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The Role of Organisational Culture in Digital Government Implementation

Exploring the Relationship between Public Sector Organisational Culture
and the Implementation of Digital Government in Oman

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Abstract

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Key Words: Organisational culture, digital government, electronic government, technology, mixed methods, Oman.

Organisational culture plays an important role in the success of the adoption of technology and the development of the organisation; therefore, it is very important to understand how organisational culture impacts the process of implementing technology, either positively or negatively. The aim of this study is to explore the role of organisational culture in digital government implementation in Omani public sector organisations.

This study used mixed methods as a research methodology. In the qualitative phase, semi-structured interviews were conducted with top and middle management and at operational levels in the Omani public sector organisations. In the quantitative phase, a survey was distributed to employees within the public sector organisations to build on the findings of the first stage and develop an understanding of the relationship between organisational culture and implementation of digital government in Oman.

This study found that there is a relationship between organisational culture and digital government implementation. It was found that the type of organisational culture has some impact on the digital government implementation as it was found that the organisations with the clan culture type had low levels of implementation of digital government whereas, organisations with the hierarchy culture type had high levels of implementation. Moreover, the study found that middle managers in public sector organisations in Oman had a critical impact on the digital government implementation.

Declaration

I hereby declare that this thesis has been genuinely carried out by myself and has not been used in any previous application for a degree. The invaluable participation of others in this thesis has been acknowledged where appropriate.

Mohammed Almamari

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I would like to thank God the Almighty for helping me completing this research. Secondly, the completion of this research would not have been possible without the help and support of many individuals to whom I owe a great debt of gratitude.

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Table of Contents

List of Figures

List of Tables

Abbreviations

BPR	Business Process Reengineering
CVF	Competing Values Framework
D-Government	Digital Government
DSS	Decision Support Systems
E-administration	Electronic administration
E-government	Electronic Government
E-residency	Electronic residency
EIS	Enterprise Information System
EIS	Executive Information System
e-mail	Electronic mail
E-readiness	Electronic Readiness
ERP	Enterprise Resource Planning
G2C	Government-to-Citizen
G2B	Government-to-Business
G2G	Government-to-Government
G2E	Government-to-Employee
HRM	Human Resource Management
ICT	Information and Communication Technologies
IS	Information Systems
IT	Information Technology
ITA	Information Technology Authority
M-government	Mobile government
NCSI	National Centre for Statistics and Information
OCAI	Organisational Culture Assessment Instrument
PKI	Public Key Infrastructure
SMS	Short Message Service
TRA	Telecommunications Regulatory Authority
UK	United Kingdom

Chapter 1: Introduction

1.1 Introduction

This chapter provides a general background to the key issues addressed in this research. The chapter begins by defining digital government and providing the main background to digital government. Then, it highlights the main gaps that were found in the literature which are intended to be covered in this study. Next, the research questions that this study seeks to answer are formulated. Finally, the chapter provides a framework for the structure of this research and an outline of the contents of each chapter.

1.2 Background

The increasing demand for the services provided by public sector organisations compels these organisations to develop and improve their services and their delivery techniques (Hughes et al. 2011). Technology offers these organisations different solutions to simplify their work and improve their delivery. The type of technology can differ from one organisation to another according to the intended purpose of use. It could be used to simplify the work internally by using small databases and electronic mail (e-mail) systems or it could be utilised to improve the quality of existing services to customers by applying an intermediary system between the organisation and the customers. Thus, it is rare to find organisations, in either the public or private sectors, which do not currently use technology, whether these are small, medium or large organisations. These organisations represent different fields such as education, health, commerce, marketing, tourism and banking sectors.

Accordingly, different elements of Information Technology (IT) systems play significant roles in shaping public administration (Dunleavy et al. 2006), although its role is still poorly understood (Nograšek and Vintar 2014). Organisations depend on IT infrastructure yet management practices have often not kept pace with these changes. Moreover, with the growth of the 'internet, e-mail, and the Web', which has had many different effects on political and administrative changes, such as the start of the digital era, the existing operating style totally changed to the digital operating style (Dunleavy et al. 2006) which entailed organisation and organisational cultural changes within government and government agencies (Nograšek and Vintar 2014). Moreover, these changes are still underway and it is projected that it will lead to even more widespread changes involving information handling and fully digital modes of operation. Information and communications technology (ICT) has brought about fundamental changes to public administration and has affected both internal organisational policies and processes as well as external collaboration (Meijer and Bekkers 2015). Moreover, ICT has been a significant force for modernising the public sector either by designing new systems or redesigning existing communications and information processes, thereby enabling improved ways of managing as well as contributing to the democratic process by providing appropriate mechanisms (Meijer and Bekkers 2015).

But, these changes also bring new challenges, not least of which is the problem of information security as well as the need for legislation to keep pace with the legal implication of these changes.

Accordingly, the development of technology around the world inspires many public and private organisations to begin providing their services by using digital and internet technology. Thus, many governments have commenced implementing their services electronically through digital government (D-government). Fountain (2004) mentioned that D-government was also called electronic government (e-government) or virtual government. Fountain (2004: 1) defined D-government as

> "*The production and delivery of information and services inside government and between government and the public using a range of information and communication technologies*".

Moreover, the World Bank defined e-government as

> "*The use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses and other arms of government*" (Lee and Oh 2011: 17).

More recently, Weerakkody et al. (2015: 889) defined e-government as

> "*The use of information technology (IT) by government to boost the access and conveyance of its information and services to citizens, business partners, professionals, other organisations and even government entities*".

However, currently most public organisations use a mixture of different techniques for providing their services to their customers online such as mobile government, e-government, cloud government and smart government. Electronic residency (E-residency) was recently introduced in Estonia by inviting people from all over the world to become an e-resident with the right to open businesses and bank accounts in Estonia (BBC World

Service 2016). Each of these concepts is embraced within the term D-government and this study will use that term as embracing all of these online services. This is because the purpose of this study is not focused on which techniques are used but rather on how organisational culture affects their implementation. Marchionini et al. (2003: 25) support this view:

> *"The application of IT to government service is often termed 'e-government' and the larger concept of government that depends upon IT to achieve basic missions is termed 'digital government'".*

Moon (2010) noted that governments expected e-government to be the system that would improve the quality of public administration and management and to develop the productivity of the public services. In addition, the efficiency and effectiveness of the new technology were expected to increase the government's power to confront and tackle various types of corruption. This was supported by Al-Shafi and Weerakkody (2007) who pointed out that electronic government would help to decrease the opportunity for corruption to occur in government and would contribute towards the growth of greater transparency. The role of e-government in reducing corruption has also been asserted more recently by Ionescu (2015). However, the new technology has also created new and different forms of security issues such as cybercrimes and internet hacking of individuals' or organisations' information and financial transactions (Oseni et al. 2015).

There are different obstacles that affect the implementation of these types of technology. Pacey (1983) states that technology is affected by three different factors: organisational, technical and cultural as shown in Figure 1.1.

Figure 1.1 Diagrammatic definitions of technology and technology practice
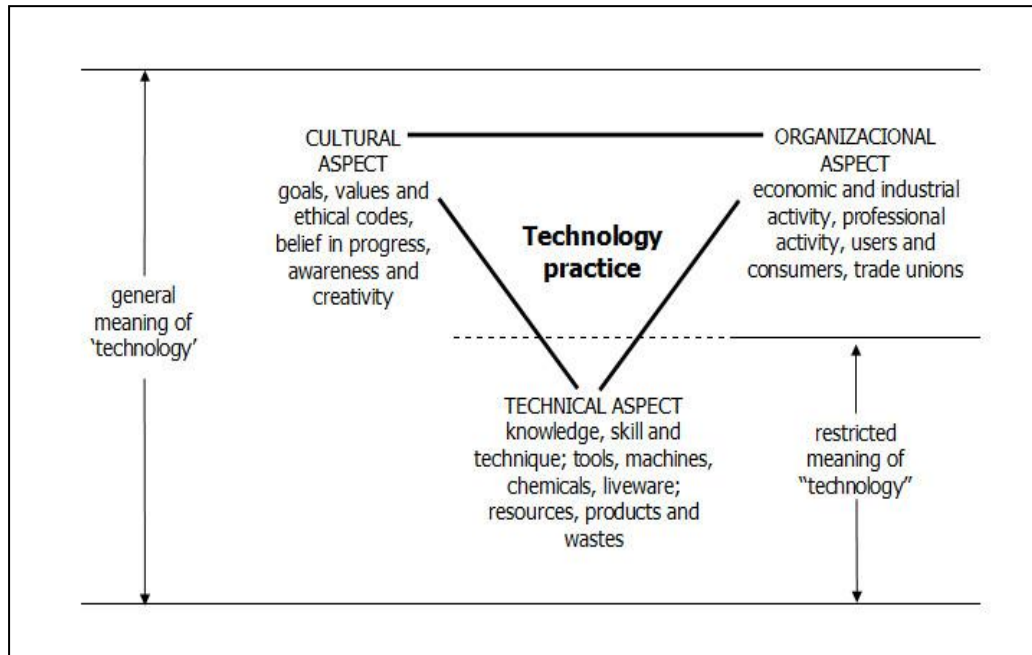
Source: (Pacey 1983: 6)

Figure 1.1 shows how culture, organisation and technology are interrelated. Cabrera et al. (2001) commented on a report by OASIG (OASIG is a special Interest Group funded by the British Department of Trade and Industry which deals with Organisational Aspects of Information Technology) which investigated the experiences of 45 leading information technology scholars in United Kingdom (UK). It was found that 80% to 90% of IT projects failed to achieve their objectives. A key finding was that failure resulted from giving insufficient attention to non-technical aspects compared with that given to technical aspects. Cabrera et al. (2001) noted that factors such as human and organisational issues played a key role in the effectiveness of any new system. Moreover, they pointed out that the innovation of technology had to be modified to match the organisational culture and structure, or else the culture and structure of organisation would have to be redesigned to match the requirements of the new technology. This was also recently confirmed in the context of health information technologies implementation by Cresswell

and Sheikh (2013), who referred to the "careful balancing act" that was required between the inter-related technical, social and organisational issues in order to ensure that technological innovations were successfully implemented. Moreover, Nograšek and Vintar (2014: 109) point out that processes, structures, people, technology and organisational culture which are "*key elements of organisation are interdependent, which means that changes in one of them cause changes in the other*".

1.3 Rationale for the study

Bandyopadhyay and Fraccastoro (2007) have shown how scholars have recently focused on studying the effects of culture on technology and vice versa because the relationship between these two was not yet clear due to the need for more research into the relationship between both. Additionally, the concept of culture is a complex one with a variety of nuances. A more recent study by Seng et al. (2010) argues that researchers need to focus more on the relationship between information systems and culture, both national and organisational. This involves a careful identification of the inter-relationship between technology and culture, both national and organisational, and how both are related to organisational structure.

Despite the fact that culture has such a significant role to play in the adoption of technology, only a few scholars have made it the focus of empirical studies (Lee et al. 2007). Myers and Tan (2003: 1) stated that

> *"Many IS scholars argue that global organizations need to understand cultural differences if they are to successfully deploy information technology".*

Likewise, Harper and Utley (2001: 15) advised that

> *"Companies should also consider the relationships between the IT initiative and the way it will interact with the existing organisational culture".*

Sharma and Yetton (2003: 533) indicated that

> *"The successful implementation of information systems innovations remains a theoretical as well as a managerial challenge".*

These authors have drawn attention to complex and rich relationships between management support and Information Systems (IS) implementation and criticised empirical studies for their tendency to reduce the nature of this relationship to a singular main effect in their hypotheses. More recently, Basahel and Alshawi (2014) have underlined the neglect of research into the relationship between management support and IS implementation. This is an issue which is addressed in the current study. Accordingly, it is important to assess the impact of the organisational culture of public sector organisations on the implementation of D-government. Reviewing the relevant literature has highlighted the fact that more attention needs to be given to exploring this relationship. This study attempts to address this research gap.

Joseph (2013) and Meijer and Bekkers (2015) have drawn attention to the fragmented nature of studies in e-government. The latter of these two works suggested a meta-theoretical approach to classifying various studies according to three dimensions which were represented by the extent to which the individual study relied on: 1. explanation versus understanding 2. holism versus individualism and 3. change versus maintenance. In a study of 116 journals articles between 2011 and 2013 it was found that the majority of

articles (88%) were located in the 'explain' rather than in the 'understand' category. This indicated a predominance of research based on a positivist approach using quantitative data to the neglect of more interpretive approaches based on 'understanding'. The current research aims at addressing this gap in the recent literature by focusing on understanding the organisational culture and exploring its impact on D-government implementation.

The same study, Meijer and Bekkers (2015) also found a great predominance in recent journal articles on a holistic approach to e-government focusing on the evolution of information systems and an under-representation of the role of various actors in e-government

> "*most articles (57.8%) have a holistic perspective. These articles focused on structure only and did not explicitly analyse how structures shaped behaviour of individual actors*" (Meijer and Bekkers 2015: 242).

This neglected area in recent journal articles is also addressed in the current research, which focuses on behaviours, attitudes and shared values within organisations.

Leidner and Kayworth (2006) reviewed 82 articles from different journals between 1990 to 2004 and found that, those studies that considered culture, focused on the impact of culture on the Information Systems Development, Information Technology adoption and diffusion, Information Technology use and outcomes and the impact of IT on culture. However, the focus of the

current research is on the impact of organisational culture on D-government implementation in particular.

However, some studies were found which covered the impact of national culture on different types of Information Technology such as the effect of national culture on IS (Ein-Dor et al. 1993), national culture and information technology product adoption (Bagchi et al. 2004), dimensions of national culture and corporate adoption of IT infrastructure (Png et al. 2001), the impact of national culture on electronic government implementation (Ali et al. 2009), and the impact of national culture on e-government development (Zhao 2011). Furthermore, some studies were also conducted into the organisational culture level, such as the impact of organisational culture innovation on the adoption of IS/IT (Twati and Gammack 2006), the influence of organisation culture on E-commerce adoption (Senarathna et al. 2014), organisational culture impact on business-IT alignment (El-Mekawy and Rusu 2011), organisational culture and successful information technology implementation (Harper and Utley 2001), cultural issues in developing e-government in Malaysia (Seng et al. 2010) and examining the effect of organisational culture and leadership on IS implementation (Basahel and Alshawi 2014).

Indeje and Zheng (2010: 507) in studying the organisational culture and integrated financial management Information System implementation in Kenya asserted that

"*there is a need for understanding how a particular organization culture facilitates or limits implementation process of an information system*".

Furthermore, there is a paucity of such studies in Arabic Countries. In critiquing approaches which tended to over-emphasise the need for explaining processes of implementation of technology, Fountain (2001) cited by Meijer and Bekkers (2015) has drawn attention to the importance of cognitive, cultural, structural and political values embedded in organisations and, consequently, justified the use of case studies from developing countries as providing a fruitful context for helping to understand the interrelationship between the context and action underlying organisational changes. This is supported by (Joseph 2013) who, in reference to a dominance in Europe, North America and Asia as geographical contexts for studies of e-governments, commented on opportunities which were presented for research focused in regions such as the Middle East and Africa:

"the findings of this study do highlight an opportunity for research studies that focus on regions such as the Middle East and Africa to add to the existing e-government dialog" (Joseph 2013: 439).

Thus, there is a need for a study that investigates organisational culture in relation to the IS or IT adoption in general and implementation in particular; more specifically, there is a need to study D-government implementation within a Middle Eastern context. Accordingly, this study aims at addressing this paucity by focusing on one of these countries, namely Oman. It explores

the role that the organisational culture of the Omani public sector organisations play in the implementation of D-government.

In this study, Oman was selected as a case study because D-government is currently under development in Oman. D-Government in Oman was officially launched following the approval of "Electronic Government Transformation Plan" which was issued by the Ministerial Council in June 2012. Before this plan, each   organisations work individually to plan and implement their new systems. The   Electronic Government Transformation Plan marked the beginning of the expansion of D-government implementation in the public sector organisations in Oman. However, according to a survey conducted by Information Technology Authority (ITA) in 2013, some organisations were found to have high levels of implementation, some had low levels of implementation and others had not even commenced implementation at that stage. Therefore, one of the underlying reasons for this research was to explore and understand why there were such differences and to identify what factors within the different organisations might have influenced the levels of D-government implementation. In addition, it was of interest to assess the impact of culture on the levels of implementation especially as in the light of the findings of literature in relation to the impact of culture on IT and IS implementation (Twati and Gammack 2006).

As each organisation had a dominant culture that distinguished it from other organisations; the current study is based on an approach to identifying the dominant culture types of various public sector organisations in order to assess the extent to which the organisational culture impacted on D-

government implementation, particularly in the context of Oman. A practical instrument called Organisational Culture Assessment Instrument (OCAI) was used to identify the dominant culture types of the organisations that were included in this study. This instrument categorised organisations as one of four different types of organisational culture: clan, hierarchy, market or adhocracy. Therefore, this study explored how the dominant types of organisational culture affected D-government implementation. Further explanation about OCAI and each type of organisational culture is provided in chapter 2.

1.4 Research Aim and Objectives

The aim of this research is to explore the role of organisational culture in D-government implementation in Omani public sector organisations. Thus, the main objectives of this research are:

1. Exploring the relationship between public sector organisational culture and the implementation of D-government in Oman.

2. Using an organisational culture instrument to assess the organisational culture of Omani public sector organisations in order to explore the impact of the organisational culture on D-government implementation.

1.5 Research Questions

The study aims to investigate the impact of the organisational culture on the implementation of D-government in Omani public sector organisations. Therefore, in order to address the main aim of this study, two research questions were formulated:

RQ1. What is the relationship between the dominant organisational culture and the implementation of D-government in Oman?

RQ2. How does organisational culture impact on the implementation of D-government in Oman?

This study contributes to D-government implementation by exploring the relationship between the dominant type of organisational culture and D-government implementation. It found that clan culture organisations were associated with low level of implementation and hierarchy culture type organisations were associated with high level of implementation. Furthermore, this research highlighted the key role played by middle managers in D-government implementation. Middle managers were found to be the locus of much resistance to D-government implementation for different reasons such as self-interest and loss of authority. This study also contributes to the sphere of government by finding that some government policies such as Omanisation (a government policy that set out to replace foreign labourers with local (Omani) people to decrease the number of foreign labourers which had reached 54% of the total labour force) had an impact on D-government implementation. This was because such policies were found to be blocking the employment of qualified people which are non-Omani. Furthermore, employee willingness to accept D-government implementation in hierarchy culture type organisations was found to be very low compared to the clan culture type organisations. Moreover, employee involvement in decision-making of D-government in clan culture organisations was found to be considerably greater than in hierarchy type organisations which had a more top-down managed and autocratic decision-

making process which helped for speedy implementation in the organisation though with low acceptance level from the employees.

Based on the findings of this study, recommendations are made to facilitate implementation processes in the context of Omani public sector organisations. Although this context may be a limiting factor on the generalisability of the findings, it is expected that some of the findings will have an application in other contexts. Despite the limitations of context, it is important to understand a phenomenon within its context, what Max Weber referred to as 'verstehen', understanding the context and intention of human action (Chowdhury 2014), in order to gain an in-depth insight into the impact of culture on D-government implementation. Nevertheless, it is expected that the findings can be generalised to other Gulf countries as well as presenting an exemplary approach to studying the impact of culture in D-government implementation in other countries.

1.6 Thesis Outline

This thesis is presented in eight chapters.

Chapter 1: Introduction

This chapter provides a general background to the study and topic. It highlights the research gaps and the research aim and objectives.

Chapter 2: Literature Review

This chapter explores and provides an analytical review of theories and approaches in two research areas central to this research: organisational

culture and D-government implementation. It highlights the gaps related to the impact of organisational culture on D-government implementation.

Chapter 3: Study Context

This chapter discusses the context of the study, which is the Sultanate of Oman. It provides some background information about Oman and about the Information and Communication Technology (ICT) sector in Oman. Moreover, it explains the main D-government projects in Oman and the electronic government transformation plan, which is set to transform all the public sector organisations' services in Oman to be fully electronic.

Chapter 4: Research Methodology

This chapter presents and discusses the research design and methodology underlying the study. Moreover, it explains the data collection methods and data analysis processes that are used in this study to meet the research objectives and answer the research questions.

Chapter 5: Qualitative Data Analysis and Findings

This chapter presents the main findings from the analysis of the qualitative data (semi-structured interviews).

Chapter 6: Quantitative Data Analysis and Findings

This chapter presents the main findings from the analysis of the quantitative data (Survey).

Chapter 7: Discussion

This chapter brings together the findings from the two methods used for collecting data in this study, critically evaluates these findings and discusses the implications and the contributions of this study to the field of the impact of organisational culture on the D-government implementation. Furthermore, it makes some recommendations arising from the findings and discussion.

Chapter 8: Conclusion and Recommendations

This chapter provides the conclusion of the thesis. Additionally, it admits the limitations of the study and points towards the future work that could be considered as the focus of future researches.

Figure 1.2 shows the structure of the thesis chapters.

Figure 1.2 The structure of the thesis chapters

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                    │     Chapter 1       │
                    │    Introduction     │
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                    │     Chapter 2       │
                    │  Literature Review  │
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                    │     Chapter 3       │
                    │ Study Context (Oman)│
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                    │     Chapter 4       │
                    │ Research Methodology│
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┌────────────────────────┐              ┌────────────────────────┐
│      Chapter 5         │ ───────────▶ │      Chapter 6         │
│ Qualitative Data       │              │ Quantitative Data      │
│ Findings and Analysis  │              │ Findings and Analysis  │
│ (Interviews)           │              │ (Survey)               │
└────────────────────────┘              └────────────────────────┘

                    ┌─────────────────────┐
                    │     Chapter 7       │
                    │     Discussion      │
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                    │     Chapter 8       │
                    │   Conclusion and    │
                    │   Recommendations   │
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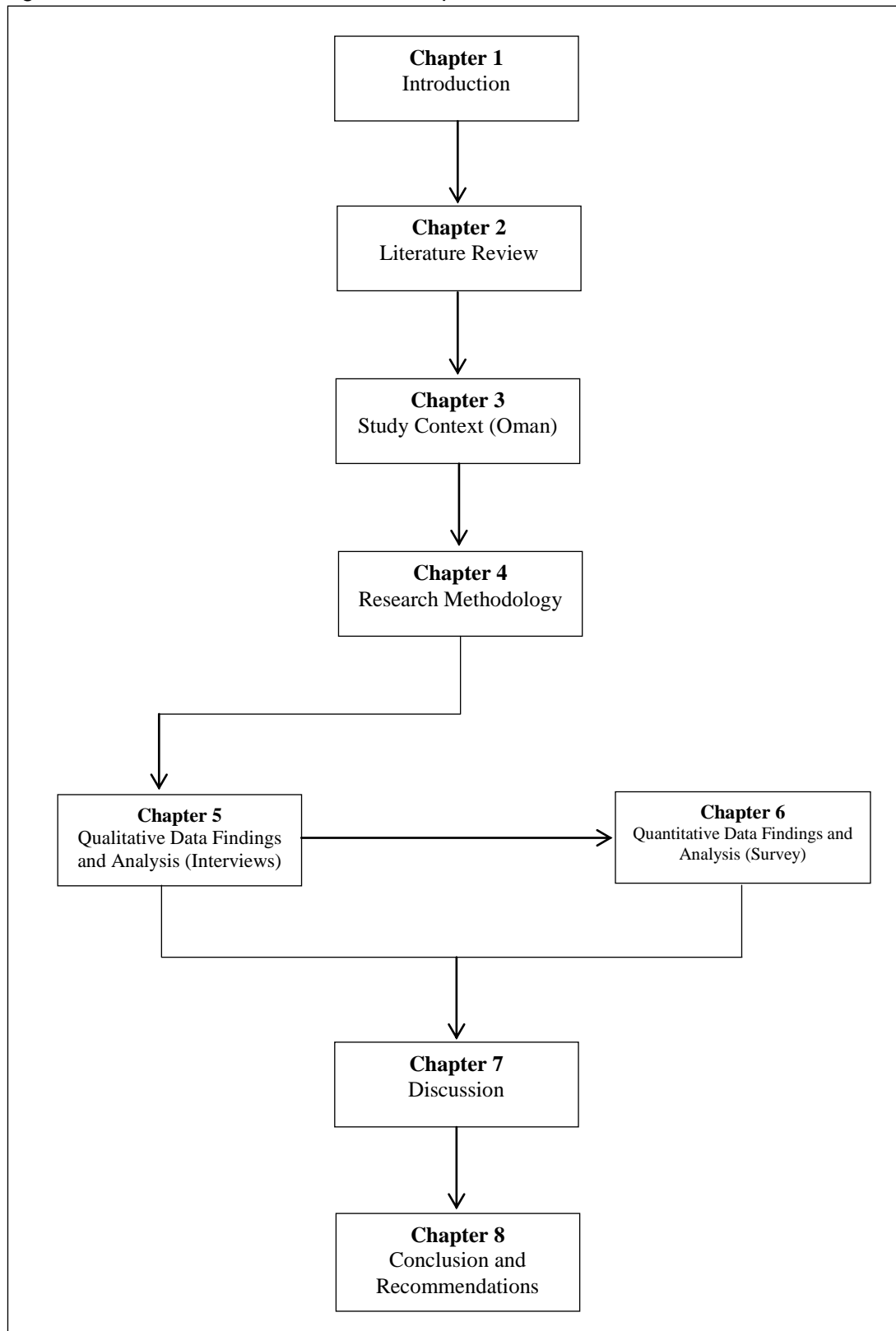
Chapter 2: Literature Review

2.1 Introduction

This chapter presents a review of the relevant literature related to D-government implementation and the issue of organisational culture. The main purpose of this study is to investigate the effect of organisational culture on the implementation of D-government in public sector organisations. It is, therefore, necessary to reach an understanding of the concept of organisational culture in order to appreciate its importance for the implementation of D-government. The context of this study is the public sector in Oman and this will be presented in detail in Chapter 3.

2.2 D-government Implementation

The increased use of wireless devices and developments in technologies by users is an important reason for governments to move and supply D-government. Different devices such as personal digital assistants (PDAs), pocket PCs, tablets, smart phones and short message services (SMS), support governments in their attempts to implement the new digital services. The use of these devices has spread rapidly and has helped to expand information services using different information communication technology (ICT) with more efficient and effective ways such as mobile technology applications. Moreover, it helps to exchange the data within and between the government organisations (Moon 2010). Among the many benefits of D-government mentioned by Alencar et al. (2015) are improved public services which operate with greater effectiveness and efficiency, greater government

transparency and minimisation of operating cost. Additionally, D-government implementation helps to

> *"reduce the time public sector employees have to spend in their offices, help create better polices, and improve the organisational competitiveness within all government sectors" (Al-Busaidy and Weerakkody 2009: 378).*

These benefits encouraged public sector organisations to expand and improve their implementation of D-government.

However, Weerakkody et al. (2015) have critiqued many accounts of benefits of D-government on the grounds of superficiality and, instead, offer an approach which would be helpful for governments to make a more in-depth assessment of the effects of costs, benefits, risks and opportunities of e-government prior to its implementation.

However, these benefits are dependent on citizens having such devices and disadvantaged citizens may not be able to afford them. For this and other reasons, many governments have tried to bridge this digital divide by introducing centres in cities where citizens can access D-government services and can receive help to become more digitally literate. For example, Gan et al. (2016) have discussed the digital divide in China and illustrate the need to widen participation of people with disabilities, mental health issues and older citizens who are disadvantaged by not having access to D-government. Thus, the digital divide is more than technological in nature and has important political implications for the inclusion of citizens. Phippen (2007) studied two approaches to overcoming the digital divide in remote

areas in the South West of the UK. One of these approaches was on a national level; the other was on a local basis and was described as a grass roots approach involving local volunteers. The national approach was found to have largely failed but some degree of success was found in the grass roots approach. Phippen (2007) attributed the failure of the nationwide approach to a deep distrust among disengaged populations. Similar results were reported by Kvasny (2006) in a low-income community in a US city. Kvasny (2006) critiqued such technological approaches to solving social inequality as inadequate for tackling systemic problems of political and economic exclusion. The author also made a distinction between the digital divide, which was concerned with inequality of access and digital inequality, which was more deeply rooted in societal issues:

> *"Digital inequality does not only reflect disparities in access to ICT; it also reflects ongoing social inequities in the US. The vicious cycles of poverty, illiteracy, sporadic work, racial and ethnic discrimination, and criminal activity faced by many historically underserved groups shape diffusion rates and patterns of ICT use that can mirror and reinforce social inequities rather than mitigate them" (Kvasny 2006: 161).*

Thus, any implementation of D-government must take account of this critique and consider how to avoid further alienation of hard to reach citizens or any other social and culture issues.

Implementing D-government was originally seen as a continuous process involving a number of steps. The United Nations (UN) favoured a five steps approach as a benchmark:

1. Emerging: which includes official online presence.

2. Enhanced: provides more dynamic information.

3. Interactive: Users can download forms, e-mail officials, interact through the Web and make appointments and requests.

4. Transactional: Users in this stage can make financial transactions online.

5. Seamless: Full integration of e-services across administrative boundaries (UN 2002).

That these stages should be strictly sequential was found to be less important than the need for developing levels of skill, knowledge and infrastructure (Lee and Oh 2011). Moreover, Alijerban and Saghafi (2010) have explained that going from one stages to another would imply that the communication and interaction between citizens and government would increase as well as the demand for other new electronic services. However, other approaches have suggested different numbers of steps suggesting that there is not a unified understanding of implementation processes.

Moreover, Coursey and Norris (2008) have stated that these models were not clear in the time line of each step and how it would move from one step to another in the implementation process. Also, these models did not explain how to avoid or overcome the barriers to e-government such as the financial, political and organisational, legal and technical implications at each step.

However, with the development of new technology, it was found that, in the case of some organisations now using D-government, it was not necessary to follow all the steps listed but instead some found it only essential to follow the last steps directly.

However, an even more critical view is presented by Grönlund (2010: 13) who points out that D-government development up to his study

> "has overall been too narrowly guided by a technical focus and economic and administrative values and too little informed by public sector values".

Grönlund (2010) was concerned with D-government in the European Union (EU) where Austria had been singled out as an exemplar having achieved 100% online availability and 99% online sophistication. The author considers these measures as inadequate and argues for moving beyond implementation approaches driven by technological and administrative aspects towards better guiding models to meet contemporary future challenges especially by more attention being paid to public sector values. This implies a better understanding of the culture of the government and its organisations (Grönlund 2010).

Poorly managed, the implementation process of any systems development project could most likely affect a number of issues related to that project. Many managers who supervised successful projects confirmed that the detailed planning, inspection of related operations and specification of suitable human and financial resources were very important for successful implementation (Biehl 2007). Harper and Utley (2001) noted that different aspects of the organisation, which affected the successful implementation of the Information Technology, had to be carefully considered. Aspects such as employee relationships, policies, strategies, controls, and inside/outside organisational relationship were also important. Jones et al. (2005: 362) cautioned that "*Organizations often move directly into change implementation*

before the individual or the group to be changed is psychologically ready". In other words, in the context of Australia, the authors have emphasised the importance of organisational culture as influential in shaping the readiness of employees towards acceptance of any changes in the organisation such as the implementation of the D-government. The implications are that any implementation process must understand the existing prevailing culture of the organisation within which D-government is planned to be implemented. Moreover, Ruijer et al. (2016) see the development of open government as not merely a technological issue but also one involving organisational culture change. They argue that the movement towards open government is seen as requiring the development of open organisational cultures and advocate a network solution for horizontal and vertical openness within organisations.

Furthermore, the implementation of technology needs to be a managed process as it leads to a change in the way the organisation works as Lippeveld (2001) cited by Indeje and Zheng (2010: 509) said

> "*Even if a perfectly relevant, well–organized, and technologically sound routine information system were readily available, it would not be possible to introduce it immediately. The main issue is that information systems are managed and used by people who have certain beliefs, attitudes, and practices, and changing them will take time*".

Accordingly, this study aims at exploring the relationship between public sector organisational culture and the implementation of D-government in Oman.

Therefore, in order to understand the role of organisational culture in D-government implementation, it is important first to know what culture is, what organisational culture is, in particular, and why organisational culture is important for the organisation. These issues are discussed in the following section.

2.3 Culture

Culture is one of the three most complicated words in the English language, being derived from the Latin word 'cultura' which, itself, has several meanings but the principal one is related to growth of crops or animals in agriculture (Eagleton 2000). Scientists still refer to bacteria as a 'culture' (Eagleton 2000). A secondary meaning included the idea of worship or devotion; hence the term 'cult' for religious worship. Throughout European history, derivatives of 'cultura' have been used in different and diverse disciplines including art, ritual and drama (Eagleton 2000). Here, an attempt is made to reach an understanding of culture within the discipline of management information systems.

Because the concept of culture is very broad, varied and complex, it is very difficult to be limited to a single definition. This explains why so many different definitions have been proposed by many scholars in this field. Magala (2005) stated that even though several scholars have defined culture, a commonly accepted definition had yet to be found. This still remains the case. For this reason, this section presents a number of different definitions from a variety of scholars, each emphasising important aspects of culture. Most researchers agree that culture embraces the shared values, beliefs and

experience of members of a society. Kluckhohn (1951) cited by Hofstede (1980: 23) defines culture as consisting of

> *"patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values"*.

But, according to Hofstede, culture stands for "*the collective programming of the mind which distinguishes the members of one human group from another*" (Hofstede 1984: 21). Alternatively, O'Reilly (1989: 12) defines culture in a simple way as "*a potential social control system*". Additionally, House et al. (2002: 5) described culture as

> "*shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives and are transmitted across age generations*".

These different definitions of the concept 'culture' serve to demonstrate its complexity. However, due to this complexity, understanding the prevailing culture of an organisation is difficult but necessary for the successful implementation of D-government. "*One of the greatest challenges in IS culture research is in defining exactly what culture is and how one goes about measuring it*" (Leidner and Kayworth 2006: 380). One of the objectives of this study is to find an appropriate model for identifying a particular culture whilst embracing its many complex features such as its values, beliefs and expressions in art and ritual. Moreover, Alvesson (2016) emphasised terms such as identity and discourse as important in organisational studies. This

shifts the focus from shared values and beliefs, which were accessible to quantitative methods. Identity and discourse consider symbolism and shared meanings, which require qualitative methods to explore phenomena for their deeper human meanings. These deeper meanings, according to Alvesson (2016), are often poorly articulated in discourse and managers need the skills to be able to decipher and interpret myths within the organisation and what often lies below the surface of speech or dialogue. Therefore, a study of the culture of an organisation needs to develop appropriate methods for exploring these deeper meanings by allowing them the opportunity for a more nuanced expression.

However, there are three different classifications of culture: national, occupational and organisational culture (Hofstede et al. 1990). The differences between these three types of cultures are that national culture is principally represented by differences in human values, whereas the differences in organisational culture are principally represented in human practices. Occupational culture sits in the middle, between national and organisational culture, which includes both human values and practices (Hofstede et al. 1990) as shown in Figure 2.1.

Figure 2.1 Cultural difference

Level		Place of Socialization
Nation	**Values**	Family
Occupation		School
Organisation	**Practices**	Workplace
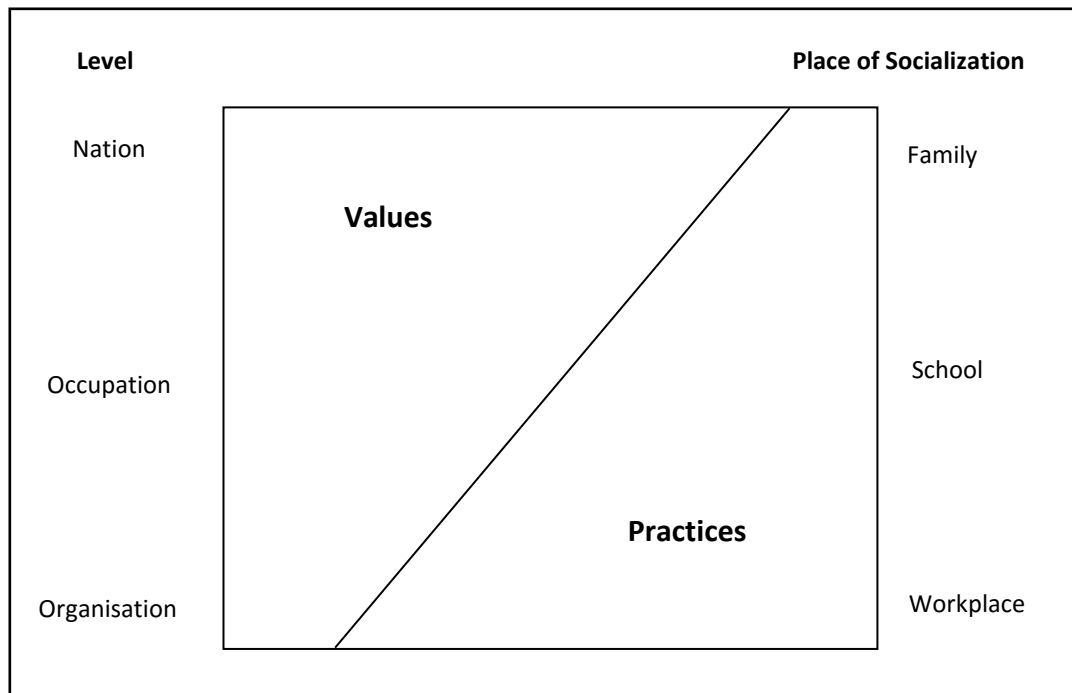
Source: (Hofstede et al. 1990: 312)

The focus of this study is on organisational culture and how it affects D-government implementation and reference will only be made to national culture where this is seen to have an important impact on organisational culture or D-government implementation. Accordingly, the following sections highlight organisational culture and its impact on technology and organisations in general.

2.3.1 Organisational Culture

Culture is not only considered as making a distinction between societies but also can highlight differences between organisations, professions and industries (Martinsons et al. 2009). Organisational culture is composed of tangible and intangible aspects such as values and fundamental assumptions formed by the individuals about their organisations and its external environment. According to Cameron and Quinn (2011) more than 150

27

definitions of organisational culture have been identified. An important differentiation of types of organisational culture are "*sociological (organisations have cultures) and anthropological (organisations are cultures)*" (Cameron and Quinn 2011: 18). However, Cheung-Judge and Holbeche (2012: 235) explains how organisations are cultures by stating that "*culture is not a component but rather a paradigm for interpreting organizational life processes*". Armstrong (2009: 384) defines organisational culture as

> "*the pattern of values, norms, beliefs, attitudes and assumptions that may not have been articulated but shape the ways in which people in organisations behave and things get done*".

Armstrong (2009) explains values as the things that are assumed to be significant for how people and organisations act. Likewise, he explains norms as unwritten guidelines of behaviour that unofficially provide guidelines on how to behave. Moreover, there could be some common values or norms between certain organisations but there could still be differences in action and behaviour depending on the particular work environment within which the organisation operated. Similarly, Schwartz and Davis (1981: 33) describe organisational culture as

> "*a pattern of beliefs and expectations shared by the organisation's members. These beliefs and expectations produce norms that powerfully shape the behaviour of individuals and groups in the organisation*".

Alternatively, Greenberg and Baron (1995) cited by Poškienė (2006: 47) stated that "*An organization is a structured social system consisting of groups and individuals working together to meet some agreed-on objectives*".

Another perspective is presented in Hofstede et al. (2010: 344) who defined organisational culture as "*the collective programming of the mind that distinguishes the members of one organization from others*". Moreover, he remarks that those who are dealing with the organisations such as customers, authorities and suppliers should also be included in the organisational culture, which should not be limited simply to employees. Also, Schein (1985) cited by Sun (2008: 137) explains organisational culture as

> "*A pattern of shared basic assumptions that a group learns as it solves its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems*".

In general, therefore, most definitions emphasise shared beliefs and expectations as important elements of organisational culture and that these beliefs and expectations, which may not always be clearly articulated, lead to norms that govern the behaviour of groups and individuals within the organisation, and which may vary from one organisation to another. Moreover, it can be seen from these definitions that organisational culture is a sense of unwritten regulatory beliefs which express the ways of thinking, a set of concepts and method of decision-making in the organisation. Additionally, it is one of the main important elements of the inputs of the whole system of the organisation.

Organisational culture can be understood in terms of three dimensions which are: artefacts, values and assumptions (Schein 1985). These assumptions are seen as underlying behaviour, rules, policies and procedures in

organisations. In contrast, artefacts are more clearly observed in choice of clothing, office layout, logos and mission statements (Cameron and Quinn 2011). Artefacts are the symbolic and dramaturgical aspects of an organisation such as its logo and customs (Jones et al. 2005). However, values refer to the shared vision upon which acceptable attitudes and modes of behaviours are based (Jones et al. 2005). Organisational values are essential for managers as they have the potential to affect the place of work behaviours, attitudes and outputs (Ray et al. 2015). Hofstede et al. (1990: 311) mentioned that

> "*the values of founders and key leaders undoubtedly shape organizational cultures but that the way these cultures affect ordinary members is through shared practices. Founders' and leaders' values become members' practices*".

Thus, it seems that, the values of the founders or the management in the organisation are very important in the context of organisational culture as it participates in shaping the culture of that organisation which later will become a practice for the members of the organisation.

2.3.1.1 Sources of Organisational Culture

In general, it is clear that each organisational culture is a group of values, beliefs, norms and assumptions which are formed by different factors and aspects of that organisation. Moreover, various scholars have emphasised different factors and issues that help to form and create the organisational culture. For example, O'Reilly (1989) highlights some mechanisms that contribute to the development of culture in the organisation. Those mechanisms which create the organisational culture include: participation,

management as symbolic action, information from others and comprehensive reward systems. However, the degree of organisational culture change is dependent on how these mechanisms are utilised in the organisations (O'Reilly 1989). Top management should act by supporting the organisational culture. So, if they introduce a new message, their behaviour and action should support what they said which will encourage other employees to act in the same way. However, the issue of authenticity arises as to how such actions of management are perceived by others in the organisation. Thus, the top management is one of the main factors that form the organisational culture. In addition, the message that comes from the management or co-workers should be clear because it can affect the culture. Moreover, the reward system can develop the culture in such a way that, when people are rewarded, there is greater commitment from them (O'Reilly 1989). Therefore, such mechanisms, such as the actions of top managers, need to be included when conducting an organisational culture study, in order to reach a more in-depth exploration of the values embedded in the culture of organisations due to the importance of top managers and their actions, as these represent one of the main components of the core values of the organisational culture.

Hofstede et al. (2010) also points out that organisational culture depends on a number of different elements that form the culture of the organisation and that one of these elements is the national culture. The other elements are beliefs of investors, personality of founder, history of the organisation, feelings of insecurity and the sort of technology that is used (Hofstede et al. 2010). Additionally, a study by Aycan et al. (1999) on cultural fit confirmed

that national culture could impact on the organisational culture. For instance, the national culture dimensions, power distance and uncertainty avoidance, could help to decrease autonomy at the organisational level. Also, national culture could help managers to assess employee responsiveness and involvement with others. Moreover, Hofstede (2010) states that it is important to concentrate on national culture for those companies that want to expand their businesses worldwide. But, Hofstede states that national culture cannot be used to match with organisational culture in the same country, as national culture in the same country is not different with the exception of some countries where there are large differences in the regional culture such as in Italy and Switzerland (Hofstede et al. 2010).

Thus, the roles of managers are one of the main factors that form the organisational cultural values (Sun 2008). Accordingly, managers' roles will be one of the main areas for investigation within this research for addressing the organisational culture in organisation.

2.3.1.2 Importance of organisational culture

Organisational culture is seen as playing a significant role in different aspects within the organisation and different researchers tried to cover the impact of organisational culture on particular aspects of an organisation. This previous research has investigated employee performance and productivity (Jasim Uddin et al. 2013), job satisfaction (Lund 2003), successful implementation of total quality management (Rad 2006), and business-IT alignment (El-Mekawy and Rusu 2011). Indeje and Zheng (2010: 509) also emphasise that organisational culture has a significant impact on "*employee work-related*

attitudes such as job satisfaction, commitment to the organization and their ability or willingness to adapt and perform well".

Armstrong (2009) explains how the differences between organisations could be seen in terms of their goals, principles and visions. Therefore, each organisation has its own culture which distinguishes it from others. However, it is not accurate to claim that one organisational culture is better than another. Such an assertion would presuppose that there is a 'one best way' to manage an organisation in order to create the ideal culture, a presupposition which has been robustly refuted by Burnes (1996). However, research suggests that one type of culture is more appropriate for a particular organisation in terms of the relevance of that culture to the organisation's goals, situations and supporting its performances (Armstrong, 2009). Similarly, Cheung-Judge and Holbeche (2012) mentioned that there is no perfect culture but there is a preferred culture which serves the organisation by driven patterns of behaviour inside the organisation and mostly lie outside managerial control. As organisational culture refers to a system of values, beliefs, and assumptions, it has a great impact on employee behaviours such as obligation to the organisation, job satisfaction and their wish to improve performance (Indeje and Zheng 2010). Organisational culture creates a feeling of identity among staff and provides unrecorded and unexpressed instructions for progress in the organisation (Cameron and Quinn 2011). O'Reilly (1989) states that culture should support the growth of the organisation. But culture does not always play a positive role in the organisation; it could also have negative implications. Cheung-Judge and Holbeche (2012: 236) notes that even strong cultures sometimes lead to

business failure when the members of that organisation "*become so complacent or arrogant that they ignore market trends and fail to respond to changing customer needs*". Martins and Martins (2002) point out that failure to recognise its importance could lead to negative impacts on the organisation's efficiency. Moreover, Senior and Swailes (2016: 153) highlight the importance of the culture of organisation and that "*ignoring culture could be dangerous and seems likely to carry a high risk of future problems such as disruption to operations and lack of progress*". Martins and Martins (2002) assert that, while management may act on the basis of rational decisions, organisational culture works indirectly in affecting performance and is described as bridging the gaps between management directives and how these are actually implemented in practice.

