Agyekum-Oforu, C. (2008), THE ROLE OF TRUST IN E-GOVERNMENT ADOPTION IN THE UK, *Presented in eGovernment Workshop*, September 8 2008, Brunel University, West London
14. Bwoma, P.O. and Huang, Z., (2003), An overview of critical issues of E-government, *Issues of Information Systems*, 4 (1), 164-170.
15. Carter, L., & Bélanger, F., (2004). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15, 5-26.
16. Carter, L., Weerakkody, V., (2008), E-government adoption: A cultural comparison. *Information Systems Frontiers* 10:4, 473-482
17. 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>> [12th march 2008].
18. Choudrie, J. and Dwivedi, Y.K. (2006), Investigating factors influencing adoption of broadband in the household, *The Journal of Computer Information Systems*, Vol. 46, No. 4, pp. 25-34.
19. Choudrie, J. and Dwivedi, Y.K. (2005), The demographics of broadband residential consumers of a British local community: The London Borough of Hillingdon, *Journal of Computer Information Systems*, Vol. 45, No. 4, pp. 93-101

20. Choudrie, J, Ghinea, G. and Weerakkody, V. (2004), Evaluating Global e-Government Sites: A view using Web Diagnostic Tools, *Electronic Journal of E-Government*, 2 (2). Pp 105-114,
21. Darwish, A. 2001, 'Bahrain leads the way', *The Middle East*, February 2001, Pp 13,
22. Davison, R. and Martinsons, M. (2003), Guest Editorial, Cultural Issues and IT Management: Looking Ahead. *IEEE Transactions on Engineering Management*, 50 [1], 113-117.
23. Gefen, D., Warkentin, M., Pavlou, P. A. and Rose, G. M. (2002), EGovernment Adoption. In: 8<sup>th</sup> Americas Conference on Information Systems, Dallas, USA.
24. 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,
25. Huang, Z. and Bwoma, O.P. (2003), An Overview of Critical Issues of E-Government, *central Michigan University*,
26. Jones, S, Irani, Z, 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)
27. 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).
28. Layne, K., and Lee, J. (2001), Developing Fully Functional E-government: A four-stage model. *Government information quarterly*, 18(2), 122-136.
29. Karunanada, A. and Weerakkody, V. (2006), E-government Implementation in Sri Lanka: Lessons from the UK, *Proceedings of the 8<sup>th</sup> International Information Technology Conference (IITC)*, Colombo, Sri Lanka, October 2006.
30. Kifle, H. (2008), POLICY AND ITS IMPLICATIONS TO ICT INNOVATIONS: THE CASE OF E-GOVERNMENT IN BRUNEI DARUSSALAM, *Presented in eGovernment Workshop, September 8 2008*, Brunel University, West London
31. Kostopoulos, G. (2003), E-Government In The Arabian Gulf: Avision Toward Reality, *American University of Sharjah*
32. 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.
33. Martin, J.J. (2000), E-Commerce Arrives. *The Middle East*, April 2000, Pp 34,
34. Ministry of Manpower (MOMP), (2008), Self Employment and National Autonomous Development, [online], [http://www.manpower.gov.om/sanad\\_en.asp](http://www.manpower.gov.om/sanad_en.asp), Ministry of Manpower, Muscat.
35. 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.
36. Oman Telecommunication Company (2003), Internet Services [Internet] < <http://www.omantel.net.om/services/business/internet> > [Accessed March 12<sup>th</sup> 2008 ]
37. Riley, T. B. (2003), Defining E-Government and E-Governance: Staying the Course. *eGov Monitor*
38. Siddiqi, A. (2001). The United Arab Emirates: Financial Report. *The Middle East*
39. Sonnenwald, D. H. and Maglaughlin, K. L. and Whitton, M. C. (2001), Using Innovation Diffusion Theory to Guide Collaboration Technology Evaluation: Work in Progress, *In IEEE 10th International Workshop on Enabling Technologies: Infrastructure for Collaborative Enterprises*. [Conference Paper]
40. Stoltzfus, K. (2004), Motivations for implementing E-Government: An Investigation of the Global Phenomenon, *University of California, Santa*.
41. Stowers, G. N. L. (2003), The State of Federal Websites: The Pursuit of Excellence. In: Abramson, M. A. and Morin, T. L. E-government 2003, *Rowman & Littlefield Publishers Inc.*, USA.
42. 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 03/2008]
43. United Nations (2003). Benchmarking E-Government: A Global Perspective, *Assessing the Progress of the UN Member States*. from [nettelafrika.org/docs/NetTel%20Safari@the%20Equator%20\(Uganda%202003\)/Benchmarkingegovt.pdf](http://nettelafrika.org/docs/NetTel%20Safari@the%20Equator%20(Uganda%202003)/Benchmarkingegovt.pdf)

44. United Nations (2008), 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 03/2008]
45. 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]
46. 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]
47. 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*, 5 (2), pp 141-159
48. 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.
49. Wert, J. M. V. (2002), E-Government and Performance: A Citizen-Centered Imperative. *The Public Manager*, Vol. 31
50. 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.