

# THE SUCCESSFUL IMPLEMENTATION OF E-GOVERNMENT TRANSFORMATION: A CASE STUDY IN OMAN

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## Abstract

*The aim of this paper is to investigate, and to discuss the key critical factors that facilitate the successful implementation of E-government projects. The nature of this research is mainly qualitative. This investigation uses a single case study and data was mainly collected by means of semi-structured interviews and organisational documents from the Ministry of Higher Education in Oman. The research findings suggest that there are three paradigms which each include a set of factors that impacts the success of E-government success namely, organisational paradigm, technology paradigm and end-users paradigm. The authors believe that, this paper demonstrates an added value to the current literature on transformation of E-government and to E-government projects success, within the wider context of E-government implementation projects. Also the research will benefit organisations in the public sector, as it has identified main key success factors in E-government transformations and implementations.*

*Keywords: E-government, Transformation, Public Sector, Higher Education, Oman.*

## 1 INTRODUCTION

During the last decade, the public sector worldwide has embarked on a wide range of reforms and has witnessed a steady growth in the number of E-government transformational projects. Public sector organisations (PSOs) are increasingly seeking new tools to improve their performance and to provide better service to their citizens. For example, Sharifi and Manian (2010) contended that many governments around the world are greatly supporting the electronic delivery of public services to the citizens and the enterprises, enabling them to make most of their transactions within the government via electronic channels, i.e. E-government. In its basic definition, E-government is “the use of information and communications technology (ICTs), and particularly the internet, as a tool to achieve better government” (OECD, 2003). Rose and Grant (2010) explained that more and more PSOs are implementing E-government initiatives in order to transform the way citizens and government interact with each other. With E-government, PSOs have opportunities to do their jobs better, cheaper and proved 24/7 hours access to citizens (Al-Fakhri *et al.*, 2008). Furthermore, citizens have the potential

to interact electronically with government agencies anytime and anywhere (Terpsiadou and Economides, 2009).

However, there are continuing reports of governments failing to gain expected benefits of their e-government initiatives, resulting in significant losses (Ke and Wei, 2004; Heeks, 2004). According to Heeks (2004) who conducted studies on E-government projects in developing countries, that 35% have resulted in total failures, 50% are partially failed, and only 15% are considered successful. Nevertheless, there are few E-government projects that have been deemed successful. Ke and Wei (2004) examined the success of E-government projects in Singapore. Their study found that the success of the E-government project is a result of the government of Singapore strategic vision and its commitment and support to bring this project to reality.

As we can see from above that many E-government projects encounter different problems and failed to be implemented. Also, most of the research of E-government projects focuses on failures. Over the last couple of decades or so, researchers have written literature on which factors guide organisations to success in implementing E-government. However, there is much debate around these factors and which are the most relevant (Dada, 2006). Furthermore, Wood-Harper et al. (2004) declared that studying the factors that leads to the success of E-government implementation is a significant matter. Consequently, identifying key success conditions, indicators and factors will help in developing our understanding of why and how E-government initiatives should successfully be implemented.

To shed the lights on how to successfully manage e-government developments, we explore a success story of an E-government initiative in the Higher Education Admission Centre, in Oman. This study attempts to identify the key factors that contribute to the success of this E-government project. The paper is structured as follows; First, related literature is reviewed and synthesised in order to provide an overview of E-government transformation. Second, critical factors that contribute to the successes of implementing E-government are identified and a conceptual framework is provided in order to answer the research enquiry. Additionally, the research methodology implemented in this study is explained and clarified in section 3. The case study in this paper provides a practical application (a real life example) of the successful implementation of E-government project. Following that, the key findings of the primary research will be presented and some lessons learned are highlighted. Finally, conclusion is drawn and further research is suggested.

## **2 RELATED LITERATURE REVIEW**

Change is something every organisation has to go through these days. Change in the public sector has become a necessity because most of PSOs must respond to the environment where they draw their resources from and indeed change is discontinuity. Otherwise an organisation will stagnate and stagnation is the beginning of the end. Moreover, it is believed that ICT is a key factor to support and to accelerate change in the public sector. Many governments have initiated many E-government projects and have allocated a substantial budget to such E-projects in order to provide very good services to the citizens and to keep them inform and to raise confidence in the applications of ICT.

### **2.1 Definition of E-government**

Since the term E-government emerges in 1990s, thinkers and researchers have defined it differently. According to the World Bank (2004, p.22) E-government is “*government owned or operated system of ICTs that transform relation with citizens, the private sector and/or other government agencies so*

*as to promote citizen empowerment improve service delivery, strengthen accountability, increase transparency, or improve government*’. Thus the main objectives of E-government are better service to citizens, more efficient government, increase trust and improved democratic process. Therefore, one could argue that implementing E-government will lead to change that disturb the status quo to achieve the desired goals and practical objectives.