However, this shows how organisational culture is important for all the members in the organisations and how its influence in their behaviour. Moreover, organisational culture could have adverse effects on the organisation or, even could lead to the failure of the organisation if it is ignored.

Wilkins and Dyer Jr (1988) claim that culture changes within organisations according to the particular development stage of that organisation in its life cycle. For example, Cheung-Judge and Holbeche (2012: 238) point out that "*change of top management can act as a culture change catalyst*". Moreover, they add that "*any change among and between individuals, among the patterns of connections and interpretations changes the culture*" (Cheung-Judge and Holbeche 2012: 238). Armstrong (2009) points out that

any development program in any organisation should look at the different factors that can affect this development. Armstrong (2009) notes that the most important factor is the organisational culture. Parker and Bradley (2000: 125-126) argue that

> "*In the organisational change process, it is imperative for managers to understand current organisational culture. This enables change management strategies to be developed that are appropriate for the organisational context*".

The authors keep it general by stating "management" which can include both top and middle managers. Mannion et al. (2009) conducted a longitudinal study set in the English National Health Service (NHS) covering the period 2001 to 2008. This study focuses on senior management changing from the dominant clan culture to embrace a more competitive culture. It was found that some changes were slowly taking place at senior management level. However, other levels in the organisations were not considered, as it seemed to be presupposed that changes would trickle from the top to all levels. Recent industrial action by medical practitioners, reveals that attempts to introduce a competitive type of culture have not been successful. Parker and Bradley (2000) point out how the public sector differs substantially from the private sectors particularly in three important ways. The first of these is in terms of goals. The private sector is very much profit driven in terms of goals whereas public sector goals may involve the fulfilment of government policies and also their overriding goals may be to provide good services to society rather than making a profit. The second refers to access to resources and the third to the nature of constraints. In private sectors, the main constraint is market forces, but this is not necessarily so for public organisations. In other

words for service provision, public sector organisations are not restricted by market forces in the same was as private organisations are. Parker and Bradley (2000) further point out that public sector employees may have different values and motives than those in private sectors. They assert that only a small body of research exists on the values of employees in the public sector. Public sector employees tend to be more altruistic than those in the private sector. This, the authors claim, explains the resilience of the hierarchical type of culture and its resistance to change.

However, this can also raise an important point related to the culture of different organisations in same country and that using national culture models is not expected to make any differences as all the members of those organisations probably have the same national culture. Therefore, organisational culture models are preferred in exploring the impact of the culture of organisation to obtain more accurate findings and outcomes.

However, it is critical to establish the fit between strategy, people, structure, and culture. These need to be in alignment with each other within organisations. Therefore, if any company changes their strategies or structures, the organisational culture should support that change or else it could lead to negative actions or the failure of the new changes (O'Reilly 1989). Likewise, when the company expands and develops, its strategies should also be amended and changed. Therefore, the company's culture also has to be reordered to represent the new development (O'Reilly 1989). Changing the culture or strategies within an organisation is not an easy task and can take a number of years to achieve; in fact, Favaro (2014) claims that

strategy is the easier of the two to change. He points out how strategy is rooted in the cultural strengths of the organisation as well as in its needs. An example is that of a credit card company wishing to change customer's payments from traditional methods to electronic means. Such strategic change calls for more than merely technological innovation but also for bringing about behavioural changes of customers, necessary capabilities and cultural changes (Favaro 2014). However, transforming from the traditional methods (offline) to the digital systems (online) is one type of change in the organisation's strategies and culture. But, does the culture of that organisation accept this change? This question lies at the heart of this study, which seeks to explore the extent to which the organisational culture is affected in D-government implementation.

However, how can organisational culture have either a negative or positive impact on technology implementation, specifically in the D-government implementation? The next section highlights the previous literature that contributes to these issues.

2.4 Organisational Culture and D-government Implementation

Organisational culture plays an important role in the success of the adoption of technology and the development of the organisation; therefore, it is very important to understand how this organisational culture affects the implementation process of technology either positively or negatively. However, it is very critical to understand the members in an organisation, their relationships, their life style, how they work and their organisational

culture in order to understand how to implement technology such as information systems (Wang and Yeoh 2009).

This section considers a number of issues related to how the culture of the organisation affects the implementation of D-government. Generally, there is not much research in to the specific relationship between the two although there is some literature relating to the impact of culture, both national and organisational, on IT implementation.

National culture can affect technology adoption in a number of different ways. It can have an influence on the customer's choices and the use of technology. Muk (2007) studied the impact of national culture on adopting SMS advertising within a Taiwanese and an American context. A survey was distributed to 178 Americans and 198 Taiwanese. Muk (2007) found that the national culture in each country embraced a number of different influential factors; in the United States (US), consumers' intention was found to be based only on attitudinal factors arising from their individualistic type of culture where personal privacy and decision-making prevailed whereas, in Taiwan, social norms were also influential as factors affecting consumers' intentions. In other words, national culture impacted on acceptance or rejection of the SMS advertising technology. He found that culture played a significant role in the acceptance of new technology as it could influence consumer's decisions to buy or to use new products or services. For example, he found that the speed of adopting mobile phones in Asia was related to cultural rather than technological factors. Muk's (2007) findings confirm the earlier study of Fowler (2005) who found that the adoption of

mobile ads tended to be based on culture more than on technology. Surveying consumers in countries such as Japan, China and South Korea, the author asserted that: "*Experimenting in Asia, U.S. companies have already learned that cellphones offer access to consumers' deepest desires and concerns*" (Fowler 2005: B1). Van Greunen and Yeratziotis (2008) explored how national culture could affect the designing of government websites by applying the high-context and low-context cultures using the Hall (1959) model in South Africa. Hall explains that high-context culture is nonverbal communication and depends on high physical animations such as gestures and body language. In contrast, he claims that the low context culture is verbal communication with less physical animation by depending on the text and spoken words (Salleh 2005; Würtz 2005). However, Van Greunen and Yeratziotis (2008) differentiate between high-context and low-context cultures in designing e-government websites, as opposed to general purpose websites, by adopting five different parameters which are: animation, promotion of values, individuals separate or together with the product, level of transparency, and linear verse parallel navigation on the website. They found that the South African users preferred and adapted better to the low-context design (even though they ranked in the middle of Hall (1959) scale, so neither high nor low) while browsing the website either in public sector organisations' websites or the normal websites. However, the study suggests that the contextual culture impacts on the design of the e-government website and the user choices so, culture context should be taken into account when designing websites for the South African Government. Nevertheless, Van Greunen and Yeratziotis (2008) are cautious about the

generalisability of their findings even to the wider South African population as their sample may not have been fully representative.

Additionally, Martinsons et al. (2009) looked at how national culture impacted on IT-enabled organisational change and information systems in six different countries; US, France, Sweden, China, Japan, and Brazil. They used the five national culture dimensions of Hofstede to investigate how these could affect the Business Process Re-engineering (BPR). They found that, in a high power distance context such as in China and Brazil, the IT director regularly made a proposal for re-engineering and the other employees accepted and followed the instructions from their manager. In contrast, where the power distance was low, as is the case of Sweden, for example, employees joined with their managers in decision-making and developing the changes. However, planning takes time and moves slowly because of revision, whereas the implementation process is usually fast. In low power distance countries such as Sweden and Japan, employees are involved in the decision-making during the planning stage. Such widespread consultation can be time consuming and there may be differences of opinions on different aspects of the planning. Reaching a consensus is time consuming. However, once a plan has been agreed upon, the implementation is relatively faster. In contrast, a country such as Brazil is a high power distance country. Consequently, decision-making is much faster as it is a much more top-down managed process. Employees do not expect to be consulted; rather they expect to follow directions from above. Martinsons et al. (2009) noted, however, that the low power distance culture helped in the development of Information Systems (IS).

Another finding was that when uncertainty avoidance was high, in countries such as France, Japan and Brazil, IT was used to decrease the ambiguity by making predictions and plans which involved many people and this tended to reduce project risks. However, these approaches also run the risk of having so much analysis of situations that sight of the long-term planned outcome can be lost. In contrast, businesses in low uncertainty avoidance cultures, such as in Sweden, US and China, tended to make directional plans rather than long detailed ones (Martinsons et al. 2009).

Also, the study found that, within a Long-Term Orientation (LTO) as in the Hofstede model, it was usually more likely that the new Information Systems (IS) and modification of the principles of BPR would be adopted compared with the Short-Term Orientation (STO) where the focus was more on quick results (Martinsons et al. 2009). Additionally, they highlighted that in the low individualism culture dimension of the Hofstede model, Business Process Re-engineering (BPR) was found to have the opposite effect to that found in the high individualism culture. Companies could work with each other more efficiently which allowed modifications in organisational structures, strategies, and work rewards in low individualism cultures, whereas in high individualism cultures, companies neglected to give the personal authority which would permit making the necessary modifications in adopting business process re-engineering (Martinsons et al. 2009).

However, Martinsons et al. (2009) tend to adopt an uncritical acceptance of Hofstede, without taking into account a number of issues which has been pointed out by other scholars. For example, Ford et al. (2003) drew attention

to three difficulties with the Hofstede model which were firstly, that it presupposed that culture did not change over-time, secondly, that culture was considered to be a uniform phenomenon and finally, that the model did not allow for a pluralistic culture type. Nevertheless, Seng et al. (2010), while noting the difficulties raised by Ford et al. (2003), still regard Hofstede's model as an important one for the classification of national cultures. McSweeney (2002) critiques Hofstede's deterministic approach to national culture which resulted in substantial flaws in his methodology. Furthermore, Gerhart and Fang (2005) re-analysed Hofstede's data and found that Hofstede's conclusion that national culture was more important than organisational culture was not in fact supported by the analysis of variance in the data.

> "*We conclude that, while national culture differences can be important and must be understood, their role needs to be put in the context of other important contextual factors, including organizational culture*" (Gerhart and Fang 2005: 971).

Thus, while it is acknowledged that national culture is an important consideration in D-government implementation, the evidence points towards organisational culture as playing an even more influential role. For this reason, the current study explores the role of organisational culture in D-government implementation.

Chen and Ma (2010) have drawn attention to the need for addressing a number of obstacles prior to implementing mobile government (m-government). These obstacles included transforming the business and reforming the organisation. In implementing m-government, management

should plan to achieve organisational improvement, integration of information flow and process rearrangement (Chen and Ma 2010). Likewise, they needed to focus on culture and social forces as well.

Weerakkody et al. (2012), in a comparative study between UK and Slovakia using a case study research methodology, pointed out that in the implementation of electronic government, the technical process was not a difficult step compared to the difficulties involved in convincing people to accept these new systems. Moreover, they added that resistance tended to originate from lack of real employee participation, inadequate training and poor internal communication. Thus, one of the main problems in D-government implementation is not a technical but an organisational issue which is closely related to the culture of the organisation. Based on the conclusions reached by Weerakkody et al. (2012), a top down managed approach does not appear to be a helpful one and it could be the case that before the technical changes are made that a more participative culture should be developed. O'Reilly (1989), studying organisational culture in general, highlighted the importance of participation mechanisms as motivating employees to engage and to feel that they were important and valued by the organisation. This could happen formally by means of meetings with top management, for example, or informally such as by means of social gatherings.

Weerakkody et al. (2012) also found that there was frequently much resistance to adopting the electronic government on the part of employees and this confirmed what was previously found by other authors such as

Parker and Bradley (2000) who commented on the resilience of hierarchical type of culture and its resistance to change. Thus, changing the culture of the organisation is considered to be the important step to be taken before the training and technical implementation is undertaken. The Weerakkody et al. (2012) study compared e-government implementation in Slovakia with that of UK and found that employee participation was an important prerequisite in overcoming resistance to change. On this very point, Jones et al. (2005) pointed out that there were many factors which caused the failure of planned change processes, but that chief among these factors was employee attitudes. However, where employees' perceptions of their organisation were based on openness, they tended to be more accepting of organisational change (Jones et al. 2005). Moreover, Harper and Utley (2001) stated that group decision-making helped to provide a wider range of opinions in the implementation process and to improve the acceptance of IT systems. However, involving users in the design of the system was seen to have a positive effect as it helped to identify the needs of employees in the system and to form the system depending on their priorities and business necessities. Moreover, as employees were part of the change process, they were more likely to respond positively to the full system (Laudon and Laudon 2001).

Seng et al. (2010) investigated the role of organisational culture in affecting the willingness of the organisation to accept or reject the adoption of the new technology. They applied the Grid and Group cultural theory developed by Douglas (2007). They used this theory in their study to compare two public sector organisations in Malaysia that had implemented E-services and tried

to discover the effect of culture on these two organisations' acceptance of the new technology in relation to four different cosmologies; hierarchism, egalitarianism, individualism and fatalism. They conducted a case study in each of these two organisations. They found that in organisation A, which had a constraining hierarchical approach towards the initiatives of electronic government, there were different obstacles to implementation than in organisation B. In organisation A, there was little or no support or encouragement for the employees from top management in the use of technology and the managers did not use it themselves. In contrast, in organisation B, the hierarchical approach enabled top management to give top priority to IT development, and regarded knowledge of IT as essential for the organisation's success. In brief, Seng et al. (2010) found that the hierarchical approach was more effective in the implementation of E-government.

Indeed, Laudon and Laudon (2001) asserted that if a manager perceived the new system as essential, that mostly all the staff under that manager's supervision would give the system the same attention. Moreover, Luo (2009) pointed out that top management in the organisation was the main force for bringing about change in the Information Technology. However, in the light of Mannion et al. (2009) and Parker and Bradley (2000), this assertion is certainly open to challenge in that it over-states the role of managers without considering the cultural changes that this implies. Nevertheless, Biehl (2007), in the context of a 16 global Information System projects in 8 multinational companies in Canada, stated that the support of top management would not happen unless they viewed implementation as a top priority. Biehl (2007)

found, in the case of a project failure, that a principal failure factor had been the lack of top management support which resulted in delays which, in the end, had resulted in the project being taken away from top management and being assigned to another department. Moreover, the lack of support and understanding of the project from top management hindered the implementation of some information systems projects at the mid-way point because of low temporary outcomes (Biehl 2007). Thus, top management needed to be fully conversant with the new system and fully committed to its implementation. Sanchez et al. (2003) have pointed out that much resistance to e-government implementation had come from top management due to their perceptions that it might threaten their authority or control. Moreover, as mentioned above, top management was one of the main factors that formed the organisational culture and their values. However, Ashaye and Irani (2014) noted that strong leadership assisted in forming confidence in plans and counted as one of the opportunities of e-government implementation. They highlighted that

"*there is a need for further research on the management perspective since leadership support is essential for successful of e-government implementation*" (Ashaye and Irani 2014: 21).

Likewise, Basahel and Alshawi (2014: 1) stated that "*previous studies have largely ignored the relationship between leadership and IS implementation*".

Furthermore, Seng et al. (2010) found also that where the fatalism approach was high as in organisation A, the organisational environment encouraged a negative approach towards adapting the new IT systems, the members were unwilling to make changes to that environment and were reluctant to use IT

systems despite the fact that they realised its importance. In organisation B, where the fatalism approach was less influential, there was also less negativity and reluctance to changing the organisational environment and, consequently, they were more enthusiastic about the use of IT and realised that it added value to the organisation. Moreover, because of the lack of enabling characteristics of individualism in organisation A, organisation members were not allowed to use the internet except for one hour a day at lunch time. This led to complications with introducing the e-government initiatives. In organisation B, members were inspired to put inventive ideas forward and the organisation policy considered IT skills as an important job requirement when hiring new staff. Because of low employee involvement in organisation A, the teamwork between members using IT, such as using email for sharing knowledge and communication between departments, was not desirable. In organisation B, the email system was very widely used in teamwork between members and departments for knowledge sharing and communication. Fountain (2004) pointed out that all stakeholders including managers, IT specialists, employee, clients have to be involved in the decision-making of D-government. Involving people in decision-making motivated them and kept them satisfied about their jobs as they were part of the decisions that were made in the organisation and therefore, they were part of the organisation's success (Barron 2010). Likewise, Weerakkody et al. (2012) found, in the context of the introduction of e-government in Slovakia, that the involvement of key stakeholders (employees, IT consultants, citizen groups, local councillors) in the council's ICT and business transformation strategy was one of the key factors for e-government implementation success in developing economies.

However, the Seng et al. (2010) study has a number of limitations readily admitted by the authors. Firstly, it is based on only two organisations. Secondly, the sample size of 10 from each organisation, while reasonable for a qualitative study, is admitted by the authors as another limitation as it may not have been representative enough of different stakeholders.

However, from the perspective of the current study, the main limitation in Seng et al. (2010) relates to the model which was used (Grid and Group Model) which was based on national cultural differences. As was seen from the findings of that study, two very different types of organisations were found within the same national culture. According to Hofstede, Malaysia, the geographical context of the Seng et al. (2010) study, represented a homogenous culture and consequently, national culture should not have explained the differences between the two organisations. However, Hofstede's categorisation of Malaysia had been challenged earlier by Fontaine et al. (2002) and Ford et al. (2003) who pointed out the diversity of Malaysia where significant groups of Malays, Chinese, Indians and others, while sharing some similarities, also showed significant cultural differences. The model used in the Seng et al. (2010) study was useful for identifying characteristics of national culture but preference was for Organisational Culture Assessment Instrument (OCAI) in the current study, as it is enabled a much clearer identification of organisational culture.

Moreover, the model used by Seng et al. (2010) is based on national culture, yet the findings related to two organisations within the same national culture were very different from each other. Indeed the description of the two

organisations seems to use terminology more characteristic of organisational rather than national culture. In the current study, a model is used which is based on organisational culture. The next section highlights the model that is used in this study to assess the dominant organisational culture of each of the organisations that are included in this study.

2.5 Organisational Culture Assessment Instrument (OCAI)

The main aim of this study is to explore the role of the organisational culture in D-government implementation, therefore, in order to address this gap, the study will need to assess the organisational culture which prevails in each organisation under investigation. Cameron and Quinn (2011) developed an instrument for measuring the organisational culture called the Organisational Culture Assessment Instrument (OCAI). This instrument was based on a theoretical model named "Competing Values Framework" (CVF) created by Quinn and Rohrbaugh (1983). The instrument assessed six different aspects of organisational culture upon which, a theoretical model was built based on which organisations worked effectively and what types of values were embedded in their cultures. These aspects are:

1. Dominant characteristic

2. Organisational leadership

3. Management of employees

4. Organisational glue

5. Strategic emphases

6. Criteria of success

This OCAI was developed in a series of studies such as (Quinn and Rohrbaugh 1983; Quinn and Kimberly 1984; Cameron and Freeman 1985;

Cameron and Ettington 1988), but their main root philosophies remained dependent on the Competing Values Framework (CVF) which was developed by Quinn and Rohrbaugh (1983). Many researchers have praised the CVF as a most beneficial and useful tool for gaining insights into the organisational culture such as (Cameron and Freeman 1985; Denison and Spreitzer 1991; Zammuto and Krakower 1991). Chin-Loy and Mujtaba (2011) mentioned that OCAI was frequently recognised among scholars and researchers as an effective instrument for measuring and comparing one culture with another.

The origins of CVF can be traced back to research which was originally designed to identify the principal indicators of effective organisations. This resulted in a list of 39 organisational effectiveness indicators (Campbell et al. 1974). It was claimed that these 39 indicators were so comprehensive that they included every possible indicator of organisational effectiveness. However, in real life situations, such a list was found to be too long for practical purposes. The list was analysed by Quinn and Rohrbaugh (1983) in order to find overlaps and patterns among the indicators which might allow for a simpler model to be developed. Following the statistical analysis of the 39 indicators, a simpler scheme was found based on two principal dimensions by which the reduced number of variables could be organised (Cameron and Quinn 2011).

The first continuum was based on whether the organisation's effectiveness was based on flexibility and discretion viewed as dynamism, or whether the effectiveness of the organisation was more based on stability, order and control. Examples of organisations whose effectiveness depended on

dynamism included Nike or Google whereas organisations whose effectiveness was dependent on stability included Boeing and many government agencies (Cameron and Quinn 2011).

The other dimension or continuum was based on whether the organisation had an internal focus which included integration, or an external focus which included differentiation. Organisations such as IBM have rooted their effectiveness in internal consistency. Organisations whose effectiveness was rooted in its external focus and differentiation included Honda (Cameron and Quinn 2011). The vertical axis represents flexibility and discretion versus stability and control. The horizontal axis represents internal focus and integration versus external focus and differentiation. Therefore, based on these and the other six organisational culture dimensions (Dominant characteristic, organisational leadership, management of employees, organisational glue, strategic emphases and criteria of success) Cameron and Quinn (2011), the CVF model divides organisations into four different types of culture: clan, adhocracy, market, and hierarchy cultures. Each organisation is seen as having one of these types as its dominant culture. These different organisational culture types are based on "*the core values, assumptions, interpretations, and approaches that characterize organizations*" Berrio (2003: 1). Ratings on both axes result in four different types of cultures as it shown in Figure 2.2.

Figure 2.2 The Competing Values Framework
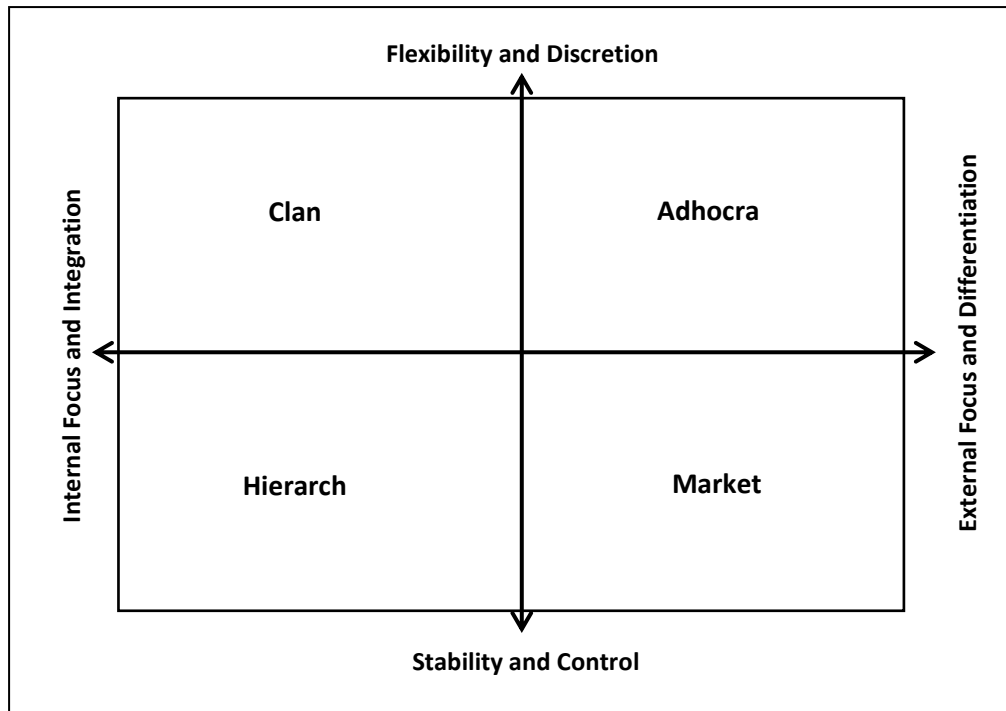
Source: (Cameron and Quinn 2011: 39)

The four types of cultures identified in this model were:

Clan: Organisations based on clan culture type focused on internal maintenance and integration with flexibility. Moreover, clan culture type organisations tended to care for people and provided a very personal place where people shared much of themselves and was considered to be like an extended family. Leadership style in clan culture was considered as embracing mentoring, facilitating or nurturing. Furthermore, the management style of clan culture was seen as characterised by teamwork and participation. The glue that held the organisation together in clan culture was loyalty and mutual trust with a high commitment from its employees. Clan culture type organisations stressed human development, teamwork, high trust, openness, and participation as most important (Cameron and Quinn 2011).

Hierarchy: Hierarchy culture type organisations focused on internal maintenance with a need for stability and control. Moreover, these types of organisational culture tended to be very controlled and structured places. Formal procedures generally governed what people did. The leadership in hierarchy culture types was considered as emphasising coordinating, organising, or smooth-running efficiency as important aspects of the organisation's structure and functioning. The management style in the organisation was characterised by security of employment, conformity, predictability, and stability in relationships. The glue that was seen as holding this type of organisation together was the formal rules and policies which were important for maintaining a smooth running organisation. Characteristics of this organisational culture type included efficiency, control, smooth operations and low-cost production (Cameron and Quinn 2011).

Adhocracy: Adhocracy type organisational cultures tended to focus on external positioning with a high degree of flexibility and individuality. Moreover, the organisation was often a very dynamic innovative place where people were willing to take risks. Leadership in the adhocracy culture types was characterised by entrepreneurship, innovation or risk taking. The management style in the organisation was characterised by individual risk-taking, innovation, freedom, and uniqueness. The glue that bound this organisation type together was a commitment to innovation and development. The organisation emphasised obtaining new resources and making new challenges. It was often a product leader and innovator (Cameron and Quinn 2011).

Market: The market organisational culture type tended to focus on external maintenance with a need for stability and control. Moreover, the organisation was often very results-oriented with an emphasis on getting the job done. People in this organisational type tended to be very competitive and achievement oriented. Leadership in an organisation with market culture type tended to display a no-nonsense, aggressive, results-oriented focus. The management style in the organisation was characterised by hard-driving competitiveness, high demands, and achievement. The glue that was seen to hold this organisation type together was its emphasis on achievement and goal accomplishment. This organisation type tended to emphasise competitive actions and achievement. Hitting stretch targets and winning in the marketplace were the most dominant features (Cameron and Quinn 2011).

It can be seen from this description that each organisational culture type succeeds in certain circumstances according to internal and external aspects. It is not true that a certain culture type is best suited for all institutions and all circumstances. There may be some difference in culture between the various departments of the organisation, according to the work conditions of each sector. Therefore, this study focuses on the dominant culture type of the organisation in general and explores the relationship between this organisational culture type and the level of implementation of D-government in the Omani public sector.

This study uses the original questionnaire that was designed, namely the Organisational Culture Assessment Instrument developed by Cameron and

Quinn (2011) without any modification, as the main aim of using this instrument is to assess and explore only the organisational culture of the Omani public sector organisations. The value and advantages of using this instrument in the Omani context are set out in the following paragraph.

One advantage lies in its solid theoretical basis of the unification of the relationship between the types of organisational cultures and other organisational variables (Yeung et al. 1991). In addition, the instrument is a tested measurement tool with very high credibility and has been tested in cultures in various countries such as The Netherlands (Kleijnen et al. 2009), China (Liu et al. 2006), Libya (Twati and Gammack 2006), Malaysia (Ramachandran et al. 2011) and United States (Gerras et al. 2008). Furthermore, this model has also been used in an Arabic cultural context to measure the impact of organisational culture innovation on the adoption of IS/IT in Libya (Twati and Gammack 2006). However, the Twati and Gammack (2006) study has some limitations, the main one being that it was restricted to two types of organisations, which could have been expected to have similar organisational culture types. These were the oil and gas and banking sectors industry in Libya, both of which could have been expected to locate their effectiveness in stability and control within an internal focus; hence all of these organisations are identified as having dominant hierarchy culture types. The current study uses many different organisations which vary in size and sector of service. It was, therefore, expected that other types of cultures based on CVF model would be found for the purpose of comparison. Furthermore, the Libyan study emphasised the need for more studies to be carried out in an Arabic context and this lends some support for conducting

the current research. Additionally, the Libyan study was concerned with the adoption of IT/IS but confined to private organisations, whereas, the current research investigates D-government implementation in public sector organisations.

This instrument has been used widely as pointed out by Fralinger and Olson (2011) who mentioned that it was used in more than a thousand organisations and that it had been created to forecast organisational performance. It has also been used in different sectors and contexts such as the public sectors (Parker and Bradley 2000), information technology (Twati and Gammack 2006; Basahel and Alshawi 2014), knowledge management (Chin-Loy and Mujtaba 2011), construction (Liu et al. 2006; Jaeger and Adair 2013), health (Mannion et al. 2009; Shannon et al. 2012), project management (Yazici 2009) and in other different sectors. The instrument was used by Parker and Bradley (2000) in six public sector organisations in Queensland, Australia where attempts were being made to change from a hierarchical culture to a less bureaucratic one. The author makes the point that such changes often attempt to apply approaches based on a private sector within a public sector context. In fact, the authors draw attention to the need for more research to be conducted in public sector organisations. The authors point out the difficulties involved in changing a culture which is deeply ingrained and which limits the capacity of managers to bring about cultural change.

Comparing OCAI to other models, some of the alternative models had limitations for their use in this study as they were developed originally to

identify the national culture rather than the organisational culture type. These alternative models such as the Grid and Group model (Douglas 2007) and Hall model (Hall 1959). However, the main focus of this study was to explore the organisational culture. Moreover, some other models classified the organisations based on different dimensions without identifying a specific dominant culture type for the organisation such as the Hofstede model which classified the organisational culture types using eight different dimensions. This made it difficult for comparisons to be made between organisations and to explore how the organisational culture impacted on D-government implementation, whereas OCAI classified the organisations based on different dimensions but which made it possible to clearly identify one dominant type of organisational culture for each organisation.

However, there are several different studies that used OCAI in public sector organisations and in different contexts without stating any limitations that could make it less effective in the context of this study. Those studies were in different areas and perspectives such as "The influence of organizational culture on job satisfaction of administrative employees at a public hospital" (Dimitrios et al. 2014), "Transformational leadership, organizational clan culture, organizational affective commitment, and organizational citizenship behaviour: a case of South Korea's public sector"(Kim 2014)), "Alignment of governance and senior executive perceptions of culture: Implications on healthcare performance" (Looi et al. 2016)and "Assessment of cultural shifts in an Indian public sector bank" (Vijayalakshmi et al. 2009).

The most important reason for using the OCAI is that this instrument provides the researcher with a useful tool for identifying the dominant culture types in the various organisations which are included in this research. Thus, the interest of this study is to explore different types of organisational culture types and to categorise them by identifying their dominant culture types. Despite the complexity of the concept of culture, the OCAI based on CVF has presented four basic culture types which help in classifying the different organisations in this study. These four culture types have enabled the researcher to link the levels of D-government implementation to each different culture type in order to determine the extent to which each culture type has impacted on D-government implementation. Moreover, it helps to draw comparisons between these four types of cultures and their impacts on the D-government implementation. However, looking at different studies in different fields which have used this instrument, it was not found that there were any serious limitations that hindered its use in this study.

2.6 Research Framework

Based on reviewing the literature on organisational culture and D-government this study proposes a framework as shown in Figure 2.3 below. The research framework helps in understanding the relationship between the organisational culture and D-government implementation in the public sector organisations. Moreover, national culture is included in the diagram as many previous studies such as (Muk 2007; van Greunen and Yeratziotis 2008; Martinsons et al. 2009) had highlighted its importance for IT/IS in general and D-government in particular. The framework shows the link between the organisational culture and national culture as it was mentioned previously in

this chapter that national culture has some impact on organisational culture (Aycan et al. 1999). Moreover, national culture is one of the sources of forming the organisational culture (Hofstede et al. 2010). However, the focus of this study is not in national culture but rather on organisational culture in order to explore the relationship between organisational culture and D-government implementation. Some organisational factors such as top managers' impact on the culture of the organisations and help to create the organisational culture (Ray et al. 2015). Other factors as mentioned earlier in this chapter, that help to form the organisational culture include such issues as participation, management, information from others and comprehensive reward systems. However, the degree of organisational culture change is dependent on how these factors are utilised in the organisations. Therefore, the organisational factors included in the framework also includes their impacts on the organisational culture which is the focus of this study in order to explore its impact on the D-government implementation. However, this is a plan of the research design. The framework will be modified according to the findings of this study in the discussion chapter.

Figure 2.3 Research Framework

National Culture

Organisational Factors

Organisational Culture

Implementation of Digital Government

Successful Implementation
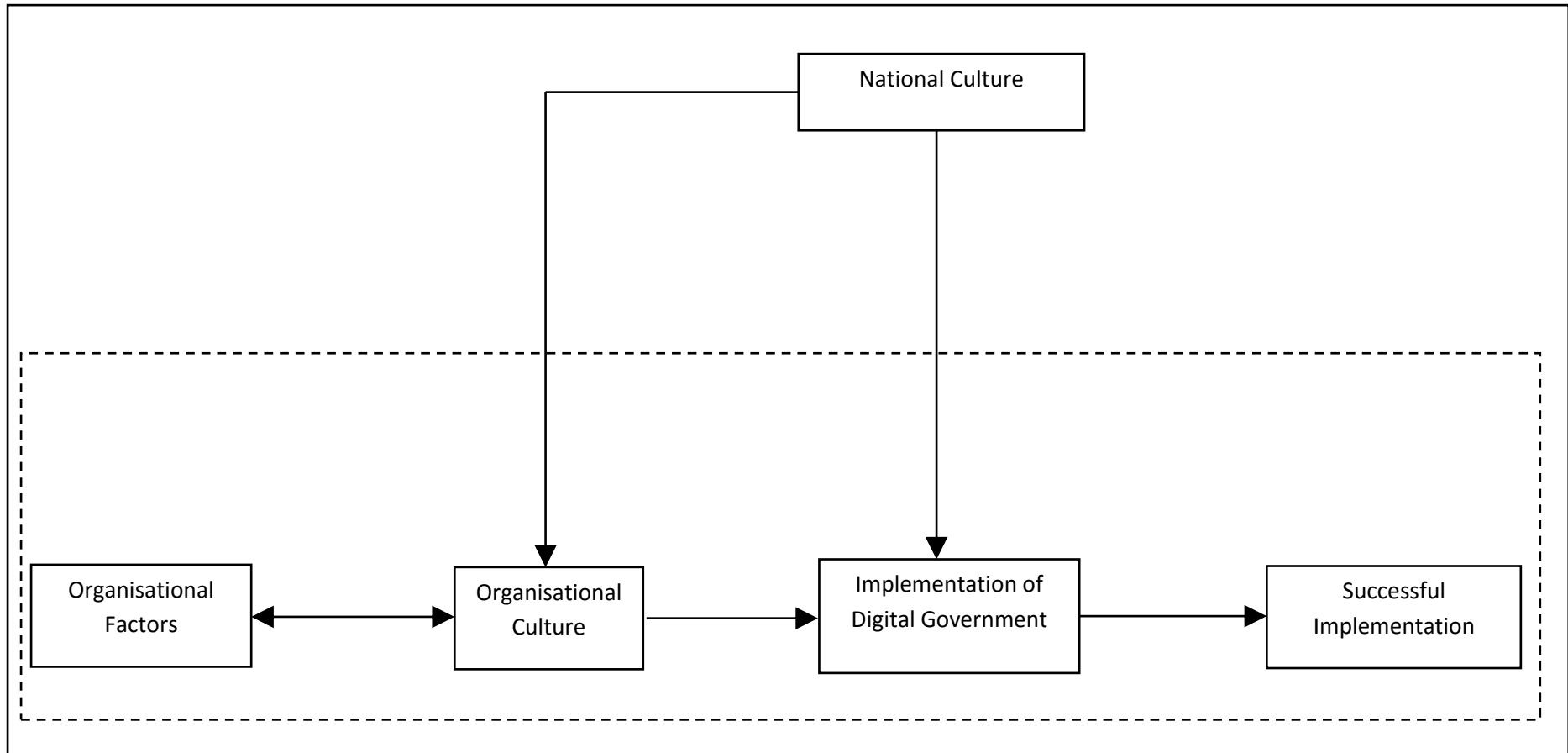
Chapter 3: Study Context

3.1 Background of Oman

The Sultanate of Oman is one of the six Gulf Countries; Bahrain, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates. Oman shares its borders with the Republic of Yemen to the south, Saudi Arabia to the west, United Arab Emirates to the north-west, the Gulf of Oman to the north-east and the Arabian Sea to the east as shown in Figure 3.1. Oman occupies an area of 309,500 square kilometres (Oman News Agency 2015). It is the second largest country in the Gulf after Saudi Arabia. The country is divided into eleven main governorates including Muscat, the capital city (Oman News Agency 2015).

Figure 3.1 Sultanate of Oman map

Source: (Oman News Agency 2015)

According to the National Centre for Statistics and Information of Oman, by July 2016, Oman had a population of 4,413,309 people (NCSI 2016a). Of these, 2,427,083 were indigenous Omani people and the remaining 1,986,226 people were expatriates. Thus, expatriates accounted for 45% of the population (NCSI 2016a).

The national language of Oman is Arabic. However, English, Hindi, Urdu and Balochi are also spoken in Oman (Thomson 2007). The main revenue source of the country, as with other Gulf countries, is oil and natural gas. The Omani currency is Rial (OMR) which is equal to approximately UK £2.06. By the end of 2014, Oman's GDP reached OMR. 31,450.8 million, compared to OMR. 26,731.2 million in 2011 (NCSI 2016a).

Oman has an advantage over some other developing countries and especially Arab countries in terms of political stability, social harmony and safety throughout the country (PAIPED 2014). Moreover, Oman is rich in natural resources, has a strategic geographical location and is a member of World Trade Organisation (WTO). Consequently, Oman is considered to be one of the countries that offers an appropriate and positive environment for foreign investment (PAIPED 2014).

Oman gains a strategic trading advantage by running an open market economy which opens the Omani market up to the free competition in which the private sector is supported and helped to achieve its primary role (PAIPED 2014). Moreover, the simple process and procedure for opening up a new business and tax exemption helped Oman to be an attractive place for

investment. Additionally, Oman encourages investment abroad which will also increase the overall development of the country (PAIPED 2014).

3.2 Rationale for Study Context

This significance of the context of Oman in this study includes the following issues.

This study has been conducted in parallel with Oman's government initiative to develop the services in the public sector organisations in response to public demand. The government's aim was to decrease centralisation in which decisions were dominated by management in public sector organisations. Moreover, there have only been a few studies about D-government in the context of Oman and, in particular, there were no studies about the effects of national culture or organisational culture on the adoption or implementation of D-government in Oman. Therefore, this is a research gap in this type of study about Oman's D-government. However, the Omani government was looking for outcomes and recommendations from this study and, for this purpose, they sponsored the current research.

D-government could be a solution for different issues such as decreasing the number of cars accidents in Oman by reducing unnecessary travel. The cities in Oman are far from each other and not all the public sector organisations provide their services in all these cities. Some services are available only in the capital and some others are located in specific cities. Most of these services are face-to-face services. So, citizens have to travel long distances to avail of these services which are in some cities located more than 300 KM from their home towns. Therefore, Oman suffers from a high percentage of

accidents and a high number of deaths yearly from road accidents compared to countries in the Gulf and Eastern Mediterranean region as shown in Figure 3.2.

Figure 3.2 Rates of road traffic fatalities in the Gulf countries, Eastern Mediterranean region (EMR), and the world, 2007
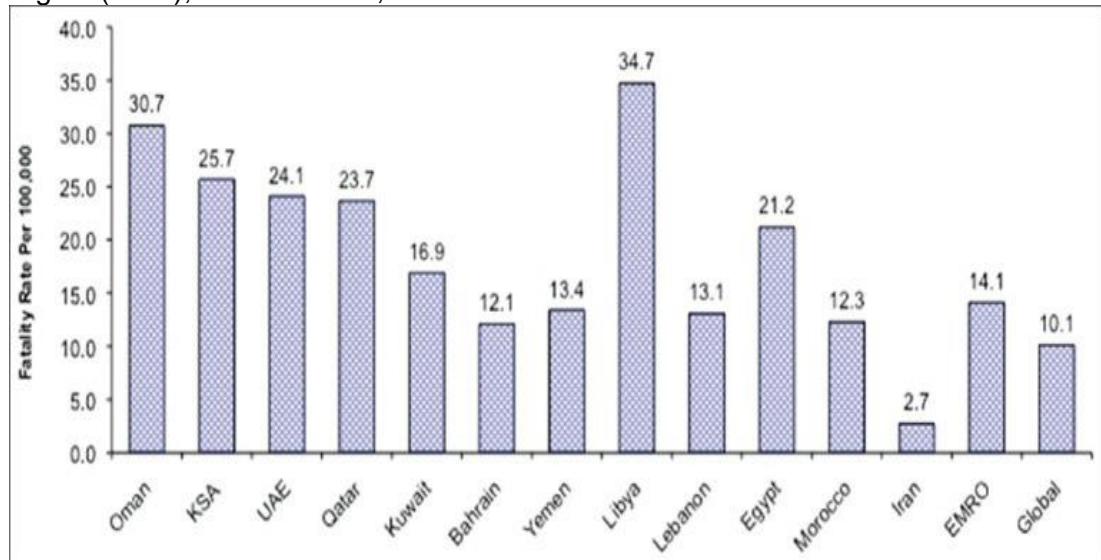
Source: (Al-Maniri et al. 2013: 659)

Oman is in second place after Libya for road accidents which are three times the global average. According to Royal Oman Police statistics for 2012 and 2013, the numbers of accidents were 8209 and 7829 respectively and the numbers of deaths from those accidents were 1139 and 913 respectively (Alqasim 2016). However, implementing D-government could help to reduce the number of accidents, could reduce road congestion and could minimise air pollution resulting from heavy traffic in urban areas as unnecessary travel to avail of public services could be minimised.

However, even though using Oman as a case study presents a limitation in terms of wider generalisability, the outcomes are assumed to add some valuable suggestions for other Arab Countries and, specifically, for the Gulf Countries which share the same borders, culture, economy etc. Moreover,

the findings will be the basis for developing a solid understanding of the issues related to D-government and organisational culture. Therefore, this study will be an exemplar for future research which will be conducted in this field in Gulf countries.

3.3 Information and Communications Technology (ICT) Sector in Oman

His Majesty, Sultan Qaboos, in the annual session of the Council of Oman, November 2008, drew attention to the importance of the new information system and D-government by stating:

> "*Information technology and communications have now become the main elements that move forward the development process in this third millennium; therefore, we have accorded our attention to finding a national strategy to develop the skills and abilities of citizens in this domain with the aim of further developing e-government services*" (ITA 2014e).

Moreover, Sultan Qaboos encouraged all the public sector organisations to speedily transform their services by implementing digital technology (ITA 2014e).

The origins of Oman's telecommunications sector dates back to 1981 when the government established a new organisation under the name of the General Telecommunications Organisation for providing telecommunication services (Ministry of Transport & Communications 2015). Then, in 1999, it was incorporated as the first telecom operator in Oman under the name Oman Telecommunications Company (Omantel) and was 100% owned by the government (Arabian Business 2015). However, in July 2005, Omantel

was a publicly listed company and its shares were registered in the Muscat Security Market (MSM). Currently, 70% of Omantel shares are owned by the government and the remaining 30% are owned by private stockholders (Arabian Business 2015). This change was the beginning of opening up the telecommunication sector for other competitors.

However, up to March 2005, the telecommunication market in the Sultanate of Oman was monopolised by Omantel, which was the only provider for the internet, mobile phones and fixed-line services. The cost of services was very high compared to current prices. In 2005, a second mobile operator called Omani Qatari Telecommunications Company (Nawras) began its services in Oman but only as a mobile services operator (Ooredoo 2015). In 2009, Nawras was licensed to offer fixed-line services and to be a competitor of Omantel in this industry (Ooredoo 2015). In October 2014, Nawras changes its name to Ooredoo as a new global name (Mittal 2014).

Currently, the telecommunications sector in Oman has different competitors as main operators for mobile or fixed-line services and as mobile re-sale services. Therefore, Oman's telecommunications sector has grown and developed in recent years. According to the Telecommunications Regulatory Authority's (TRA) annual report of 2015, the number of fixed internet subscribers and active mobile broadband subscribers continued to increase from 2010 to 2015 as it shown in Figure 3.3 and Figure 3.4. By the end of 2015, the number of fixed internet subscribers was 236,005 and the number of active mobile broadband subscribers was 3.253 million (TRA 2015).

Figure 3.3 Fixed Internet Subscribers' Penetration Rate
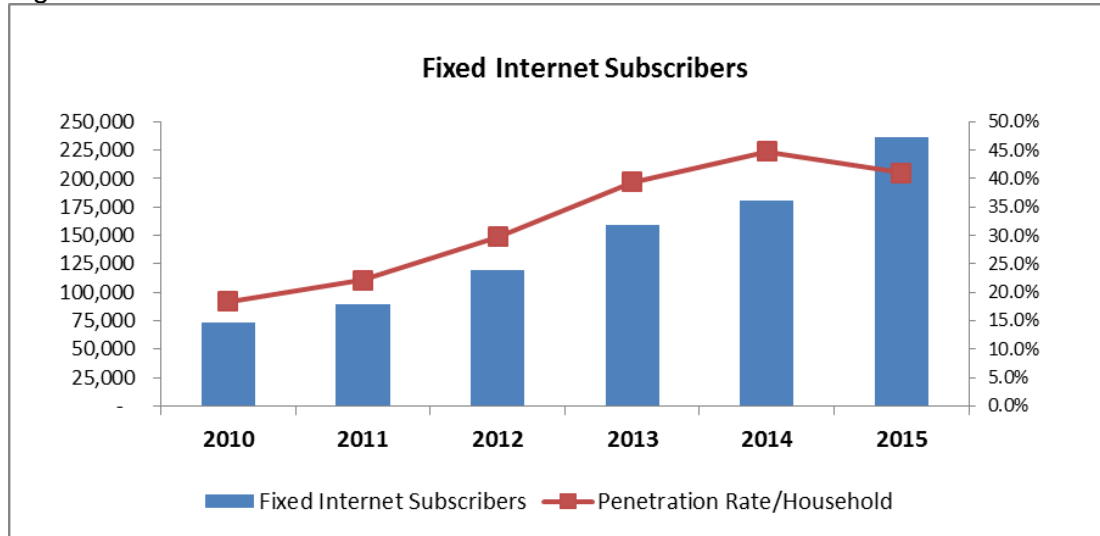
Source: adopted from (TRA 2015) and (NCSI 2016b)

Figure 3.4 Active Mobile Broadband Subscribers
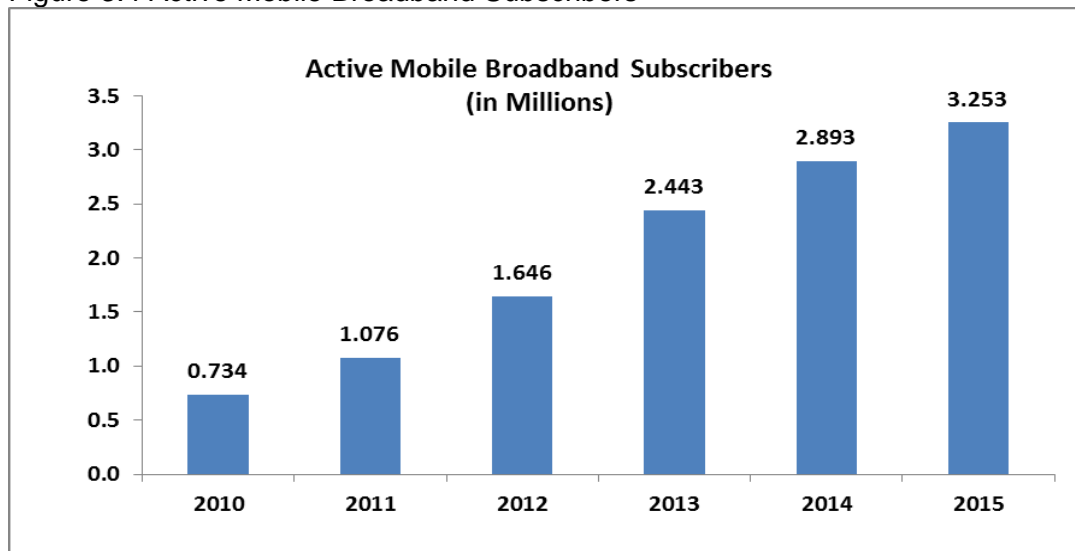
Source: adopted from (TRA 2015) and (NCSI 2016b)

By the end of 2015, there were 6.665 million mobile prepaid subscribers, which accounted for 91.2% of total mobile subscriptions. There were 585,000 post-paid mobile subscribers accounting for the remaining 8.8% of total subscribers (TRA 2015). In fact, by 2011, Oman had the second highest mobile phone penetration rate (166%) in the region according to a report

from the United Nations Economic and Social Commission for Western Asia (ESCWA 2011).

The total revenue of Oman's telecommunication sectors has continued to rise between 2011 and 2015. Figure 3.5 shows the revenues of the telecom sector from 2011 to 2015.

Figure 3.5 Total Telecom Sector Revenue (in Millions) from 2011 to 2015
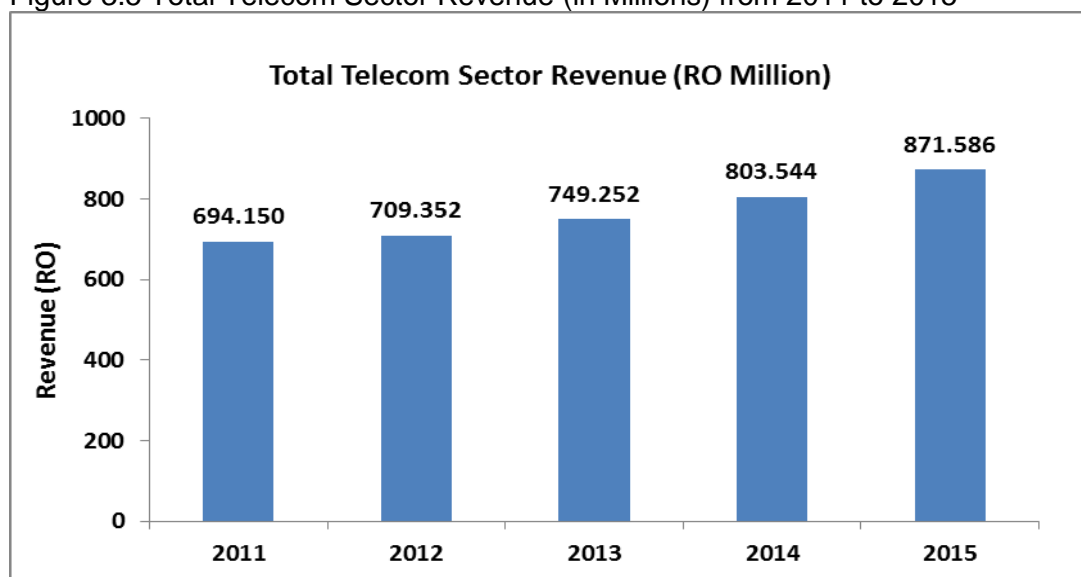
Source: (TRA 2015: 11)

Total revenue in 2015 showed an increase of 8.5% on the previous year and reached RO 871.586 million (TRA 2015). Moreover, the telecommunication sector investment in 2014 reached RO 219.71 million compared to RO 156.53 million in 2013. The growth of the telecommunication sector investment in 2014 showed a 40% increase on 2013 levels as shown in Figure 3.6 (TRA 2014a). There is a decline by 3.5% in 2015 with total telecommunication sector investment RO 212.24 million (TRA 2015).

Figure 3.6 Total Telecom Sector Investment (in Millions) from 2011 to 2015

Total Telecom Sector Investment (RO Millions)

Year	Investment
2011	131.84
2012	137.34
2013	156.53
2014	219.71
2015	212.24
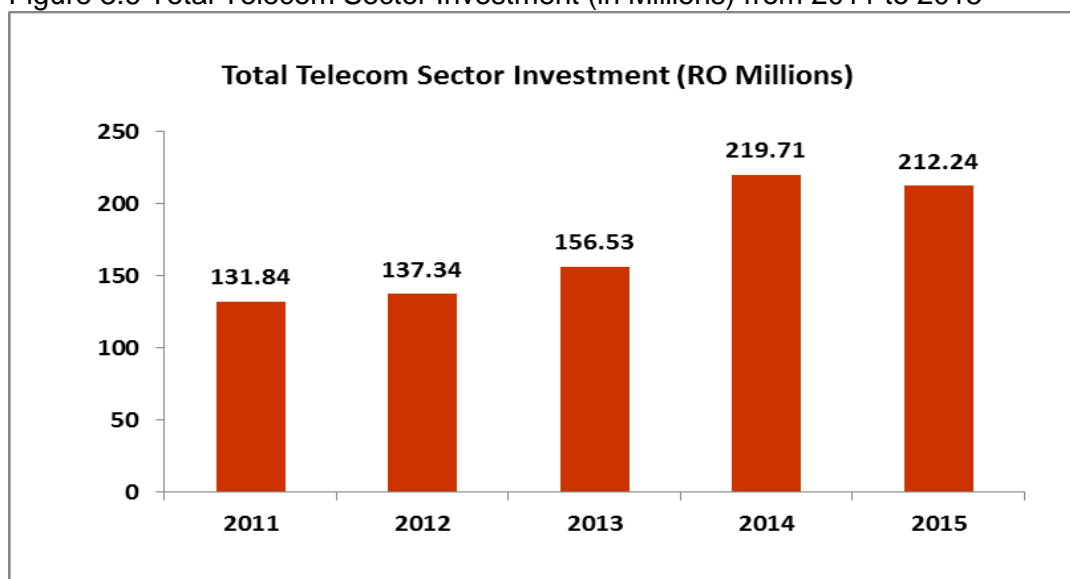
Source: (TRA 2015: 12)

Telecommunications and other IT infrastructures are essential for D-government implementation and providing access for all citizens and consequently, is an important issue in the current study.

According to a survey conducted by the Information Technology Authority (ITA) in 2013, 91% of families owned at least one mobile or smart phone, 25% of families had fixed line phones and 80% of families had internet access (ITA 2014b). The study also found that 92% of individuals used the internet in public sector organisations, but most of those individuals (around 61%) used government websites only to obtain information and 28% used them only to download official forms (ITA 2014b). However, the study found that there was little interest among Omani people in engaging in Electronic Commerce (E-commerce) as 85% of people responded that they never used online shopping (ITA 2014b). This creates challenges and shows the need to raise awareness of the importance of electronic commerce which will help also to raise the use of D-government. This survey was based on a random

sample of 11,000 families representing all regions of Oman access to and Use of Information and Communications Technology (ICT) by Households and Individuals. Adopting the new technology from the private sector organisation helps in giving the citizens the opportunity to raise their awareness of this technology and could help in speeding up the implementation of the electronic systems for the private sectors. Private organisations' willingness to adopt and implement the technology is poor and very slow. This is because these organisations are not ready either technically or culturally.

3.3.1 Telecommunications Regulatory Authority (TRA)

In 2002, with a clear strategy for continuing to develop the telecom market in Oman, the government established the Telecommunications Regulatory Authority (TRA) by Royal Decree No. 30/2002 (TRA 2013). TRA is the authority responsible for publishing the regulations and rules that control and organise the telecoms sector to be efficient and flexible in the Sultanate of Oman. Moreover, TRA is dedicated to supporting the development of the telecommunications sector, developing knowledge within society, raising employment opportunities and providing a conducive environment for developing human resources to obtain the required skills in this sector (TRA 2014b).

3.3.2 Digital Oman Strategy (e.Oman)

In the current globalised economy, any society without the new technology sector will be weak and late to develop. Therefore, the Omani government has an initiative to improve awareness in the country of the necessity of

becoming a Knowledge Society. Accordingly, the Council of Ministers in March 2003, approved a strategy called Digital Oman Strategy or "e.Oman" (ITA 2015f). This strategy aimed to build a Knowledge Society in Oman and convert the country to a 'knowledge-based economy' (ITA 2014h). Moreover, it aimed at activating the 'government-community-citizen' infrastructure that offers superior public services to people, resulting in a significant information movement among the government and citizens. Furthermore, the strategy aimed at supporting the evolution of D-government implementations and the Omani Digital Society (ITA 2015f). However, the strategy objectives aimed at achieving:

- Increasing citizen's awareness of technology and tools that qualify them for the digital interaction. Moreover, also to make them aware of the existing D-government services and encourage them to communicate electronically with the government.

- To make available the resources and equipment that is required in order to develop and improve the infrastructure, applications and services.

- To support the information technology industry sector in Oman by helping it to convert the ideas of IT business to products and services to meet the essentials and requirements of government and the market.

- To increase the effectiveness of government services by automating them and providing them electronically to citizens, business sectors and government organisations.

- To develop and integrate the services and provide them with accessibility, security and ease to use.

- To develop and update government infrastructures and applications to match the standards commonly expected of developed countries in line with the goals set out by the Information Technology Authority (ITA).

- To provide training in order to develop the skills of the public sector organisation employees to be qualified to manage and operate the main infrastructures of the D-government in their organisations

In the same year that Digital Oman Strategy received approval, there were individual initiatives launched by some public and private sector organisations which involved the designing and publishing of their own websites to provide information and some services to users electronically. Two examples were those of the Ministry of Education and Muscat Municipalities. However, this study aims at exploring how the culture of various public sector organisations have influenced D-government implementation.

3.3.3 Information Technology Authority (ITA)

The Information Technology Authority (ITA) was set up in 2006 by the Royal Decree 52/2006 and its main responsibilities were to execute the national IT infrastructure schemes and manage all projects related to the implementation of the Digital Oman Strategy (ITA 2014a). However, one of the main ITA policies was to build an integrated electronic government architecture such as IT infrastructure and common databases (ITA 2015d). Moreover, part of ITA policies included the creation of plans and procedures for developing and training the human resources required for Information Technology in Oman.

In addition, ITA provided consultancy services for all public sector organisations in IT projects (ITA 2015e).

ITA plays a role in supporting the public sector organisations in their implementation of D-government. It provides a consultation in technical analysis, analysis of prices, how they integrate and connect with other public sector organisation and specifications for the IT projects. It helps public sector organisations also to study the projects budgets and costs according to their requirements and specifications (ITA 2015e). Moreover, ITA sets the main infrastructure for the D-government. If the organisation does not have the main infrastructure, ITA provides a solution for them such as cloud computing (ITA 2015d).

However, ITA cannot take decisions on behalf of other public sector organisations or compel any organisation to implement or take decisions on any implementation system. Each organisation takes their decisions independently. Al-Mamari et al. (2013) commented on this issue by asserting that ITA lacked the power or capacity to drive forward implementation of D-government and various agencies had been advised rather than ordered to turn to the ITA for guidance on implementation.

The CEO of the Information Technology Authority (ITA), Salim Al-Ruzaiqi, states that

"*As a major step forward in the country's ambitious plans to introduce E-government and create a 'digital society' the national IT strategy*

was devised and ITA is the apex body vested with this responsibility to implement this strategy" (ITA 2014c).

3.3.4 IT Awareness and Training

To increase internet penetration, D-government awareness and expand the use of this technology all over the country, recently, in Oman, they started a new scheme. This scheme, known as the Royal Grant, has helped citizens to own their own laptops or tablet devices according to their choices. It began in 2011 as a first stage and was followed in 2012 as a second stage. The main purpose of this Royal Grant was to increase internet penetration and give citizens an impetus to enter Information and Communication Technology (ICT) services and obtain the relevant skills (Omantel 2013). The programme covered all students on social security, all students in their first year of higher education and all teachers in schools. Students in receipt of social security were given a free laptop with accessories and one year's free internet. Additionally, students in the first year of higher education and teachers in schools were given a 50% reduction on the price of a laptop or tablet, free accessories and three months free internet usage (Omantel 2013). According to the Information Technology Authority (ITA), which is responsible for implementing this scheme, 64,381 citizens benefitted from the scheme over a two year period (Omantel 2013). Thus, the government aimed, by applying this scheme, to increase the number of internet users and expand the digital culture as well as developing the knowledge of IT and security of citizens with the project e.Oman.

The national IT training and awareness framework initiative is part of the e.Oman strategies which aims at developing the information and communication technology skills for employees. Therefore, as part of this framework, ITA delivered a program for training the employees of civil servants about computer and internet (ITA 2014g). They called this program The Government IT Training and Certification (GITC). It is a national initiative project to raise awareness and training on IT schemes and provide all civil servants with the digital and information skills through different stages. Moreover, it aims to offer equal opportunities of training for all civil servants (ITA 2014g). However, according to a survey of 53 public sector organisations, it was found that 24% of the employees of these organisations had not derived any benefits from the training that was provided by the ITA (ITA 2012). This could be because this program aims to give the basic skills of IT for the employees and many of those employees have those skills in advanced.

Table 3.1 reveals the number of participants in training courses provided by the Institute of Public Administration based on the fields of training.

Table 3.1 Training courses provided by Institute of Public Administration

Fields of Training	2013		2012		2011		2010	
	No.	%	No.	%	No.	%	No.	%
Public Administration	4,048	88.2	4550	90.1	2767	74.2	2296	72.8
Financial Management	34	0.7	24	0.5	287	7.7	188	6
Clerical Training	451	9.8	247	4.9	508	13.6	564	17.9
Statistics	16	0.3	41	0.8	0	0	23	0.7
Scientific Research	0	0.0	0	0	6	0.2	9	0.3
Law	0	0.0	0	0	0	0	8	0.3
Information & Public Relations	26	0.6	0	0	0	0	64	2
Psychology	0	0.0	0	0	48	1.3	0	0
Information Management	15	0.3	53	1	87	2.3	0	0
Computer	0	0.0	117	2.3	27	0.7	0	0
Stores Management	0	0.0	20	0.4	0	0	0	0
Total	4,590	100	5052	100	3730	100	3152	100

Source: (NCSI 2014: 134)

The Institute of Public Administration is the main organisation in Oman that specialises in providing different types of training for the public sector organisations' employees. It shows the field of training and the number of employees that was trained over four years from 2010 to 2013. It can be seen that in 2013 no one actually received training in computer fields despite its increasing importance for the national economy. This could be because ITA began delivering focused training in several specific fields of IT and covered 1051 employees in 2013 (ITA 2014g). However, Institute of Public Administration is still the main organisation that is responsible for providing the training for all the public sector organisations and needs to increase their training in technology fields in parallel with the government aims to implement D-government implementation.

Additionally, in 2010, ITA, in order to raise the awareness level of D-government implementation, commenced a program called Sultan Qaboos Award for Excellence in e-government. The award aims to motivate public sector organisations as well as private sector organisations to work towards achieving the strategic plan and moved toward adopting and implementing D-government and ICT in both private and public sectors (ITA 2016). For more information about this award see Appendix 3.1.

3.4 Digital Government in Oman

This section describes some of the main features of the Omani public sector. In Oman, different government organisations are referred to as ministries rather than departments. There is a total of 80 public sector organisations in Oman. These represent different types of organisations that are controlled by the government.

According to the Omani NCSI (2014), a little more than half of employees in the public sector are males (See Table 3.2).

Table 3.2 Gender distributions for public sector organisations in Oman

Gender	Number of Employees	Percent
Men	106,281	58.8%
Women	74,456	41.2%
Total	**180,737**	**100%**

Source: (NCSI 2014)

Table 3.3 shows the distribution of public sector employees by age.

Table 3.3 Age distributions for public sector organisations in Oman

Age	Number of Employees	Percent
Less than 20	116	0.1%
20 – 29	50,155	27.8%
30 – 39	84,355	46.7%
40 – 49	33,433	18.5%
50 and Over	12,678	7.0%
Total	**180,737**	100%

Source: (NCSI 2014)

The table shows that the majority of employees in the public sector organisations are aged between 30 to 39 years (46.7%) and the second largest age group is the 20 to 29 years (27.8%). The remaining 25% are distributed between the other age ranges. There is only 116 (0.1%) in the under 20 age group. Table 3.4 presents the educational levels of public sector employees.

Table 3.4 Educational level distributions in public sector organisations in Oman

Educational Level	Number of Employees	Percent
Illiterate	3,766	2.1%
Read and Write	10,389	5.7%
Primary	8,273	4.6%
Preparatory	8,844	4.9%
Secondary	33,570	18.6%
Diploma	33,530	18.6%
Bachelor	72,106	39.9%
Higher Diploma	4,562	2.5%
Master's Degree	4,885	2.7%
PhD	812	0.4%
Total	**180,737**	100.0%

Source: (NCSI 2014)

The table shows that 40% of employees have bachelor degrees, a further 19% possess diplomas and 19% have secondary school degrees.

3.4.1 Electronic Government Transformation Plan

The government represented by the ITA developed the "Electronic Government Transformation Plan" which approved by the Ministers Council on June 2012 (ITA 2013). The ITA provided a template for each organisation to put forward its plan for transformation. The template included lists of all the priorities to be commenced as well as details of each of the six stages of implementation and targets to be met within certain timescales (ITA 2015b). Each organisation was required to set their own plan according to their

priorities using the template plan provided by the ITA starting from 2013, as part of a three year plan which ended in December 2015. By the end of 2015, this plan expected all governmental organisations to be fully transformed by providing their services electronically and online, except the last two stages of the plan, which were long-term and continuous goals. These six stages are explained in the following paragraphs:

1. Stage One: ePresence

This stage was to be completed by June, 2013. It included preparatory work such as dissemination of information through websites and defined its vision, mission, policies, and contact information as well as some official documents needed by the user (ITA 2015b). The average level of the ePresence stage for all public sector organisations is 64.2%. Moreover, according to a survey conducted by the ITA in 2013, it was found that 20% of the public sector organisations did not have a website (ITA 2013).

2. Stage Two: Interaction

This stage was scheduled to be completed by December 2013. It was focused on the commitment of public sector organisations to provide interaction between them and the users, whether via e-mail or by completing or downloading official forms electronically. Moreover, public sector organisations were expected to provide communication centres to receive calls and Short Message Services (SMS) from the users. Furthermore, public sector organisations were expected to be able to interact with each other using e-mail, SMS and exchanging information electronically (ITA 2015b).

Subsequently, the average level of the interaction stage for all public sector organisations was 47.2%. According to the survey conducted by ITA in 2013, only 50% of the organisations provided for the filling out of forms online and 39% of the organisations did not have a clear framework for the interaction process (ITA 2013). Moreover, the interaction with citizens using different social media increased slowly.

3. Stage Three: Transaction

This stage was scheduled to be completed by December 2014. It focused on enabling the public to be able to make full transactions online such as applications for driving licenses, registration for training workshops, and personal information updates as well as the possibility of making electronic payments online (ITA 2015b). In addition, public sector organisations were to be able to use a combination of communication technologies, the internet and telephone communications by this date. Also, in this stage, the data exchange rate between public sector organisations was expected to show an increase on the previous stage (ITA 2015b). The average level of the transaction stage for all public sector organisations was 54% (ITA 2013).

4. Stage Four: Transformations

This stage was scheduled to end in December 2015. It focused on achieving value-added and public-oriented eServices for users. These services involved vertical integration such as the public sector organisations that belonged to the same business line, such as education and health or horizontal integration such as public sector organisations that belonged to different business lines but performed similar tasks or services such as

human resources (ITA 2015b). The average level of the transformations stage for all public sector organisations was 47.5% (ITA 2013).

5. Stage Five: eParticipation

This stage set a long-term goal for developing the electronic government. However, public sector organisations could improve their performances through social media networks and citizen participation in the decision-making process by using online voting, polling and electronic surveys. Moreover, in this stage, D-government was expected to change the interaction mode between the government and citizens to make governmental decisions transparent (ITA 2015b).

6. Stage Six: eBorder /eRegional

The goal of this stage was also set for the long term in providing collaborative services with bordering countries as well as countries in the region. It involved the exchange of data among the countries that met the agreed terms of the Service Level Agreement (SLAs) (ITA 2015b).

The full transformational plan including all stages details, targets and the time allocated for each target are presented in Appendix 3.2. Unfortunately, all the public sector organisations did not completely achieve the set plan. The progress of some organisations for some reason is very slow. Their actions and acceptances for transforming to the D-government are very slow. ITA tries to increase the number of visits to those organisations and to transfer a high level of knowledge to them and convince them about transforming to D-government. Sometimes it works and sometimes not (ITA 2013). However,

there were some organisations that were found not to have a website at the time of writing this report. Moreover, the progress of organisations vary for each stage and no organisation was found that had completed the transformation of all their services to online provision (ITA 2013). This could be due to the plan not considering the situations of each organisation and not allowing a suitable period of time for meeting each target in the plan. However, a 'one plan fits all approach' may ignore internal factors within organisations which may impact on implementation of new technology. Furthermore, it is worthwhile examining the culture of these organisations to explore what role organisational culture plays in the implementation of D-government.

3.4.2 D-government Projects

Digital Oman Strategy has some initiative projects for the actual implementation of D-government in Oman. There are certain projects that are called national digital projects, such as National e-Payment Gateway and National Data Centre for which no specific public organisation has responsibility. So, ITA takes the initiative to develop these projects because it is impossible that every organisation develops their own system for payment. Moreover, there are some similar projects such as share databases or share applications, for example, Public Key Infrastructure (PKI) and citizens and organisations information which are not the priorities of the organisations but ITA supports them in their implementation for digital systems. The following are the most important infrastructure projects that have been implemented in this area.

1. The Official Government Services Portal

Omanuna portal (www.oman.om) is the official government services portal for providing the electronic services of all public sector organisations (ITA 2015g). So, citizens, businesses, government and employees can use this gateway as a single entry point to access the information and services that are offered by the public sector organisations online. The services provided in this portal operate either by integrating with other public organisations or through links to the main websites of organisation services provided (ITA 2015g). This portal was established by the end of 2009. The total services provided until now are 783 services and included 53 organisations (ITA 2013). According to Information Technology Authority, the majority of the online published services are information services. There were 700 of these services and they represented around 89% of total provided services (ITA 2013).

2. Oman Government Network

The government network is a national telecommunications infrastructure linking all public sector organisations. The aim of this network is to support D-government projects and develop the public services. Currently, most of the public sector organisations are using this government network (ITA 2015h).

However, the government network has been designed to cover the future requirements for the integration of e-government services and for the developments in the digital society. The government network supports the Multi-Protocol Label Switching (MPLS) technology which allows for the creation of virtual private networks (VPNs) which can be used to separate

traffic of different organisations across the government network (ITA 2015h). Moreover, MPLS utilises traffic engineering to control the traffic data load on several links within the network and thus to use the network bandwidth more efficiently (ITA 2015h). The total number of public organisations that are connected to the Oman government network reached 70 organisations and the number of sites that were connected to the Oman government network exceeded 1000 locations in total (ITA 2015h).

3. National e-Payment Gateway

The national e-payment gateway is designed to help citizens by simplifying the process of payment transactions for the electronic services of the public and private sector organisations. It provides secure and effective online payment processes compatible to world-class standards. This service commenced in September 2007. However, all public and private sector organisations can use this service to provide secure transactions for the citizens and their customers (ITA 2014f).

4. National Data Centre

The National Data Centre was designed to be a multi-use centre with high-readiness and available for all government organisations to host their data. Moreover, this centre provides practical solutions to reduce the impact of disasters, in order to achieve continuity of work for the various information technology systems. Furthermore, the data centre provides a safe environment to meet the challenge of security breaches as it provides high standards to maintain the integrity and functionality of the computing environment (Data Centres 2009).

5. Oman Government Cloud (G-cloud)

The Oman Government Cloud initiative or project was established in December 2013 by the Information Technology Authority to provide the IT infrastructures for all public sector organisations. This initiative aimed at building a main integrated structure that covered all the IT infrastructures required for public sector organisations such as servers, storages spaces, and applications.

On other hand, 75% of organisations do not have suitable IT infrastructures which supports the transformation to D-government. Moreover, around 48% of the organisations claim that their budgets are not sufficient to implement the electronic government transformation plan (ITA 2013). However, this project was planned to replace the old IT infrastructure with a new and centralised one that was managed by ITA. Moreover, it was designed to guarantee a common and shared infrastructure for all the public sector organisations and the data ownership would be in the public sector organisations without any intervention or involvement from any third parties. In addition, it was designed to cut-down the IT budgets that were allocated for the public sector organisations (ITA 2015a). Furthermore, it planned to offer smooth and integrated resources as well as enhancing and developing the security of the IT environment in all public sector organisations. Additionally, it proposed to offer easy and fast electronic services especially for those organisations that still relied on older infrastructures which were not capable of matching the latest technology and might not have been compatible with the new government network (ITA 2015a).

According to the Information Technology Authority (2015c), G-Cloud offered four different levels of services:

- **Infrastructure as a Service (IaaS):** This service offers the public sector organisations the ability of data processing, storage, networks and different choices of softwares such as operating systems, applications and other important IT resources (ITA 2015c).

- **Platform as a Service (PaaS)**: This service offers the public sector organisations to publish their application and services which were created by them and using the services and tools that were provided by the supplier (ITA 2015c).

- **Software as a Service (SaaS):** This service offers the public sector organisations the use of applications and services that are provided and running in the cloud infrastructure by the supplier. This includes Enterprise Resource Planning system, Customer Relationship Management system (CRM) and Content Management System (CMS) (ITA 2015c).

- **Business Process as a Service (BPaaS):** This service includes any business process supplied as a facility additional to cloud solutions. This includes e-payment gateway, fraud management service and Public Key Infrastructure (PKI) based digital signature and validation services (ITA 2015c).

Thus, there have been many government initiatives to provide the latest developments in infrastructures, such as G-cloud, in order to accelerate the

implementation of D-government. Despite these efforts, many organisations continue to be slow in implementing the new systems. The aim of the current study is to explore issues of organisational culture in the public sector organisations which may impact the implementation of D-government.

3.4.3 Some Statistics Relevant to D-government in Oman

According to the United Nation report for e-government, Oman was ranked 64 in the world in 2012 with an e-government development index of 0.5944. This compared favourably with its 2010 ranking of 82 with an e-government development index of 0.4576 (see Table 3.5).

Table 3.5 E-government development of Gulf countries

Country	E-government development index			World e-government development ranking		
	2014	2012	2010	2014	2012	2010
Bahrain	0.8089	0.6946	0.7363	18	36	13
United Arab Emirates	0.7136	0.7344	0.5349	32	28	49
Saudi Arabia	0.6900	0.6658	0.5142	36	41	58
Qatar	0.6362	0.6405	0.4928	44	48	62
Oman	0.6273	0.5944	0.4576	48	64	82
Kuwait	0.6268	0.5960	0.5290	49	63	50

Source: adapted from (UN 2012: 28) and (UN 2014: 28)

Despite rising in the ranks and an improving index, the table places Oman in last place when compared with the other Gulf Countries in 2012 but it has improved by 16 places globally in 2014 and passed Kuwait which came last in 2014 compared to other Gulf countries.

On the other hand, according to the United Nations report in 2012, only 25 members out of all United Nations members provided mobile government

sites and Oman is one of those countries. Moreover, out of these 25 members, only 14 countries including Oman provided specific sections for vulnerable clusters such as social security, the illiterate, the blind, the elderly, the youth, and women (UN 2012).

However, according to the survey that was conducted by the ITA to check the electronic readiness's (e-readiness's) of public sector organisations in Oman to transform to the D-government, it was found that only 32% of the government services were available online and most of these services were informative services and only 11% were procedural (ITA 2013). The distribution of services by delivery type is presented in Figure 3.7.

Figure 3.7 Distribution of services based on type of delivery
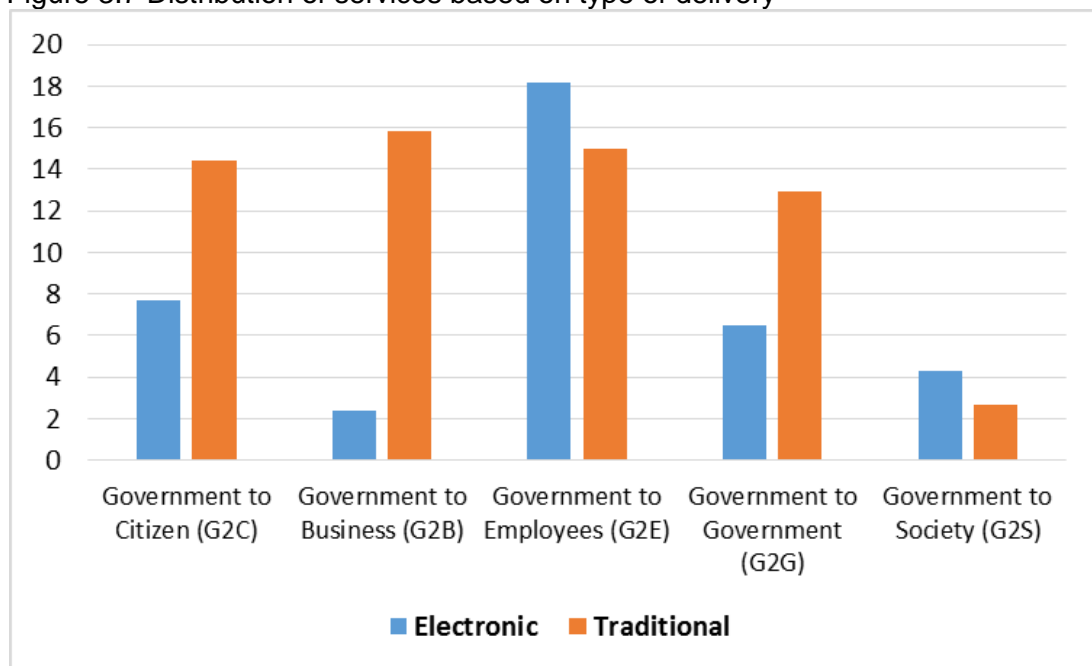
Source: (ITA 2013: 15)

Figure 3.7 shows that most of the services implemented by the government were services to employees (G2E) which had the highest percentage in the

88

number of services implemented and represented 18% of total services provided by public sector organisations. In contrast, the services between Government to Citizen (G2C) and Government to Business (G2B) had very low levels of implementation and represented 8% and 2% respectively of total services provided by public sector organisations (ITA 2013). Moreover, most of these services provided to the citizens or business were information services. However, citizens cannot directly experience the level of implementation that happens inside the organisations such as Government to Government (G2G) and Government to Employee (G2E).

Some of the services provided in the public sector organisations depend on other services provided by same organisation or depend on other services provided by other organisation. Integrating services internally and externally is an important indicator reflecting the importance of the integration and the connection between each organisation services to each other internally as well as connecting those services with external services that depend on them and related to other government organisations. Internal integration means connecting services that depend on each other internally on the same organisations whereas external integration means connecting services that depend on other services provided by other public sector organisations and are not controlled by one organisation (ITA 2013). Figure 3.8 shows the proportion of services by integration type of public sector organisations in Oman.

Figure 3.8 Services distributions according to their integration type
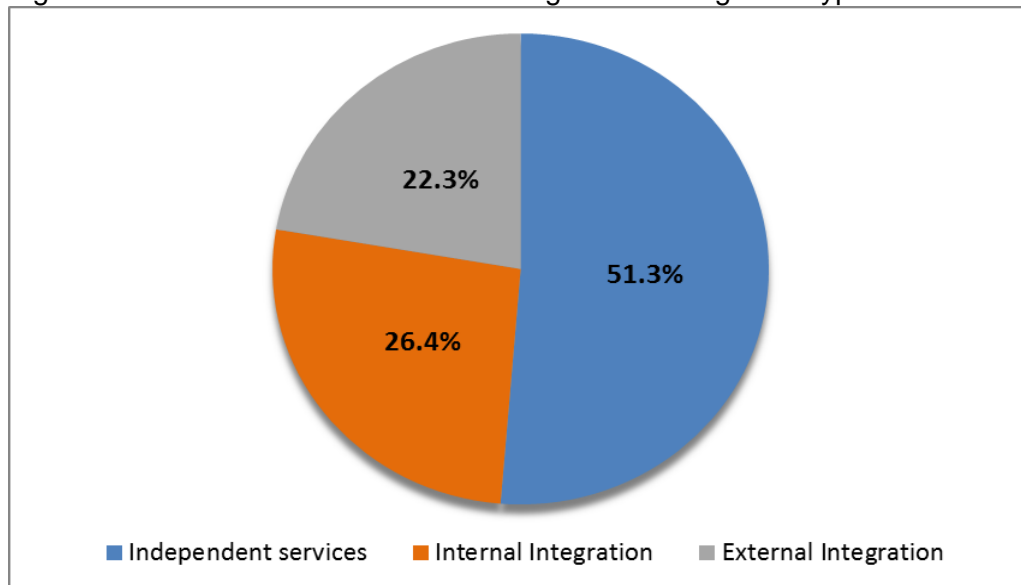
Source: (ITA 2013: 17)

The pie chart shows that more than half (51.3%) of these services are independently provided which means it can be transformed electronically without the need to link them with any other services, either internally or externally. 26.4% of public sector services need to integrate internally as they depend on other services in same organisation. 22.3% of services need to integrate externally as they depend on other services provided by other public sector organisations (ITA 2013). However, those services which depend on other services cannot be fully electronically transformed unless the integration is done either internally or externally, but organisations could give the priorities of transforming services electronically to the independent services.

3.4.4 D-government Evaluation

Evaluating the systems that were implemented is one of the essential issues. Therefore, in the evaluation of D-government of the public sector organisations, it is very helpful to recognise their current situations, issues for

delaying the implementation if there are any and what they need to do in order to improve the implementation. However, evaluations could be divided into two main parts; internal and external. In terms of external evaluation, ITA evaluates all the public sector organisations every two years. The first evaluation took place in 2013 and the results were published at the end of 2014. The second evaluation was conducted in 2015 but the results have yet to be published. These evaluations are the only official evaluations that have been conducted into the public sector organisations in Oman in term of electronic government. As part of the evaluation, ITA issued a report for each organisation and included many aspects of evaluations. Accordingly, in the interests of transparency, all public sector organisations were required to upload this report on their websites. Examples of those reports can be seen in Appendix 3.3.

The ITA evaluation in 2013 measured different aspects of each organisation. One of those aspects was the services each provided. Therefore, ITA measured the level of the electronic government transformation that the organisations achieved in terms of number of services implemented and how many services could be changed electronically (ITA 2013). Furthermore, the number of services fully or partly electronic was included as well as the number of services that were integrated with other services either internally or externally or independently. Moreover, it classified the type of services in each organisation according to informatics, interactive, or procedural services in order to know the process for transforming those services as the informatics services will be the easiest one.

On the other hand, ITA evaluated the electronic readiness (e-readiness) of the organisations and the electronic transformation level. The assessment of e-readiness focused on different elements. One element was change management involved in electronic transformation. Another element was human resources capabilities involved in the implementation procedures and functions of electronic transformation (ITA 2013). Additionally, it measured the essential infrastructure for automating business processes and evaluated the aspects related to the electronic transformation process and project management tools. It also assessed the extent to which the organisation had followed and used the standards that were set by the ITA as well as assessing the documenting processes and how these could have been improved (ITA 2013).

Finally, taking all these factors into consideration, ITA assigned a score for each organisation and an overall average. The overall average for the electronic transformation was 47.5% (ITA 2013).

3.4.5 Electronic Government Legislation

Legislation is one of the fundamental factors necessary to activate D-government in any society. In order to continue building a digital society in Oman, which was based on a dynamic and secure interaction between the electronic services in the public and private sectors and between members of the community, it issued the first Arabic law in 2001, which addressed the confrontation of electronic crimes issued by Royal Decree No. (2001/72) and ordered an amendment to the Omani Penal Code articles issued by (1974/7).

The amendment included adding one chapter under the name "Computer Crimes" (ITA 2014d).

However, the Information Technology Authority formed a team from different public sector organisations to prepare a draft of the Electronic Transactions Law in coordination with the legal consultant offices locally and globally. Therefore, the team studied and compared different international experiences, which included trade and signatures electronic laws for different countries. Then, in 2008, the Electronic Transactions Law was issued by Royal Decree No. (2008/69) which included nine chapters and 54 acts (ITA 2011b). The Electronic Transactions Law covered and approved different issues such as public digital legitimacy, the fees payment system, the legitimacy of electronic payment and the data protection system, and the legal recognition of electronic signatures. Moreover, the new law called for proof of the credibility and acceptance of data messages and documented the time and location. Furthermore, it approved electronic contracts, recognition of electronic receipts and protected the privacy of customer data through the initiative projects of digital Oman strategies and information security (ITA 2011b).

However, to cover some deficiencies in the legislations package related to the electronic government, it was very important to publish the Cyber Crime Law. Therefore, the Cyber Crimes Law was issued at the beginning of the 2011 by a royal Decree No. (2011/12), which included 35 acts (ITA 2011a). This law covered the penalties and rules governing the electronic environment such as infringement on the integrity and confidentiality and

availability of data and information systems. Moreover, it covered the misuse of information technology tools, the content crimes and the informational forgery and fraud (ITA 2011a). Although, there were new changes in the technology world and matters related to it, the Electronic Transactions Law and Cyber Crimes Law have not been updated since their respective publication dates in 2008 and 2011.

Accordingly, there are some other fields that are still not covered by law and ITA with other public sector organisations are still working to cover these gaps. For example, now the ITA is developing a data-sharing framework and all the legislations related to it (ITA 2014d). This continuous updating of legislation is one of the challenges which faces the ITA and Omani Law on the implementation of D-government.

3.5 Summary

This chapter discusses the context of the study which is the Sultanate of Oman. It provides some background information about Oman and about the Information and Communication Technology (ICT) sector in Oman. Moreover, it explains the digital Oman strategy (e.Oman) which was released to improve the awareness of IT and build a knowledge society in Oman.

On the other hand, it explains the main D-government projects in Oman and the electronic government transformation plan, which is set to transform all the public sector organisations services in Oman to be fully electronic. Furthermore, it explains the electronic government legislations that have been published in Oman in order to organise and guide the work of

implementing D-government. However, as mentioned earlier in this chapter, many public sector organisations have been slow to implement D-government, despite all the initiatives and investments made by the government. This chapter presents the context in which D-government is taking place and highlights the importance of such projects as infrastructure, G-cloud, telecommunications, D-government plan and government investment in all of these initiatives. These are important initiatives to take into account in investigating why there is such variation in organisations availing of the benefits of these initiatives. It is possible that there are some internal issues in public sector organisations which impede the implementation of the new technology. However, the focus of this study is to explore the culture of public sector organisations in order to discover the extent to which the culture of those organisations impacts on D-government implementation.

Chapter 4: Research Methodology and Data Analysis

4.1 Introduction

This chapter presents the research design and methodology of the study. It begins with a detailed description of the chosen research methodology and then it explains the data collection methods and techniques that were used in this study to meet the research objectives and to answer the research questions of this study. Moreover, it explains the data analysis process, tools and systems that were used for the data analysis. This is followed by establishing the validity and reliability of the study as well as considering the ethical issues involved in the study.

4.2 Research Approach

The methodology is one of the most important elements in any research; therefore, it is important to choose the most appropriate methods for each. Blaxter et al. (2010: 183) state that,

> "*All research involves the collection and analysis of data, whether through reading, observation, measurement, asking questions or combination of these or other strategies*".

Likewise, Bryman (2012: 46) describes the research method as

> "*a technique for collecting data. It can involve a specific instrument, such as a self-completion questionnaire or a structured interview schedule, or participant observation, whereby the researcher listens to and watches others*".

The choice of research methodology for this research depended on the type of problem being addressed. As discussed in Chapter 2, there is a need for more research to be conducted into exploring the effects of organisational culture on the implementation of D-government in public sector organisations. Therefore, the main purpose of this study is to explore this relationship and to gather data that provides an in-depth perspective on the phenomenon under investigation. Additionally, by the use of more than one method, the research aims at increasing the credibility and reliability of its findings. Accordingly, a mixed methods approach is adopted by combining both qualitative and quantitative methods.

4.2.1 Mixed Methods

Denzin and Lincoln (1994: 5) state that "*The use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question*". Accordingly, using more than one method gives more accurate data than using one method, because each method can yield data which has both depth and breadth (Thomas 2013). Furthermore, the results of one method of the study can be compared to the results found from the other methods (Blaxter et al. 2010). Generally, multi-methods allow the researcher to be more confident of their outcomes (Plano and Creswell 2008). Consequently, a mixed methods approach provides alternative but complementary sources of knowledge relevant to the phenomenon being investigated in order to address the research questions. Hence, the research is generating richer and further reliable results (Archer 1988). For these reasons, this research has used a mixed methods approach as most appropriate for addressing the research questions.

RQ1. What is the relationship between the dominant organisational culture and the implementation of D-government in Oman?

RQ2. How does organisational culture impact on the implementation of D-government in Oman?

Firstly, it is necessary to consider the differences between the different types of methods. These are outlined in Table 4.1

Table 4.1 Differences between quantitative, qualitative and mixed methods approaches.

Quantitative Methods	Mixed Methods	Qualitative Methods
Pre-determined	Both predetermined and emerging methods	emerging methods
Instrument based questions	Both open- and closed-ended questions	Open-ended questions
Performance data, Attitude data, Observational data, and census data	Multiple forms of data drawing on all possibilities	Interview data, observation data, document data, and audio visual data
Statistical analysis	Statistical and text analysis	Text and image analysis
Statistical interpretation	Across databases interpretation	Themes, patterns interpretation

Source: (Creswell 2014: 17)

As can be seen from Table 4.1, mixed methods draw on the combined strengths of both quantitative and qualitative approaches. Moreover, it can be seen that mixed methods merge between statistical and text analysis. However, mixing methods could be costly and time consuming. Additionally, it requires that the researcher should be familiar with both qualitative and quantitative methods (Creswell 2014). The choice of methods will now be justified.

4.2.1.1 Mixed Methods Objectives

One of the main reasons for the choice of a mixed methods approach was to bridge the gap of paucity of information about D-government implementation in Oman. D-government implementation is still in its early stages in Oman. The first method was used to explore the situation in-depth and from inside the organisations. It was used to identify the implementation and organisational factors that affected the implementation process in the participating organisations. Once the data of the qualitative stage had been completed and analysed, its findings informed the quantitative stage of the research in order to better understand how widespread some of the issues were. Moreover, the second method was used to identify the dominant organisational culture of each participating organisation by using the OCAI framework and this validated the survey methodology which was quantitative. Then after identifying the organisational culture, the study explored how organisational culture affected the implementation of D- government by relating the findings from the two methods.

4.3 Research Design

Creswell (2014) showed the different types of mixed methods which could be utilised in this type of research. There were mainly three types to be considered:

1. Convergent parallel mixed methods
2. Explanatory sequential mixed methods
3. Exploratory sequential mixed methods

In the convergent parallel mixed methods both methods are used concurrently and the researcher merges the qualitative and quantitative data to provide a complete analysis of the study problem. However, there is a risk in concurrent mixed methods that the findings from one method might not be corroborated by those of the other method. The data from both qualitative and quantitative methods are collected at the same time before combining the information in the explanation of the overall results. In contrast, in the explanatory sequential mixed methods, the researcher begins with the quantitative method and then analyses the data before designing the second method based on the results of the first one to explain what has been found in more depth with the qualitative method.