Poor and Huang (2002) classified E-government into five segments which are e-democracy, e-service, e-commerce, e-management and decision-making. Holmes (2001) by contrast, classified e-government according to the interaction between, government-to-business (G2B), government-to-government (G2G) and government-to-citizen (G2C). More Recently, Ndou (2004) added government-to-employee (G2E) as fourth type of interaction to the above model of Holmes.

## 2.2 The Reasons for E-government Failures

In order to better the understanding of the factors which contributes to success, one should look at the reasons of failure and constraints to implementing E-government. Putting E-government into practice is not easy. In fact, over 60% of all E-government projects are unsuccessful (Holmes, 2003). This is partially due to general resistance to change (Sandy, 2002), and also because of efforts to introduce change which are based on a ‘theory of change that is fundamentally flawed’ (Beer et al., 1990). Often, attempts to introduce E-government as a change process are based on the idea that attitudes and behaviour patterns of individual employees need to be altered first of all so as to foster organisational change process. It is more correct to say that individual behaviour depends on the positions and roles of people within an organisation. This concept can be used to make changes in behaviour more feasible through the insertion of employees into a new organisational context, which is not dealt with ahead of time. But takes place alongside the general organisational changes “E-government” (Beer et al., 1990).

Additionally, many reasons for e-government failures are linked to management styles. Heeks (2004), in his book entitled ‘implementing and managing E-government’, examined why did implementing E-government attempts fail. He identified many reasons for failure in implementing E-government, starting with lack of education and awareness about the validity of E-government as a change, weakness in cooperation within the organisation to lead efforts and to clarify the organisation’s new direction, ambiguity of vision and poor communication channels. The other reasons are: (1) not having valid and practical reasons to implementing E-government, (2) poor planning and aiming for short gains, (3) hasty and premature announcement of success, (4) and indeed organisation culture, the latter plays a key role in E-government implementation failure.

## 2.3 Critical Success Factors (CSFs) in E-government

There are several systemised models for the successful implementation of E-government that are based on critical success factors (CSFs) that often propose step-by-step models (Lahti, 2005). Many authors divided these factors into different categories. For example, in Altameem *et al.* (2006) study the researchers categorised these factors into three groups. The first paradigm of factors is ‘*governing factors*’. These factors involved creating a shared understanding of vision for the proposed E-government project, appropriate strategy, top management support and commitment, strong leadership and funding for implementing E-government initiatives. The second paradigm of factors is ‘*technical factors*’. This includes information technology (IT) infrastructure and standards, collaboration between agencies and citizens relationship management. The third paradigm of factors is ‘*organisational factors*’, see figure 1. Those factors considered policy and legal issues, service quality, reward system and training. This must be followed by building up a shared vision, awareness and understanding of how to manage E-government successfully.

Wood-Harper et al., (2004), in his article entitled 'Interconnected success factor approach for service foundation in Malaysian electronic government', outlined three critical factors for successful E-government implementation, which are different to Altameem et al (2006) model. Wood-Harper et al., (2004) proposed that to establish E-government project successfully, it is necessary to consider the following factors: (1) *people* as government officials and public by considering their skills and knowledge issues. They emphasise on the users involvement, awareness and attitude; (2) *process* must be transparent, up-to-date and trust; (3) Create a reliable, accessible and secure *system*. In doing so, the leadership has to consider those three factors as guide to coping with the proposed E-government project. They also emphasis, that the culture and social aspects to deal with E-government implementation. Moreover, human, economic and administrative factors are a vital element during the E-government process as suggested by Al-Fakhri et al. (2008).

Therefore, one could argue that there is no standard or a predetermined model that organisation must follow to implement a successful E-government. However, management should take into consideration the elements of the environment that play a major role within the organisation. In addition, a full understanding of conditions and factors that contribute to failure and those which result in success is vital to lead e-government transformation successfully and it is the key to reducing the risk of failure (Zink, 2008).