The third type is the exploratory sequential mixed methods approach which entails the collection of data which is rich and in-depth in explaining the phenomenon under investigation from the perspectives of participants at different levels in each organisation. The quantitative method in this model explores the extent of the findings from the initial phase which is qualitative method. Thus, the qualitative method was first carried out and its findings informed the quantitative method. Therefore, after the researcher analysed the data from the qualitative method, the results were used to build the quantitative methods to explore more widely the results of the initial method. As this study seeks to explore the role of the organisational culture in the implementation of D-government, an exploratory sequential mixed methods approach was considered most appropriate.

4.3.1 Exploratory Sequential Mixed Methods

Mixed methods are an integration between qualitative and quantitative research. So, mixing both qualitative and quantitative methods implies the use of methods which are conflicting in terms of their underlying epistemological assumptions. Therefore, this study can be styled as exploratory sequential mixed methods, as it aims to explore the role of the organisational culture on D-government implementation. However, Creswell (2014: 16) stated that the researcher in the exploratory sequential approach

> "*first begins with a qualitative research phase and explores the views of participants. The data are then analysed, and the information used to build into a second, quantitative phase*".

Figure 4.1 reveals the exploratory sequential mixed methods stages.

Figure 4.1 Exploratory sequential mixed methods
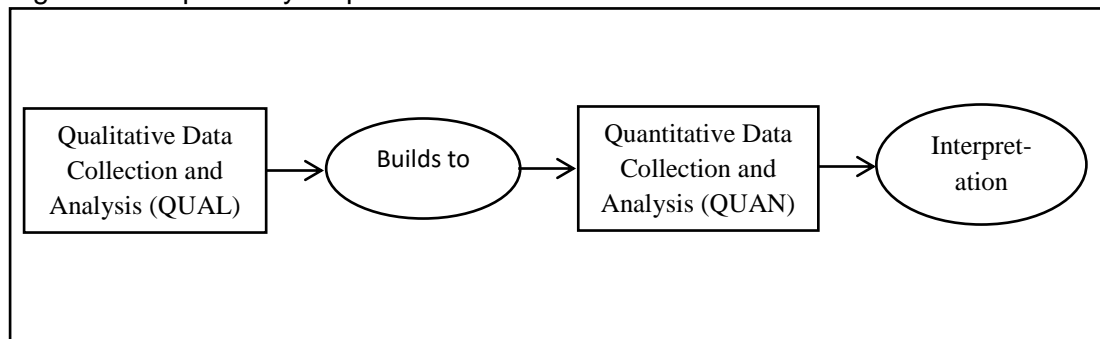
Source: (Creswell 2014: 220)

According to the Creswell (2014), the researcher follows a three stage procedure in the exploratory sequential mixed methods: stage one as exploratory, then developing the instrument and finally running the instrument with a sample of the population. Furthermore, the data collection of exploratory sequential mixed methods take place in two stages: the initial one with the qualitative data collection and then followed by the quantitative data

collection. Therefore, this strategy can be used to determine whether the qualitative findings can be generalised to a larger sample (Creswell 2014).

4.4 Methods of Data Collection

Bryman (2012) mentioned that the data collection stages represented the core phase of any research study. The following sections discuss the various instruments used to collect the data.

4.4.1 Qualitative Methodology

As this study seeks to gain an in-depth understanding of the practices and experiences of public organisations culture and their impact on the implementation of D-government, a qualitative method will be used namely, semi-structured interviews.

4.4.1.1 Semi-Structured Interviews

Many authors e.g. Bryman (2012) mention that the most commonly used method in a qualitative research is the interview. Kvale (1996) defines the interview as an interchange of opinions between more than one person on a specific issue of common attention, understanding the importance of human communication for knowledge creation and highlights the social position of the research data. According to Blaxter et al. (2010: 193)

> "*The interview method involves questioning or discussing issues with people. It can be a very useful technique for collecting data which would likely not be accessible using techniques such as observation or questionnaires*".

One of the most common techniques for getting the interpretations of informants in the information systems field is interviews (Walsham 2006). However, there are three main types of interviews: unstructured interviews, structured interviews and semi-structured interviews used in qualitative research (Bryman 2012).

In qualitative interviews, the interviewee's point of view is sought in much greater depth than is possible in quantitative methods. Hence, it is important to include a qualitative method in order to explore more hidden facts by digging inside the organisations chosen for this research. Therefore, this study chose to use semi-structured interviews to explore issues which could throw more light on the research questions. Bryman (2012: 212) defines the semi-structured interviews as

> "*a context in which the interviewer has a series of questions that are in the general form of an interview schedule but is able to vary the sequence of questions*".

Face to face semi-structured interviews were conducted as they were most suitable for eliciting the interviewees' views in order to address the research questions. Furthermore, it was expected that responses to these interviews would give a clear understanding of how organisational culture could have an impact on the implementation of D-government. Moreover, in the semi-structured interviews, the interviewer has the opportunity to ask further questions to elaborate on and gain further clarifications to the responses of the interviewee.

The interviews were planned to be conducted in the Arabic Language which is the mother language of the participants. This permitted the participants to have more flexibility to explaining and giving full answers without any language barriers to explain what they wanted to say.

4.4.1.1.1 Selection of Participants

Finding and selecting the appropriate organisations was one of the essential decisions to be taken. All public organisations have their own individual plans to implement the D-government therefore, due to time limitations and the 80 public sector organisations in Oman, this study selected a sample of 10 organisations to be covered by the research. The selected organisations have been considered to represent organisations which were different from each other in size, structure, and type of services provided. These differences in organisational environments were considered to be useful so that comparisons could be made during the data analysis. Moreover, it allowed for an exploration of whether the type of organisational culture had a different impact on the implementation of D-government.

Accordingly, all the participants were selected from the IT Department as this study aimed at exploring the role of organisational culture on D-government implementation and the employees in IT Departments were responsible for implementing D-government. Moreover, the employees in IT departments know more about the issues that face the implementation process of D-government and any other issues related to this field as they have interactions with all departments in organisations in order to implement the D-government systems. However, the quantitative method is designed to

embrace a larger number of organisations and to include employees at all levels and from different departments.

Consequently, it was very difficult to know in advance how many interviews were needed to get all the data that was required to cover the research questions. Bryman (2012: 425) mentioned that

"*In general, sample sizes in qualitative research should not be so small as to make it difficult to achieve data saturation, theoretical saturation, or informational redundancy. At the same time the sample should not be so large that it is difficult to undertake a deep, case-oriented analysis*".

The saturation level was decided by the researcher as the point at which no further relevant data was being added to what had already emerged from earlier interviews. Once the point was reached where no further insights were being revealed, this was taken as the saturation point.

Thus, the key participants were chosen according to their job titles and responsibilities. The interviews covered three different kinds of stakeholders; top level of management, middle level of management and operational level. This was to ensure that the data collected represented different key players at different levels in the implementation of D-government in the organisation as well as increasing the data validity and reliability. The explanation of each stakeholder is as follows:

1. **Top Management Level**: One of the main stakeholders was the decision makers who have to plan and devise or approve the strategies plan in the public sector organisations. However, those who were selected from this

level of management represented different jobs such as the Deputy CEO, Director General of Information Technology Directorate and Director General of Infrastructure Operation Division. Hence, this would give explanations of and understandings about the decisions that have been made in the organisations related to the implementation of D-government. Moreover, the main goal was to cover a sufficient number of participants directly involved in strategic decision-making. For that reason, participants included IT planners. In addition, the questions to the decision-makers were designed to explore how their role as decision-makers influenced the strategy and process of the implementation of D-government. Furthermore, as mentioned in Chapter 2, top level management is very important in the context of organisational culture as it participates in shaping the culture of the organisation.

2. **Middle Management Level**: This level covered key persons in the middle management level which is accountable for implementing D-government. This level is important as set in the middle between the strategic planners (top management level) and the operational level. This level represents employees such as Head of Information Technology Department, Projects Manager at IT Directorate and Head of Database Department.

3. **Operational Level**: The study included those who were working in the implementation of the D-governments in these organisations and represented the employees who worked in the Information Technology Department such as web designers and developers, database developers, system analysts, network engineers and IT technical support staff. This

level was considered to be helpful to explore how the implementation of D-government was affected by different factors of organisational culture as they were the main people who were responsible for implementing the strategic decisions in field.

The number of interviewees who were contacted and those who agreed to participate from different levels in each organisation are presented in Table 4.2.

Table 4.2 The numbers of interviewees who were selected and the levels represented

Interviewees Type	Number of persons contacted	Number of persons agreed to participates
Top Management Level	8	5
Middle Management Level	12	7
Operational Level	16	9
Total	**36**	**21**

The second column in Table 4.2 shows the total number of persons (36) who were contacted by the researcher to participate in the study representing the three different kinds of stakeholders. Column 3 in Table 4.2 shows the number of persons who agreed to participate and take part in this study (21). Each participant was contacted by the researcher through email and some of them by phone to ask them if they would like to take part in an interview and contribute to this study. If they agreed to participate in the study, they were asked to send the consent form before the interview and they were informed of their right to change their minds and would have the right to withdraw at any time without giving a reason.

The interviews were conducted during July 2014 and August 2014 and were conducted in the Arabic Language. Moreover, interviews were conducted face-to-face at the participants' offices or in some cases outside their workplaces according to their request as they were busy during their working day or because of confidentiality and privacy. Additionally, all interviews were recorded with permission from interviewees except for 5 who did not wish to be audio recorded so notes were taken by the researcher throughout these interviews.

4.4.1.1.2 Interviews Design

The interviews were designed as semi-structured interviews in order to motivate the candidate to interpret what happened and to give more details. Accordingly, the type of questions in the interviews were open-ended which would enable the researcher to explore, probe and get below the surface. Furthermore, these types of questions were expected to help to get data from the respondents more efficiently than closed questions because this will give the interviewer the space to explain and cover some areas that might not have been anticipated by the researcher and allow for as much detail as possible. Also, this gave the researcher the opportunity to ask different questions from the responses given by the participants. The researcher was careful not to control the interviews to such an extent as would have impeded the respondents from giving as much detail as they wished to disclose and missing out on much of the raw data of critical importance for this research (Orlikowski and Baroudi 1991). A copy of the interviews questions are presented in Appendix 4.1.

Participants were provided with enough information about the research and the study aim and objectives. Moreover, participants were given two different documents, information sheets and consent statement forms, samples of which are in Appendix 4.1. Bryman (2012) mentioned that the consent forms helped the participants to be entirely aware of the nature of the research and the implications of their participation. Moreover, this helped the researcher in case any concerns were later raised by any participants as they had signed the consent document. However, asking participants to sign this document could have resulted in some of the interviewees refusing to participate in the study as for example, in the case of one of the managers who when first contacted had agreed but then refused to take part after asking that manager to sign the consent form. But, as part of ethical considerations, it was very important to have consent forms signed by the participants. Therefore, each participant in the interviews received a copy of the information sheets that had the contact details of the researcher in case they wanted to contact the researcher at any time about their participation.

The average length of the interviews was designed to be around 30 to 40 minutes. The interview questions were divided into five main issues. The first question of the interviews aimed to explore how the decisions of implementing new systems were taking place and how the employee was involved in the decisions making. The second question aimed to discover the situation of D-government implementation in the organisations. Third and fourth questions aimed at exploring the impact of the organisational culture on the D-government and the changes that happened or could happen in the organisation with D-government implementation. Furthermore, those

questions were used to identify the aspects of the organisational culture that could play a role in the implementation of D-government. Question five aimed at discovering, from the perspective of each interviewee, the main factors that could help to achieve effective and successful implementation of D-government. The questions were devised by the researcher to embrace the various themes which emerged from the literature review as potential issues to be explored in interviews. The choice of interviews as an instrument for collecting data was made because they provide more in-depth insights into each of these factors and give rich and detailed information (Flick 2014).

4.4.1.1.3 Piloting and Pre-testing the Interviews

The number of participants included in piloting and pre-testing the interviews vary from one study to another. Kim (2011) refers to two participants for piloting study whereas, Connelly (2008) recommend 10% of the participants. However, in this study a pilot test was conducted with 2 participants for the semi-structured interviews which equalled around 10% of the participants. This pilot study assisted in testing the interview questions to discover whether the questions were clear and unambiguous while maintaining an open-ended approach (Kim 2011). It also helped to check the sequences and flow of the questions and whether it was necessary to reorganise them or whether any should be deleted (Beebe 2007). Moreover, it provided some expectation of the kinds of replies and responses that were likely to be received and whether the interviewer needed to add further clarifications.

The pilot test also helped the researcher to check the average time that was expected to be required for each interview. Additionally, it provided some

help in testing the recorder device that would be used in recording the interviews as well as the quality of sound. Furthermore, it enabled the interviewer to be more confident of interviewing techniques and their effectiveness. Some adjustments were made according to the pilot test such as adding a number of sub questions to two of the main questions. Moreover, the order of main questions as well as rephrasing one of them as it was found to be unclear by the participants in the pilot study.

4.4.2 Quantitative Methodology

As mentioned previously, this study used an exploratory sequential mixed method. Therefore, the quantitative method was designed after the qualitative method was conducted and analysed. The instrument used was a survey.

4.4.2.1 Survey

According to Blaxter et al. (2010: 201)

> "*Questionnaires are one of the most widely used social research techniques. The idea of formulating precise written questions, for those whose opinions or experience you are interested in, seem such an obvious strategy for finding the answers to the issues that interest you*".

Based on the interview results, the questionnaire was designed to give greater breadth to the findings from the interviews.

4.4.2.1.1 Survey Objectives

The main objectives of the survey were:

1. To assess the organisational culture of the organisations using the Organisational Culture Assessment Instrument (OCAI) (See Chapter 2, section 2.5) and then explore how the organisational culture could affect the implementation of D-government.

2. To build on findings of the qualitative method (interviews) as well as to know how widespread those issues were throughout the whole sector.

4.4.2.1.2 Selection Process

The population for this survey was all 80 public sector organisations in Oman, which are listed in Appendix 4.2. By targeting the whole population, each individual organisation had an equal opportunity of participating in the survey. A total of 33 organisations agreed to take part in the survey, which represents (41.3%) of total public sector organisations. Additionally, the total number of participants who completed the survey was 957 participants.

4.4.2.1.3 The Survey Design

The survey was designed to be distributed online through Web Survey Creator (WebSurveyCreator 2014). This website was used as it supported a multi-language survey design in which the participants were able to choose which language they preferred before starting. The survey was designed in two different languages, Arabic and English. The translation was done by the researcher to check that the two versions were identical. Moreover, the Web Survey Creator is offered through different devices such as PCs, smart phones, and tablets. It was found through piloting that some other web survey creators were not compatible with certain devices, especially smart phones. This was one of the reasons for choosing the Web Survey Creator

(WebSurveyCreator 2014) which would be the best platform for launching the survey. Only 7 participants used the English version.

In addition, this website provided different smart designs of questions which were not found in most of the free survey websites. Indeed, this was one of the main considerations in opting for Web Survey Creator. For example, one of those types of designs was used in the six questions in section two of this survey. Each of these questions had four alternatives A, B, C, and D and participants were asked to distribute 100 points among these four alternatives in proportion to how they viewed the relative importance of these alternatives. To guarantee that participants did not make any mistakes such as exceeding the total score or not allocating the full 100 points among the alternatives and in order to keep it easy for them to answer it in a quick way, it was important to use a specific design for this section which was programmed into the survey of this section. This functionality was very user-friendly, did not allow for errors in rating and was also easy for later analysis as the percentages were automatically calculated.

The survey was divided into three main sections as outlined in Figure 4.2. A copy of the distributed survey is attached in Appendix 4.3. An information sheet was included at the beginning of the survey and the participants were informed clearly that if they returned the survey with answers completed, this would be taken as their agreement to partake in this research. The information sheet explained to the participants the aim of the study with some instructions such as that all their answers would remain confidential and any

identifying material would be removed in order to ensure their anonymity. The sections are outlined in Figure 4.2.

Figure 4.2 The survey structures

Section I: Background Information	Gender, age, educational level, work experiences and organisation name.
Section II: Assessment of the Organisational Culture	Assess the organisational culture in term of: 1. Dominant characteristics, (Q1) 2. Organisational leadership (Q2) 3. Management of employees (Q3) 4. Organisation glue (Q4) 5. Strategic emphases (Q5) 6. Criteria of success (Q6)
Section III: The Impact of Organisational Culture on D-government Implementation	Assessing the impact of organisational culture on the D-government implementation (Q7 to Q17) Organisational Culture and D-government Factors (Q18) D-government Level of Implementation (Q19)

The first stage, which consisted of semi-structured interviews, informed the development of the survey questionnaires except for section two which used the original questions of the OCAI as the main aim of this section was to identify the culture of the organisations which participated in this study. The survey questions in section three were derived from the main themes that

emerged from the thematic analysis of the qualitative interviews. Additionally, question No.18 asked the participants to order eight factors according to their importance in D-government implementation. More details of the survey are presented in the next section.

Section one: This was designed to obtain background information about the participants. It included the gender, age, educational level, work experiences and the organisation name. Such information helped to compare between the organisations and categorise the results by different classifications criteria. However, organisations' names were not mentioned in the analysis in order to ensure anonymity and as part of the ethical considerations. However, each organisation was given a code from A to AH. This is outlined in more detail in Chapter 6.

Section two: This section aimed to assess the culture of the organisations according to the Organisational Culture Assessment Instrument (OCAI) (See Chapter 2, section 2.5). The study used the original questions of the OCAI and did not amend any of them as the original questions of the instrument were specifically designed and validated to measure and identify the organisational culture type. Therefore, assessing the organisational culture helped to compare between public sector organisations according to their type of culture. The questionnaire of this model, covered six different aspects (question 1 to question 6 in the survey) each of which had 4 alternative (A, B, C, D) which represented the four main types of organisational culture (clan, adhocracy, hierarchy, and market). The participants distributed 100 scores among each of four alternatives depending on the extent to which each

alternative resembled their own organisation by assigning a higher score to the alternative that was most similar to their organisation.

Section three: This part aimed to build on findings of the qualitative methods. It included 13 questions. The first 11 questions used a 5-point Likert scale to express the degree of participants' agreement or disagreement with each statement where: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. 5-point Likert scale used as this appropriate for participant to select the choice that closely match their opinion (Best 2014). These 11 questions start from question number 7 in the survey to question number 17. Thus, questions represent different issues from the qualitative data such as top management support, employee's involvement in D-government implementation, the employees' acceptance of D-government, training and evaluation in D-government implementation. In addition, after all these questions, a comments space was added (open question) to provide the participants with an opportunity to add any comments they would like to include related to the topic. Finally, the other two questions (Q18 and Q19) in this section; one of them asked participants to rank certain factors according to their importance to their organisation in order to achieve the successful implementation of D-government in their organisation; the second asked the participants to indicate the degree of implementation of D-government in their organisation by assigning a percentage score from 0% to 100% to indicate the current level of implementation.

4.4.2.1.4 Piloting and Pre-testing the Survey

Bell (2010: 151) states that

> "*All data-gathering instruments should be piloted to test how long it takes recipients to complete them, to check that all questions and instructions are clear and to enable you to remove any items which do not yield usable data*".

A pilot test was conducted with 12 participants for the survey. The pilot test helped the researcher in testing the survey and reviewing the survey questions. Furthermore, it helps to test the design and layout of the survey as well as the length of time that was used to complete the survey. Moreover, it assisted in checking if the survey had any practical or contextual issues that could affect the data collection process such as if it was appropriate to open through different devices like smart phones, tablets and computers.

Accordingly, all the feedback and reviews from the participants in this pilot test were collected and used to edit the survey draft. Some of the feedback suggested changing the words of some statements to be in simple and clear language for the participants. Changes were implemented to the survey according to the reviews and after that they were distributed.

The data collection for the quantitative method began by distributing the survey from 16th March 2015 until 12th August 2015. A link to the online survey was distributed to all the managers who were interviewed in the qualitative method and to different managers in the public sector organisations to be distributed to all employees in their organisations. Accordingly, the researcher used email, and social media such as Twitter,

WhatsApp and Facebook to send the link to reach many employees. Moreover, some copies were distributed offline to cover those who did not have internet access or did not have the opportunity to look at the survey online for various reasons. This yielded 235 returns out of 280 distributed offline.

4.5 Data Analysis

As the study used an exploratory sequential mixed methods approach, the researcher analysed the two methods separately. Moreover, the researcher used the data that was found from the initial qualitative method to build into the second quantitative methods. Therefore, the following sections will explain how each method was analysed.

4.5.1 Interviews Analysis

The technique used to analyse the interviews was thematic analysis. Bryman (2012) mentioned that thematic analysis is one of the most commonly used approaches for analysing the qualitative data. Braun and Clarke (2006: 79) define the thematic analysis as

> "*a method for identifying, analysing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail*".

According to Guest et al. (2011) a thematic approach can be applied either for exploration or confirmation purposes. Hence, this study used it to explore the relationship between organisational culture and the implementation of D-government.

However, Flick (2014) states that as practical steps and according to the authors who proposed thematic analysis Braun and Clarke (2006), they used this method as an example only for the interviews analysis which could limit the use of it only for the interviews analysis. Nevertheless, this study used thematic analysis for analysing the interview data which avoided any limitation of use for this type of analysis. The data analysis processes of the interviews followed the steps developed by the Braun and Clarke (2006). Those steps were:

1. Familiarising yourself with your data
2. Generating initial codes
3. Searching for themes
4. Reviewing themes
5. Defining and naming themes
6. Producing the report

However, those steps are

"not *a linear process where you simply move from one phase to the next. Instead, it is more recursive process, where you move back and forth as needed, throughout the phases*" (Braun and Clarke 2006: 86).

The processes start when the researcher starts getting or finding arrangements of meaning for the data that has been collected.

Step 1: Familiarising yourself with your data
During this step, the data were organised and prepared for analysis. It is very important in thematic analysis to become familiar with the data. Therefore, as the data was collected by the researcher, a prior knowledge and general

understanding of the data was acquired. However, after the data collection initial stage was concluded, the data analysis commenced by translating all the interviews from Arabic to English. The translation was carried out by the researcher in order to protect the anonymity of the participants and to ensure that all the main key words were translated carefully. Then the researcher transcribed all the interviews one by one. Bryman (2012: 469) explains that

> "*Interviewing, the transcription of interviews, and the analysis of transcripts are all very time-consuming, but they can be more readily accommodated into researchers' personal lives*".

Moreover, Bryman (2012) points out that it is worthy to give an average time of transcribing for each hour of speech around five to six hours. However, Braun and Clarke (2006: 88) argues that

> "*the time spent in transcription is not wasted, as it informs the early stages of analysis, and you will develop a far more thorough understanding of your data through having transcribed it*".

Then, the transcripts were laid aside for two weeks before another reading took place. This reading ensured that the researcher became immersed in the data for greater understanding of the contents of the interviews data (Braun and Clarke 2006; Creswell 2014).

Step 2: Generating initial codes

This step is focused on extracting initial codes from the data by using the QSR NVivo 10 software package (computer assisted qualitative data analysis package). According to Bell (2010: 221) "*Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study".* Bell (2010: 222) also state that *"Coding allows you*

to cluster key issues in your data and allows you to take steps towards drawing conclusions". Flick (2014) states that thematic coding is used as a multi-phase procedure.

Accordingly, there are different types of practices and systems that could be used for coding the data. It could be hand coded which takes much more time or through computer systems which saves much of the researcher's time. Therefore, the study selected the computer systems and specifically the QSR NVivo 10 software package to analyse the interview data. The QSR NVivo software package helped to analyse the qualitative data by coding all the interview answers and divided them into different themes and categories. Furthermore, it helped to distinguish differences and similarities between interview responses.

213 initial codes were generated (See sample of interviews extracts with initial codes in Appendix 4.4). The researcher produced an initial list of codes that were generated from reading through the data. Coding was done by finding patterns in the raw data and also developed intuitively (Foss and Waters 2003). These coded data were used in later stages to generate themes. The researcher generated as many codes as possible as any of them might have become important at a later stage. In fact, many authors recommend keeping the initial codes as wide and as open as possible at this stage and later reducing the number of codes once the complete array of codes has been comprehended by the researcher (Braun and Clarke 2006; Creswell 2014). For example, lack of specialised training and lack of technical training were retained at this initial stage but were later dropped as

the main issues involved were combined under other main themes. This was to ensure that no important insights were lost.

Step 3: Searching for themes

Thematic analysis depends on generating themes or patterns from the data that has been collected. Braun and Clarke (2006: 82) define a theme as

> "*something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set*".

To generate an explanation of themes the researcher used the coding process (Creswell 2014). Therefore, the long list of codes that were generated from the previous step formed the main findings of the qualitative data. Then, all the relevant codes were collated and data extracted to generate recognised themes. Therefore, many codes were combined and sorted to generate main themes. The researcher used concept mapping in order to develop the main themes and sub-themes. Babbie (2010: 405) explains that a concept mapping is "*the graphic display of concepts and their interrelations, useful in the formulation of theory*". It helps to make general view of the major themes and sub-themes that get from each interview. It also helps to organise, link and combine the initial codes and generate main themes to produce an overview of all the transcript data (see sample concept mapping in Appendix 4.5). Themes were identified from these initial codes resulting in 120 over-arching themes; these are called nodes in the NVivo programme. These nodes were identified by the researcher whilst analysing the 213 initial codes to discover commonalities among them and therefore reduced the number of codes from 213 to 120 over-arching themes.

Step 4: Reviewing themes

At this step, all the generated nodes were reviewed to check that they fitted together and that there were no unnecessary overlapping between them. This review allowed the researcher to further reduce these themes by organising them into manageable categories (main themes) and each category had their own sub-themes which were related to each other. Moreover, there were some additional themes that were broken down into different sub-themes as these gave a better and more meaningful classification. This was necessary in order to reduce the large number of themes into a scheme which enabled the researcher to present the findings in a comprehensive and cohesive manner (Braun and Clarke 2006).

Step 5: Defining and naming themes

During this step, all themes and sub themes were named and labelled according to what they represented and reflected. Then, all those themes were collated into 11 main themes and 31 sub-themes. These themes and sub-themes were listed in Chapter 5.

Step 6: Producing the report

As the last step, this procedure is to present the result of the analysis. Therefore, the full findings of the analysis of semi-structured interviews are reported in Chapter 5.

4.5.2 Survey Analysis

As a first step in the data analysis the offline and online survey responses were combined in the same file. The file was then uploaded into the Statistics Package SPSS version 22.0 Software for analysis. The analysis process

commenced by coding and defining the variables used in the survey Babbie (2010: 425) defines the codebook as a document that helps in the data analysis and "*identifies the locations of data items and the meaning of the codes used to represent different attributes of variables*" (See Table 4.3). Then, it explored the data using descriptive statistics followed by statistical tests to explain the relationship between the variables in the data.

Table 4.3 Survey Codebook

Section	Variable Name (Questions) in Survey	SPSS Variable Name	Coding Instructions
Section I: Background Information	Gender	Gender	1 = Male 2 = Female
	Age	Age	1= Under 20 years 2= 20 – 30 years 3= 31 – 40 years 4= 41 – 50 years 5 = Over 51 years
	Educational Level	Educational_Level	1= Secondary School 2= Higher Diploma 3= Bachelor 4= Master 5= PhD 6= Other
	Work Experiences	Experiences	1= Less than 5 years 2= 5 to 10 years 3= 11 to 15 years 4= Over 15 years
	What is the name of the organisation you work for: (this includes all public sector organisations such as ministries, authorities, governmental companies...etc.)?	Organisation	Each organisation was giving a code from A to AH
Section II: Assessment of the Organisational Culture	Q1. Dominant Characteristics Items from A to D	A1 to D1	Distribute 100 scores among these four alternatives.
	Q2. Organisational Leadership Items A to D	A2 to D2	
	Q3. Management of Employees Items from A to D	A3 to D3	
	Q4. Organisation Glue Items from A to D	A4 to D4	
	Q5. Strategic Emphases Items from A to D	A5 to D5	
	Q6. Criteria of Success Items from A to D	A6 to D6	
Section III: The Impact of Organisational Culture on D-government Implementation	Questions 7 to 17	Q7 to Q17	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Q18. Please order the following factors starting with the low important factor to the most important factors in order to achieve the successful implementation of D-government in your organisation (1 = the lowest importance and 8 = the most importance).		

Employee awareness of the new system being implemented.	Employee_awareness	
Support of management in the organisation for the implementation of D-government.	Management_Support	
Sufficient financial and human resources for the implementation in the organisation.	Sufficient_Resources	
Involving employees in the decision making for implementing new systems.	Employee_Involvement	1= Choice 1 2= Choice 2 3= Choice 3 4= Choice 4 5= Choice 5 6= Choice 6 7= Choice 7 8= Choice 8
Security and trust in new system.	Security_and_Trust	
Evaluation of the public sector organisations for the implementation of D-government.	Evaluation	
Training of employees in the use of the implemented systems.	Employees_Training	
Working collaboratively and integrating with other organisations.	Integration	
Q19: Please indicate the degree of implementation of the D-government in your organisation (Choose the percent that you think reflects the current situation of implementing D-government in your organisation Considering that 0% = There is no implementation of D-government in the organisation and 100% = D-government is fully implemented by transforming all services and systems of the organisation electronically).	Implementation_Level	Enter degree of implementation

The codebook shows the variable name as used in the survey, the abbreviated name of the variable used in the SPSS software as well as the code details for the responses obtained. This helped to label each of the variables in the survey to be suitable for use in the Statistics Package SPSS.

Accordingly, 957 participants completed the survey. However, after the first review it was found that 225 of those participants were not relevant or could not be included in the study for different reasons. 16 participants had not answered any of the survey questions except the background information section. Furthermore, as the survey was widely distributed through different social media, it was found that 41 of the participants belonged to private

organisations and, so, were beyond the scope of this study. The remaining 168 participants were not included as they had not fully completed the survey questions. In addition, running statistical tests retaining the 168 incomplete sets of data did not produce significantly different results. Therefore, after excluding irrelevant participants, 732 participants were finally included in this analysis which is equal to 76.5% of the total respondents. In order to decide on which inferential test would be appropriate, the data will be checked for normality using Shapiro-Wilk test and Kolmogorov-Smirnov tests. The full findings of the analysis of the survey are reported in Chapter 6.

4.6 Validity and Reliability

Babbie (2010: 153) defines validity as "*a term that describing a measure that accurately reflects the concept it is intended to measure*". Moreover, Creswell (2014) explains that for qualitative validity, researchers have to utilise different procedures for examining the truthfulness of the findings in their studies. On the other hand, Babbie (2010: 150) defines reliability as the

> "*quality of measurement method that suggests that the same data would have been collected each time in repeated observations of the same phenomenon*".

Therefore, validity and reliability need to check for both methods qualitative and quantitative. Therefore, the reliability and validity of the study were checked and ensured while choosing the appropriate methods for analysing data as well as while choosing the participants and organisations by addressing the following techniques:

1. Mixed methods were used which supports the reliability and internal validity of the study. Hence, using mixed methods approach should

improve the capability of the researcher to measure the accuracy of data found as well as persuading readers of its accuracy, because using different methods will confirm the themes that were formed by certain sources of data or different viewpoints from participants which will enhance the validity of the study (Creswell 2014).

2. As this study used exploratory sequential mixed methods, therefore, to increase the validity of the study, the researcher made sure that the individuals sampled in the first method were not included in the second method, as well as the both samples in the both methods drawing from the same population (Public sector organisations in Oman) as this could present unnecessary duplication of answers (Creswell 2014).

3. All the data collection and data analysis procedures were described in detail to ensure a clear vision of the methods used in this study.

4. The researcher provided the interviewees' positions to ensure the reliability of the interviews.

5. Long term of the survey distribution over a five month period of time, as well as online and offline distribution to ensure that all had an equal chance to participate.

6. Creswell (2014) states that pilot testing is essential to create the content validity of the survey and enhance the questions, as well as layout and scales. Therefore, a pilot study was conducted for both methods used in this study. The researcher ensured that all the questions were understandable and presented in a coherent order. Therefore, the feedback was collected and modifications and rephrasing made to questions that might not have been clear for the

participants. Moreover, pilot studies allow for checking the appropriateness of the time allocated for each method.

7. Creswell (2014) states that one of the survey internal validity threats was that the selection of the participants could be according to specific features that could dispose them to have certain results such as they are 'brighter'. Therefore, the researcher, in order to avoid such threat of validity, distributed the survey to target all the employees, so the characteristics have the chance of being fairly distributed between the participants and organisations.

8. Creswell (2014) states that researcher should ensure the reliability of the qualitative methods by checking that the transcripts did not contain any errors which could have occurred in the transcription stage. Moreover, researchers have to check the meaning of all themes to ensure that there was no deviation in their meaning during the coding phases. Therefore, all those steps were taken by the researcher in this study in order to increase the reliability of the study.

9. According to Bryman (2012: 169), in establishing the internal reliability "*The key issue is whether the indicators that make up the scale or index are consistent*". Therefore, to measure the internal reliability of the survey, Cronbach's alpha test was applied. This measure checks the internal consistency of the instrument. The results revealed that the consistency coefficient (Cronbach's alpha) was high enough to be considered very good. The Cronbach's alpha for the total survey was 0.811, which is considered as a high consistency ratio and an acceptable level for the statistical analysis purposes. Bryman (2012: 280) mentioned that "*The closer the coefficient is to 1 the higher the*

agreement and the better the inter-observer consistency". This meant that the findings of this research could be accepted as highly reliable. Consequently, there was a high degree of confidence that this research would produce similar results if replicated under similar conditions.

4.7 Ethical Considerations and Procedures

Gravetter and Forzano (2009) identify the research ethics as the duty of the scholars to be frank and respectful to all people who are going to be affected by the study or the results and outcomes of the study. Therefore, the researcher followed the ethical rules and regulations as set out in the University's guidelines for conducting research.

In the interviews, the interviewees will have the right to answer all or part of the questions that will be asked by the researcher. Moreover, the interviewees will have enough information about the researcher, the purpose of the study and how researcher will use the data that would be collected from the interviews. Furthermore, all participants' information and their organisations' names would be anonymous. However, only their position title was stated in order to ensure the internal validity and reliability of the study. In addition, interviews were recorded only after obtaining their permission which was used by the researcher only for the purpose of the study. However, any audio records of interviews data will be locked away securely in the home office of the researcher and will be deleted following the completion of the research. All this information was conveyed to the interviewees by giving them an information sheet and consent statement as part of the ethical considerations.

According to the survey results, participants did have sufficient information about the researcher, what were the purposes of this research, and how the collected information was to be used. All this information was highlighted in an information sheet and was clearly presented for all participants in the first part of the survey and before starting to answer any questions. In addition, the survey was distributed online and data were saved securely by password protection, so that no other person could access the data except the researcher. Moreover, in the survey, researcher did not ask the participants to disclose their names or any private information such as addresses and phone numbers thus ensuring that respondents were protected from any future harm from the survey.

4.8 Summary

This chapter discussed the research methodology and design. The use of mixed methods for collecting the data was highlighted; namely qualitative and quantitative data collection methods. Moreover, the researcher used an exploratory sequential mixed methods which consisted of interviews as initial phase and then building the second phase (survey) from the analysis of the findings of the first phase.

Next, this chapter explains the data analysis which was used for both methods. Thematic analysis was used for the interview data through the QSR NVivo 10.0 software package. The quantitative data was analysed, by using Statistics Package SPSS version 22.0 Software. Finally, this chapter discussed the validity and reliability of the study as well as the ethical considerations.

Chapter 5: Qualitative Data Analysis and Findings

5.1 Introduction

The aim of this research is to explore the role of organisational culture in D-government implementation in Omani public sector organisations. A mixed methods approach was considered appropriate for addressing this aim (See Chapter 4). This chapter presents the findings from the first stage of the mixed methods which was qualitative in nature. Semi-structured interviews were conducted and the data analysis and the main findings from this analysis are presented in this chapter.

The interviews were designed to answer the research questions:

RQ1. What is the relationship between the dominant organisational culture and the implementation of D-government in Oman?

RQ2. How does organisational culture impact on the implementation of D-government in Oman?

These questions were exploratory in nature and were addressed by means of a mixed methods approach. The findings of the qualitative stage are presented here and provide an in-depth perspective on both research questions. A thematic analytical approach was adopted and the main findings are presented as themes and sub-themes. Greater breadth will be provided in Chapter 6 where a quantitative method was adopted to explore the extent to which these themes and sub-themes were found in a wider survey.

21 interviews were conducted in July and August 2014 with employees from a number of public sector organisations in Oman. The 21 participants were drawn from management and operational levels in the organisations. This was to ensure that all key players in the implementation of D-government were consulted and the different perspectives of top and middle management as well as those of employees at operational level were included (See Chapter 4, section 4.4.1.1.1).

Table 5.1 shows how each participant was coded prior to analysis of their interview data in order to protect their identiy and confidentiality (See Chapter 4, section 4.7).

Table 5.1 Code book with the particular details of the interviewees

No.	Gender	Interviewee Code	Interviewee Position	Organisation Code
1	Male	O1	Web designer and developer	Organisation A
2	Male	M1	Head of Networks and Technical Support Division at Directorate of Information Technology	
3	Male	M2	Head of Internet Department & supervisor of electronic government implementation	Organisation B
4	Male	M3	Head of Database Department at Information Technology Services Directorate	Organisation C
5	Male	O2	Database Developer	
6	Male	T1	Deputy CEO for infrastructure & E-Services	Organisation D
7	Male	O3	Legal Consultant	
8	Male	T2	Director General of E-Services Development Division	
9	Male	T3	Director General of Infrastructure Operation Division	
10	Male	M4	Head of Information Technology Department	Organisation E
11	Male	O4	Application Developer	
12	Male	T4	Acting Director of Health Application Systems at Directorate General of Information Technology	Organisation F
13	Female	O5	Software Developer	
14	Male	M5	Projects Manager at the Directorate General of Information Technology	Organisation G
15	Female	T5	Director General of Information Technology	Organisation H
16	Male	O6	Systems Analyst	
17	Male	O7	Network Technician	Organisation I
18	Female	O8	Technical Support	
19	Male	M6	Head of Computing Support Division	Organisation J
20	Male	M7	Head of Networks Services Division	
21	Male	O9	Systems Engineer	

Table Key:
T = Top management
M = Middle management
O = Operational level
*Each participant at any of these levels is farther identified by a digit e.g. T3 indicates the third top management participant.

5.2 Interview Data Analysis

The data analysis of the interviews data followed the steps developed by Braun and Clarke (2006) for thematic analysis as these authors have developed a most systematic approach to analysing interview data understanding of this analytical method and have proposed the following steps for conducting the analysis (See Chapter 4, section 4.5.1):

1. Familiarisation with interviews data

2. Generation of initial codes

3. Searching for themes

4. Reviewing themes

5. Defining and naming themes

6. Producing the report

Following those steps provided by Braun and Clarke (2006), as mentioned in Chapter 4, section 4.5.1, 11 main themes and 31 sub-themes emerged from the analysis of the semi-structured interview data. These themes and sub-themes are presented in Table 5.2. Moreover, Figure 5.1 shows the thematic map that presents all the main themes and sub-themes in a simpler way.

Table 5.2 The main themes and sub-themes generated from qualitative analysis

No.	Main-themes	Sub-themes
1	Readiness of organisations for the implementation of D-government	Infrastructures on the organisation
		Budget
		Security
2	Acceptance of D-government implementation	Top management acceptance
		Middle management acceptance • Showing-up poor performance • Losing authorities • Going against management interest
		Operational level acceptance • Fear of making errors • Level of education • Satisfaction with old systems • Lack of trust • Age of the organisation
3	Awareness of D-government implementation	Top management awareness • Lack of self-confidence
		Middle management awareness • Lack of plan awareness
		Operational level awareness • Lack of knowledge • Age of organisation
4	Training	Type of training
		Barriers of training • Lack of focused training (irrelevant) • Limited to specific employee • Insufficient time of training • Limited budget for training
		Good practice in training
5	Management support	Top management support • Motivation of top management • Continuity of top management • Lack of consistency in decision-making • Lack of top management follow-up
		Middle management support
6	Human Resource Management (HRM)	2012 to 2014 recruitment
		Lack of experienced and qualified people
		The Omanisation policy in recruitment
7	Evaluation	Internal evaluation • Lack of internal evaluation
		External evaluation
8	Integration	Internal integration
		External integration • Physical integrations • Database integration • Procedural or process integrations
		Barriers of integration
9	Employee involvement in the decision-making processes of D-government implementation	Employee involvement • Lack of employee involvement • Involvement for specific people
		Stakeholders involvement
		Barriers of involvement
10	Organisation changes	Changes to organisational structure
		Changes to scope of authorities
		Creation of new jobs
		Changes to process and workflow • Business Process Re-engineering (BPR)
11	Laws and regulations	Lack of existing laws update
		Challenges in changing laws, regulations and policies

Figure 5.1 Thematic map
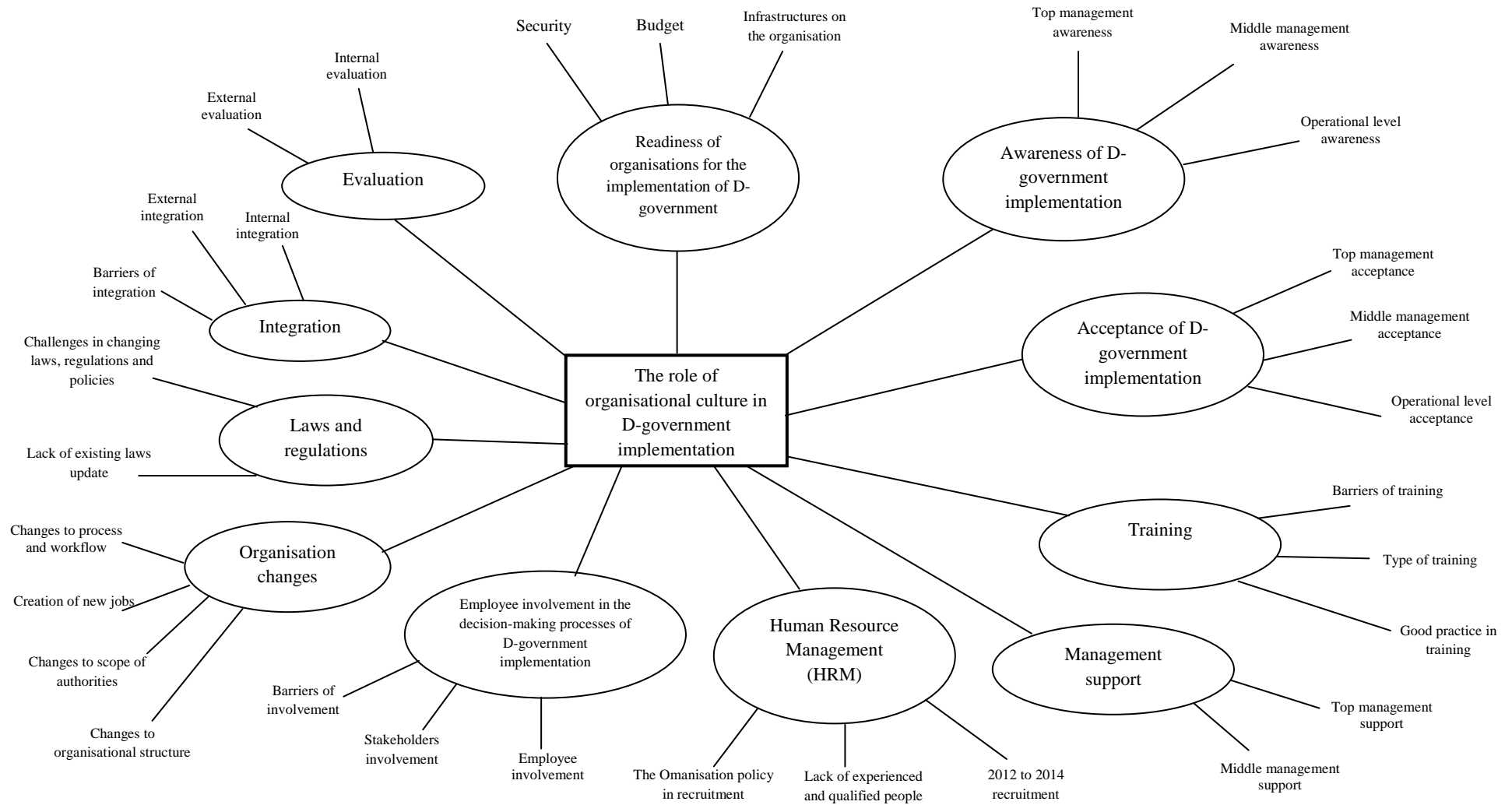
5.3 Main emergent themes

The completed analysis of the data revealed that the entire data could be comprehensively viewed under 11 distinct features each of which comprised a number of sub-themes. These themes and sub-themes were devised by the researcher as embracing the main issues which were considered to be important in the literature review although they emerged freely from the analysis. In other words, the literature provided the researcher with a useful organisational framework for presenting the findings. However, this schema was not primarily driven by the literature. The researcher was careful to ensure that the final themes emerged from the data and that the literature presented a framework for naming and organising the findings.

These 11 main themes are now commented on in this section.

5.3.1 Readiness of organisations for the implementation of D-government

Frequently mentioned in the interviews was the importance of the readiness of the organisation for the implement D-government. Particular attention was drawn by T3 (Director General of Infrastructure Operation) to how this made the organisation suitable for automating their services faster than organisations which were not ready. A key aspect of organisational readiness was the extent to which the internal environment or culture was open to accepting the changes required in transferring to a digital system. T1 (the Deputy CEO for Infrastructure and E-services) explained how the organisational culture was an important factor in determining the readiness of the organisation for the implementation of technology. He gave examples taken from the Omani private sector saying that organisations were of two

types, local and international. The international organisations were influenced by a global digital culture in which there was a greater openness to embracing change and innovation. In contrast, the local organisations tended to have a culture which was resistant to change, particularly innovations involving implementing digital technology. He continued by stating that lessons could be learned from those private international organisations which could be applied in implementing D-government. Similarly, M6 (the Head of Computing Support) said:

> *"I think if there is an organisational culture that is open to changes this will lead to easy implementation of the D-government"* (M6, Organisation J).

By this he was implying that such a culture was lacking in most public organisations. This was supported by (O2), a Database Developer, who blamed the delays in implementation on the culture of resistance to change which characterised many public sector organisations. In fact, the Director General of E-services Development recognised this problem which had arisen from the neglect of certain important aspects of implementation:

> *"We look to any D-government projects from four perspectives. Those four are either internal or external including people, process, policy, and technology. We have to do SWOT analysis for every one of those perspectives. … The mistake that we made in the last 10 years is we focused on technology perspective only and we forgot others"* (T2, Organisation D).

Clearly, priority had been given to technological issues to the neglect of people, processes and policies. This included the neglect of the role that organisational culture played in digital innovation. Other neglected issues,

which emerged from the interviews data, included availability of resources and infrastructures, availability of a realistic budget and security of data as each of these helps the organisational culture to be ready for the change to the D-government. These will be presented in the following section.

5.3.1.1 Availability of infrastructure

The Head of Networks Services Department mentioned that the infrastructure was not sufficiently developed for implementing D-government and this was because of the limited budget they had. He said:

> *"In our organisation, the D-government projects budget is limited which affects the organisation's readiness as we do not have sufficient infrastructure for implementing the D-government".* (M7, Organisation J).

Another employee from organisation (E) confirmed this point and said

> *"Unfortunately in our organisation we face an infrastructures problem as the hardware and software are somehow out of date"* (O4, Organisation E).

Moreover, in some other organisations, they had effective infrastructure but they faced networks problems. For example, the Head of Database Department mentioned that outside the capital city, the networks were very weak in some places.

> *"We have one of the best infrastructures in our organisation comparing to others but the problem is that the telecommunication companies networks are not supported in some areas outside the capital for implementing the D-government. Outside the capital city, the networks are very weak in some places and users suffer from this issue. We*

cannot do anything with this problem as it is not related to our organisation" (M3, Organisation C).

Other participants such as (M2, O2, M5 and T5) also mentioned that they had good infrastructure in their organisations.

> *"The things that help us is that we started early in the implementation of D-government and we have good infrastructures at this current stage"* (T5, Organisation H).

Thus, the lack of appropriate infrastructure was seen as impacting negatively on the organisations' readiness for D-government.

5.3.1.2 Budget

The impact of budget on the organisation's readiness was reported from a number of different perspectives. The Head of Information Technology Department pointed out that:

> *"The big problem in implementing any decision is a financial problem, so we have to specify specific budget for any project"* (M4, Organisation E),

thereby, indicating that budgets were often insufficient in making the organisations ready for implementation. This was also reflected in the comments of the Head of Networks and Technical Support who noted that:

> *"The most important thing before taking any decision for implementing any system is the budget availability. We have some budget issues to implement D-government which delay our implementation of many of our digital systems"* (M1, Organisation A).

A contrasting view was presented by one of the managers who noted that the budget specified for projects was different from one organisation to another:

> *"In our organisation, the budget for any project must not exceed 1 million Rial, but in other ministries, their projects cost millions. However, now, the top management raised the budget limit to 3 millions and if any project exceeds this number, it must go to Tenders Council and the procedures there take a long time"* (M4, Organisation E).

This suggested that some managers felt that budgets were often inadequate to meet the true cost of implementation. Thus, difficulties resulting from budgetary issues were seen by some as negatively impacting on the organisation's readiness for D-government. However, in other organisation participants thought that the budget was sufficient as one manager (M5) pointed out that in their organisations they had enough budget for implementing D-government.

> *"Our infrastructures and budget supports the implementation as the top management specify an appropriate budget for the D-government implementation"* (M5, Organisation G).

5.3.1.3 Security of data

Data security was found to be an important issue in D-government especially in some organisations, where data security was critical for national security. Attention was drawn to this by a number of respondents, for instance, one of the managers:

> *"The security of the information in this ministry delays the implementation of D-government. The security of the information in*

our organisation is a red line which we cannot pass" (M3, Organisation C).

"Some parts of the project cannot be given to a third party to do in terms of security, so the staffs in Director General of Information Technology do it internally" (M5, Organisation G).

It is clear from this comment that issues of information security can delay the readiness of the organisation to implement D-government.

In certain organisations where data security touched on sensitive issues or client confidentiality, middle managers did not have decision-making powers regarding D-government as this was a top management function which was often seen as an obstacle to implementation:

"The top management level in this organisation interferes in the implementation of D-government and especially if this touches the security of information within the organisation, we have to raise it to the top management" (M3, Organisation C).

However, other interviewees took a contrary view and considered that D-government would actually support and strengthen data security:

"D-government could secure the information better than traditional methods. Many problems can be avoided altogether such as losing files" (M4, Organisation E).

The new D-government systems were seen by the manager (M4) as being much more secure in that every time a file was accessed this was tracked and the particular user noted. Thus, the latest technology was seen as

providing a more robust audit trail of every time any file was accessed and by which user.

Furthermore, a number of managers mentioned that some organisations published certain rules to protect the security of the information through D-government implementation. Examples of these rules included one which required employees who worked in the IT Department to be security checked every two years. In addition, employees in some organisations were not allowed to take their mobile phones or memory sticks inside their organisations. Additionally, the USB ports were disabled in the system and could not be used. In this case, the more robust security offered by D-government implementation impacted positively on its acceptance by employees.

> *"I will give you examples of the rules that changed in the security side. For example, the employees are not allowed to take their mobile phones with them or any memory stick. Moreover, the USB are disabled in the system and cannot be used inside the ministry"* (M3, Organisation C).

In summary, each of the three sub-themes, infrastructure, budget and security affected in different ways, as explained above, the readiness of the organisation for implementing D-government. Where this impact was negative, it was found that there was an underlying organisational culture based on resistance to change or fear of the implications of changes. However, where the impact was positive, this was seen to be consequent to a greater readiness to accept D-government. Consequently, it was found in

this research that the readiness of an organisation for D-government implementation was dependent on a robust infrastructure, a realistic budget and proper security procedures. Thus, these three issues were found to have an impact on the culture of the organisation in terms of readiness for D-government. This will be discussed more thoroughly in Chapter 7.

5.3.2 Acceptance of D-government implementation

Acceptance is one of the main categories which emerged from the analysis of the interviews. According to the data analysis, there was a consensus that employees' acceptance and willingness to use the digital systems were very important factors for successful implementation. For example, a legal consultant employee (O3) who supervised D-government implementation in the public sector organisations supported this view and considered the openness of employees in the public sector organisations to accept change as being the main factor that could affect the implementation. Fortunately, the Director General of E-services (T2) on Information Technology Authority (ITA) stated that the acceptance of D-government in some organisations was at a very high level and this resulted in significant progress being made due to the generous ITA support being given to those organisations.

Acceptance had three main sub-themes, top management acceptance, middle management acceptance and operational level acceptance. This section focuses on the themes and sub-themes related to acceptance.

5.3.2.1 Top management acceptance

There was a general openness among top managers towards accepting D-government implementation and this openness was considered by middle managers to be of crucial importance in encouraging the implementation:

> *"One of the things that help us to implement the D-government is the motivation from the top management"* (M2, Organisation B).

They largely felt that it was a major factor of successful implementation. Therefore, in general top management tended to accept the changes involved in shifting to D-government. Moreover, this is found to be the Ministers Council orientation as some participants mentioned.

> "*The Ministers Council directed all the public sector organisations to start implementing D-government and transform all their services online*" (M4, Organisation E).

5.3.2.2 Middle management acceptance

In general, most middle managers working in IT departments were favourable to accepting the changes involved in shifting towards digital implementation. However, these middle managers indicated that middle management in other departments such as finance department, human resources, and transport departments tended to be resistant to the acceptance:

> *"We found that the top management level and the employees were motivated to the changes but the middle level of management did not accept this type of change" (T2, Organisation D).*

Supporting this view, most of the interviewees confirmed that the middle level of management in their organisations was opposed to the D-government

implementation. This was due to their fear of losing their authority, fear to show-up their poor performances and sometimes that such changes were seen to be against their self-interests:

"Some of the middle managers do not want some procedures to be implemented because this could show-up the poor performance of the managers not only the operatives"(O6, Organisation H).

"Some of the middle managers in the public sector organisations are against the D-government because they think this type of technology will decrease their authority" (M3, Organisation C).

"The middle levels of management are rejecting the technology because they expect to lose some of their authority and they think this will decrease their values" (O4, Organisation E).

Additionally, the Director General of Information Technology (T5) agreed with this view and stated that many at middle level of management had not attained higher education.

"Sometimes we have resistance from the middle level of management and this type of resistance is limited specifically to those who do not get higher education" (T5, Organisation H).

Another reasons offered, as an explanation for middle management resistance by some respondents was that they thought that implementation of D-government would not be in their self-interest. One of the middle managers (M3), Head of Database Department, defined what was meant by self-interests in these terms:

> *"What I mean by their interest is that it will decrease or stop their corruption"* (M3, Organisation C)*.*

He elaborated by giving an example in the Ministry of Housing, where many people's applications had been delayed for more than a year, while others were treated with favouritism by having their applications dealt with in less than a week:

> *"This is because they know some people in that organisation. So, the D-government will stop or at least decrease such a corruption"* (M3, Organisation C)*.*

This comment implied that there was more than favouritism or cronyism involved as M3's use of the term 'corruption' was strong and hinted at bribery. The new technology would reduce such practices and this would not serve the self-interest of some middle managers.

Thus, certain middle managers were placing their own self-interests ahead of the needs of the organisations. The new technology was seen to be more fair and transparent to everyone and, if implemented, would end the current culture of unfair practices. This is why middle management, in particular, was resistant to its acceptances. Consequently, middle management was found to be the locus of much resistance to change in the organisation and, the implication is, that successful implementation of D-government needs to give greater attention to the role of the middle management. This issue will be discussed in greater depth in Chapter 7.

5.3.2.3 Operational level acceptance

A number of issues were found to be important for operational level acceptance: fear of making errors, level of education, satisfaction with the old system and the lack of trust. The findings related to each of these issues are presented in this section.

Fear of making errors was often found among older employees whose employment had predated the introduction of D-government. Their behaviour reflected a culture of fear of making errors due to their unfamiliarity with the new technology:

> *"There are some old employees in the public sector organisations who prefer not to deal with the new devices as they are afraid to make any mistakes or errors"* (O3, Organisation D).

> "*Most of the old employees' knowledge and qualifications do not support them to use the new technology*" (M3, Organisation C).

A different perspective on reluctance to change was offered by the Director General of Information Technology:

> *"There is resistance from those who are using the old system and they do not want to change to a different system because they are satisfied with the one they use"* (T5, Organisation H).

This implied a fear on the part of operatives to move outside of their comfort zone to embrace the new technology. Yet another participant (O5), a Software Developer, summed up this attitude in these words:

> *"Something I know is better than something I do not know"* (O5, Organisation F).

An example of such resistance was given by The Head of Database Department (M3) as he mentioned that some employees did not even like to use the new phone CISCO or email system. They preferred to use the paper or normal phone with which they were more familiar.

Additionally, the Director General of Information Technology offered the following explanation for resistance on the part of the older employees:

> *"We developed a new system for the staffs from the Ministry of Finance to use, but they rejected it because as they said it is risky and unsecure to use this system. They put those reasons because they do not accept the change to the D-government"* (T5, Organisation H).

Moreover, some others stated that they were afraid they might lose their jobs. This was mentioned by (O5) and (O7).

> *"Those employees are afraid of losing their jobs as they think the D-government is implemented to decrease the number of employees"* (O7, Organisation I).

However, to overcome this type of resistance, one of the top managers (T5) suggested forcing these employees to comply with acceptance of the new digital systems.

> *"We have solutions for issues like those because we faced these issues from 2005. We get the approval for those projects from the minister or undersecretary and later those staff or middle managers who resist will be forced to use the system"* (T5, Organisation H).

Some organisations in Oman still refused any digital transactions and insisted on using papers. An example was provided by one of the managers

(M2) who confirmed that some departments in their organisation, especially the Finance Department, did not trust new technology as he said:

"Audit and Review Department does not trust technology and when we send them electronic invoices or receipts, they do not accept them. Every time, they ask for the paper receipt" (M2, Organisation B).

Nevertheless, there were reports that in some organisations that the D-government technology was being accepted:

"We have designed around five small basic systems which are used internally by the employees. … These systems helped to motivate employees to accept technology and D-government" (O1, Organisation A).

What made the difference was the gradual incremental changes by introducing a few systems at a time and evaluating these before introducing other systems.

However, to motivate employees to accept D-government implementation, some public sector organisations involved the employees in the implementation process as mentioned by the Projects Manager at the General Directorate of Information Technology:

"To ensure the quick implementation of any new system, we involve the head of departments only because we do not know the details of their work" (M5, Organisation G).

Thus, two important implications for acceptance of D-government have been found from the interviews data namely, adopting an incremental approach to implementation and the involvement of employees in the implementation

process. This helped to change the organisational culture slowly and engendered trust among employees in the new digital systems.

Some participants pointed out that newly established organisations tended not to have problems of resistance as the culture of such organisations was only in the early stages of its formation and recruitment tended to be of newly qualified employees who were already conversant with new technology. More established organisations tended to have issues related to an embedded culture which needed to change before D-government could be effectively implemented:

> *"If you look at the staff of young organisations such as Ministry of Higher Education or The Public Authority for Consumer Protection, they have new staff with new trends of technology which helps as culture of the organisation in the implementation of D-government. However, in contrast, if you look to the staff in the Ministry of Heritage and Culture, they do not have this trend, so the culture of the organisation restricts the implementation"* (T4, Organisation F).

In summary, it has been shown that different levels within the organisations presented different types of issues related to acceptances of new technology and these issues often reflected different aspects of organisational culture. Top management did not generally have any issues of acceptances. In the case of middle management, there was a reluctance to accept implementation of digital technology as this presented a challenge to a prevailing culture based on favouritism and cronyism. Furthermore, middle managers tended to obstruct the acceptance of the new technology, which

they perceived to be a threat to their power and authority. At the level of operational staff, resistance was often found with older employees who had become proficient in using existing systems accurately. Here, there was a culture of fear and technophobia due to anxiety in making errors using the new systems. Thus, whilst each level of the organisation presented particular issues, the main resistance to change was found to reside in middle management and consequently, successful implementation of D-government would require a careful consideration of the restraining influence of middle management in particular. However, older employees at operative level also presented a challenge to acceptance and careful consideration would need to be given to effective methods for bringing about a culture of acceptance of D-government by these employees.

5.3.3 Awareness of D-government implementation

Frequently, during interviews, the importance of raising awareness of using D-government was raised as an important issue. For example, the Projects Manager at the General Directorate of Information Technology asserted:

> *"Marketing and awareness of the benefits and importance of D-government are very important"* (M5, Organisation G).

This was reiterated by the Head of Computing Support:

> *"If we implement a new system without the awareness of the end user, it will not succeed because the user will not accept this system and will go on the other choices such as paper work"* (M6, Organisation J).

In fact, such an awareness was seen as important for facilitating and simplifying the implementation of D-government, according to the Deputy CEO for infrastructure and E-Services:

"If the employee and management of the organisation are aware of the role of the IT, so the implementation will be easier" (T1, Organisation D).

Moreover, the Head of Internet Department (M2) highlighted the consequences of a lack of awareness of D-government. He noted that the organisation would face internal resistance from the employees when they implemented new technology. Likewise, one of the employees, a Software Developer, pointed out that:

"*I think the lack of digital awareness within the organisation and between the employees is one of the organisational culture factors that delays the implementation*" (O5, Organisation F).

However, most participants mentioned that awareness of D-government was still not effective in their organisations and they linked awareness with acceptance and trust of technology. Some organisations realised the importance of such awareness as the Director General of E-services Development (T2) who worked on implementing D-government across all other public sector organisations, contended that ITA could not force any organisation to implement any system; instead it tried to raise awareness of the importance of changing and transfer to digital system in those organisations. Furthermore, a Network Technical employee (O7) highlighted that they had some employees who did not use the internet at all, so such people would need to be aware of technology and receive training in how to use the systems.

The moment that employee awareness was raised to the benefits and potential of the uses of the new technology was the beginning of a culture

change in the organisation and this cultural change impacted on acceptance and ultimately on the implementation of the new technology. However, the following sections present issues of awareness at top and middle management level and also at operational level.

5.3.3.1 Top management awareness

The Legal Consultant (O3) highlighted the importance of management awareness in D-government implementation as the lack of such awareness among managers could affect their confidence in implementing such technology:

> *"One of the most important factors from my view is lack of awareness of the top management of the importance of D-government and its projects and consequently they may not be confident enough to implement it. This may stand as an obstacle to the implementation of any project of D-government"* (O3, Organisation D).

Likewise, the Deputy CEO for Infrastructure and E-Services confirmed this when he pointed out that the main factor of successful implementation was the availability of top management who were aware of Information Technology's importance, as they would be more likely to support their employees to manage and organise the D-government implementation in their organisations. However, he questioned the nature of such support:

> *"Do managers understand the role of IT to help their organisations in this field"* (T1, Organisation D).

The Director General of Infrastructure Operation (T3) indirectly answered this question by claiming that young managers trusted D-government more than

older managers as they were fully aware of its importance. He suggested that change management in young organisations that had young management with IT oriented culture was always an easy task.

5.3.3.2 Middle management awareness

The most important issue related to awareness at middle management level was the lack of awareness of the plan of D-government implementation:

> *"I do not know if there is a plan to implement the D-government, but we are working according to the requests that come to us"* (M6, Organisation J).

Another manager (M2) was only vaguely aware of the existence of the plan but had no idea of its content:

> *"In fact, I do not know the details of the plan but what I know is that there is a plan and we are working to implement it"* (M2, Organisation C).

This indicated a lack of awareness of the strategic plan of implementation of D-government in some organisations.

5.3.3.3 Operational level awareness

Operational level awareness was generally not treated as one of the priorities in the organisations and this was reflected in the responses of several participants:

> "*The level of awareness is still low and not effective in motivating people at operational level to use new technology*" (O1, Organisation A).

Moreover, one of the managers (M3) mentioned that the awareness of operatives was very important and, without such awareness, the implementation of D-government could be seriously impeded, especially for those who were working in the IT department.

"*The awareness of the employees is very important and could help or delay the implementation of D-government especially for those who are working in the IT department*" (M3, Organisation C).

The Head of Networks Services highlighted that raising awareness in new organisations was much easier as they had new employees who were expected to have open minds and who would not reject any new technology without trying it:

"*I think, it is easier for the new organisations to implement the D-government than those old organisations in which the mentality of employees is very difficult to change. Old organisations will need more awareness and effort to implement D-government*" (M7, Organisation J).

It is clear from this comment that the culture change required of those in older organisations would require a much longer timeframe than in newer organisations due to the need of the former to acquire the necessary knowledge and skills which could only follow the raising of their awareness of their importance.

It was reported that awareness could be raised in a number of ways and through different channels:

"*We try to build work knowledge and new professional work methodologies inside the organisations at different levels such as*

change management, service administration, content management, and integration with other organisations" (T2, Organisation D).

Moreover, the Head of Internet Department (M2) added a further solution to the issue of the raising awareness throughout the organisation by the creation of three teams: e-services team, e-contents team, and change management team. He particularly highlighted the importance of the change management team in working with employees at operational level:

> *"The change management team aims to be involved with the employees to give them the awareness and let them be ready to transfer before the implementation is done because, sometimes, you can face internal forces from the employees when you implement new technology. Therefore, this team should be trained and well prepared to do this job successfully"* (M2, Organisation B)*.*

In summary, the level of awareness of the importance of digital implementation was low at most levels in some organisations and this was likely to impact on their readiness to accept the new technology. Without raising awareness of the importance of D-government, it was unlikely that the prevailing culture could be changed in such a way as to facilitate the implementation of that technology. Thus, it was found that acceptance of the new technology was dependent on the effectiveness of measures taken to raise the awareness of employees at all levels in order to bring about a culture which was more open to D-government.

5.3.4 Training

The analysis of the interview data revealed a two-pronged approach to training: in-house training which was the remit of HR department of the individual organisations and externally sourced training which was mainly provided by the Information Technology Authority (ITA) which could be delivered off or on site.

The Director General of Infrastructure Operation (T3) mentioned that ITA trained around 100,000 employees from civil services on the basic IT skills which is a general training. He highlighted that ITA offered specialised training such as Oracle, Microsoft Office, and Information Security. Even for fresh graduates and job seekers, ITA gave them long courses of training which could last around three months. Another manager, the Head of Internet Department (M2), pointed out that training courses were divided into two types to qualify their employees in different fields. Some of the courses were specialised for employees related to their jobs such as AutoCAD and Acrobat Writer. Some other courses were general for all employees such as English Language and customer services. Another manager mentioned:

> *"We have training courses in different subjects such as Linux system, databases, ERP system, English courses, and Information Technology Infrastructure Library (ITIL)"* (M3, Organisation C).

A Database Developer (O2) mentioned that there was an agreement with ITA to give the employees training courses in the technical side but not in the operational side, as this had to be done inside the organisation.

However, the issue in this research is about how effective these training programmes were in identifying training needs and in devising programmes aimed at addressing those needs. The following section considers various barriers which emerged from the data analysis and were found to impede the effectiveness of training.

One issue raised by a manager (M4), referring to Internet and Computing Core Certification (IC3), a training programme in basic IT skills was that:

> *"IC3 was a course given to all employees. The aim of this course was to give the employees the basic skills of dealing with the computer and internet but there was no awareness of the future importance of this programme and most of the employees did not take this course seriously, so not all of them were interested enough to enrol on the programme"* (M4, Organisation E).

Comparing this manager's assessment of the situation with comments from people who took part in that training programme reveals how much that manager was out of touch with the real needs of most employees and the manager's failure to understand why so many employees were disinterested in the training programme. For example, the lack of focus of the training programmes such as IC3 on the real needs of employees was commented on by a number of employees:

> "*The training courses are just an explanation programme that explains how the systems work*" (O8, Organisation I).

From this comment, there appears to be some confusion about the acquisition of knowledge which refers to cognitive awareness and the

acquisition of skills which happens in a number of ways such as through observation, hands on experience and plenty of practice.

However, it was found that only two organisations had conducted a training needs analysis of their employees and set a plan for each of their employees. These were organisations (C) and (G). One of the managers said:

> *"We put a plan for one or two years for each employee to train them according to their specialisations and their jobs and we coordinate with internal and external institutions to train them."* (M5, Organisation G).

Another issue was that these courses were often seen as irrelevant to the real needs of the employees:

> *"Most of the training courses or programmes are related to leadership and management skills. Also, if it is related to our specialisation, it will be about old topics and not up-to-date"* (O1, Organisation A).

Because in these instances the training has not been targeted to the real needs of the employees, it was largely seen as irrelevant.

Another training issue raised in the interviews was that the training was limited to specific employees. One of the managers (M3) explained why this was happening:

> *"The low number of employees in the department does not allow us to send all of them for training because we want some of them to continue to run the current system"* (M3, Organisation C).

Some participants such as (O1, O4 and O7) pointed out that the training they received was insufficient and that they needed more training courses:

> *"I cannot say it is enough to implement the D-government because I think we still need some training. The department gave me training on visual studio and web design only"* (O4, Organisation E).

A manager (M1) confirmed that employees still needed more training courses:

> *"Employees need more training courses to gain skills and experiences required for implementing D-government in technical and managerial sides"* (M1, Organisation A).

Another issue related to training was the time allocated for the training which in some cases was insufficient:

> *"The training courses are very short and last for one to two days only and you cannot get enough details in this short period. Therefore, the skills and experience that I have is not enough to let me deal successfully with the digital systems"* (O7, Organisation I).

Supporting this view, another Network Engineer (O9) revealed that:

> *"We had only short programmes of training which lasted maximum for one week and most of them lasted for one or two days. In this period of time, you cannot learn everything about the system"* (O9, Organisation J).

Interviewees such as (O1 and O9) also highlighted another problem which was the limited budget allocated to training:

> *"After the manager's approval, the Human Resources Development Department will check the budget for the programme and usually they reply that there is no budget"* (O1, Organisation A).

Nevertheless, it is only fair to point out that some organisations were found to have good practice in training:

> *"Before the implementation of any D-government system, we give training for the users, then we implement the system and finally the technical support will help the staff if they face any problem"* (T4, Organisation F).

This comment shows that the training had been planned and directed towards the real needs of the employees. This approach was a proactive one, whereas in other organisations, practices were different as they implemented the system first and only then did they train their employees. The Director of Information Technology said:

> *"After implementing any new system, we have to train the staff in how to use the new system"* (T5, Organisation H).

Thus, the findings also revealed evidence of good practice in some organisation.

In summary, there was evidence of training which was targeted to the real needs of employees in some organisations. Nevertheless, in other organisations, lip service was paid to the issue of training, it was not taken seriously, nor was it targeted to the real needs of the employees. This was seen as likely to impede the implementation of the digital technology. Consequently, this research found that training was often provided but without an appropriate rationale or training needs analysis. Thus, misdirected training was found to create a culture of indifference or even resistance to the implementation of D-government. These issues related to training will be

given more attention in the discussion chapter where reference will also be made to the relevant literature on employee training.

5.3.5 Management support

Commenting on the need for management support, the Acting Director of Health Application Systems (T4) noted that bringing about a culture change in management was important but also took a lot of time and effort:

"The change of the culture of management in the organisation needs a lot of effort and faces many challenges" (T4, Organisation F).

Similarly, the Director General of Infrastructure Operation (T3) indicated that the changing management culture in transforming to D-government among young managers was easier as they had an IT oriented culture:

"If we take organisations that have young management with IT oriented culture, change management every time is easier" (T3, Organisation D).

The following two sections reveal the findings from the analysis of the interview data relevant to management support at top and middle management levels.

5.3.5.1 Top management support

Top management support in D-government implementation is one of the critical factors which was mentioned by the majority of the participants. Mostly, it was found that top management support started in the planning stage and before the implementation processes and continued through all the implementation stages. The Head of Internet Department (M2) mentioned

that support from top management was very important in order to simplify the D-government implementation:

> *"One of the things that help us to implement the D-government is the support from the top management"* (M2, Organisation B).

> *"One of the factors that helps in the implementation is that the top level of management in the organisation encourage implementing D-government"* (O2, Organisation C).

Although the majority of the participants agreed on the importance of top management support, some indicated that they did not receive any support from management in their organisations. For instance, one of the employees (O5) referred to this lack of support as one of the problems that could delay the implementation of D-government:

> *"We have some problems in the implementation such as we do not have support from the top management level"* (O5, Organisation F).

The Projects Manager at the General Directorate of Information Technology (M5) asserted that before the implementation of any system that they presented their plans to the top management in order to get their feedback and approval. Without this approval no project would even commence.

Continuity of management was seen to be an important aspect of top management support. The Head of Internet Department (M2) explained how rapid changes of top management affected D-government implementation in their organisation:

> *"In the last five years, we had three different top management changes and all of them were looking to implement the D-government, but everyone has different perspectives according to their preferred*

way of operating, experiences and backgrounds" (M2, Organisation B).

Thus, in this organisation and organisation (H), there was a lack of continuity due to changes of management and their ways of managing and this was seen to negatively impact on the implementation.

Another example is the lack of consistency in top management decision-making within the organisation. Top management was seen as sometimes changing their plans in such a way that it frustrated the implementation process. An example of this was raised by an employee (O1) who described how, on one occasion, their organisation had had a problem with technical support and they had proposed to design a system to solve this problem. The management, at first, agreed and approved the plan, but later, changed their minds and reject the system. This made the employees who were working on this solution very upset as they had put in much time and effort which was now wasted.

"This system takes a lot of time from us and really demotivate us to propose another systems as we expect to happen same things" (O1, Organisation A).

Lack of management follow-up is another important issue. The Head of Information Technology Department (M4) claimed that the top management in their organisation usually did not follow up the implementation process except whenever critical issues arose:

165

"The minister does not know anything about the projects of D-government implementation unless any serious problem happens" (M4, Organisation G)*.*

Lack of follow up by top management was seen as demotivating employees who interpreted this inaction as a lack of interest in their work.

In contrast, a manager (M5) in another organisation asserted that support from top management was a critical factor that helped in implementing D-government because it created a culture of accountability and was also highly motivating. Thus, lack of support from top management tended to devalue government initiatives to introduce D-government and created a culture of indifference at other levels of the organisation. Indifference at top management level was found to spread throughout the organisation and was symptomatic of the lack of accountability of top managers.

5.3.5.2 Middle managers' support

The Director General of Information Technology (T5) emphasised that support from the top management alone was not enough as middle management could obstruct the implementation through negativity and failure to support the top management efforts. One of the findings of this study is that, very often, resistance to implementing D-government came from middle management who placed their own self-interest ahead of the needs of the organisation or else resisted change out of fear of loss of esteem or authority (See Chapter 5, section 5.3.2.2):

> *"Sometimes we have resistance from the middle level of management because they will lose some of their value or authority"* (T5, Organisation H).

In conclusion, there was a consensus among the interviewees regarding the importance of the support from all levels of management and, where this was lacking, it was seen as having an adverse effect on the D-government implementation. Accordingly, lack of support from either top or middle management was found to create a culture of indifference throughout the organisation which was mainly seen to be the result of the lack of accountability at either level of management.

5.3.6 Human Resource Management (HRM)

Human Resource Management (HRM) was seen as confronted by many issues that could affect the implementation of D-government. One of the issues is that between 2012 and 2014, the government tried to push many new jobs in all public sector organisations to decrease the level of unemployment. This was because there had been civil unrest in 2011 with young people protesting on the streets. The government felt that giving them employment would resolve the issues.

The Head of Information Technology Department (M4) pointed out that the government mandate to employ 50,000 employees in all public sector organisations had forced some organisations to employ people where no vacancies really existed. In addition to this, many of these new employees

had been unemployed for five or more years so that there were now requirements for retraining which was often found to be ineffective:

> *"We tried to reduce this problem by giving them training, but without any benefit"* (M4, Organisation E)*.*

As a solution, some organisations transferred them from the IT Department to other departments as they were blocking the recruitment of qualified staff:

> "*In 2012, we received new employees more than our need and we cannot employ specialised people at the current time"* (M2, Organisation B).

> *"Between 2012 to 2014, we received 9 new employees and 3 of them were not appropriately qualified or experienced in IT related areas. This will affect our future recruitment because we cannot ask for new specialised employees because we are already overstaffed"* (O1, Organisation A).

O1 also noted that this new recruitment policy impacted negatively on the performance of the existing employees as most of the new employees had no job to do:

> *"There is nothing to do in IT Department as no connection between my specialisation and my job"* (O8, Organisation I).

Another HRM issue which emerged from the interview data was the effect of the lack of qualified employees in the D-government implementation. The Deputy CEO for Infrastructure and E-services (T1) revealed that most of the

employees in the IT Departments did not have enough experience and in some cases their qualifications were not related to their jobs:

> *"My qualification is not fully related to the Information Technology but I have now enough experience since I worked in this department for a long time"* (O1, Organisation A)*.*

Another issue related to recruitment is the government policy of Omanisation. This means that if any public sector organisation intends to employ people, these jobs should go to Omani applicants. One of the top managers complained

> *"*Because of *the Omanisation policy, you cannot employ non Omani and if you looked to find Omani people who are suitably qualified and had good experiences they will request very high salaries"* (T1, Organisation D).

> "*People who have experience for more than 10 years will not stay in the governmental sector as the ministry does not give them the financial degree that they deserve*" (M4, Organisation E).

Consequently, the number of suitably qualified and experienced employees in the IT Department was considered to be insufficient for the effective implementation of D-government.

Thus, HRM in many of the organisations were forced to adopt recruitment policies as a consequence of government decision-making and this was seen to negatively impact on implementation of D-government. Thus, external factors, such as government policies aimed at resolving societal problems,

were found to have serious consequences for organisations attempting to implement D-government, due to the over recruitment of the employees who lacked the necessary qualifications and experience.

5.3.7 Evaluation

Evaluation of public sector organisations in the implementation of D-government is a very important factor and part of D-government implementation process. Evaluation can be divided into two main themes, internal and external evaluation. Findings related to both of these are presented in the following sections.

5.3.7.1 Internal evaluation

The interview data provided evidence that internal evaluation was carried out at least by some organisations as the Head of Database Department pointed out that

> *"We have Quality Department which evaluates our work internally"* (M3, Organisation C).

Another manager emphasised:

> *"We evaluate ourselves internally, but for the applications and systems, we ask specialist companies to evaluate us for development and update purpose"* (M6, Organisation J).

However, there were no commonly accepted methods of evaluation that were used across all organisations as each had its own particular methods and some were even found to have no system of internal evaluation and relied totally on external evaluation:

"I think, Information Technology Authority is evaluating us" (O1, Organisation A).

5.3.7.2 External evaluation

Most organisations depended on the external evaluation which was mostly done by the ITA, although a few organisations were evaluated by international organisations:

> *"The ITA evaluates all the public sector organisations. It sends reports to the Ministers Council and a copy of the report to the organisation"* (T1, Organisation D).

ITA evaluation is based on specific criteria for assessing the process of implementation of D-government as mentioned by the Director General of E-services Development:

> *"We have approaches and specific standards to evaluate all the organisations"* (T2, Organisation D).

> *"We evaluate how many manual services they have, how many digital ones and what types of changes they have to do next year"* (T1, Organisation D).

This comment suggested that the evaluation was followed up by an action plan with achievable targets to be met during the following year.

In contrast, the Director General of E-services Development (T2) explained that in the first evaluation, ITA tested the readiness of the public sector organisations and what type of services they had. In the second evaluation, it

examined their progress. Following any evaluation, each organisation received a report with recommendations and an action plan:

> *"Each organisation will receive their reports including the recommendations to overcome all the difficulties and issues that face them"* (T2, Organisation D).

At the time of conducting these interviews, the results of the first external evaluation had only just been published so it was difficult to ascertain the impact of the evaluation report on implementation and organisational culture. However, it was found that most organisations had no systematic internal evaluation and that a culture of lack of accountability was prevalent throughout these organisations. Without an effective evaluation, the motivation to implement D-government was seen to be at a low level due to the absence of responsibility to meet implementation targets. Furthermore, there was little incentive to improve as there was no feedback or action plan.

5.3.8 Integration

Integration as an emergent theme from the interview data refers to how an organisation has been able to internally link different departments to work together as a unit. It also refers to how organisations have been able externally link with other organisations as an important feature of D-government. From the analysis of the interview data, integration was seen as providing many benefits:

> *"The papers start to disappear because we reduce the number of documents that we request from the customers now because of the integrations and we can check this electronically from other public*

sector organisations, which leads to decrease the number of stores and spaces used for storing those documents" (M2, Organisation B)*.*

"Previously, the patient could have three to four records in different hospitals but now after the integration with civil states we integrate all those records with the national ID" (T4, Organisation F)*.*

Furthermore, integration helped employees to finish their jobs on time even if one of them had a holiday:

"Previously, if I receive a document and the other employees in the same department do not know about it, the document will stop until I return from my holiday. However, this problem is now solved by the integration process" (O4, Organisation E).

While integration was one process in implementation, it emerged from the interview data as an important factor for changing the culture towards greater acceptance of the changes. The quotations above reveal that many employees could see the benefits of the integration by improving information sharing and reducing work load. This culture change facilitated the implementation of D-government.

In the following sections, both internal and external integration are presented insofar as these were found in the interview data to affect D-government implementation.

5.3.8.1 Internal integration

The internal integration of the main departments within the organisations differed from one organisation to another. It was found that some

organisations had a high level of integration whereas others had low levels or even no integration at all:

> *"All the departments inside the ministry are connected with each other but not all the branches of the ministry are connected to the main branch electronically"* (M1, Organisation A).

> *"The connection is only with the main branch and most of the communications are in paper. We do not have any electronic connection with the other departments of the organisation"* (O7, Organisation I).

> *"From 2007, we have had some systems that connect all the departments internally such as document management system. All the departments use it internally and officially between them"* (T5, Organisation H).

This lack of internal integration was often found to present many difficulties to employees:

> *"We are not connected internally which increases the load and work flow for the employees. For example, if the document is related to two departments, the document will come for example to us first, then we have to take it in paper form to the next department and so on"* (O4, Organisation E).

The implication is that, even within a single organisation, the lack of inter-departmental integration was an impediment to the implementation of D-government.

5.2.8.2 External integration

It was found that only a few organisations had even started to integrate with other public sector organisations. However, there was ample evidence of partial external integration:

> *"We are already connected with some of those organisations and we plan to connect with some other organisations, but we are waiting for the green light from them because they are still not ready"* (M2, Organisation B).

Thus, the success of external integration depended not on a single organisation but on the readiness of all the organisations to integrate with one another.

The Director General of E-services Development (T2) stated that external integration was of three different types namely physical integrations, database integration and procedural or process integration. By physical integrations T2, meant connecting all the public sector organisations by one government network. The Deputy CEO for Infrastructure and E-services (T1) revealed that there was already a government network which connected 800 departments so far.

Database type of integration helped to transfer data automatically from other organisations when citizens applied for any document in any of those organisations. However, this is not yet fully integrated:

"Database integration is we are working to build now between the organisations" (T2, Organisation D).

The procedural or process integrations means that when a person applies in one department or organisation, the system will transfer the work flow to the relevant department or organisations and get the approval electronically:

"This is the most difficult integrations and this means the systems can talk to each other. Therefore, there should be standards to organise the process integrations. Now, we are doing tests to this level of integrations between three organisations which are Royal Oman Police, Ministry of Manpower, and Ministry of Health" (T2, Organisation D).

However, most organisations still did not have external integration and the findings of the analysis of the interview data revealed that the need for security was one of the main obstacles:

"We are not connected until now with any organisation. This is because of the security requirements in our organisation and as well as this most public sector organisations are not ready for integration" (M3, Organisation C).

Another obstacle to external integration found in the interviews data analysis was that the existing databases were old and prone to breakdown and sometimes contained inaccurate or duplicated data:

"The customer could have more than one account number because he

has three or four contracts and to put them under one account number, this will need much time like what is happening in the Ministry of Commerce and Industry where they are still analysing their customers' data from 2007 up to date" (M2, Organisation B).

Besides this, each organisation had different primary keys to their databases such as the National ID, employee ID and Commercial Registration ID. This was considered as a challenge as it could delay the integration process between the databases:

"For sure, it will be an issue for us because the employee ID is a sensitive issue in our organisation and for the privacy and security of our information, we cannot share it with other organisations" (M3, Organisation B).

The Legal Consultant (O3) highlighted another barrier to integration which was the lack of coordination between organisations and sometimes between departments within the organisations:

"Every organisation puts their specifications and requirements for their projects without considering other parties. Then, when we start the integration between these organisations, we find it difficult because of the differences in the systems, applications, databases, software's and other things. Therefore, systems cannot be integrated and need to be developed again with different specifications. This type of work costs the country a lot of money which could be used in different things" (O3, Organisation D).

Another issue identified in the analysis of the interview data related to the culture of the different organisations where information was considered as

their own property which they were reluctant to share with other organisations:

> *"In the past, we found it difficult if not impossible to connect with Royal Oman Police because for security reasons they rejected any request for integration but now it is easy with ITA which plays main role to be as middleman between all public sector organisations and Royal Oman Police to exchange the data"* (T4, Organisation F).

However, to some extent these difficulties have been addressed by the intervention of the ITA in acting in an intermediary role. This role has been to support and speed up the integration process and simplify the work of integration:

> *"ITA has the skeleton of the integration infrastructure and works as mediator between organisations and helps in the integration process to exchange the data between them"* (T1, Organisation D).

> *"The ITA has platform integrations that help organisations to do the integrations. ... ITA helps any organisation to integrate with any other public sector organisation by requesting this from ITA instead of from the particular organisation"* (T3, Organisation D).

In conclusion, full integration both internal and external was seen as facing many challenges. Some of these were technological in nature and others represented managerial issues. Physical integration was found to be mainly implemented but the other two types of integration namely, database and procedural or process integration, still faced many challenges. These latter types of integration were found to require profound cultural changes in order

to decrease the autonomy of single organisation and this was often met with resistance. Full integration was found to be well behind time and will be thoroughly considered in the discussion chapter.

5.3.9 Employee involvement in the decision-making processes of D-government implementation

Certain organisations were found to have formulated policies to involve their employees in the decision-making process related to D-government:

> *"Mostly, the ideas of implementing new systems come from the employees themselves and they are involved in the decision-making"* (M1, Organisation A).

However, in other organisations, top management did not involve employees or other stakeholders in the decision-making process:

> *"Decisions come from the top management to implement a system and we start implementing it without involving any employee for quick implementation"* (M2, Organisation B).

The level of involvement of employees and stakeholders in the decision-making process of D-government implementation varied from organisation to organisation and was done in different ways. For example, one employee (O1) from organisation (A) pointed out that they were involved in the decision-making but that the final decision was always taken by top management. Moreover, some other organisations involved their employees by forming committees that included different stakeholders from the IT department, end users, finance and management to give their recommendations such as organisation (E and J), which slow down the decision-making of implementation and consequently delayed the

implementation process. Employee involvement in other organisations depended either on the type of services and systems or on the employees' relations with the top management:

"The involvement depends on your performance and your relations or to which level you are close to the management" (O5, Organisation F)*.*

However, some interviewees stated that top management mostly confined involvement to specialists in the field or head of departments:

"They usually involve employees in IT department in the technical side and the head of departments if the project related to other departments" (O6, Organisation H)*.*

"To ensure the quick implementation of any new system, we involve the head of departments only because we do not know the details of their work" (M5, Organisation G).

This reflected a culture of resistance to widening participation which was found particularly in middle management.

The implication that the involvement of all people who have a stake in the implementation of D-government is likely to increase the level of acceptance and help to create a culture of openness to the changes involved.

In conclusion, it was found that in some organisations, implementation was achieved through a top down managed process where there was little employee involvement. In other organisations, some degree of employee participation in the decision-making process was found to be in place. Whilst in the short-term, the top down managed approaches appeared to be more

effective, in the longer term those organisations which involved employees at all levels were found to have a culture of participation based on trust and involvement. However, the latter approach tended to slow down the implementation process in the shorter term. The likely longer-term effects merit closer attention which will be considered in the discussion chapter.

5.3.10 Organisation change

Because of D-government implementation, it was found in the interview data that there had been different changes in the organisations including changes in the structure of the organisation and in the scope of the authority of some employees in the organisations. It also involved the creation of new jobs and the redesign of existing workflow. Findings related to each of these issues are presented in the following sections.

5.3.10.1 Changes to organisational structure

Changes in the structures of organisations due to D-government implementation differed from one organisation to another. According to the interviewees, new departments were added and responsibilities of some departments had changed:

> *"One of the service management requirements is changing the structure of the departments and the responsibilities. We used to have one department responsible for everything including security, database, networks and web information, but now, we have Information Technology Services Directorate which has different departments. For example, previously, security was controlled by one*

person in the department, but now a whole different department is responsible for that" (M3, Organisation C).

However, recommendations regarding changes to the structure of the organisations were met with mixed reactions:

"We actually recommended to restructure some of the organisations structure by adding some departments and cancelling some other departments. We cannot force any organisation to do the changes as some of them accept, while others refuse such changes" (T2, Organisation D).

Some examples of new departments to be added included:

"*Corporate Excellence Directorate, Digital Services Department, Information Security Department, Change Management Directorate and Strategic Planning Directorate*" (T2, Organisation D).

Similarly, the Head of Database Department (M3) stated that the old structure could not work alongside the new trends for implementing the D-government. Such changes were not only in the Information Technology Department, but also reached most other departments. Another manager, the Head of Internet Department (M2), stated that the Internet Department had been added to their organisation to control the internal website, external website and electronic gate services and Projects Division which takes care of the new digital projects as they have increased in the last years

In conclusion, it is clear that implementing D-government had a significant impact on changing the structure of the organisation as it involved new roles and responsibilities and the disappearance of some previous ones, which

were no longer relevant once the implementation had taken place. Changing the structure of the organisation was seen as requiring significant changes to be made to the existing organisational culture.

5.3.10.2 Changes to scope of authority

D-government implementation caused some administrative or scope of authority changes. The new system enabled one employee to do a variety of jobs. In the rent contracts, for instance, one employee could enter the data, print the contract, receive the payment electronically and sign and stamp the contract. In the older paper-based method, the payment was received by the treasurer, while signing the contract was done by the manager:

> *"This is not only giving the employee more authority, but it saves the customer's time because before it had to go to three different employees, but, now, one employee can finish it"* (M2, Organisation B).

Some participants mentioned that the scope of authority had changed in some cases where employees were given more authority, while in the middle level of management there was some reduction of authority.

> *"There are some changes in the administrative side and the authorities for the employees have changed where some of them got more authorities, while the middle level of management got less authority"* (T2, Organisation D).

> *"I think the authorities increased in some of our job fields"* (O7, Organisation I).