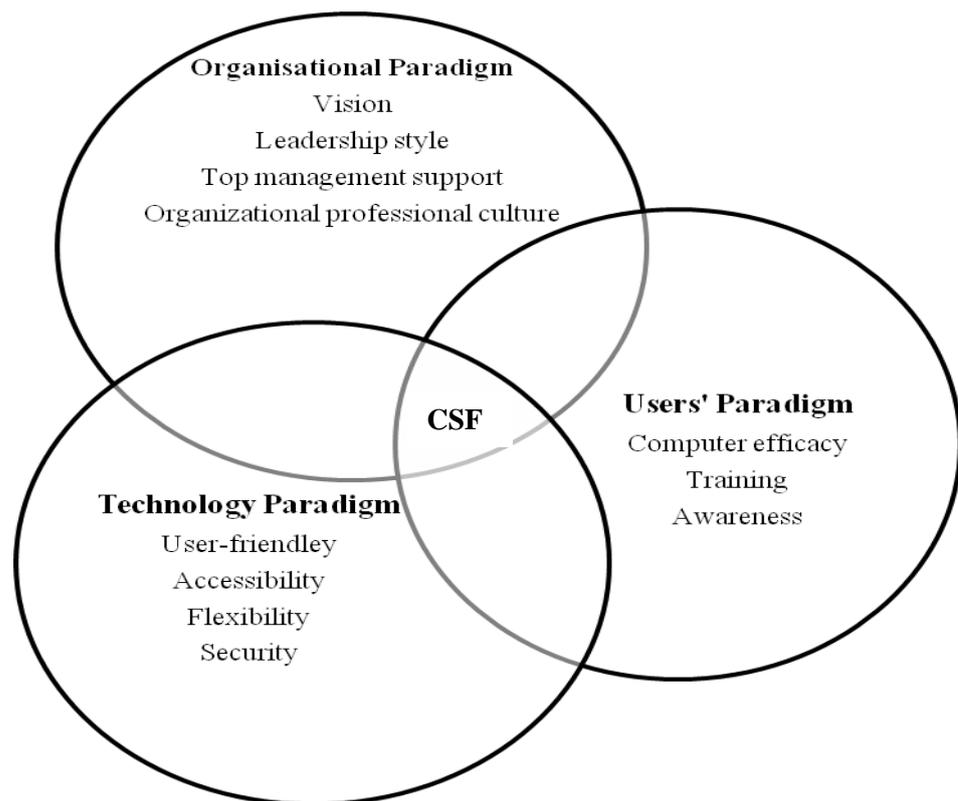


Figure 1: The three paradigms of successful E-government transformation

A summary of most frequently factors that may lead organisations to implement a successful e-government initiative that are widely cited in the literature can be summarised and presented in table 1.

	<b>Factors</b>	<b>Description</b>	<b>Key Reference</b>
Organisational Factors	Vision	The roadmap for implementing the E-government initiative	Altameem et al. (2006); Ke and Wei (2004); Burn and Robins (2003).
	Leadership	Strong leadership style provide both security and transparency for the implementation team	Altameem et al. (2006);
	Top Management Support	Support and commitment from senior management are imperative in order to provide and allocate sufficient resources and to speed up the process.	Altameem et al. (2006); Ke and Wei (2004); Wee (2000).
	Organisational culture	Organisational environment is the key that encourages change and transformation towards E-government	Wood-Harber et al. (2004);
Systems Factors	User-Friendly	The systems is easy to use and not complicated for users	Wood-Harber et al. (2004);
	Flexibility	The systems could be modified, customised and accommodated future users requirements.	Gebauer and Lee, 2007; Wilson <i>et al.</i> , 2002
	Security	Information should be secured form unauthorized access	Wood-Harber et al. (2004);
	Accessibility	The service should be accessible to users anytime and anywhere, i.e. 24/7.	Wood-Harber et al. (2004)
Users Factors	User computer efficacy	Individual's believed in their ability to used technology in order to solve problems, make decision, to gather and disseminate information.	Masrek el al (2007); Stephens and Shotick (2002).
	Training	Training is a critical element that needs to be incorporated within the implementing of E-government initiative	Altameem et al. (2006); Pasmore (1988)
	Awareness	The service of e-government initiative have to be aggressively marketed to users	Altameem et al. (2006);

Table 1: A summary of most frequently factors to implement a successful e-government intuitive

## RESEARCH METHODOLOGY

### 3.1 The Case Study

This study concentrates on a specific context, i.e. the Higher Education Admission Centre (HEAC) in the Sultanate of Oman, making the case study method most appropriate. This type of approach is closely linked with qualitative research, which also frequently uses Semi- structured interviews (Bryman and Bell, 2007). This approach allows a broader assessment of a particular and real situation (Brewerton and Millward, 2001; Yin, 2004). Ronson (in Saunders *et al.*, 2003, p.93) defined case study as “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context”. The case study allows the researcher to gain an in-depth understanding of the phenomenon under investigation (Yin, 2009). Furthermore, it provides both an understanding of the research context and a rich insight into the issue being examined (Yin, 1994).