Additionally, D-government was seen to simplify the procedures for taking decisions in many jobs which meant that the centralisation in the decision-making process would decrease. This was considered as leading to changes in the culture of the decision-making process. An example supporting this view was given by the Head of Internet Department (M2) as he had mobile applications which were used by engineers to follow up the constructions as field work. They could enter any data or recommendations online from the field and had the authority to approve the work without going back to their managers as was previously the case. This also helped to speed up the completion of the work and decreased centralisation:

> *"D-government will simplify the decision making for our engineers. It is going to decrease the centralisation in the decision-making. … They will have the authority to approve it without going back to their managers. This will help to finish the work quickly and decrease the centralisation"* (M2, Organisation B).

In conclusion, the implementation of D-government has reshaped the structure of many organisations by introducing new roles and responsibilities which have replaced older systems. In general, this has resulted in the emergence of a less centralised structure and a culture of empowerment of operatives at lower levels in the organisation. This implies a culture change for operatives who, in the past, were accustomed to receiving directives from line managers to a new situation where they were expected to exercise greater autonomy and accept more responsibility. Such increased autonomy of lower level employees was found to accept and speed up the implementation process.

5.3.10.3 Creation of new jobs

In the analysis of the interview data it became clear that some existing jobs were discontinued, others were changed and completely new jobs were required due to the D-government implementation.

In the case of jobs which were discontinued, the interviews did not reveal any employee redundancy. However, it was clear that employees whose jobs had ended needed to be re-trained and moved to new positions. However, others retained their existing jobs but the nature of the job had changed and they also required some training:

> *"Some types of jobs were changed such as data entering changed to data auditor because now the data is entered electronically by the customers"* (M2, Organisation B).

In fact, the Deputy CEO for Infrastructure and E-services (T1) expected even more changes in jobs as D-government was not fully implemented yet. On the contrary, some organisations did not change any job titles, but did change the job descriptions as reported by the Acting Director of Health Application Systems (T4). Additionally, different new jobs were required with D-government implementation:

> *"Now, we are looking for some new jobs such as software engineering, data analysis, database, mobile applications, and project management"* (M5, Organisation G).

Another manager added that

> *"We asked the Ministry of Civil Service to create some new job specifications such as specialist of information technology*

management projects and web content management" (T4, Organisation F).

Thus, the implementation of D-government has brought to an end some existing jobs, changed some of specifications of other existing jobs and required the creation of completely new jobs. These changes had implications for training to prepare employees for their new roles and responsibilities.

5.3.10.4 Changes to process and workflow

The analysis of the interview data also revealed that D-government implementation had changed the workflow within the organisation and had decreased the workload of many employees. One employee gave the example of the new ship registration system which had decreased the workflow from six offline procedures to just one online procedure. However, it was necessary to completely redesign the existing process to achieve this:

> *"The transformation to D-government needs to do re-engineering for the process from which we can choose which process will be centralised or not"* (T1, Organisation D).

However, some employees felt that the new systems had reduced their scope of authority. One employee (O7) noted that the changes meant an increase in responsibility for some employees but a decrease for others. Another employee (O9) stated that with digital systems, he had less work than previously because the new digital system performed most of the steps. However, some employees stated that their workload had not changed as a result of D-government implementation.

5.3.10.4.1 Business Process Re-engineering (BPR)

Participants mentioned that the challenges in Business Process Re-engineering (BPR) involved much more than challenges for people. They mentioned that there were no written procedures for most of the public sector organisations:

"There are no written procedures for all the public sector organisations services except one of them" (T2, Organisation D).

The Head of Networks Services confirmed this point by mentioning that they did not have written procedures for all the jobs in their organisation:

"There was a committee formed in 2011 to write all the procedures but I do not know why they stopped that" (M7, Organisation J).

When questioned as to why this had been stopped he was unable to provide an explanation. However, the lack of these new written procedures delayed the implementation of D-government.

"Because we do not have written procedures, we depend on the employees experience and practice" (O6, Organisation H)

"The issue is not technical but indeed it is procedural issue. Now, we interfere in the procedural problems and look at all the services and procedures happening inside the organisations and we are searching for procedural complications that people do not recognise and try to restructure or change them in some cases to solve the problem" (T2, Organisation D).

The Acting Director of Health Application Systems pointed out that the business process re-engineering should happen before the implementation process begins

"First of all, before the implementation, there will be business process re-engineering for the procedures and then there will be changes in the policies and managerial authorities according to this" (T4, Organisation F).

He gave an analogy based on medicine prescriptions as an example to explain that in the old system, doctors gave patients the prescription on a piece of paper with their signature and stamp. But, in the new system, the doctor enters the prescription online in the pharmacy system and patients go directly to the pharmacy with their patient ID to receive the medicine.

The Director General of E-services Development, however, pointed out some difficulties in legal aspects of the re-engineering process:

"The regulations do not have relations with the technical part but with the procedures" (T2, Organisation D)*.*

The top manager (T2) explained a situation where re-engineering was difficult to achieve due to legal requirements. T2 cited the example of a person wanting to buy land. Both the buyer and the seller were required to come in person to the Ministry of Housing in order to sign documents as electronic signatures were not acceptable as legally binding. The top manager (T2) stated that changes to the law were required before such procedures could be changed to be suitable for transferring the same service online.

Thus, the implementation of D-government meant profound changes in roles and responsibilities within organisations. For some, the changes had brought increased responsibilities and a culture of empowerment and for others, it

had meant a diminution of their previous authority as the new system removed many decision-making situations from them. A few participants felt that their roles and responsibilities had remained unchanged following the implementation of D-government.

In conclusion, the introduction of D-government has entailed profound restructuring and reengineering. Nevertheless, this has resulted in a much more streamlined approach in most systems, which have greatly facilitated these systems for the end users. As profound as these changes were, there was no mention of a specialist role to understand and implement these profound changes.

5.3.11 Laws and regulations

The final principal theme emerging from the analysis of the interview data was that of laws and regulations. One view saw the necessity for updating existing laws to cover new situations created by digital technology:

> *"I think, the current legislations must be updated as the old legislations were used for organising the paper work and cannot deal with the new things which will appear with the electronic system like the electronic crimes"* (M4, Organisation E)*.*

ITA is responsible for updating the main legislations governing organisations especially in respect to D-government. This includes laws related to transactions of D-government and the security of information. Examples of laws which need to be updated include the legal status of electronic transactions act and legal definitions of cybercrimes, laws governing information security, and legal aspects of internet and web content. The

general view of respondents was that legislation needed to be updated and amended to embrace the new situations created by D-government.

> *"Now, according to the implementations of D-government, we are reviewing the electronic transactions act and we will amend them according to the international standards"* (O3, Organisation D)*.*

In addition, The Director General of Infrastructure Operation highlighted the role that ITA played in reviewing the legislations:

> *"ITA is doing a review to the regulations and policies that organise D-government work. For example, now, we are developing data sharing framework and all related legislations"* (T3, Organisation D)*.*

It was found from the analysis of the interview data that internal regulations, policies and procedures used to organise and control the work of D-government and its implementation inside some of the organisations needed to be reviewed in the light of the ITA revised legislation:

> *"Regulations and rules of the organisations need to be reviewed every time and this is one of the challenges that I told you about"* (T1, Organisation D)*.*

However, IT is a continuously developing field so, it is likely that legislation and policies embracing that legislation will always lag behind new developments and their implications.

> *"Some of the policies could delay and affect the implementation of D-government and need to be updated or changed to be compatible with the new trend of the government"* (M1, Organisation A)*.*

Another aspect of the time lag in bringing legislation and policies up to date to embrace new realities created by D-government was mentioned by the Head of Internet Department (M2) as he noted that the law department did not update the law regularly, but waited until problems happened. The legal department instructed employees to continue with the current regulations until they faced a problem that was not covered by the existing law and then it could be amended or changed.

> *"The problem is that they do not update the law regularly, but they wait until problems happen"* (M2, Organisation B)*.*

Therefore, the Director of Information Technology emphasised on the importance of updating regulations regularly to keep in line with changes in technology, but this was not seen in most of the organisations as he stated:

> *"Unfortunately, the changes in the legislations and regulations are not compatible with changes in technology"* (T5, Organisation H)*.*

On the other hand, some progress had been made in certain organisations to update the rules and change some of them:

> *"We contacted the Ministry of Finance to change the current payment system to digital payment but this required an amendment to existing financial law before this could be implemented"* (T4, Organisation F).

In addition, a Database Developer (O2) noticed some changes in the rules and that some others were being updated. He explained that the processes of change would continue as there were still many other services that would be published online. Thus, when a new service is published, the relevant policies were also reviewed.

Similarly, the regulations that governed sub-contracting of D-government implementation inside the public sector organisations needed to be updated. One of the managers pointed out that different rules had been published and that this was likely to continue. He gave examples of the published rules in this field such as the staffs of a third-party sub-contractor were not allowed to work alone without supervision from the IT Department staff in the ministry. In addition, they were not allowed to carry their mobiles, laptops or memory sticks with them inside the ministry.

In conclusion, the implementation of D-government entailed the updating or replacement of existing rules and regulations. This was a slow process and was likely to continue for the foreseeable future. In some cases, changes in rules and regulations could only be made once it became apparent what new kinds of problems had come to the fore following implementation. It was found that keeping laws and regulations up to date was a difficult challenge and in most cases was only possible in a reactive rather than a proactive way.

5.4 Summary

In order to explore the effect of organisational culture on the implementation of D-government, this chapter has presented the qualitative data collected from the interviews. The findings have been divided into different themes which emerged from the analysis of the interview data.

The main finding of this chapter was that middle management acceptance of D-government implementation was a very important organisational factor.

This has not been discussed in previous studies. It was found that middle managers did not accept D-government implementation for different reasons. They feared that they would lose some of their autonomy, that the implementation of D-government would show up their poor performance and would adversely impact on their own self-interests. Furthermore, it was found that top management support was one of the main factors that helped organisations to implement D-government. It was also found that consistency and continuity of top management was an important factor for supporting D-government implementation.

Additionally, it was found that training was not appropriate to meet the needs of most employees and that some training courses were not related to employees' specialisations. Moreover, it was found that the qualifications and experiences of many employees who worked in the IT Department were often not related to their jobs.

Accordingly, fear of making errors, level of education, satisfaction with old systems and lack of trust were the main factors that affected employee acceptance of D-government implementation. Moreover, it was found that there was an urgent need for updating current legislations and reviewing the rules and regulations of organisations to reflect changes in the legislations.

In accordance with the research design of this study these qualitative findings were used to build the quantitative method (Survey) in order to explore the extent to which these issues were to be found within the wider context of this study.

Chapter 6: Quantitative Data Analysis and Findings

6.1 Introduction

This chapter presents the findings from the analysis of the quantitative data which was collected to address the research questions. Following Pallant (2013), the data was organised and structured according to themes that emerged from the qualitative phase. Survey data was then screened for errors by eliminating incomplete surveys and checking for missing values. The data was then analysed using SPSS to understand the relationships between D-government implementation and organisational culture using statistical tests such as correlation test and Mann-Whitney U Test.

This chapter divided the analysis of the survey into four sections.

- The first section (6.2) covered part one in the survey and presented the descriptive statistics.

- Second section (6.3) analysed part two in the survey and presented the findings from Organisational Culture Assessment Instrument (OCAI) which was used in the survey to identify the type of organisational culture for the organisations that were included in this study in order to find the relationship between the organisational culture and D-government implementation.

- Section three (6.4) of this chapter analysed and presented the main findings of section three of the survey. It was used to get more in-depth data for some themes that emerged from the qualitative data in Chapter 5, about the impact of organisational culture on D-government implementation.

- Section four (6.5) covered question 18 in the survey and presented the findings about the important factors of the organisational culture and D-government implementation.

6.2 Descriptive Statistics

Descriptive statistics were obtained from SPSS in order to present the demography of the survey respondents. In Table 6.1 the different organisations are shown with the number of respondents from each.

Table 6.1 The distribution of respondents according to the public sector organisations

Organisation Name	Organisation Population	No. of Participants	Percent out of Total Participants Number	Response rate per organisation
Organisation A	3872	23	3.1	0.6
Organisation B	651	9	1.2	1.4
Organisation C	8084	42	5.7	0.5
Organisation D	808	7	1.0	0.9
Organisation E	586	14	1.9	2.4
Organisation F	2938	21	2.9	0.7
Organisation G	909	8	1.1	0.9
Organisation H	2374	14	1.9	0.6
Organisation I	970	23	3.1	2.4
Organisation J	158	6	.8	3.8
Organisation K	87	11	1.5	12.6
Organisation L	3830	54	7.4	1.4
Organisation M	255	10	1.4	3.9
Organisation N	2568	34	4.6	1.3
Organisation O	661	8	1.1	1.2
Organisation P	625	8	1.1	1.3
Organisation Q	1070	44	6.0	4.1
Organisation R	3856	21	2.9	0.5
Organisation S	1573	12	1.6	0.8
Organisation T	2450	31	4.2	1.3
Organisation U	850	22	3.0	2.6
Organisation V	3953	20	2.7	0.5
Organisation W	144	11	1.5	7.6
Organisation X	1260	10	1.4	0.8
Organisation Y	278	5	.7	1.8
Organisation Z	859	5	.7	0.6
Organisation AB	271	8	1.1	3.0
Organisation AC	375	5	.7	1.3
Organisation AD	1119	13	1.8	1.2
Organisation AE	4331	44	6.0	1.0
Organisation AF	10976	133	18.2	1.2
Organisation AG	5444	32	4.4	0.6
Organisation AH	1064	24	3.3	2.3
Total	69249	732	100.0	1.1

A total of 732 participants completed the survey. Approximately two thirds of them were males and one third were females as shown in Figure 6.1.

Figure 6.1 Distribution of participants by gender
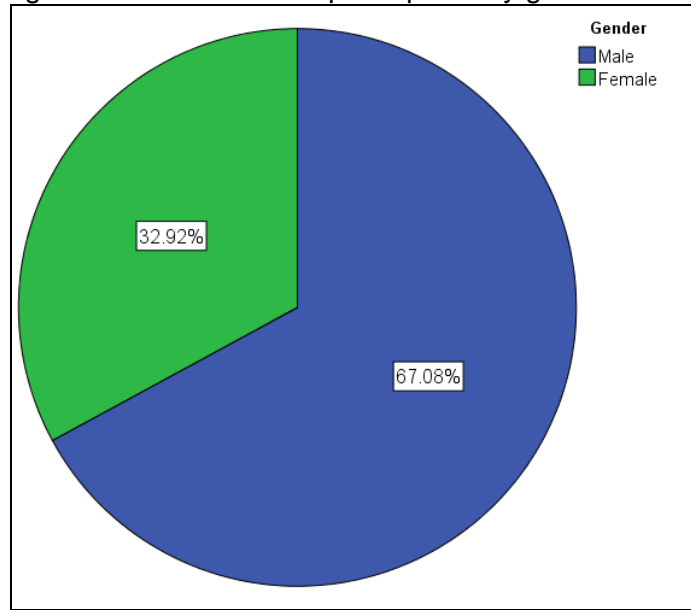
The majority of the participants were under 40 years and almost half of them were in 31 – 40 age group (N=359, 49.0%) as shown in Table 6.2.

Table 6.2 Age distribution of participants based on gender

Age		Gender		Total
		Male	Female	
Under 20 years	Count	4	2	6
	% within Gender	0.8%	0.8%	0.8%
20 – 30 years	Count	151	117	268
	% within Gender	30.8%	48.5%	36.6%
31 – 40 years	Count	250	109	359
	% within Gender	50.9%	45.2%	49.0%
41 – 50 years	Count	72	13	85
	% within Gender	14.7%	5.4%	11.6%
Over 51 years	Count	14	0	14
	% within Gender	2.9%	0.0%	1.9%
Total	Count	491	241	732
	% within Gender	100.0%	100.0%	100.0%
	% within Total	67.1%	32.9%	100.0%

Over two thirds of participants, both male and female, were highly educated holding graduate or postgraduate certificates of education, with only a small number (less than 15%) having only secondary school certificates as shown in Table 6.3.

Table 6.3 Educational level distribution based on gender

| Educational Level | | Gender | | Total |
		Male	Female	
Secondary School	Count	76	22	98
	% within Gender	15.5%	9.1%	13.4%
Higher Diploma	Count	63	55	118
	% within Gender	12.8%	22.8%	16.1%
Bachelor	Count	206	130	336
	% within Gender	42.0%	53.9%	45.9%
Master	Count	113	31	144
	% within Gender	23.0%	12.9%	19.7%
PhD	Count	22	2	24
	% within Gender	4.5%	0.8%	3.3%
Other	Count	11	1	12
	% within Gender	2.2%	0.4%	1.6%
Total	Count	491	241	732
	% within Gender	100.0%	100.0%	100.0%

As can be seen in Table 6.4, the majority of the participants had work experience of less than 5 years. Most of the males have 5 to 10 years of experience representing 31.2% whereas slightly over half of the females had less than 5 years of experience. This is partly explained by the aftermath of the civil unrest of 2011 (See Chapter 5, section 5.3.6), in which government made efforts to increase female participation in order to decrease the high rate of unemployment among females.

Table 6.4 Work Experiences distribution based on gender

| Work Experiences | | Gender | | Total |
		Male	Female	
Less than 5 years	Count	109	121	230
	% within Gender	22.2%	50.2%	31.4%
5 to 10 years	Count	153	66	219
	% within Gender	31.2%	27.4%	29.9%
11 to 15 years	Count	97	28	125
	% within Gender	19.8%	11.6%	17.1%
Over 15 years	Count	132	26	158
	% within Gender	26.9%	10.8%	21.6%
Total	Count	491	241	732
	% within Gender	100.0%	100.0%	100.0%

6.3 Relationship between Organisational Culture and D-government Implementation

The second part of this chapter aims at presenting the findings of the analysis from section two of the survey as well as question 19 of the survey. As this study aims to explore the role of organisational culture and what type of effects that could have on the implementation of D-government, at the beginning of the analysis, it was important to know the level of implementation of each organisation in order to explore the relationship between the organisational culture and D-government implementation. Moreover, level of implementation will help to know how the organisational culture impacts on D-government implementation. Therefore, the study divided the public sector organisations that were covered in this survey into two groups according to their level of implementation of D-government. Dividing organisations into two groups helped to easily compare them with each other and explore the relationship of organisational culture between each group and the level of implementation of D-government. Accordingly, the first group was called "*low level of implementation*" and included all organisations which had not implemented any system or had only low levels of implementation of D-government at the time the research was conducted. The second group was called "*high level of implementation*" which included all organisations that had high levels of implementation at the time the research was conducted. Therefore, dividing the organisations according to their level of implementation, either high or low in a logical and technical way, provided the study with one of the variables that were utilised in the survey. However, question 19 in section 3 asked the participants to indicate the degree (percent) that they thought reflected the current situation of D-

government implementation in their organisations on a scale from 0% to 100%. Assigning a value of 0% was considered as indicating no implementation of D-government in the organisation and assigning a value of 100% was considered as indicating that the D-government was being fully implemented by transforming all services and systems of the organisation electronically.

The study used this scale as employees are supposed to be familiar with what happens in their organisations relevant to D-government implementations such as systems that are implemented within the organisations, plans and policies of implementation, training for the new systems and the availabilities of the infrastructures (hardware and software). Moreover, it was assumed that employees had a sufficient understanding and background knowledge about their organisation's condition to be able to evaluate the level of implementation in their organisation using a percentage type of scale. Hence, after the analysis of question 19 in section three, which represented the level of implementation of D-government of the organisations that participated in this survey, the results showed that organisations varied considerably in their implementation score which represented their current level of implementation as shown in Table 6.5.

Table 6.5 Classification of organisations according to their level of implementation

Group Name	Organisation Code	* Level of Implementation of D-government
Group I : Organisations with Low Level of Implementation	Organisation D	27.7
	Organisation G	30.6
	Organisation H	37.9
	Organisation J	19.0
	Organisation K	36.5
	Organisation M	29.2
	Organisation O	24.4
	Organisation P	24.0
	Organisation Q	41.5
	Organisation U	39.7
	Organisation V	38.5
	Organisation AB	37.0
	Organisation AH	27.2
Group II : Organisations with High Level of Implementation	Organisation A	49.3
	Organisation B	47.0
	Organisation C	48.7
	Organisation E	47.4
	Organisation F	47.7
	Organisation I	48.7
	Organisation L	52.6
	Organisation N	52.1
	Organisation R	52.9
	Organisation S	49.6
	Organisation T	63.4
	Organisation W	62.5
	Organisation X	46.8
	Organisation Y	52.4
	Organisation Z	73.6
	Organisation AC	61.2
	Organisation AD	55.8
	Organisation AE	49.8
	Organisation AF	64.0
	Organisation AG	52.6
Government Average Level		45.2

*Note: Level of Implementation of D-government scores could range from 0 to 100, representing a percentage out of 100

The results indicate that the average level of implementation for all the participant organisations was 45.2%. Accordingly, in order to divide the organisations into two groups so that comparisons could be made in the later stages of this analysis, this average measure was used as a threshold level for dividing them into the two groups. Therefore, those organisations which had a score in level of implementation below the average were classified as group one which is low level of implementation and those organisations

which had a score above the average were included in group two as high level of implementation.

Figure 6.2 presents these results graphically and shows that all the organisations in group one were set under the average line of D-government implementation and all the organisations in group two were set above the average line of D-government implementation.

Figure: 6.2 Distribution of organisations based on the level of implementation
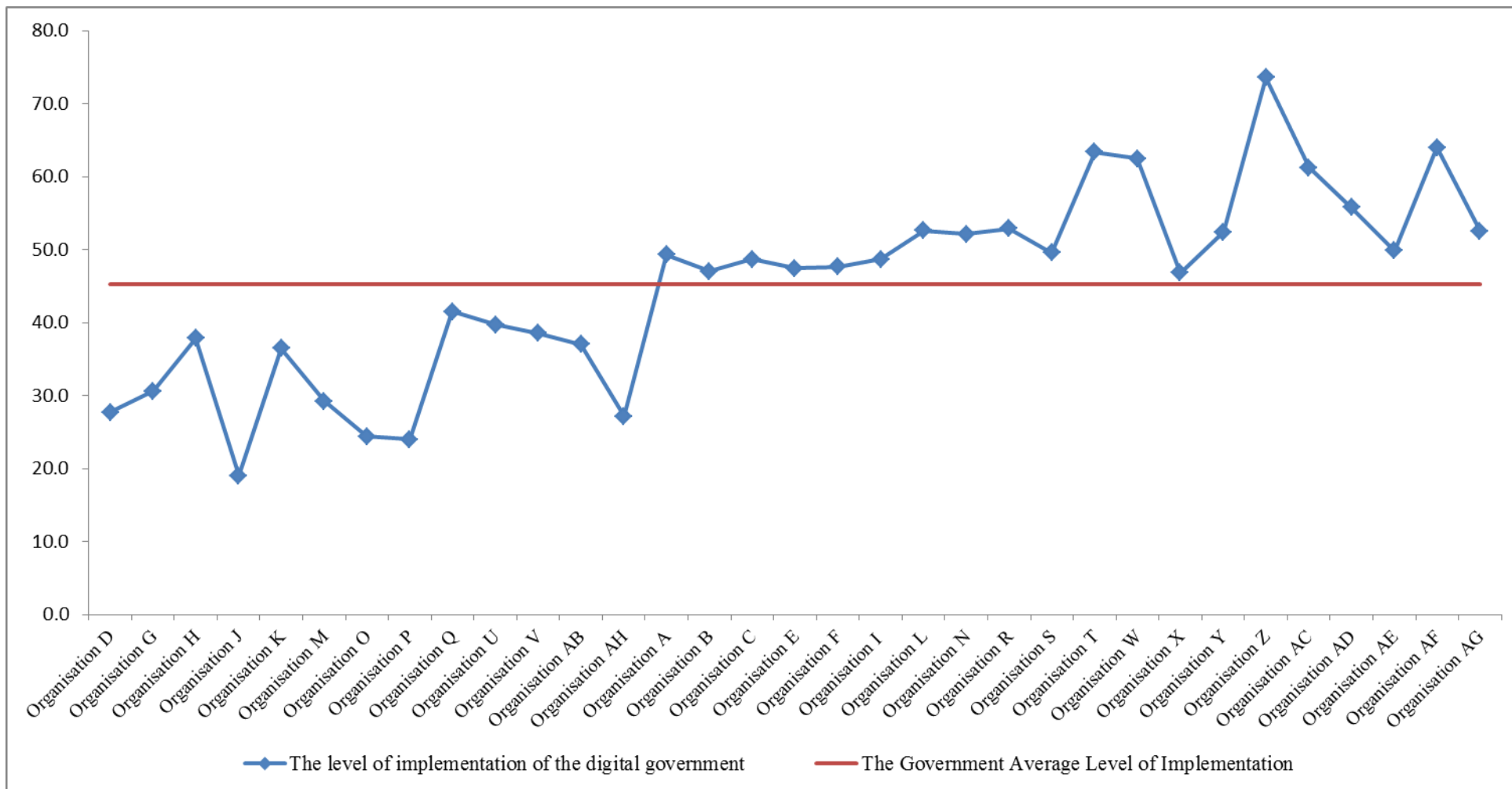
After dividing the organisations into two groups based on their level of implementation, the next step was to know the type of culture that each organisation had according to the Organisational Culture Assessment Instrument (OCAI), which was introduced in Chapter 2, section 2.5. This instrument helped to identify the dominant organisational culture type for each organisation participating in this study by measuring and dividing them into four different categories.

To do so, section two of the survey has 6 questions to measure six main dimensions in the organisation as shown in Table 6.6 and Figure 6.3 (Figure 6.3 drawn by the researcher to show the distribution of culture types and the data analysis for the OCAI for this section in a simple way). Those six dimensions were dominant characteristics, organisational leadership, management of employees, organisation glue, strategic emphases and criteria of success. Each dimension of those has four alternatives (A, B, C, D) and each of those alternatives represents different type of culture as A represents 'Clan' culture, B represents 'Adhocracy' culture, C represents 'Market' culture and D represents 'Hierarchy' culture. Participants distributed 100 scores among these four alternatives depending on the extent to which each alternative resembled his/her organisation. Participants gave a higher number of scores to the alternative that was most similar to his/her organisation. This was done for each of those six questions separately. The survey questions were discussed in Chapter 4, section 4.4.2.1 and copy of it is attached in Appendix 4.3.

Table 6.6 Organisational Culture Assessment Instrument adapted from (Cameron and Quinn 2011)

	1	2	3	4	5	6
	Dominant Characteristics	**Organisational Leadership**	**Management of Employees**	**Organisation Glue**	**Strategic Emphases**	**Criteria of Success**
Clan (A)	The organisation is a very personal place. It is like an extended family. People seem to share a lot of themselves.	The leadership in the organisation is generally considered to exemplify mentoring, facilitating, or nurturing.	The management style in the organisation is characterized by teamwork, consensus, and participation.	The glue that holds the organisation together is loyalty and mutual trust. Commitment to this organisation runs high.	The organisation emphasizes human development. High trust, openness, and participation persist.	The organisation defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.
Adhocracy (B)	The organisation is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.	The leadership in the organisation is generally considered to exemplify entrepreneurship, innovating, or risk taking.	The management style in the organisation is characterized by individual risk-taking, innovation, freedom, and uniqueness.	The glue that holds the organisation together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	The organisation emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	The organisation defines success on the basis of having the most unique or newest products. It is a product leader and innovator.
Market (C)	The organisation is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	The leadership in the organisation is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	The management style in the organisation is characterized by hard-driving competitiveness, high demands, and achievement.	The glue that holds the organisation together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	The organisation emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	The organisation defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.
Hierarchy (D)	The organisation is a very controlled and structured place. Formal procedures generally govern what people do.	The leadership in the organisation is generally considered to exemplify coordinating, organising, or smooth-running efficiency.	The management style in the organisation is characterised by security of employment, conformity, predictability, and stability in relationships.	The glue that holds the organisation together is formal rules and policies. Maintaining a smooth-running organisation is important.	The organisation emphasizes permanence and stability. Efficiency, control and smooth operations are important.	The organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.

Figure 6.3 Organisations' culture types (drawn by the researcher)

1 = Dominant Characteristics	**2** = Organisational Leadership	**3** = Management of Employees	**4** = Organisation Glue	**5** = Strategic Emphases	**6** = Criteria of Success
A 1	**A** 2	**A** 3	**A** 4	**A** 5	**A** 6
B 1	**B** 2	**B** 3	**B** 4	**B** 5	**B** 6
C 1	**C** 2	**C** 3	**C** 4	**C** 5	**C** 6
D 1	**D** 2	**D** 3	**D** 4	**D** 5	**D** 6

A (Clan) = (A1 + A2 + A3 + A4 + A5 + A6) / 6

B (Adhocracy) = (B1 + B2 + B3 + B4 + B5 + B6) / 6

C (Market) = (C1 + C2 + C3 + C4 + C5 + C6) / 6

D (Hierarchy) = (D1 + D2 + D3 + D4 + D5 + D6) / 6
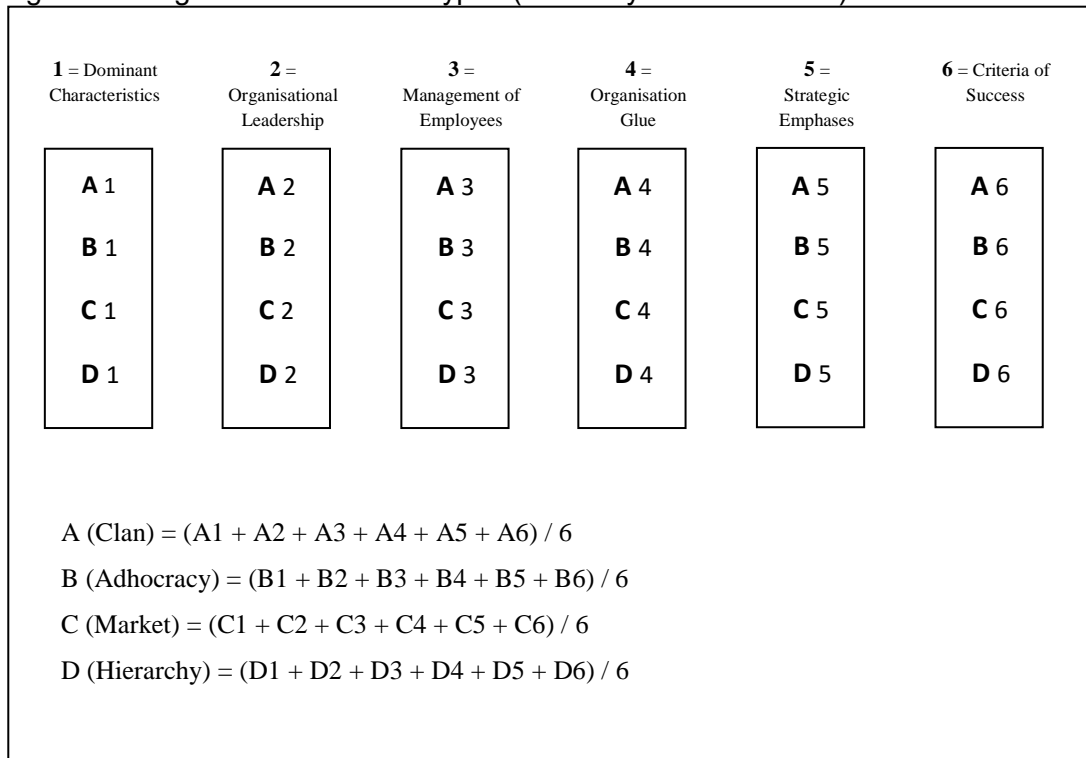
By analysing these six dimensions, the next set of data was found as shown in Table 6.7 which displays the average scoring of all the alternatives (A, B, C, D) of each organisation. Thus, based on the scores of the four alternatives, the dominant type of culture for each organisation was identified because each alternative represents a different type of culture as discussed previously.

Table 6.7 Mean scores by culture type for participant organisations

Group Name	Organisation Code	A (Clan) Mean*	B (Adhocracy) Mean*	C (Market) Mean*	D (Hierarchy) Mean*
Group I: Organisations with Low Level of Implementation	Organisation D	26.07	25.12	23.93	24.88
	Organisation G	23.65	25.73	28.33	22.29
	Organisation H	37.14	17.62	17.86	27.38
	Organisation J	31.53	15.83	23.47	29.17
	Organisation K	28.32	20.35	24.83	26.50
	Organisation M	31.40	22.83	22.53	23.23
	Organisation O	30.00	20.52	24.06	25.42
	Organisation P	39.79	14.90	17.08	28.23
	Organisation Q	29.06	20.23	24.86	25.84
	Organisation U	29.08	22.08	22.21	26.63
	Organisation V	30.38	21.38	22.91	25.34
	Organisation AB	29.92	21.31	21.04	27.73
	Organisation AH	27.37	22.10	24.99	25.54
Group II: Organisations with High Level of Implementation	Organisation A	27.30	21.43	22.70	28.57
	Organisation B	21.80	21.72	25.93	30.56
	Organisation C	25.40	20.07	22.28	32.25
	Organisation E	22.58	24.86	24.57	27.99
	Organisation F	27.17	20.56	23.88	28.39
	Organisation I	26.54	21.92	23.64	27.90
	Organisation L	22.71	19.65	24.71	32.94
	Organisation N	25.79	20.54	26.04	27.63
	Organisation R	21.51	20.48	26.12	31.90
	Organisation S	24.24	21.94	26.72	27.10
	Organisation T	20.85	19.67	23.79	35.69
	Organisation W	22.58	23.86	26.74	26.82
	Organisation X	20.35	20.40	24.82	34.43
	Organisation Y	19.67	20.67	30.50	29.17
	Organisation Z	21.83	25.00	27.67	25.50
	Organisation AC	25.67	25.33	22.33	26.67
	Organisation AD	22.56	22.59	25.68	29.17
	Organisation AE	25.38	20.17	22.75	31.71
	Organisation AF	25.83	20.89	23.45	29.83
	Organisation AG	24.96	24.51	24.26	26.27

*Note: Mean scores could range from 0 to 100, representing a percentage out of 100

As shown in Table 6.7, the results indicated that each organisation has a different score for each 4 types of culture. According to the OCAI, the dominant type of culture for each organisation is the one that has highest average even if the differences between them are very small. Hence, as

revealed in Table 6.7, the dominant culture type for the organisations in group one was type A which represents '*Clan*' culture with the exception of one organisation, (Organisation G), which had the highest average with type C representing '*Market*' culture. Furthermore, it is clear from Table 6.7 that the dominant culture type for the organisations in group two was type D which represents '*Hierarchy*' culture. Only two of them (Organisation Y and Organisation Z) deviated from this and had the highest average of type C representing '*Market*' culture.

Comparing the two groups in Table 6.7, it is immediately evident that all the organisations in both groups are categorised as either *Clan* or *Hierarchy* cultures, except only 3 organisations categorised as *Market* culture and none of the organisations had an *Adhocracy* culture type. Moreover, it was found that all the organisations that had a *Clan* type of culture (12 organisations) belonged to the low level of implementation of D-government group. In contrast, those organisations that had a *Hierarchy* type of culture (18 organisations) belonged to the group with a high level of implementation of D-government. Only three organisations had a *Market* type of culture; one of them belonged to the low level of implementation group and the other two to the high level of implementation group.

6.3.1 Correlation Analysis

In order to explore the possible relationship between the organisational culture and the level of D-government implementation, Spearman's correlation coefficient test was run in SPSS. This test is important to check the type of correlation among the organisational culture and level of

implementation. The results indicated, as shown in Table 6.8, that a statistically significant correlation existed between the level of implementation of D-government and the *Clan* and *Hierarchy* types of organisational culture. However, *Clan* culture correlates negatively with level of implementation as correlation coefficient (r = -.263, p < .001) whereas, *Hierarchy* culture correlates positively with level of implementation as correlation coefficient (r = .180, p < .001). On the other hand, there was no statistically significant correlation found between level of implementation with *Adhocracy* and *Market* types of organisational culture as (p > .05).

Table 6.8 Correlations results between types of organisational culture and level of implementation of D-government

Spearman's rho		A (Clan)	B (Adhocracy)	C (Market)	D (Hierarchy)	Level of Implementation
A (Clan)	Correlation Coefficient	1.000	.071	-.446**	-.501**	-.263**
	Sig. (2-tailed)		.054	.000	.000	.000
	N	732	732	732	732	732
B (Adhocracy)	Correlation Coefficient	.071	1.000	.063	-.601**	.003
	Sig. (2-tailed)	.054		.088	.000	.929
	N	732	732	732	732	732
C (Market)	Correlation Coefficient	-.446**	.063	1.000	-.232**	.050
	Sig. (2-tailed)	.000	.088		.000	.176
	N	732	732	732	732	732
D (Hierarchy)	Correlation Coefficient	-.501**	-.601**	-.232**	1.000	.180**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	732	732	732	732	732
Level of Implementation	Correlation Coefficient	-.263**	.003	.050	.180**	1.000
	Sig. (2-tailed)	.000	.929	.176	.000	
	N	732	732	732	732	732

**. Correlation is significant at the 0.01 level (2-tailed).

However, running the Pearson correlation test revealed similar significant results. Only clan and hierarchy culture organisation types had significant results with the level of D-government implementation. The other two types, adhocracy and market culture, yielded no significant results with the level of D-government implementation (See results in Appendix 6.1).

Due to the use of Likert scales in the survey, which was designed to discover rates of agreement or disagreement with statements, it was anticipated that there would be some skewness in the data and some degree of departure

from normality (Willett 2016). Tests for normality were conducted using Kolmogorov-Smirnov test and Shapiro-Wilk test (See results in Appendix 6.2). Each of the variables returned highly significant results ($p < .001$) which is below the threshold of the ($p < .05$) for significance. Thus, it was necessary to use non-parametric tests to analyse the data.

To further explore the effect of the two independent groups (hierarchy and clan) on the level of implementation of D-government, the Mann-Whitney U test was conducted as the data for each variable departed significantly from normality.

6.3.2 Mann-Whitney U Test

Further analysis has been performed in order to explore whether there were any differences between organisations which had different types of culture in term of their level of implementation. Therefore, a Mann-Whitney U Test was run in the SPSS. This test helps to explore the role of organisational culture on the D-government implementation.

As seen in Table 6.9, a Mann-Whitney U Test revealed a significant difference in both the *Clan* and Hierarchy types of culture based on level of D-government implementation. In the case of *Clan* culture, the culture was found to impact significantly on the low level of implementation with higher Mean Rank (460.23) whereas, in case of *Hierarchy* culture it was found to impact significantly on the high level of implementation with higher Mean Rank (389.06). On the other hand, a Mann-Whitney U Test revealed no significant difference in the *Market* and *Adhocracy* types of culture based on

level of D-government implementation. Accordingly, the findings of the Mann-Whitney U Test further supports what was found previously in the correlation test, that the organisational culture type played a role in the level of implementation. However, more discussion about those results will be presented in Chapter 7.

Table 6.9 Mann-Whitney U Test output for organisational culture types

Ranks

	Level of Implementation	N	Mean Rank	Sum of Ranks
A (Clan)	Low Level of Implementation	190	460.23	87444.50
	High Level of Implementation	542	333.64	180833.50
	Total	732		
B (Adhocracy)	Low Level of Implementation	190	365.32	69411.00
	High Level of Implementation	542	366.91	198867.00
	Total	732		
C (Market)	Low Level of Implementation	190	348.65	66244.00
	High Level of Implementation	542	372.76	202034.00
	Total	732		
D (Hierarchy)	Low Level of Implementation	190	302.14	57406.00
	High Level of Implementation	542	389.06	210872.00
	Total	732		

Test Statistics[a]

	A (Clan)	B (Adhocracy)	C (Market)	D (Hierarchy)
Mann-Whitney U	33680.500	51266.000	48099.000	39261.000
Wilcoxon W	180833.500	69411.000	66244.000	57406.000
Z	-7.107	-.089	-1.354	-4.880
Asymp. Sig. (2-tailed)	.000	.929	.176	.000

a. Grouping Variable: Level of Implementation

Report

Level of Implementation		A (Clan)	B (Adhocracy)	C (Market)	D (Hierarchy)
Low Level of Implementation	N	190	190	190	190
	Median	28.3333	21.8333	24.0833	25.0000
High Level of Implementation	N	542	542	542	542
	Median	24.2500	21.6667	24.8333	27.5000
Total	N	732	732	732	732
	Median	25.0000	21.6667	24.1667	26.6667

6.4 The impact of organisational culture on D-government implementation

This section of the chapter presents the findings from the analysis of section three of the survey which aimed at exploring the impact of organisational culture on the D-government implementation.

Section three of the survey includes 11 questions and used a 5-point Likert scale to express the degree of the participants' agreement or disagreement with 11 statements. Those statements represent one of the themes that was generated from the qualitative data analysis such as top management support, employee acceptances, training, evaluation and employee's involvement in the D-government implementation. Therefore, those statements were designed to compare those organisations which had clan culture type (low level of implementation of D-government) with those which had hierarchy culture type (high level of implementation of D-government).

However, the results showed that there were some differences between organisations that had clan culture type and organisations that had hierarchy culture type in terms of involving employees in the decision making process for implementing new digital systems. About 53.9% of the employees in clan culture organisations agreed that they were involved, compared with 29.1% of the employees in hierarchy culture organisations being agreed. In contrast, those who disagreed represented 25% for clan culture organisations and 45.1% for hierarchy culture organisations. Furthermore, it was found that top management support in the organisations that had low levels of

implementation was almost equal to those in the organisations with high levels of implementation which represent 73.7% and 73.3% respectively.

An open question was included in the survey at the end of section 3 and the following issues were raised by respondents which added more depth to the findings of the survey. A high number of participants from hierarchy culture organisations mentioned that employees were not part of the decision-making of D-government implementation and that instead, they only received those decisions for implementation as compulsory procedures. Besides, some participants mentioned that most of the middle managers in those organisations had not been replaced or changed for a long time and also that their strategies had not changed for a long time. Furthermore, it was stated that they tended to adopt a bureaucratic approach to the decision-making process and that they relied on old, outdated management ideas which impeded the implementation of D-government.

According to some participants comments, which represent hierarchy culture organisations showed that the management did not involve employees in the decision-making process for a variety of reasons such as:

- In some organisations, there was a lack of trust between the management and the employees.
- Some other participants stated that the decision making process was limited to specific people who were very close to the top management.

As shown in Figure 6.4, it was found that 70.5% of participants in the organisations that had clan culture thought that the slow integration process

of D-government between their organisations and other public sector organisations was due to managerial issues compared to 51.5% in the organisations with hierarchy culture. However, this represented a significant difference between the two types of organisational culture with 19% difference. Thus, over half the respondents of both culture types organisations attributed slow integration to managerial issues but with greater rate of agreement from those in clan culture. Issues of management were, therefore, found to have significant impacts on integration of D-government.

Figure 6.4 Slow integration process in the D-government between public sector organisations is due to managerial reasons
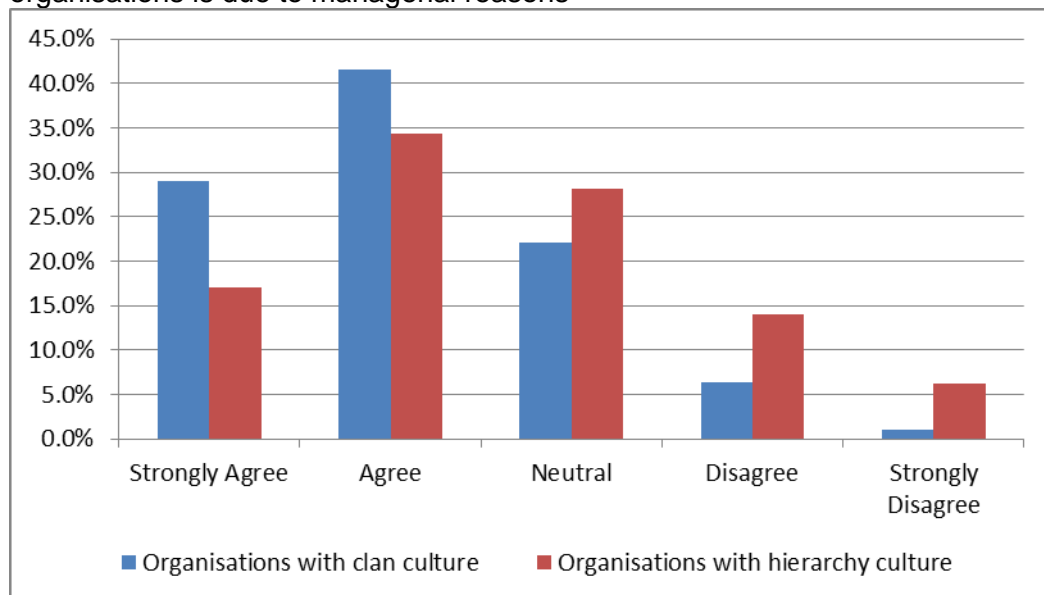
Moreover, the results showed that 69% of participants in the organisations with hierarchy culture thought that the organisational culture or environment of their organisations positively supported the implementation of D-government compared to 64% in the organisations that had clan culture.

As is shown in Figure 6.5, the results indicated that big differences existed between the organisations with clan culture compared to the organisation

with hierarchy culture in the employee acceptance of implementing D-government. The employees' levels of acceptance were 87.4% for organisations with clan culture and 46.4% for the organisation with hierarchy culture.

Figure 6.5 I am accepting of the implementation of D-government in my organisation.
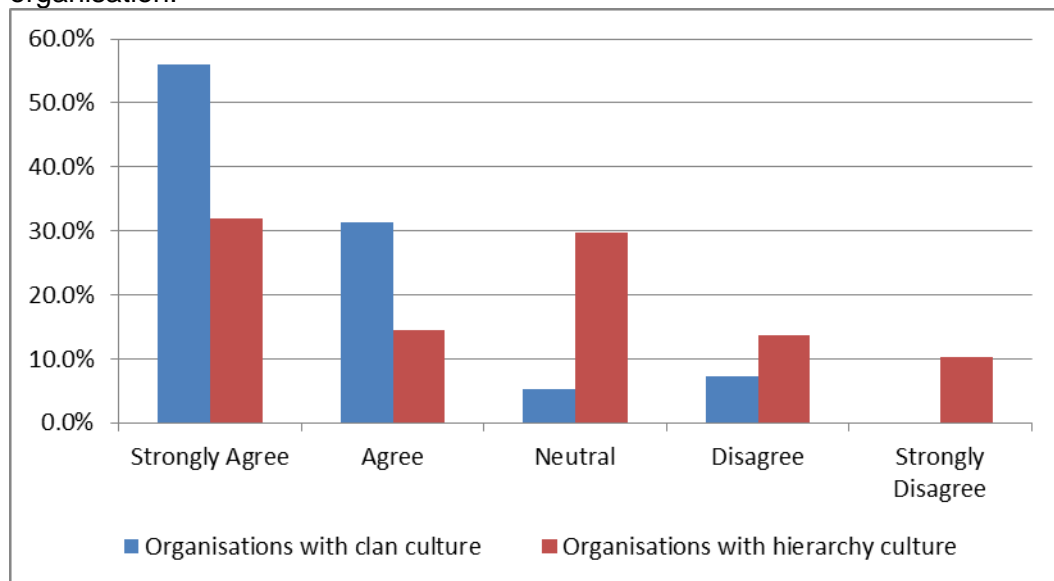
Furthermore, based on level of education, the study found that the high percentage response rates of accepting D-government implementation were found from respondents with PhD and Master levels (100% and 99% respectively) and these were higher than for any other educational level.

According to the comments in response to an open question which was included in the survey, the following issues were raised by respondents about employees' acceptance of D-government implementation which added more depth to the findings of the survey. Several participants from hierarchy and clan culture organisations mentioned that it was very important that the implementation of D-government should take place gradually, and preceded

by awareness strategies which would motivate the employees to accept the D-government implementation. The reason given for this view by the respondents was that many of the employees had a lack of knowledge of how to deal with the new technology, especially the older employees, and that training and awareness programmes needed to be implemented. Moreover, some participants argued that they thought that the main aim of the D-government was to decrease the number of employees and for this reason they did not accept this new technology and tried to avoid it. Furthermore, some participants mentioned that they liked to take the documents in paper for the other departments in their organisations instead of transferring them electronically. This gives them opportunities to see their colleagues in other departments because now they could not see them except in the organisation events or social gatherings only.

On the other hand, some participants commented that employee acceptance depended on the decision makers' acceptance of D-government. This was because, even if employees accepted and used the technology, most of the management at all levels did not know how to deal with the technology or did not want to use it. Therefore, they asked that all the jobs and tasks that come to them or their offices should be in paper form (traditional method) and even if there were any thing to do electronically, the secretary of their offices would be asked to do these tasks, which isolated them totally from the technology.

As presented in Figure 6.6, 39% of participants from clan culture organisations agreed that their organisations provided different technical training courses for all employees before and after implementing any new

system, compared to 55.5% of those employees from hierarchy culture organisations. Thus, there was some significant difference between them which is around 17%. On the other hand, those who disagreed that their organisations provided different technical training courses represented 41% and 22.7% for clan and hierarchy culture organisations respectively.

Figure 6.6 Different technical training courses provided for all employees before and after implementing any new system
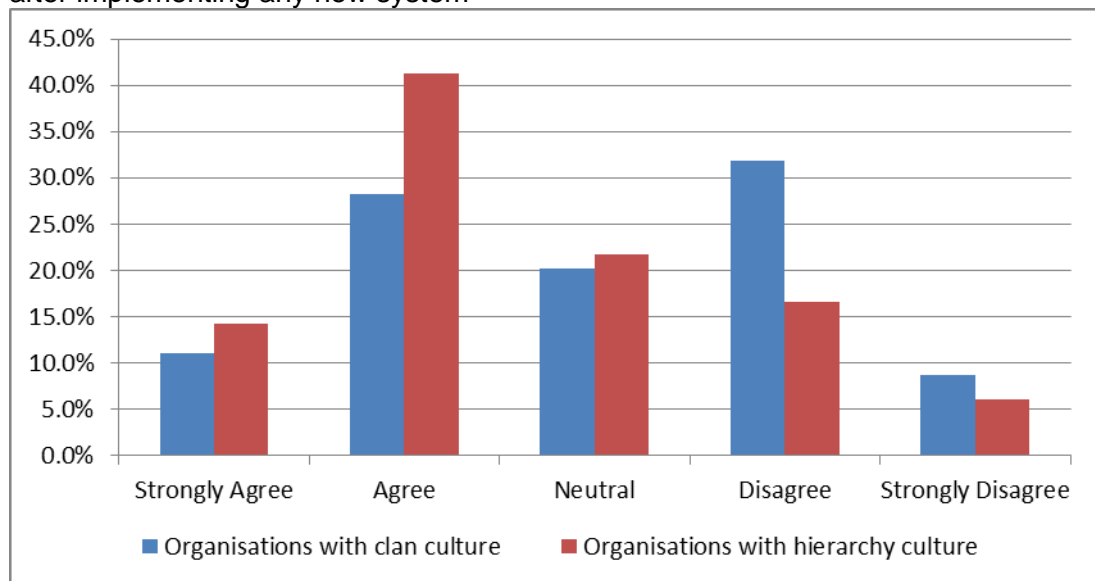
Figure 6.7 reveals that, those who thought the training provided by their organisations were appropriate and useful for them represented 30.9% for the participants from clan culture organisations and 52.9% for the participants from hierarchy culture organisations. Moreover, those who disagreed that the training was appropriate and useful for them represented 47.5% and 30.1% for clan culture organisations and hierarchy culture organisations respectively.

Figure 6.7 Skills and experiences that acquired from the training provided by the organisation are appropriate and useful
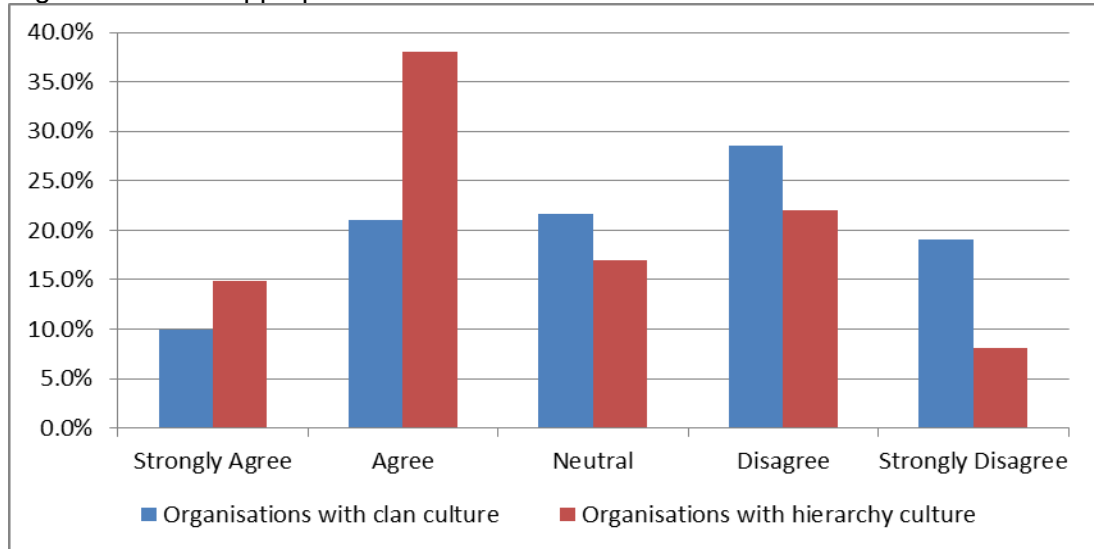
Figure 6.8, shows that 35.6% of employees from clan culture organisations agreed that the IT department in their organisation acted on regular evaluation of newly implemented systems compared to 58% of those employees from hierarchy culture organisations. Thus, there was considerable difference between the clan and hierarchy organisations. However, those who disagreed that the IT department in their organisation acted on regular evaluations of newly implemented systems represented 30.7% and 16.5% for clan and hierarchy organisations respectively.

Figure 6.8 The IT department act on regular evaluation of new implemented system
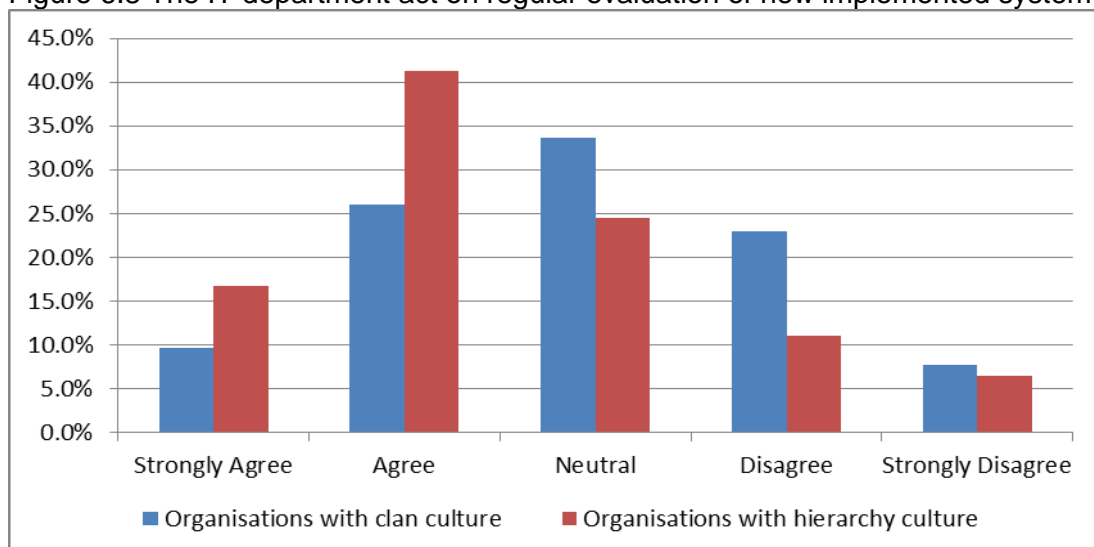
However, according to the open question which was included in the survey at the end of section three, participants from clan culture organisations commented that the training was for specific people and did not involve all the employees. Moreover, some of them noted that they had not received any training in IT. For example, one of the participants said "*I have not trained about the new systems I just heard about it*". Alternatively, participants mentioned that most of the training courses were theory and lacked practical training as well as claiming that the training periods were mostly inadequate.

As shown in Figure 6.9, the results showed that those employees who were aware of D-government implementation and its plan in their organisations in clan culture organisations were almost equal to those in hierarchy culture organisations with 31.7% and 36% respectively. But those who are not aware represent 54.3% in clan and 46% in hierarchy culture. This shows that employees in both clan and hierarchy organisations had low levels of awareness of D-government implementation.

Figure 6.9 I am aware of D-government implementation and its plan in my organisation
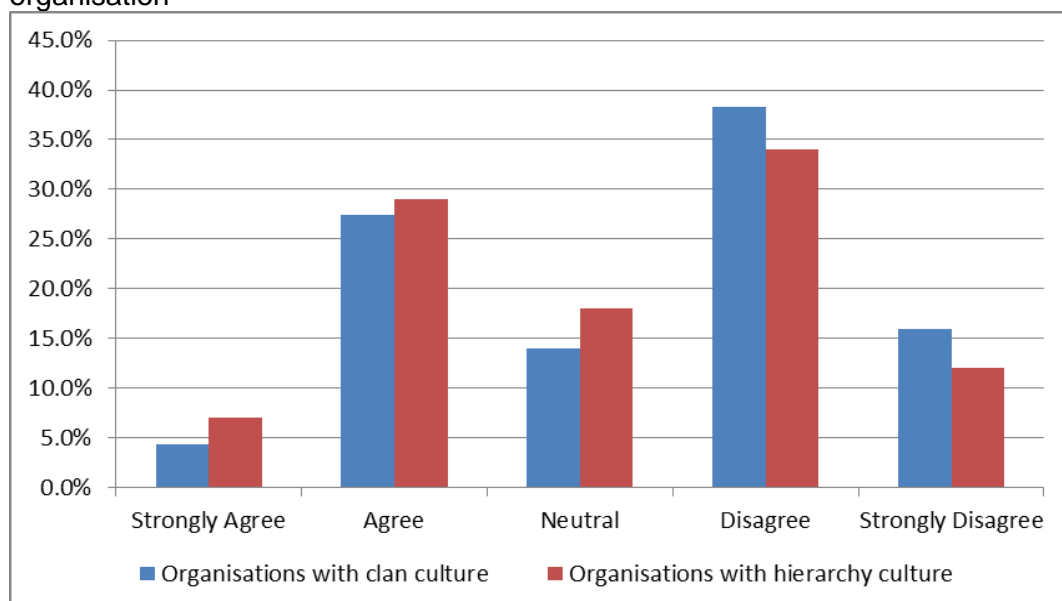
As presented in Figure 6.10, the results indicated that 35.2% of participants from organisations which had clan culture and 44.5% from the organisations which had hierarchy culture agreed that the rules and policies of their organisations were regularly updated according to the changes of D-government systems implementation. However, this means those who agreed from hierarchy culture organisations were greater than those from clan culture organisations and this represented a significant difference.

Figure 6.10 The rules and policies of my organisation are regularly updated according to the changes of the D-government systems implementation
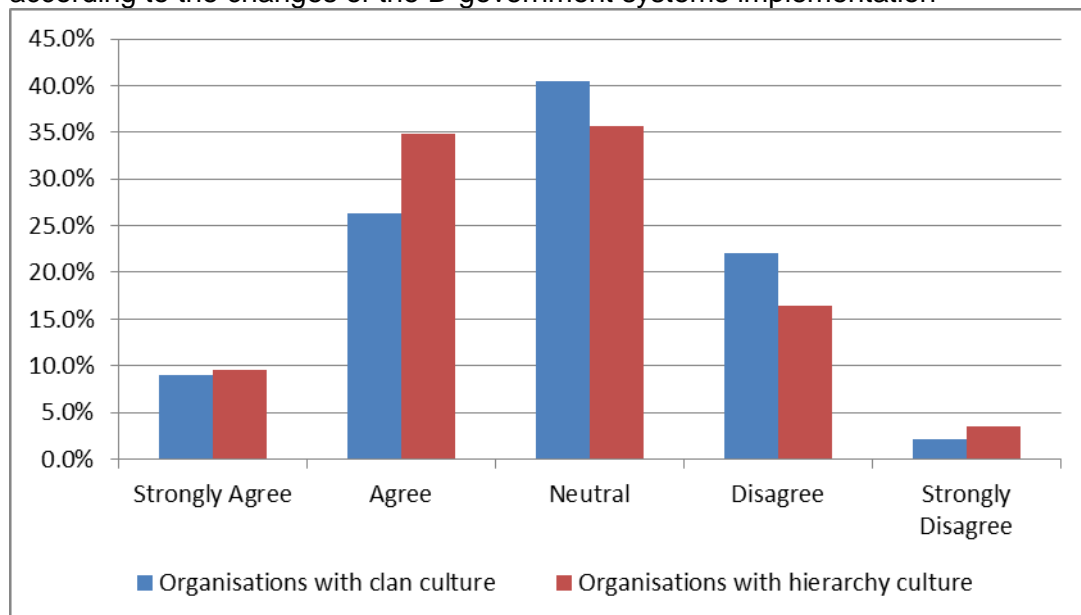
Furthermore, the results indicated that D-government systems enabling employees to finish more work directly without going back to upper levels of management for approval in the organisations that had hierarchy culture compared to the organisations which had clan culture represented around 48.9% and 27.9% respectively. However, those who are disagreed that they received more authorities represent 25.1% and 41% for hierarchy and clan organisations respectively.

However, according to the open question which was included in the survey, some of the participants from both clan and hierarchy culture organisations mentioned that they did not know about the regulation and policies of D-government and that it was rare that those policies and regulations were distributed to them. Moreover, some other participants said that some of the work policies in their organisation were not clear enough to follow and that it was up to the staff to consider how to deal with it. Furthermore, some participants from hierarchy culture organisations stated that there was a lack of communications between the management and employees in their organisations.

6.5 Organisational Cultural and D-government Implementation

This section presents the findings of the analysis of the responses to question 18 in the survey. It is identified 8 main themes that emerged from the qualitative data which respondents identified as likely impacting on the implementation of D-government in their organisation. These were collated and included in the questionnaire where respondents were asked to rank each of the factors according to their importance for their organisations in the implementation of D-government from one as the lowest importance to eight as the most important. These eight factors were:

- Employee awareness of the new system being implemented.
- Support of management in the organisation for the implementation of D-government.
- Sufficient financial and human resources for the implementation in the organisation.
- Involving employees in the decision-making for implementing the new system.

- Security and trust in new system.
- Evaluation of the D-government systems implemented in the organisation.
- Working collaboratively and integrating with other organisations.
- Training employees in using the implemented systems.

As can be seen in Table 6.10, the survey findings showed that, overall, management support was the most important factor according to the participants with median (6.50) and employee awareness was the second important factor with median (6.00). This is taking the overall scores from the bottom row of the table. Next came the employee involvement factor and the employee training factor which were jointly the third important factors with medians at (5.00). After that, security and trust factor and integration factor were found as the fourth important with median (4.00). Sufficient financial and human resources factor and evaluation factor were ranked as fifth and sixth in importance with medians (3.00 and 2.00) respectively.

Table 6.10 The average of factors based on their importance and organisations culture types

Organisational Culture types		Employee awareness	Management support	Sufficient financial and human resources	Employee involvement	Security and trust	Evaluation	Employees training	Integration
Clan Culture Organisations	N	190	190	190	190	190	190	190	190
	Median	6.00	7.00	4.00	5.00	4.00	2.50	4.00	3.00
Hierarchy Culture Organisations	N	542	542	542	542	542	542	542	542
	Median	6.00	6.00	3.00	5.00	4.00	2.00	5.00	4.00
Total	N	732	732	732	732	732	732	732	732
	Median	6.00	6.50	3.00	5.00	4.00	2.00	5.00	4.00

However, comparing these themes in terms of their importance between organisations that had different organisational culture presented an opportunity to explore whether the organisation culture had had any role to play in this. The results showed that there were some differences in the order of certain factors as shown in Table 6.11. It was found that the clan culture organisations which had low levels of D-government implementation, management support was ranked as the first most important factor with median (7.00). Employee awareness was ranked as second and employee involvement ranked as third with medians (6.00 and 5.00) respectively. In contrast, for the hierarchy culture organisations which had high levels of implementation, management support and employee awareness factors shared first place as of equal importance with medians (6.00 and 6.00) respectively. Employee involvement and employee training were next in rank order with medians (5.00 and 5.00) respectively. Security and trust and integration factors were ranked as third important factor with medians (4.00 and 4.00) respectively. Table 6.11 shows the order of these themes based on organisational culture types.

Table 6.11 Order of factors based in level of implementation

No.	Clan Culture Organisations		Hierarchy Culture Organisations	
	Factors	Median	Factors	Median
1	Management support	7.00	Management support + Employee awareness	6.00
2	Employee awareness	6.00	Employee involvement + Employee training	5.00
3	Employee involvement	5.00	Security and Trust + Integration	4.00
4	Employee training + Sufficient financial and human resources + Security and Trust	4.00	Sufficient financial and human resources	3.00
5	Integration	3.00	Evaluation	2.00
6	Evaluation	2.50		

The findings showed that there were some differences in the importance of factors between clan culture organisations which had low levels of implementation and hierarchy culture organisations which had high levels of implementation. Therefore, in order to understand in more depth and explore which of these factors were more important for the clan culture organisations or hierarchy culture organisations, a Mann-Whitney U test was conducted and the results are shown in Table 6.12.

Table 6.12 Mann-Whitney U Test outputs for organisational culture factors

Ranks

Factors	Organisational Culture types	N	Mean Rank	Sum of Ranks
Employee awareness	Clan Culture Organisations	190	349.63	66429.50
	Hierarchy Culture Organisations	542	372.41	201848.50
	Total	732		
Management support	Clan Culture Organisations	190	417.16	79260.50
	Hierarchy Culture Organisations	542	348.74	189017.50
	Total	732		
Sufficient financial and human resources	Clan Culture Organisations	190	402.72	76517.00
	Hierarchy Culture Organisations	542	353.80	191761.00
	Total	732		
Employee involvement	Clan Culture Organisations	190	350.14	66527.00
	Hierarchy Culture Organisations	542	372.23	201751.00
	Total	732		
Security and trust	Clan Culture Organisations	190	355.08	67466.00
	Hierarchy Culture Organisations	542	370.50	200812.00
	Total	732		
Evaluation	Clan Culture Organisations	190	381.07	72403.50
	Hierarchy Culture Organisations	542	361.39	195874.50
	Total	732		
Employees training	Clan Culture Organisations	190	331.90	63060.50
	Hierarchy Culture Organisations	542	378.63	205217.50
	Total	732		
Integration	Clan Culture Organisations	190	336.17	63873.00
	Hierarchy Culture Organisations	542	377.13	204405.00
	Total	732		

Table 6.12 Mann-Whitney U Test outputs for organisational culture factors (continued)

Test Statistics[a]

	Employee awareness	Management support	Sufficient financial and human resources	Employee involvement	Security and trust	Evaluation	Employees training	Integration
Mann-Whitney U	48284.500	41864.500	44608.000	48382.000	49321.000	48721.500	44915.500	45728.000
Wilcoxon W	66429.500	189017.500	191761.000	66527.000	67466.000	195874.500	63060.500	63873.000
Z	-1.294	-3.930	-2.774	-1.252	-.873	-1.139	-2.646	-2.328
Asymp. Sig. (2-tailed)	.196	.000	.006	.211	.382	.255	.008	.020

a. Grouping Variable: Organisational Culture types

Organisational Culture types		Employee awareness	Management support	Sufficient financial and human resources	Employee involvement	Security and trust	Evaluation	Employees training	Integration
Clan Culture Organisations	N	190	190	190	190	190	190	190	190
	Median	6.00	7.00	4.00	5.00	4.00	2.50	4.00	3.00
Hierarchy Culture Organisations	N	542	542	542	542	542	542	542	542
	Median	6.00	6.00	3.00	5.00	4.00	2.00	5.00	4.00
Total	N	732	732	732	732	732	732	732	732
	Median	6.00	6.50	3.00	5.00	4.00	2.00	5.00	4.00

The findings of the Mann-Whitney U test showed that significant differences in the management support existed between the clan culture organisations and hierarchy culture organisations. It had a higher impact on the organisations that had clan culture, with Mean Rank of 417.16. Moreover, the test revealed significant differences in the sufficient financial and human resources factor between the clan culture organisations and hierarchy culture organisations which shows the higher impact on the clan culture organisations with Mean Rank (402.72). Furthermore, it revealed significant differences in the employee training with higher impact on the hierarchy culture organisations with Mean Rank (378.63) compared to clan culture organisations. In addition, the results showed that the integration factor had a higher impact on the hierarchy culture organisations with Mean Rank (377.13).

On the other hand, the Mann-Whitney U test revealed no significant difference in the employee awareness (p=.196), employee involvement (p=.211), security and trust (p=.382) and evaluation (p=.255) between low and high levels of implementation.

6.6 Summary

This chapter describes the main findings of the survey. The results showed statistically that there was a significant correlation between the level of implementation of D-government and the clan and hierarchy type of organisational culture, negative correlation and positive correlation respectively. To check these associations further, a Mann-Whitney U test was run which revealed, in the case of clan culture, that the culture was

found to impact significantly on the low level of implementation whereas, in the case of hierarchy culture, it had significantly impacted on the high level of implementation. Furthermore, the findings from this chapter showed the impact of organisational culture on D-government implementation and how each type of organisational culture has different impacts on D-government implementation.

Finally, these findings and the findings from Chapter 5 will be discussed in the following chapter with reference to the literature. Therefore, the next stage is to place all the findings in context, which will be the aim of the discussion chapter.

Chapter 7: Discussion

7.1 Introduction

This chapter discusses the findings from both the qualitative (semi-structured interviews) and quantitative (survey) methods. These results are discussed in the light of the relevant literature in order to address the main research questions:

RQ1. What is the relationship between the dominant organisational culture and the implementation of D-government in Oman?

RQ2. How does organisational culture impact on the implementation of D-government in Oman?

This chapter is divided into three sections in order to answer and discuss the research questions. The first section (7.2) explores the relationship between organisational culture and the D-government implementation. The second section (7.3) focuses on the effect of organisational culture on D-government implementation in Omani public sector organisations. The third section (7.4) discusses the relationship between the main emerging themes in the findings related to organisational culture and D-government implementation.

7.2 The Relationship between Organisational Culture and D-government Implementation

In order to understand the relationship between organisational culture and the implementation of D-government, this study used the Organisational Culture Assessment Instrument (OCAI) which was developed by Cameron and Quinn (2011) (For more details about this instrument see Chapter 2,

section 2.5). This instrument helped the current researcher to identify the particular dominant organisational culture type for each organisation included in this study. These organisations were in the public sector in Oman. These organisations delivered services across a range of different fields such as education, health, social welfare, military and police. Each of the organisations in this study was at some stage in the process of implementing D-government in order to comply with government policy. Using the OCAI resulted in a fourfold categorisation of the dominant culture: clan, adhocracy, market and hierarchy. Of the 33 organisations included in this study, 18 were classified as hierarchical, 12 as clan, 3 as market culture types and none had a dominant adhocracy culture type (For more details about the classification see Chapter 6, section 6.3). The clan culture type organisations were found to have low levels of D-government implementation while the hierarchy culture type organisations had high levels of D-government implementation. Those organisations with a market type culture showed mixed results with one low and two high levels of implementation (See Chapter 6, Table 6.7).

In the current study, using the correlation test, it was found that clan culture was associated with a low level of implementation of D-government while hierarchy culture was associated with a high level of implementation of D-government (See Chapter 6, section 6.3.1). As mentioned in the previous paragraph, there were no adhocracy culture type organisations in the current study and only three organisations were found to have a market culture type and the level of implementation of D-government for the latter showed mixed results (2 high and 1 low). Thus, two dominant culture types were found to have significant associations with levels of D-government implementation; clan and hierarchy culture types. However, no statistically significant

correlation was found between levels of implementation with the market culture type. Accordingly, the discussion focuses on those two organisational culture types in order to explore what characteristics of either culture type were influential in affecting the level of implementation.

As mentioned in Chapter 2, organisations that had a hierarchy culture as their dominant type, were characterised by greater process control and structure, leadership which emphasised coordination and a management style which was characterised by security of employment and stability in relationships (Cameron and Quinn 2011). These organisations were found to be more successful in implementing D-government in the Omani public sector. Alternatively, organisations that had a clan culture as their dominant type, were characterised by friendliness and a personal approach which focused on internal maintenance and integration with flexibility, mentoring type leadership and management style which encouraged by means of teamwork and participation (Cameron and Quinn 2011). This type of organisation was found to have low levels of implementation of D-government in the Omani public sector. In section 7.3, a more detailed discussion of each type of organisational culture and their effects on D-government implementation is presented.

However, to strengthen the findings of these associations between the organisational culture types and D-government implementation, an additional test, the Mann-Whitney U test, was conducted to measure the levels of association. Mann-Whitney U test is "*used to test for differences between two independent groups on a continuous measure*" (Pallant 2013: 235). However,

in the current study it was used to explore whether there were any differences between organisations which had different dominant culture types in term of their levels of D-government implementation. The test confirms what was found in the correlation test mentioned previously and supported the finding that there was a relationship between organisational culture type and the level of implementation of D-government in the Omani public sector organisations. It revealed that in clan culture type organisations, culture had impacted significantly on low levels of implementation of D-government with Mean Rank (460.23) whereas, in hierarchy culture type organisations, culture had impacted significantly on high levels of implementation of D-government with Mean Rank (389.06). Moreover, the Mann-Whitney U test revealed no significant difference in the market and adhocracy types of culture between low level of D-government implementation and high level of D-government implementation (See findings in Chapter 6, section 6.3.2). Therefore, correlation and Mann-Whitney U test have shown the relationship between the organisational culture types and the level of implementation of D-government in the Omani public sector, which provides an answer to the first research question. However, both tests (correlation and Mann-Whitney U) cannot provide an in-depth explanation as to why clan culture impacts with low level of implementation and why hierarchy culture impacts with high level of implementation. Therefore, section (7.3) will use the themes that emerged from the semi-structured interviews as well as the results from the survey to explore in detail how each type of organisational culture impacted on D-government implementation.

7.3 Organisational Culture Impact on D-government Implementation

This section addresses the second research question:

How does organisational culture impact on the implementation of D-government in Oman?

It is important to note that when the semi-structured interviews were conducted and analysed, the dominant culture of the organisations represented in the interviews was not known. However, each of the 10 organisations that were included in the semi-structured interviews was also included in the quantitative method that identified the culture types of each organisation. It was found that 3 of the organisations covered in the qualitative method had a clan culture type which were organisations (A, E and J). The other 7 organisations were found to have a hierarchy type culture (B, C, D, F, G, H and I). Therefore, the discussion now considers these differences in culture and draws comparisons between those two types in order to explore the impact of organisational culture on D-government implementation.

The main themes that emerged from the data analysis and findings (See Chapter 5, Table 5.2) are used in order to explore the impact of organisational culture on D-government implementation. Thus, the discussion focuses on the following themes: awareness, willingness to accept, management support, Human Resource Management (HRM), training and employee involvement in the implementation of D-government. Each of these themes was found to be important in exploring the impact of organisational

culture on D-government implementation and was important for addressing the second research question.

According to the analysis of the main themes and sub-themes of the semi-structured interviews, it was found that there is some interrelationship between those themes. An overall view of the data findings showed willingness to accept to be a key issue in the implementation of D-government. However, willingness to accept was dependent on three other issues namely awareness, employee involvement and management support. Once acceptance is established among all employees, the need for training arises. Without acceptance, training was found to be ineffective. However, training also needed to be planned and directed to the real needs of all employees and this implied a well-planned training needs analysis to be conducted by Human Resource Management (HRM). The interrelationship of these issues, which are discussed in this section, is illustrated in Figure 7.1. However, this section explained this interrelationship in detail by showing how each of them related and effected in each other.

Figure 7.1 The interrelationship of the main themes emerged from this study
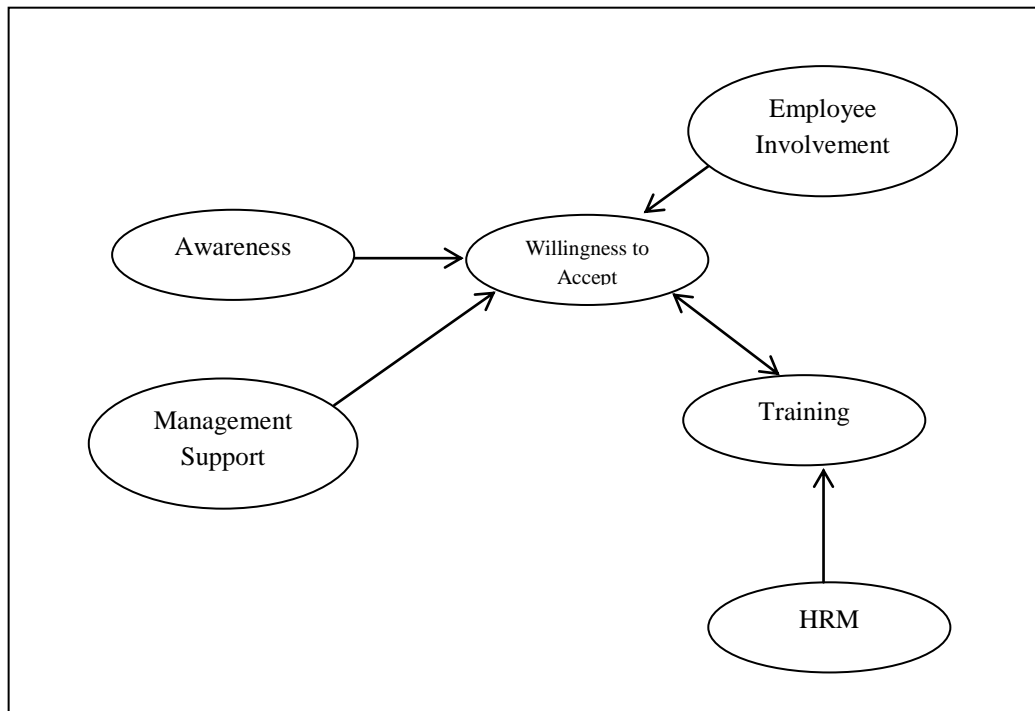
Figure 7.1 shows the centrality of the emerging theme of willingness to accept. Management support, awareness and employee involvement were themes which were found to lead to acceptance. Training was interrelated with willingness to accept because targeted training was found to lead to greater acceptance while acceptance also affected the need for further training. HRM is directly related to training since its falls within its remit. The results of this study indicated that different levels: top; middle; and operative within the organisations presented different types of issues related to willingness to accept of D-government and these issues often reflected different aspects of organisational culture. Therefore, this study discusses each of these levels separately.

7.3.1 Top management willingness to accepted D-government implementation

The findings from the qualitative method of this study showed that, in general, all top managers from both clan culture organisations and hierarchy culture organisations willing to accept D-government implementation. This willingness to accept was mentioned in the interviews by many of the participants from different organisations such as (B, C, D, E and I). This finding highlights the fact that all top management in the Omani public sector organisations received their main strategic directions from the Ministers Council. For instance, one of the managers (M4) said: "*The Ministers Council directed all the public sector organisations to start implementing D-government and transform all their services online*". Thus, the decision relating to D-government implementation was taken at governmental level and top management in all of the organisations. Hence, acceptance by top management can be understood as compliance rather than full acceptance. This was the reason why top managers were eager to show that they complied with the directives of Ministers Council when their progress in D-government implementation was eventuality evaluated by the Information Technology Authority (ITA) (See Chapter 3, section 3.4.4). This was confirmed in the interview with one of the top managers (T1). An example of this report in Arabic Language was mentioned in Chapter 3 and attached in Appendix 3.3. The implication is that each organisation was eager to impress government bodies and other stakeholders in order to appear to be technologically more advanced than others. For example, one of the top managers (T1) stated that "*I think all the organisations take it seriously and they plan for it. It is good for them as reputation*". Therefore, this could be an

explanation as to why top management accepted and supported the implementation in their organisations. However, the survey results indicated that top management was imposing the implementation on their organisations. It was found that the proportion of top management willingness to implement D-government in the organisations with clan culture organisations almost equalled that in the organisations with hierarchy culture, 73.7% and 73.3% respectively. This means that whether in clan or hierarchy culture type organisations, employees viewed their managers as willing to implement D-government in their organisations. However, the acceptance of top management based on a directive from Ministers Council is not enough without taking into consideration the importance of this technology for their organisations and how the organisations would benefit from it. The importance of top management's understanding of the benefits of e-government has been emphasised by Nograšek and Vintar (2014) as key to successful implementation. However, the findings of Nograšek and Vintar (2014) were based on public sector organisations in general, whereas the current study takes into account the dominant culture type of the organisations included in the study.

7.3.1.1 Lack of awareness of top management

Additionally, there was a number of other issues related to the nature of top management acceptance and support. The first of these issues related to the lack of awareness of D-government implications for their organisations. However, the lack of awareness of many top managers resulted in a situation where they accepted D-government and attempted to implement D-government without the knowledge of what it entailed. Moreover, this issue

was found in both types of organisational culture, clan and hierarchy, which confirmed that top management accepted D-government implementation as a directive from Ministers Council without an awareness of its benefits for their organisations. While it is possible that successful implementation of D-government could take place even when top managers were not aware of its importance, the current research found that such lack of awareness of top management often resulted in the lack of employee willing to accept. For instance, in organisations (B, D, J and F), it was found that although implementation took place, the lack of awareness of top managers created perceptions among employees at lower levels that the new technology was not a priority. This encouraged a culture of indifference among employees towards using the new technology. Thus, implementation of D-government was likely to be less successful even when top management accepted it but were not sufficiently aware of the implications for the organisation in implementing it. This was reported by different participants such as (T1, T2, O3). One of the operative (O3) in relation to lack of awareness of top management, commented that "*This may stand as an obstacle to the implementation of any project of D-government".* This is consistent with other studies conducted on a private organisations in Canada which tested the success factors for implementing global information systems based on 16 global IS projects, Biehl (2007: 56) found that of the 8 projects that were deemed to have failed, the failure of 4 of these projects was attributed to the fact that "*top management did not understand the project's intricacies*". Thus, top management needs to be fully conversant with the new system and fully committed to its implementation. However, the current study confirms the findings of Biehl (2007) but in the context of public organisations. Therefore,

the current study recommends that raising top management's awareness about D-government and its implications for the organisation will give them essential knowledge and help them to prepare for its D-government implementation at planning stage. This is very important, because top managers are the decision makers in those organisations so, in order to be able to make prudent decisions, these managers need to be aware of D-government and they should have enough knowledge to take the right decisions and then later to follow through with the implementation of those decisions.

7.3.1.2 Continuity of top management

The second issue that was found from the qualitative results was that the continuity of management was an important aspect of top management support for D-government implementation. This issue was found in the hierarchy culture organisations only and was not observed in any of the clan culture organisations. It was found that the change in top management within short time periods adversely affected the implementation of D-government. Where these types of action were found in two of hierarchy culture organisations, (B and H), these were found to have created a culture of uncertainty and instability which negatively impacted on the implementation of the D-government. This point was raised by one of the managers (M2) where it was identified that each of the new top managers had different plans and views on implementation which slowed down the implementation process of D-government. This is consistent with the assertion of Armstrong (2009) who stated that the values of the organisation were usually set by top level management. Values could find their expressions in different areas

such as competence, quality, performance, customer services, innovation, and competitiveness. Thus, top management seems to emphasise certain values in the culture of an organisation in order to build an environment that influences the acceptance and motivation of D-government implementation in the organisation. The current study found that lack of continuity, due to changes of management and their ways of managing, which meant changes in the implementation plan and priorities of projects according to the vision of the new management, negatively affected D-government implementation. Thus, this was found to impede implementation at other levels in the organisation due to the changed priorities and planning by different top managers. For instance, this caused confusion in the IT department as they had to change the previous plan of implementation and start a new one according to the new orientation and vision which caused delays in the implementation. It is, therefore, recommended that government should not change top management in the short-term especially during the planning and implementation stages.

7.3.1.3 Lack of consistency in decision-making of top management

The third issue that was found from the qualitative results was the lack of consistency in decision-making of top management which was found to have impeded the implementation of D-government. This was because top management sometimes changed their plans after employees had finished implementing some of the systems. This was found in organisation (A and J) which had clan type culture. Conversely, this was not reported in any of the hierarchy culture organisations. This sometimes meant that employees were forced to abandon work that had already been completed and this resulted in

frustration and resentment. Some employees, having completed a task, were then instructed to cancel it without any explanation. This resulted in a culture of confusion, lack of direction and cynicism. It also led to a culture of indifference towards the completion of future jobs as employees were demotivated and unsure that their work had any value. This type of culture was mentioned by one of the employees (O1) in organisation (A). The employee pointed out that they would not propose any new system in the future for the top management as they were demotivated because they had developed a system in the IT department with the approval of top management, but later management changed their minds and rejected that system. The employee explained that they had put much time and effort into that system which was now wasted. Thus, performance levels and the quality of work tended to suffer and this was an impediment to D-government implementation. This implies that where there was a lack of direction from top management, this was likely to adversely affect the implementation through the creation of a culture of indifference about the time and efforts that employees spent on developing and implementing D-government systems. Moreover, the attitudes of top management demotivated employees through undervaluing D-government implementation. The crucial importance of clear internal channels of communication between managers and employees has been stressed by Mishra et al. (2014) who drew attention to the role of communication in creating a culture of openness in organisations. However, in the current study, top management failure in communication happened within a clan culture type organisation which is generally characterised by openness and employee involvement. This was a surprising finding given that clan culture implies open communication. Thus, this situation was more

likely to reflect a lack of clear direction on the part of top management. Accordingly, the current study recommends that top management needs to have a clear plan for the implementation of D-government. For any changes in this plan, employees need to know this directly through different channels in the organisation such as regular meeting, email system or through middle managers in the organisation before they wasted their efforts and time.

However, top management should support and follow-up the digital government implementation and treat it as one of the organisation's priorities and goals. Therefore, top management that chooses to control the organisation should have some expertise in digital government implementation. In other words, they should have some knowledge and be motivated towards the D-government implementation. Furthermore, top managers in organisations need to know and consider the organisational culture in order to effectively implement D-government.

7.3.2 Middle management willingness to accepted D-government implementation

According to the findings, top management support for the implementation of D-government was not enough without middle management support. It was found, from the interview data, that middle management often rejected or delayed the implementation of D-government for different reasons such as fear of losing authority or that implementation was against their self-interest. This issue is discussed in the following paragraphs.

7.3.2.1 D-government implementation as a threat to middle management authority

One of the reasons that the middle level of management was opposed to D-government implementation as found in this study was because D-government was seen by them as a threat to their authority. This was pointed out by different participants and from all different levels: top; middle; and operation. Moreover, this issue was found to be common in both clan and hierarchy types of organisational culture, such as in organisations (A, E, F, H, and C) (See Chapter 5, section 5.3.2.2). However, it was reported by some of the managers and operative employees as mentioned in Chapter 5 (Section 5.3.10.2) that the scope of authority had changed in some cases where employees were given more authority while, in the middle level of management, there was some reduction of authority. This was confirmed in the statistical analysis which revealed that almost half of the operative employees mentioned that D-government implementation enabled them to complete more work directly without the need for approval from upper levels of management. Thus, employees at many levels were being empowered and some managers were experiencing a loss of power. The implication of this is considered as leading to changes in the culture of the decision-making process and decreasing the culture of bureaucracy within the public sector organisations. This also helped to speed up the completion of the work and decreased centralisation. However, managers have to consider this, not as a threat to their authority or as a loss of self-esteem, but as a way to simplify the procedures for taking decision in many jobs and this implied a decrease in the centralisation of the decision-making process in the organisation. Thus, middle managers should empower employees at operative level to make

244

decisions and accept responsibility for these decisions which must be within their scope of authority and in line with the overall implementation strategy. This will lead to greater employee involvement in decision-making and will facilitate D-government implementation.

7.3.2.2 D-government implementation against the middle management self-interests

Other reasons found in this study for middle managers rejecting D-government implementation included their perceptions that implementation of digital systems was against their self-interests. This was found only in the organisations that had hierarchy culture type (B, C and I) and was not observed or reported in any of the clan culture type organisations. Thus, certain middle managers in hierarchy culture organisations were placing their own self-interests ahead of the needs of the organisations. The current study found that the resistance of middle managers in accepting D-government from those organisations such as (B, C and I) was often based on their perceptions that the new technology would result in the loss of opportunities for acting in their own self-interest. Acting in one's own self-interest had many meanings and did not necessarily mean corruption. Indeed, sometimes one's own self-interest could be aligned with the interest of the organisation. However, one middle manager (M3) from organisation (C) equated self-interest with corruption: *"What I mean by their interest is that it will decrease or stop their corruption".* In this case, the manager meant that some middle managers in furthering their own self-interest also acted corruptly. Another participant from organisation (I) explained what was meant by self-interest, as some middle managers acted unethically by using their authority and

power to do favours for people that they knew both inside and outside the organisations. This is, in other word, a culture of favouritism. However, the other participant from organisations (B) had not explained what self-interest of middle managers exactly meant and could include different practices of self-interest such as corruption, favouritism or any other self-interest practices. In any case, this was found to have impeded and delayed the implementation of D-government. Dopson and Neumann (1998) noted that, in the context of British middle managers in relation to their organisations, middle managers could cause resistance to different changes in the organisation if this was seen as serving their self-interests. This current study found that middle managers caused considerable resistance to the implementation of D-government, as this implementation was not seen to be in their own self-interests.

Moreover, this is consistent with the Biehl (2007) study which covered private organisations in Canada testing the success factors for implementing global information systems based on 16 global IS projects. This study found that in the perspective of Enterprise Resource Planning (ERP) systems, middle managers were playing main roles for its successful implementation. Thus, this represents the critical role that middle managers could play in the implementation of any digital systems. Despite the Biehl (2007) study which explained the main role middle managers could play in the implementation of global IS projects in a private sector organisation, the author did not report if there was any resistance from the middle managers in the implementation of IS. The new finding in the current study was that middle managers were an obstacle for the implementation of D-government for different reasons as

mentioned above. Thus, the implication is, that successful implementation of D-government needs to give greater attention to the role of middle management and that the restraining influence of middle management, in particular, requires careful consideration.

Although, Sanchez et al. (2003) have pointed out that much resistance to e-government implementation tended to come from top management due to their perceptions that it might threaten their authority or control, the findings of the current study was that middle managers in particular, were the main locus of resistance to the implementation. Moreover, some participants in reply to the open question in the quantitative mentioned that most of the middle managers in those organisations had not been replaced or changed for a long time and that their strategies had not changed either. If the locus of resistance to D-government implementation was top management this could be remedied by a change of top management. However, where the locus of resistance is middle management as was a major finding in this study, changing top management was likely to be ineffective. Therefore, in the public sector in Oman, middle managers played the most significant role in the implementation of D-government.