The objective of this research is to develop theory rather than to make any generalisations (Bryman and Bell, 2007). Moreover, the strategy in this research is linked to research based on a case study. It must be said that the work is exploratory in character and seeks a fresh perspective and understanding of a situation that has received little attention (Saunders *et al.*, 2003). The chance to study something that had not been widely investigated, i.e. in this study the ‘E-government success’ was also an added incentive. The Higher Education Admission Centre (HEAC) is used as a case study in this paper because of its successful implementation in Oman as e-government initiatives. Moreover, it has been awarded by The World Summit Award (WSA) and recognised internationally. It is important to identify key success conditions and factors that will develop better understanding of how E-government projects successfully managed, adopted and implemented.

### 3.2 Case Background

The HEAC is the largest centre in the Ministry of Higher Education (MOHE) in Oman. The MOHE has invested a lot of time, knowledge and resources into encouraging HEAC to switch from a manual to an electronic system (HEAC, 2008). The HEAC is an e-government initiative that was developed and implemented by the Ministry of Higher Education (MOHE) in Oman in 2006. The main aim of this initiative is to transform the way applications to HEIs are submitted and processed. Traditionally, applications forms were submitted in paper. This process was found to be slow, take a lot of time and efforts and was regarded to be relatively less transparent. Students used to travel thousands of kilometres to submit their application to the ministry and other individual HEIs (HEAC, 2009). With the new HEAC, all applications to HEIs are submitted and processed online at ‘one-stop shop’. The implementation of the new HEAC provided the benefits that presented in the table 2 below.

Aspect	Advantages
Social	<ul style="list-style-type: none"> <li>• Equality for all Omani students – transparent application process;</li> <li>• Registration in or outside Oman by various mechanisms;</li> <li>• Application before or after receiving exam results possible – more time to decide on program.</li> </ul>

<b>Administrative</b>	<ul style="list-style-type: none"> <li>• Queues at different registration offices eliminated;</li> <li>• Reduced administration and paperwork for registration staff;</li> <li>• Accurate information available immediately;</li> <li>• Student enrolment intakes in different HEIs can be compared; other statistics now easily available.</li> </ul>
<b>Psychological</b>	<ul style="list-style-type: none"> <li>• Information and details on HEI programs in one document;</li> <li>• User-friendly environment for students to select their programs (Internet or SMS);</li> <li>• Students can choose their program before or after receiving exam results – more time to consult parents, friends and teachers.</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>• Reduced travel costs for students, who frequently had to apply and register at different HEIs;</li> <li>• Reduced number of staff and committees;</li> <li>• Time saved for both students and parents.</li> </ul>

Table 2: A summary of the advantages of the new HEAC system E-government initiative [Adopted and modified from Al-Azri (2009)].

### 3.3 Data Collection

This research adopts semi-structured interviews with senior managers in HEAC for collecting the primary data of this study. Saunders *et al.* (2003, p.245) described semi-structured interviews as “*a discussion between two or more individuals in which a set of questions are posed*”. Therefore, to give the interviewee more flexibility and obtain greater insights, a list of possible questions is generally used by the interviewer as a guide. The contents of the interview can be adjusted according to which areas the interviewer deems significant and worthy of further investigation (Bryman and Bell, 2003).

This flexible approach allows a more detailed exploration of issues that the interview questions have enriched, resulting in further, and often unexpected insights and information (Saunders *et al.*, 2003). The participants who were chosen for this study were key “senior managers” in the MOHE. Moreover, they were directly involved in the implementation project and therefore were able to provide adequate and accurate information about the implementation of the HEAC. After the interviews with the key senior managers and to ensure the richness of the data obtained, and the transcripts were immediately available for analysis. As a result of the semi-structured nature of the interviews, it was crucial to highlight factors that were of interest and were relevant to the findings, which facilitated the ability to answer the research question. To ensure and maintain the richness of the data obtained, tape recordings were made during the interviews, which were then available to be analysed at a later stage. Thereafter, great efforts were made by authors in transcribing the data. The medium used was a tape recorder: the advantage of such a medium is that it ensures that accurate information is not lost or forgotten.

### 3 FINDINGS AND DISCUSSION

In the context of E-government adaptation and implementation, there have been many attempts to implement e-government initiatives successfully, but too many projects fail. In one of the questions, the interviewees were asked whether or not the HEAC initiative had been implemented successfully. All the interviewees agreed that the project was success, as evidenced by its receipt of an international award. One interviewee emphasised:

*“Of course we succeeded and receiving the World Summit Award (WSA) is evidence of our success ...”* (Interviewee 1)

100% of the interviewees answered the previous question “yes” and the researcher asked for more details on the key factors that had led to the successful implementation of this change and transformation from their experience. The factors mentioned most frequently were:

**Vision:** all interviewees agreed that the clear vision of the project is a key factor in implementing e-government successfully. *“Successful e-government requires obvious vision in order to lead and support the implementation process”* (Interviewee 4). When implementing e-government, first of all it’s requiring clear vision for the aims of project. These finding is in accordance with the research findings of Altameem (1995) and Ke and Wei and (2004), which indicate that having clear vision for e-government project makes it easier to lead project successfully.

**Leadership:** 100% interviewees believed that strong leadership can provide clear vision, direction, security and transparency to employees. *“Strong leadership is very important to ensure successful implementation of E-government initiative. An effective leader can influence the organisation’s employees”* (Interviewee 3). This finding is in line with Altameem (2006), Ke and Wei (2004), who have emphasised the need for strong leaders and the role they play to motivate employees, bolster their confidence and allocate resources, all of which are regarded as critical success factors. Perhaps this type of leadership reduces the potential for resistance to change.

**Top management support and commitment:** 75% of interviewees believed support and commitment from senior management are imperative in order to provide and allocate sufficient resources as well as discourage resistance. As one interviewee commented: *“Top management commitment and support gives us motives to work hard and to create new ideas”* (Interviewee 4). This view is supported by the literature (Altameem 2006; Wee, 2000) who found that top management provided and allocated sufficient resources for E-government implementation.

**Training:** 50% of the interviewees considered that appropriate training for both employee and users plays a central role in the implementation of the E-government initiative. As one of the interviewees emphasised: *“Appropriate training before the project is significant in order to have the necessary knowledge and capacity to cope with change in the process”* (Interviewee 3). These finding is in accordance with the research findings of Pasmore (1988, p.135) who stated that “new systems require new skills”.

**Organisational culture:** 75% of interviewees stressed that supportive culture is a key that encourages change and transformation towards E-government, as one of the interviewees explained: *“Organisation culture can facilitate the change process and help expedite the achievement of organization objectives”* (Interviewee 1). This finding consistent with the literature as well as general views (Beer et al., 1990; Clarke and Garside, 1997), which advocates that culture, is a very supportive factor in implementing any E-government initiative successfully.

**Awareness:** 50% of interviewees stated that the services of E-government initiative have to be aggressively marketed to users, as one of the interviewees explained: “*Successful implementation of e-government initiative requires adequate awareness in order to support the implementation process*” (Interviewee 4). This finding is in line with the research findings of Altameem *et al.* (2006) and Al-Karaghoul *et al.* (2005), who found that awareness employees and users from the beginning (initial stage) of the project is one method to avoid resistance and indeed to successfully implementing E-government.

## 4 LESSONS LEARNED

The study outcome provides useful information to help the HEAC organisations improve their capabilities for successfully implementing of the E-government initiative and transformation. Simultaneously, the study can also be used as an example of successful E-government initiative implementation in other public organisations. As a result, this will lead to high rate of successful E-government initiatives and transformation in Oman.

## 5 CONCLUSION AND REFLECTION

It has been widely acknowledged that, E-government initiatives and transformations are the most useful channel for citizens and public organisations (PSOs) transformation. New E-government initiatives add value to public organisations by offering better service to citizens, facilitating operations, devising solutions for business, and improving their performance. Understanding the significance of successfully implementing E-government project is essential. However, despite that the majority of E-government projects fail either totally or partially, some projects are successful. The authors in this paper have highlighted the importance of the CFSs and influential parameters that influence the success of the transformational process of e-government projects in many projects and specifically in Oman H. E., as indicated specifically in sections 1, 2 and 3 of this paper. Also, the authors have identified the cultural differences within e-Gov implementation in the Oman and other countries, as mentioned in section 2.

Therefore, this paper attempts to provide a new line of thinking and further scope for researchers in areas of E-government success. The research findings suggest that there are three set of paradigms that impacts the success of E-government success namely, organisational paradigm, technology paradigm and end-users paradigm. A full understanding of these paradigms and the factors included in these three paradigms to lead E-government implementation successfully that are vital keys to reducing the risk of failure.

This paper is based on a single case study that has investigated, addressed and explained the success e-government initiative in Oman. To get a clear picture of the phenomenon, a further research needs to be conducted. Moreover, a mixed-method approach using both qualitative and quantitative methods would provide a deeper insight and understanding into the phenomenon under investigation. For future research and from the findings that highlighted in this paper, the authors aim to conduct more case studies on e-Gov implementation in different Middle Eastern and Gulf states. Hence the authors are planning to develop a framework for cultural influence on e-Gov transformation.

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