Consequently, this study recommends that more attention should be paid to the role of middle managers in D-government implementation. This implies changing organisational culture towards acceptance by applying some practical solutions such as the need for more awareness programmes and training courses targeting middle managers and explaining the benefits of using such technology. Moreover, this needs more in-depth study from the

public sector organisations to understand the resistance to change from middle managers, whether there were individual reasons for this resistance, or whether there were collective reasons that were linked to the organisation itself or to groups of employees. Being targeted for training in this way, would also be likely to remove the fears of middle management based on their perceptions of D-government as a threat to their positions or authority.

7.3.3 Operative level willingness to accepted D-government implementation

At operative level, the findings of the interview data indicated that, in clan culture type organisations, employees were found to be more accepting of D-government implementation than employees in hierarchy culture type organisations. Weerakkody et al. (2012), in the context of the introduction of e-government in Slovakia, asserted that the difficult step in the implementation was convincing people to accept the new technology. However, this was investigated in general and not in relationship to organisational culture. The current study found differences in willingness to accept of D-government implementation according to the different type of organisational culture. The current study found that all employees except one in organisations (A, E and J) which had clan culture type were accepting of D-government implementation. The exception was one employee from organisation (A) who said that some of the employees in their organisation were not convinced about using D-government systems but that they had resolved this problem by developing different small systems which helped to motivate employees to accept technology gradually. However, organisations (B, C, F, G, H and I) which had hierarchy culture types were found to have

low levels of acceptance and faced different types of resistance from their employees. This was for different reasons, which are discussed later in this section. Moreover, the statistical results from the survey confirmed these findings by reporting that 87% of participants accepted D-government implementation in clan culture organisations, whereas, in hierarchy type culture organisations, only 46% had accepted its implementation. However, this is explained by the findings from the qualitative data that the level of involvement in the decision-making process for D-government implementation for the employees in the organisations with clan culture were higher when compared with organisations which had hierarchy culture. Participants such as (O1, O4, M6, and M7) from organisations (A, E, and J) which had clan culture reported that they were involved in the decision-making for D-government implementation whereas, in organisations that had hierarchy culture type only one participant (O2) from organisation (C) reported that they were involved. Moreover, participants from organisations (B and I) reported that they were not involved at all and they mentioned the decisions of D-government implementation as coming from top management without involving any employees. Additionally, participants from organisation (F) stated that the involvement of employees in their organisation was limited to specific people who were very close to top management. Furthermore, participants from organisations (G, H) stated that the involvement was only limited to the head of departments. Likewise, the statistical results confirm the findings in the qualitative data and revealed that 54% of employees in clan culture organisations stated that they were involved in the decision-making of D-government implementation whereas, only 29% in hierarchy culture organisations stated that they were involved. Furthermore, it was

found from the comments of the participants in response to the open question in the survey that, in some hierarchy organisations, there was a lack of communication between management and employees and this explained why management took decisions without involving employees as mentioned above. This was also confirmed by some participants in the interviews such as (O5, O6, O7, O8) from organisations (F, H and I) and one employee (O4) from a clan organisation (E). For example, one of the employees (O8) said "*I do not know about the implementation plan. We do not receive any things from the ministry*". The issue was that those employees were working in the IT department and ought to have known the implementation plan. The fact that they did not know the implementation plan implied that people working in other departments also lacked knowledge of the implementation plan. The implication that the involvement of employees in the decision-making of D-government implementation created a positive culture and attitudes with employees and increased their level of willingness to accept for this technology as they had been part of the decision made in the organisations and this motivated them towards greater openness. Cameron and Quinn (2011) stated that organisational culture created a feeling of identity among staff and provided unrecorded and unexpressed instructions for progress in the organisation. Moreover, as discussed in Chapter 2, clan culture has more horizontal communication channels as well as greater participation and involvement of employees. Therefore, employees needed better channels of involvement and communications between themselves and management in the organisations such as board meetings, social gatherings and active feedback systems.

However, this study recommends that there should be a plan to develop communications between the employees and management and having better channels of communications between them, which would give them opportunities to be part of the decisions-making process. This could increase their level of acceptance and their loyalty to that organisation. O'Reilly (1989) mentioned examples of those channels such as meeting with top management and the organisation's social gatherings. Moreover, the current study recommends, if this is necessary, government could update the policies which motivate decision-makers to involve employees in the planning decisions of D-government implementation from its inception.

7.3.3.1 Employee Involvement in the decision making of D-government implementation

On the other hand, it was found that involvement of employees and other stakeholders in decision-making of D-government implementation, as happened in clan culture type organisations, tended to slow down the process of implementation but was more likely to lead to greater willingness to accept of the changes which resulted from their participation. It was found in the qualitative data analysis that, where decision-making of D-government implementation was top down managed and autocratic, as happened in hierarchy culture type organisation, implementation happened quickly as mentioned by more than one participants such as (M2) from organisation (B) and (M5) from organisation (G). For example, one of the managers (M5) said that "*To ensure the quick implementation of any new system, we involve the head of departments only*". The other (M2) said "*Decisions come from the top management to implement a system and we start implementing it without*

involving any employee for quick implementation". But, these changes were less likely to have a high level of acceptance since employees had had little involvement in the process as mentioned above. Where consultation and involvement really took place, it was reported by some participants such as in organisation (E and J), the implementation was slowed down due to many committee meetings and the slow process of reaching a consensus. However, willingness to accept was much higher as employees felt that their views had been listened to and that they had participated in the decision-making process for D-government implementation in the organisation.

Therefore, this study recommends that employee involvement should not exclude any person as one of the main organisational culture core values is equality. This will build their loyalty and increase their commitment to the organisation as they are part of the decision-making process in their organisations. Involving only those people close to the management reflected a top down managed approach and a culture based on autocratic management style with diminished responsibility further down the chain of command. Therefore, even though employee involvement may slow down the implementation of D-government in the short-term, in the longer term it could result in a more successful implementation process based on the high level of acceptance of the changes on the part of all employees. Thus, involvement of employees is one of the key success factors for D-government implementation.

However, although a low level of involvement was one reason for the decrease in the level of acceptance by the employees in a hierarchy culture

organisation, data from interviews found other reasons for resistance. One reason explained how some employees preferred using the old system. It was reported by different participants in organisations (H, C and D) that employees over 50 years of age were less accepting of D-government implementation and some of them were opposed to its implementation. Participants reported that those employees often preferred to use the old system and rejected digital systems due to their lack of knowledge in using the systems and their lack of acceptance of the new technology. For instance, one of the top managers (T5) said: "There is resistance from those who are using the old system and they do not want to change to a different system because they are satisfied with the one they use". This is because employees over 50 years of age were found to have become accustomed to the more traditional processes which some had been using for more than 40 years as was mentioned in the interviews (See Chapter 5, section 5.3.2.3). However, these views are open to question as employees over 50 years of age only represented 7% of total employees in all public sector organisations (See Chapter 3, Table 3.3) and were unlikely to have delayed or impeded D-government implementation. Moreover, the issue is not so much related to age but rather to knowledge and awareness of the new systems. The implication is that it is difficult to request from any employee, not only those over 50 years of age, that they should use new systems if they lacked the knowledge of how to use them and the organisations had not prepared and trained them for a smooth transition. This is especially true of those employees who have never accessed digital systems as was mentioned by some participants such as (M3). This participant noted that some employees at an operational level did not even have an email account. Therefore, they

perceived digital systems as threatening their job security such as in organisation (F and I). This was argued by some participants such as (O7 and O5) who took a cynical and sceptical view of the main aim of implementing D-government as a means of decreasing the number of employees. For example, (O7) said "*Those employees are afraid of losing their jobs as they think the D-government is implemented to decrease the number of employees*". They feared that they might lose their job so, they were reluctant to accept this new technology and tried to reject it because they did not know the real intention behind its introduction. In fact, it was found that no one had so far lost their job due to the implementation of D-government. This is evidence of failure to accept the new system based on their lack of awareness of its benefits and not based on their age. The implication is that management in their organisation had clearly failed to communicate to employees at an operational level that the new technology would not make them redundant but would help them in their job performance. This issue was highlighted by Jones et al. (2005: 362) who cautioned that "*Organizations often move directly into change implementation before the individual or the group to be changed is psychologically ready*". However, employees over 50 years of age may be more loyal and committed to the organisation and deserve more attention such as special training courses. In contrast, younger employees may simply acquire jobs and experiences and then move into better-paid jobs. This was highlighted by some participants, such as (T1 and M4). For example, (M4) said "*People who have experience for more than 10 years will not stay in the governmental sector as the ministry does not give them the financial degree that they deserve*". The implication is that employee awareness is the beginning of a

254

culture change in order to bring about a greater openness to D-government in the organisation and this cultural change impacted on acceptance and ultimately on the implementation of the new technology. Thus, D-government acceptance by employees is dependent upon the level of awareness among employees of the benefits of D-government for them and the added value that D-government offered to the organisation. However, it was found that awareness programmes that were offered by some organisations such as (H and I) were limited to how to use the new software implemented in the organisations. This was considered to be insufficient because awareness should also cover the benefits of technology, efficiency, security, and other issues that give the employees greater knowledge and skills related to the digital systems. Thus, in the public sector organisations in Oman, greater attention needs to be given to awareness programmes so that employees at all levels have an understanding of the benefits of D-government both within the organisation and within wider society. It is recommended that the ITA awareness programme, which is currently directed towards the wider public as mentioned in Chapter 3, should also be presented to employees in public sector organisations in order to raise their awareness of the benefits of D-government. Therefore, raising awareness about the value of the new digital system will lead to being better prepared for the transfer before the implementation is commenced. It will also help to change employee attitudes and the culture of the organisation slowly and then will support the organisation to transfer smoothly from paper based to digital.

However, in general, the awareness issue faced both clan and hierarchy types of organisational culture and at all the levels top, middle and operative,

which in turn affected the willingness to accept of D-government implementation. The statistics data of this study shows that only 32% of clan culture type employees were aware of D-government implementations and its plan and only 36% in hierarchy culture organisations. However, 54% in clan culture stated that they were not aware of D-government implementations and 14% were unsure. In contrast, 46% in hierarchy culture reported that they were unaware of D-government implementations and 18% were unsure. This points towards a lack of awareness which resulted in around half of participants in hierarchy organisations being unaware of the organisation's strategic plan for implementation of D-government and over half of participants in clan culture type organisations. The implication is that awareness of D-government implementation was not treated as one of the priorities in most of the organisations and consequently levels of awareness were low in those organisations. However, this study recommends that each organisation should have a unit that is responsible for raising employee awareness of the importance of technology in general and D-government in particular. This will help to create a culture of openness and increase the level of employee acceptance within the organisation. Moreover, one important issue is that the people delivering the awareness training should be trained and well prepared. Consequently, this study recommends that raising awareness is a critical factor for D-government implementation in order to build up trust in technology and consequently speed up its implementation. Motivation can also be increased through giving employee the main knowledge that they need to know about that the technology, increase their level of awareness, and the top and middle management can be good exemplars for the employees at operative level by using the technology,

which consequently will motivate them. Additionally, awareness can be augmented through involving employees in the decision-making process, clear strategic planning, following-up the implementation from the management side, intensification of the training and awareness programme. All these solutions and others help to build the internal environment of the organisation and change the culture gradually to accept and motivate employees of D-government implementation. Furthermore, as a different strategy, organisations could start the implementations with small systems, which help to build trust steadily and to motivate employees to use them. However, this should not affect the quality of the system or its performance. Instead, they can implement systems gradually and at different stages, one after another, and after getting feedback from employees could take appropriate steps in order to increase the level of acceptance.

7.3.3.2 Lack of targeted training

While awareness was found to be low in both types of organisations, it was important to explore other factors that led to increased awareness such as training for D-government implementation. Different barriers to effective training were found in this study, which delayed and impacted negatively on the implementation of D-government. These issues are discussed in the following paragraphs.

In fact, as mentioned in Chapter 3, section 3.3.4, the training type provided by the Institute of Public Administration (IPA) in Oman, the main organisation in Oman that specialises in providing different types of training for public sector organisations' employees, was mostly in the public administration field

such as financial management, clerical training, information and public relations and stores management. This represented 90% and 88% of all training provided in 2012 and 2013 respectively. Training in the field of computer and information technology was rare and represented only 2.3% in 2012 and no training in this field in 2013. However, the literature mentioned the importance of training for the implementation of the D-government. Biehl (2007) who covered 16 global IS projects from Canadian companies pointed out that the training, which was often forgotten in some implementation systems, was important for the end users to guarantee the ease of use and awareness of the benefits of the new systems. It was found in the interview data in the current study, that, participants from all clan culture organisations (A, E, and J) and only one hierarchy culture organisation (I) disclosed the lack of targeted training to meet the real needs of employees. However, participants mentioned that much of the training was of a general and basic nature. Moreover, the training that was carried out by those organisations to prepare their employees for D-government implementation in some cases was a waste of money and some employees did not even enrol on those courses as mentioned by some participants such as (M4). Indeed, statistical analysis of the survey revealed that, overall, 48% of the participants in clan culture organisations and 30% of participants in hierarchy culture organisations disagreed that the training had been appropriate and useful for them. Thus, this shows a high number of employees disagreed, especially in the clan culture organisations, which represented around half of the employees. Moreover, very little evidence was found that indicated whether an appropriately planned training needs analyses had been conducted. This planned training was only apparent in two hierarchical organisations, which

were organisation (C and G) which planned for each of their employees training needs for two to three years into the future. This was reported by middle manager (M3 and M5) as mentioned in Chapter 5 (Section 5.3.4). The training of D-government implementation in hierarchy organisations seemed more structured according to the needs of the employees and organisations benefits. However, in clan organisations, training continued to be misdirected and likely to be ineffective in meeting the real needs of the employees. Moreover, it pointed to a lack of accountability of management with regard to the training and the lack of an evaluation of the outcomes of the training, in terms of improved performance, which adversely affect the efficiency of the training. This was mentioned by many of the clan organisations participants such as (O1, O4, O7 and M1) who stated that they did not have the right skills and experience to help them in D-government implementation because of the lack of targeted training. There was some indication that a culture of compliance surrounded training and the short period of the training courses as mentioned by participants such as (O7 and O9) where, in many cases, it was simply a matter of going through the motions rather than participating in real targeted training. The implication of these findings is that training needs to be better targeted to the real needs of employees in Oman (Sarrayrih and Sriram 2015). However, this implies that a clear rationale for all training modules needs to be developed so that the purpose of training is clear and communicated carefully to everyone in that department. These findings have implications for Human Resource Management (HRM) of organisations in providing targeted training meeting the real needs of employees in order to impact positively on the implementation of D-government. Moreover, the training needs analysis will identify the employee needs and what skills they

require and what type of courses or training are needed. This step will solve some of the training problems such as irrelevant training, lack of qualified employees or employees not interested in the training courses. Organisations also have to raise the awareness of their employees about the importance of the training courses in order to take it seriously and receive the intended benefits from such courses. As well as this, training should be considered as part of the implementation process especially for the employees in the IT department.

7.3.3.3 Lack of training budget

Other issues of training that were found in the clan culture organisations (A, E and J), were that participants (O1 and O9) reported that there were insufficient funds allocated to train the staff for implementing D-government. When they requested training they faced budgetary issues as (O1) said "*After the manager's approval, the Human Resources Development Department will check the budget for the programme and usually they reply that there is no budget".* Moreover, a manager (M4) from organisation (E) reported a budgetary problem in general but not specific to the training as he said "*The big problem in implementing any decision is a financial problem, so we have to specify specific budget for any project*". Therefore, clan culture organisations faced budgetary issues for implementing D-government which also had a direct effect on the training budget. This was mentioned by the manager (M1) from organisation (A) "*We have some budget issues to implement D-government which delay our implementation of many of our digital systems*". However, this could also be because of management issues around the lack of control of the budget as the manager (M4) from

organisation (E) said *"In our organisation, the budget for any project must not exceed 1 million Rial, but in other ministries, their projects cost millions. However, now, the top management raise the budget limit to 3 millions and if any project exceeds this number, it must go to Tenders Council and the procedures there take a long time"*. This manager noted that the top management in their organisation increased the limit of D-government projects budget from 1 million to 3 million Rials. This means that management in the organisations can change the budget limit either for D-government projects or training related to the D-government implementation. The implication is that there could be a lack of management control of the budget in clan culture organisations. Conversely, there was no evidence in other hierarchy culture organisations of issues with the training budget or D-government implementation projects budget. However, this adversely affected D-government implementation by causing delays in the implementation due to the lack of the requisite skills which employees needed and which was a direct result of insufficient training budgeting. Therefore, as a recommendation, the training budget should not be perceived as a budget allocation in the normal round but as a special budget allocation which should have been seen as part of the overall cost of implementing the new D-government initiatives. This means that management in organisations, particularly in clan organisations, should specify and consider sufficient budget for employee training when they plan to implement any digital systems.

On the other hand, the budget issue not only affected training but also affected the readiness of the organisations with sufficient infrastructures as

mentioned by participants (M7 and O4) from organisations (E and J). For example, (M7) pointed out "*In our organisation, the D-government projects budget is limited which affects the organisation readiness as we do not have sufficient infrastructure for implementing the D-government*". However, this shows that the infrastructure was not sufficiently developed for implementing D-government and this is because of the limited budget in clan culture organisations, which adversely affected D-government implementation. Moreover, those organisations found that they divided projects into different stages because of budgetary issues. This resulted in delays to implementation as this had to be done incrementally in order to stay within budget allocations for a particular financial year. This could result in long delays which would impact negatively on the implementation of D-government. Dividing projects into different stages could not only delay the projects but could also affect the performance and quality of those systems instead of implementing as one package. Chen and Thurmaier (2008) ranked financial resources as the main significant factor for the development of e-government. However, this was not reported in any of the hierarchy organisations as different participants (M2, M3, O2, M5 and T5) from organisations (B, C, G and H) mentioned that they had sufficient infrastructures in their organisations. This was the opposite to what was reported by clan culture type employees who faced budgetary challenges which adversely affected the infrastructure installation in their organisations and the employee training and D-government implementation in general. Nograšek and Vintar (2014) have emphasised the symbolic importance of infrastructure such as new hardware and software for successful e-government implementation. This was because the new infrastructure, new

equipment and even new offices represented artefacts which signified cultural and behavioural change within the organisation. However, in the current study, hierarchy type organisations did not report any infrastructure difficulties and appeared to have sufficient budgetary resources for infrastructure requirement. But, in clan type organisations, there were budgetary issues which impeded the development of infrastructure. Thus, the absence of infrastructure was not simply a technical issue but affected the culture of those clan type organisations as pointed out by Nograšek and Vintar (2014). This also adversely affected attitudes and behaviour towards using D-government in clan type organisations. However, clan type organisations were still more accepting of the changes due to greater employee involvement in decision-making.

However, as mentioned in Chapter 3, section 3.4.2, ITA provided a solution for those organisations that had infrastructures problems which was G-cloud. This service provided easy and fast digital service, especially for those organisations that still relied on older infrastructures or did not have any infrastructure. However, it is not clear why those organisations that had infrastructure issues were not using this type of service. Therefore, it is recommend that such initiatives should be used to help those organisations to overcome the obstacles that they faced in a fast and easy way even on a temporary basis.

7.3.3.4 Training for specific people

Another issue of training, as one participant (O7) from organisation (I) and many other participants commented within an open question on the survey,

was that training was for specific people and did not involve all employees. For example, one of the participants said that they had heard about the new system but had never been offered any training. This means that certain employees were chosen for the training and not all of them got this chance to train. Statistically, as found in the survey, around a quarter of employees from hierarchy culture organisations thought that training had not been provided for all employees before and after implementing any new system whereas around half of the employees in clan culture thought that the training had not been provided for them. However, in some cases, such as in organisation (C), it was reported that it was not necessary for every employee to be trained in certain specialist skills where only a small number of employees were required to use such skills in a particular area. It is suggested here that some people had feelings of resentment about not being chosen for certain specialist training modules which discouraged employees in the organisation and their performance decreased. The implication that there should be clear communication of the rationale for training in all organisations so that all employees were aware of these issues and appropriate planning for training provision based on needs analysis of organisation and employee.

7.3.4 Government policies

It was also found that some of the government policies for recruitment could also affect the training and acceptance of D-government implementation. Thus, government policies adversely impacted on HRM in many public sector organisations and this resulted in slowing down the implementation of D-government. These are discussed in the following paragraphs.

One example of these policies is the government's reaction to civil unrest in 2011. The government tried to resolve this problem through creating employment during 2012 to 2014 by requiring public sector organisations to recruit more staff than were required. In other words, the government used the public sector to employ 50,000 new employees, more people than were needed, as a knee jerk reaction to civil unrest as mentioned in Chapter 5, section 5.3.6. This also can be seen from the statistical data that found around one third (31%) of participants represent those who have less than 5 years experiences (See Chapter 6, Table 6.4). Although, Sarrayrih and Sriram (2015) have argued in favour of increasing the number of employees in Omani public sector organisations as a means of improving implementation of D-government, the finding of this study showed otherwise, This was mentioned by different participants such as (M2, M4, M6 and O1) "*This will affect our future recruitment because we cannot ask for new specialised employees because we are already overstaffed*". However, this new recruitment in 2012 to 2014 is seen by many employees as blocking the recruitment of qualified staff which was mentioned as negatively affecting the implementation of the D-government. In fact, this was found as a common problem in both clan and hierarchy organisations culture which was an external factor (government policy) with no other choices for those organisations except to take those employees.

As mentioned in Chapter 2, Parker and Bradley (2000) pointed out an important difference between public and private sectors organisations which directly affected the culture of those organisations. Private sector organisations were very much profit driven whereas public sector goals might

involve the fulfilment of government policies and also their overriding goal was to provide services to society rather than to make a profit. However, the current study found that using the public sector in this way as a remedy for civil unrest results in many public sector organisations being overstaffed. This results in a culture of lethargy on the part of new recruits as it blocks the recruitment of qualified staff as mentioned by (M2) "*In 2012 we received new employees more than our need and we cannot employee specialised people at current time".* Also, in some cases it leads to a culture of resentment on the part of existing staff member as most of the new employees have no job to do because some of those new employees had different specialisations than their job required. For example, this was mentioned by (O8) "*There is nothing to do in IT Department as no connection between my specialisation and my job*". The effect is to slow down the implementation of D-government. Therefore, short-term solutions to resolving tensions in the community are found to have long-term adverse effects on the functions of HRM and creates additional behavioural problems within the organisation. Existing employees are resentful of new recruits who are considered by them to be a burden on the organisation. This results in a culture of resentment which negatively impacts on innovation and creativity of the work of D-government implementation. Such policies are likely to impede the implementation of D-government.

Another example of those policies is the Omanisation policy (See Chapter 5, section 5.3.6) for public sector organisations. The unintended consequences of that policy, the aim of which is to widen participation of Omani people in employment in Oman and reduce dependency on expatriate workers, is that

organisations in the public sectors are compelled to employ Omani citizens who lack the requisite skills and experiences in preference to employing expatriate workers who possess the required skills and experience. This results in many public organisations having insufficient numbers of qualified and experienced personnel as mentioned by one of the top management (T1) and confirmed by different operative participants such as (O1, O4, O6, O7 and O8). Thus, lack of qualified Omani employees affects the implementation of D-government negatively. Moreover, some of the organisations, due to their lack of qualified people, contract third-party companies to implement those systems which usually takes more time before and after choosing the third-party companies such as announcing the tender, choosing the right companies and other processes related to this. This was announced by (M4) who said that even after a long tendering process, it was given to the third party company which in turn still needed more time to finish that project. In fact, this is found as a common issue in both clan and hierarchy organisations. However, in some hierarchy organisations such as (C and G) because of data security they cannot give the whole system to the third party company. Therefore, they try to do it internally with the limitations of the ill qualified people which could be seen to affect the system implementation. For example, (M5) said "*Some parts of the project cannot be given to third part to do it in terms of security, so the staffs in Director General of Information Technology do it internally*". The implications is that the Omanisation policy can limit and delay implementation as organisations cannot employ qualified persons which are non-Omani to work in the internal digital projects of those organisations. This was seen as having a direct negative impact on the implementation, as there are insufficient qualified and

experienced employees capable of implementing D-government. This also has a negative effect on other employees' attitudes towards D-government systems as they are seen to be inherently flawed. For example, the systems include issues relating to security because employees who are implementing and developing those systems are not qualified and do not have the correct skills and experiences. Therefore, this leads organisations to think about third-party contracted companies, which ultimately result in long processes and increased time for implementing D-government. It is recommended that in order to implement the government's Omanisation policy, it is urgent that targeted training is given to employees so that they can meet the requirements of public sector organisations in implementing D-government.

7.4 Relationship between the emerging themes and D-government implementation

A Mann-Whitney U test was conducted between the main emerging themes from the qualitative findings to explore which of these factors were considered to be more important for D-government implementation in relationship to clan culture organisations and hierarchy culture organisations. The tests have been reported in Chapter 6 (Section 6.5) which presented the quantitative data. However, the test found significant differences between management support, employee training, systems integration and sufficient financial and human resources with the D-government implementation on clan and hierarchy culture organisation. This will be discussed in the following paragraphs.

Management support was found to impact more on clan culture organisations with Mean Rank (417.16) compared to the hierarchy culture organisations with Mean Rank (348.74). This result was confirmed by the qualitative data as mentioned by some participants in that all plans for D-government implementation were presented to top management to get their feedback and approval and without their approval there could be no commencement for any projects. This shows that management support is important at the beginning more than at the later stages, even though their support is important and ongoing throughout the whole process of project implementation. Hence, management support emerged as the single most important factor in the implementation of D-government for both low and high level of implementation organisations. But, it shows that for the clan culture organisations, it was more important than for the hierarchy culture organisations as it was ranked by participants as the first important factor with median 7 and 6 respectively. This shows that management support is more important in the initial stages of implementation of D-government.

Moreover, similar results were found for the sufficient financial and human resources factor. The Mann-Whitney U test showed that financial and human resources factor was found to impact more on D-government implementation in the clan culture organisations with Mean Rank (402.72) compared to the hierarchy culture organisations with Mean Rank (353.80). This is because the implementation of D-government in the initial stages will need more financial and human resources but will decrease as the implementation nears its completions. Moreover, the qualitative data findings confirm this result that clan organisations were found not to have enough budget for D-government

implementation and for the training of D-government for employees. This means that those organisations need more budgets for smooth implementation of D-government as some organisations are still in the initial stages of implementation and some have still not started the implementation at all.

On the other hand, training and awareness are more incremental in nature so, perceptions of their importance may increase over time. As the implementation of D-government continues, the need for training increases. For example, as implementation proceeds, the need for additional training and raising of awareness also proceeds. It was found that training had a greater impact on the hierarchy culture organisations with Mean Rank (378.63) compared to the clan organisations with Mean Rank (331.90). Moreover, training was ranked from the employees as factor number 2 in terms of importance for the hierarchy organisations with a median (5) compared to number 4 for clan organisations with median (4) (See Chapter 6, section 6.5). This is because the hierarchy organisations in this study had a higher level of implementation of D-government compared to the clan organisations, which implied that their employees needed more training. In fact, this study found that the participants in hierarchy organisations had more training courses compared to the clan organisations as mentioned in this chapter previously. But, this does not imply that clan culture organisations could ignore training as they had low levels of implementation, especially as this study found that clan organisations have a lack of targeted training. This means that hierarchy organisations need more training for their

employees as the systems were more implemented in their organisation than in clan organisations but both have to plan well for the employee training.

Furthermore, integration of D-government systems within and between organisations was found to impact more on hierarchy culture organisations with Mean Rank (377.13) compared to the clan culture organisations which had Mean Rank (336.17). This is because hierarchy culture organisations had high levels of implementation compared to the clan culture organisations. Therefore, those organisations which had low level of implementation could not start the integration before implementing D-government in their organisations. This study found that, as mentioned in Chapter 5 (Section 5.3.8), almost all of the clan organisations had not yet started the internal or external integration except for one, organisation (J), which has partly commenced internal integration. In contrast, almost all the hierarchy organisations had started the internal integration and some of them had even started the external integration, such as organisations (B, G and H).

Moreover, Mann-Whitney U tests have revealed no significant differences between employee awareness, employee involvement, security and trust and evaluation on the D-government implementation within both types of organisational culture in D-government implementation.

Thus, the main themes which reflect the culture of the Omani public sector organisations have been presented in this chapter and their impact on D-government implementation has been discussed according to the type of

organisational culture, either clan or hierarchy type, in response to the second research question.

However, the research framework that was mentioned in Chapter 2 (See Figure 2.3) which was developed from the literature review of this study, is now modified according to reflect the findings of the qualitative and quantitative data of the current study in order to explore the role of organisational culture in D-government implementation. It is named; 'organisational culture and D-government implementation framework'. Figure 7.2 shows the interrelationship between the findings from the quantitative and qualitative methods and the D-government implementation for the culture types identified in this study. This study found that there was a relationship between the organisational culture and the D-government implementation. The contribution of the current study is to show how the dominant organisational culture type impacts on the implementation of D-government. This study found only two types of culture, namely clan and hierarchy, in the Omani public sector organisations which had significant impacts as illustrated in Figure 7.2 (Box A). Moreover, each type of organisational culture had different impacts on each emergent theme from the qualitative data which illustrated in Figure 7.2 (Box B) which then have impacted on the implementation of D-government. The impact of each organisational culture on the D-government implementation was discussed in detail previously in this chapter. However, this framework presents a clear understanding of the relationship between organisational culture and D-government implementation and this could be further developed in future studies.

Figure 7.2 Organisational Culture and D-government Implementation Framework
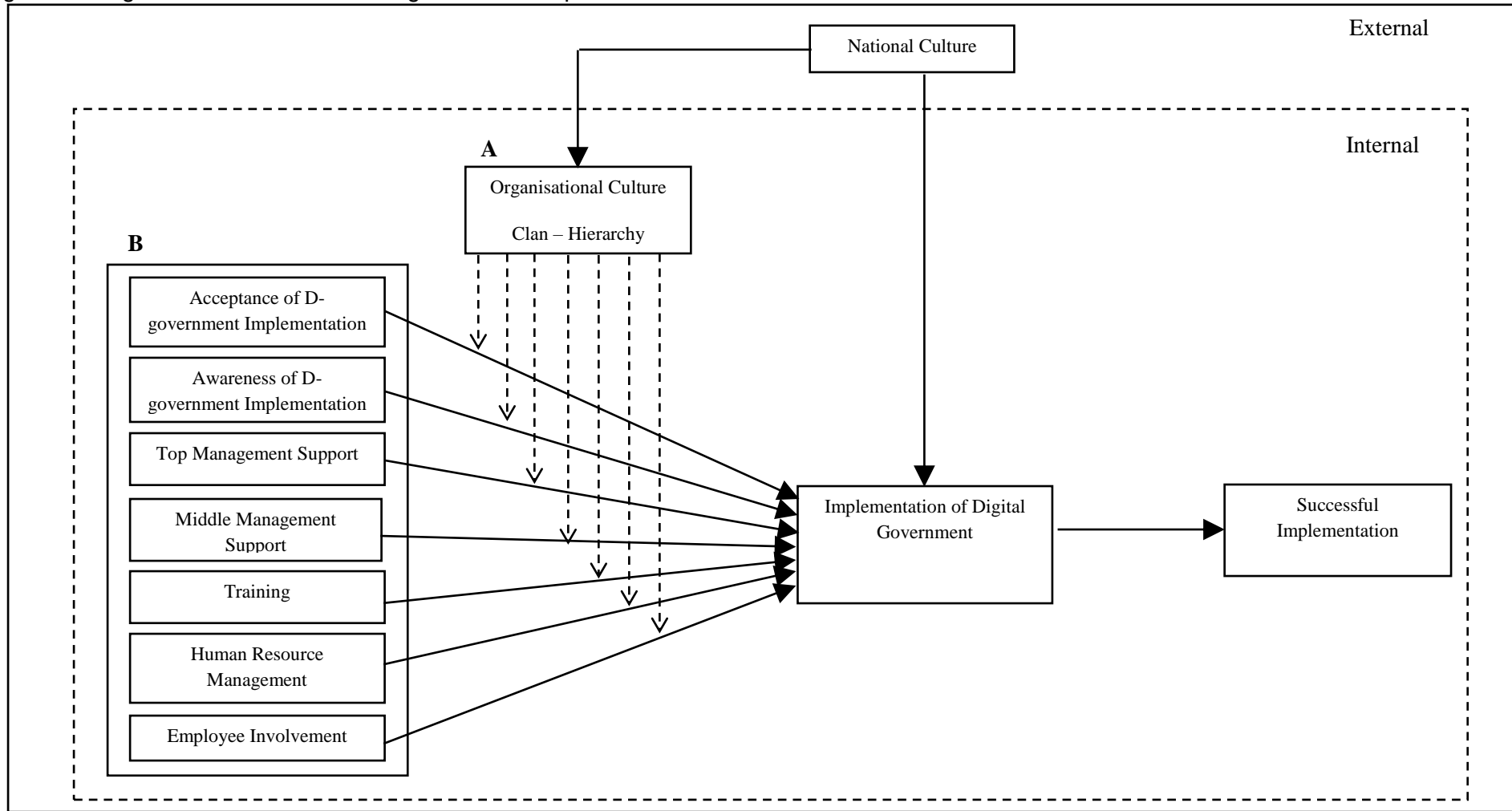
This study concluded that public sector organisations in Oman have to consider some of the issues related to their type of culture in their organisations in order to have successful implementation of D-government. For instance, the organisations that had hierarchy culture type needed to have greater employee involvement in the decision-making process of D-government implementation in order to have greater acceptance for their employees for D-government implementation. This can happen by decreasing the top-down decisions (hierarchical) and creating a culture of participation within the organisations. Moreover, policy makers need to be aware of the adverse effects on D-government implementation which results from making frequent changes to top management. Short-term tenure of office by top management during implementation was found to lead to a culture of confusion and lack of direction. In contrast, organisations that have clan culture type need more top management support for their employees and more targeted training to help to give their employees the skills and experiences that they need as it was found that the hierarchy culture was more structured according to the employees' needs. This is in order to have successful D-government implementation. In general, both type of culture organisations (hierarchy and clan) were found not to have directed sufficient effort in raising awareness in order to support their employees to become familiar with and accept D-government implementation. However, public sector organisations need more awareness of D-government implementation for their employees at all levels: top, middle and operative.

Furthermore, it is recommended that further studies are needed to investigate adhocracy and market type cultures in relation to D-government implementation, which were not possible in the current study. Also, it is suggested that further studies need to investigate the role of middle managers as this was one of the main sub-themes which emerged from this study which found that middle management played a critical role in D-government implementation.

Chapter 8: Conclusion

8.1 Introduction

This chapter presents a summary of the study and its conclusions. It also highlights the theoretical and practical contributions. Additionally, limitations are admitted and pointers are provided for future research.

8.2 Summary of the Main Results

The originality of this study lies in its exploration of the impact of different organisational culture types on D-government implementation in public sector organisations in Oman. Despite the considerable amount of interest in which has been devoted to organisational culture in theoretical and empirical studies, the identification of organisational culture types and measuring their impacts remain problematic areas within research.

In this study, two methods were used to explore the culture of organisations; one qualitative and one quantitative. The qualitative data was drawn from 10 public sector organisations in Oman using semi-structured interviews. The quantitative data extended this exploratory study to include 33 public sector organisations in Oman in a survey. It assessed the organisational culture type based on the Organisational Culture Assessment Instrument (OCAI) which was developed by Cameron and Quinn (2011). The study found that there is a relationship between the organisational culture and the level of D-government implementation. It was found that the clan culture type organisations were associated with low levels of implementation of D-

government in the Omani public sector organisations whereas, the hierarchy culture type organisations were associated with high levels of implementation. However, the implementation of D-government was quicker in hierarchy type cultures than in clan type cultures due to the top-down nature of their management styles which did not facilitate meaningful employee involvement in decision-making as was the case in clan type cultures.

This study has emphasised the importance of management support both at top and middle levels. It was found that, in general, there was a high level of willingness to accept of D-government among top managers. However, it was also found that there was a lack of awareness on the part of top management of the importance of D-government and its benefits for their organisations. Continuity of management was an important aspect of top management support and it was found that frequent changes of top management in the hierarchy culture organisations impacted negatively on the implementation of D-government. Additionally, the lack of consistency in the decision-making of top management in clan culture organisations was found to adversely affect the implementation of D-government.

However, middle management was found to be the main locus of resistance to acceptance of the new technology. Middle managers viewed the new technology as a threat to their authority or against their self-interest. Thus, they resisted its implementation. It was found that the middle managers in hierarchy culture organisations often rejected or impeded the implementation

of D-government for reasons of self-interest whereas this was not found in the clan culture organisations. However, middle managers were also found to be resistant to D-government implementation out of fear of losing their authority and this was true of both types of organisational culture.

In the matter of employee involvement in the decision-making process of D-government implementation, it was found that, in the clan culture organisations where employee involvement was practiced, employees were willing to accept of D-government implementation to a greater extent than in hierarchy culture organisations which did not involve their employees in decision-making. However, where authentic employee involvement did take place, the implementation process was found to be slowed down due to many committee meetings and the slow process of reaching a consensus.

At operations level, many employees, were found to be resistant to accepting D-government because of their lack of knowledge or familiarity with the new technology or out of fear that they might lose their jobs if it was implemented. Therefore, employee awareness was found to have a critical impact on willingness to accept as it brought about a culture of greater openness to D-government.

However, training was found to be insufficient in clan culture organisations in meeting the real needs of the employees and the requirements of the organisations. It was found that there was a lack of the targeted training and such training as did take place was often not focused. This was found to lead

to a culture of compliance surrounding the training as well as a culture of cynicism about its effectiveness which adversely affected D-government implementation.

Furthermore, the lack of qualified employees, which was an unintended consequence of certain government policies, such as Omanisation, were found to have impacted negatively on HRM in both types of organisational culture. This resulted in a culture of indifference and resentment among many employees and led to delays in the implementation of D-government.

8.3 Study Contribution

This study has added a number of contributions which are set out in this section.

8.3.1 Contribution to Literature

This research contributes to the D-government implementation literature by exploring the relationship between different types of organisational culture; clan and hierarchy, and their impacts on D-government implementation. Additionally, this study contributes a conceptual framework to assist future researchers in linking the culture of the organisation with D-government by identifying various organisational factors which were found to impact on D-government implementation.

As mentioned in Chapter 2, Meijer and Bekkers (2015) in their study of 116 journal articles between 2011 to 2013 found that most previous studies (88%)

were placed in the 'explain' rather than in the 'understand' category. The current research addressed this gap by focusing on understanding the organisational culture and exploring its impact on D-government implementation. This study contributes to current knowledge by clarifying the nature of the role of organisational culture in the implementation of D-government. The study found that hierarchical type culture was generally associated with high levels of D-government implementation whereas clan type culture was associated with low implementation levels.

Comparing this study with the Twati and Gammack (2006) study which used the OCAI based in the context of oil and gas and banking sectors in Libya and found that there was a relationship between organisational culture innovation and the adoption of IS and IT, the contribution of the current study lies in its focus on D-government implementation in particular, and also on exploring the relationship between dominant culture type and the level of implementation of D-government.

Additionally, this study contributes by highlighting that the dominant type of culture had effects on the D-government implementation particularly that employees in clan culture organisations were more willing to accept the D-government implementation compared to hierarchy culture organisations as clan culture organisations had more employee involvement in the decision-making process of D-government implementation.

This study also contributes to the sphere of government in its findings that some government policies such as Omanisation policy had impacted negatively on the D-government implementation.

Moreover, this research highlighted the important role of middle management in D-government implementation. Their role has been generally under-researched in the context of D-government implementation. This research found that middle management was the locus of much resistance to change and their role in implementation merits more attention in future studies.

This study contributes by applying the OCAI in a very large sample of public sector organisations in Oman to explore the impact of different types of organisational culture on D-government implementation. This large sample presents the opportunity to exploring how different types of organisational culture in the participating organisations impacted on D-Government implementation and for comparisons to be drawn.

8.3.2 Practical Contribution

The practical contribution derives from the exploration of the type of organisation culture which is best suited to D-government implementation and the type of changes which would be desirable in order to facilitate successful implementation of D-government. For instance, those organisations that had a clan culture will need to have more top management support and more targeted training. However, managers in hierarchical type

organisations should consider the importance of employee involvement in the decision-making process of D-government implementation.

This study will facilitate public sector organisations to better analyse the impact of organisational culture issues in order to improve D-government implementation. The findings of this study provided important recommendations for the policy decision-makers in D-government implementation particularly, in relation to the importance of continuity of top management and the need for consistency in their decisions in order to have successful implementation of D-government.

This study could help the public sector organisations in Oman, in general, and ITA, who is responsible for D-government implementation, in particular, in the formation of an integrated concept of the importance of and the mechanisms for diagnosing organisational culture gaps and the possibility of change in order to serve the process of D-government implementation. Moreover, the study results provide some insights into D-government implementation in the organisational culture of the public sector.

As some of the practical contributions, this study recommend that clan culture organisations need more top management support and targeted training to be given to their employees to help them to develop the skills and experiences that they needed. Moreover, policy makers need to be aware of the negative impact of changing top management frequently and within a short timeframe during the implementation of D-government which was found

lead to confusion and lack of direction. Additionally, HRM of public sector organisations have to provide targeted training meeting the real needs of employees.

The importance of this study also lies in its particular context. D-government implementation and the impact of organisational culture on its implementation has not yet been comprehensively studied in Arabic Countries. The research contributes to the existing literature by exploring the relationship between organisational culture in public sector organisations in Oman with the D-government implementation.

Although this study specifically aimed at understanding the Omani context, lessons learned could have implications for government policy implementation in other countries. One example of those policies is the Omanisation policy. Such a policy was found to have negatively impacted on the implementation of D-government. This could be relevant to other contexts, not only to the Omani context as other countries were facing similar challenges to that found in Oman. For example, Gulf Countries faced similar issues. Most of the labour force in Gulf Countries comprised foreign people. The number of foreign people exceeded the number of local people in most of those countries. For example, the percentage of foreign labour in UAE reached (88%), Saudi Arabia (72%) and Oman (54%) (Mashood et al. 2009). Therefore, Gulf Countries implemented some policies to decrease the effect of this issue. In Oman they named this policy as the Omanisation policy, which meant the local (Omani) people taking the place of the foreign labour

to decrease dependency on foreign labour gradually. However, this policy was implemented without highlighting its effects on the quality of work, performance, qualification of employees and on other issues within organisations. One of the main impacts of the Omanisation policy that was found in this study was that it had the unintended consequence of blocking the recruitment of non-Omani qualified people and that this had negatively impacted on D-government implementation. Other related issues found in this context could also be applicable in other countries which have turned to the public sector as a remedy to solve social or economic problems such as civil unrest. In the Omani context, the unintended consequences of such policies were found to have adversely impacted on D-government implementation. Therefore, governmental policies such as Omanisation need to be carefully managed to avoid negatively impacting on D-government implementation.

8.4 Limitations of the Study

There were several limitations that faced this study. These are discussed in this section.

- Any study of organisational culture is immediately confronted by the problem of the lack of agreement among the many definitions of culture and consequently on how culture can be measured.

- The context of this study is the Omani public sector and this may be a limiting factor on the generalisability of its findings to other contexts. However, certain findings may be helpful in other contexts such as the

importance of the role of middle management on the implementation process.

- The interviewees in the qualitative phase of the study were limited to personnel from the IT department only. This was because they would have been expected to have greater insights into issues of implementation than personnel in other departments. However, in the quantitative phase of this study the survey included participants from all departments in the organisations.

8.5 Future Studies

Similar studies could be conducted in other countries in order to explore the effect of organisational culture on the implementation of D-government in different contexts. In particular, it would be of interest to compare the findings of this study to others conducted in the context of Gulf countries to discover what issues might be common to these countries and to reach a greater understanding of what issues were context specific. Moreover, this study suggests that more research is required in this area to find the explanations for the organisational culture challenges that could face any public sector organisation in their implementation of D-government.

Future studies could also focus on issues such as the role of middle managers in implementing D-government as this study found that this level of management had been the locus of resistance to implementation. Previous studies tended to focus on the role of top management to the neglect of middle management. Thus, in the light of the findings of this study, the role of middle management requires more in-depth investigation.

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g%3d%3d&typeID=w3AIvDiWY%2bI9USuWXvvcJQ%3d%3d
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Appendices

Appendix 3.1: Sultan Qaboos Award for Excellence in Electronic Government

Information Technology Authority (ITA) has established a prize initiative to inspire the environment via the Information and Communication Technology (ICT). It started from 2010 and held every year in the beginning, then later from 2012 held every two years to give the organisations enough time to develop their systems and adopt the recommendation that they get from the jury panel in order to participate. This prize was called the 'Sultan Qaboos Award for Excellence in e-government'. This award has an objectives at honouring the government, private and Small and Medium Enterprises (SMEs) units using information technology to raise their performance and efficiency which meets the citizens' needs. Moreover, it helps to develop criterions which helps to measure the improvement in the implementation of digital projects consistent with the international standards. Furthermore, it inspire excellent and innovative projects and ideas in the digital field. This award classifies by two major sections; government and private sections as shown in the next figure.

The government section covered the organisations that were 100% government-owned, while the private sector section included the organisations that delivered public services in different fields such as education, health, telecommunications, water, electricity, and the environment. However, the private sector section was divided into two different subsections which were large organisations and Small and Medium Enterprises (SMEs) as it shown in the next figure.

Award Categories for Sultan Qaboos Award for excellence in electronic government
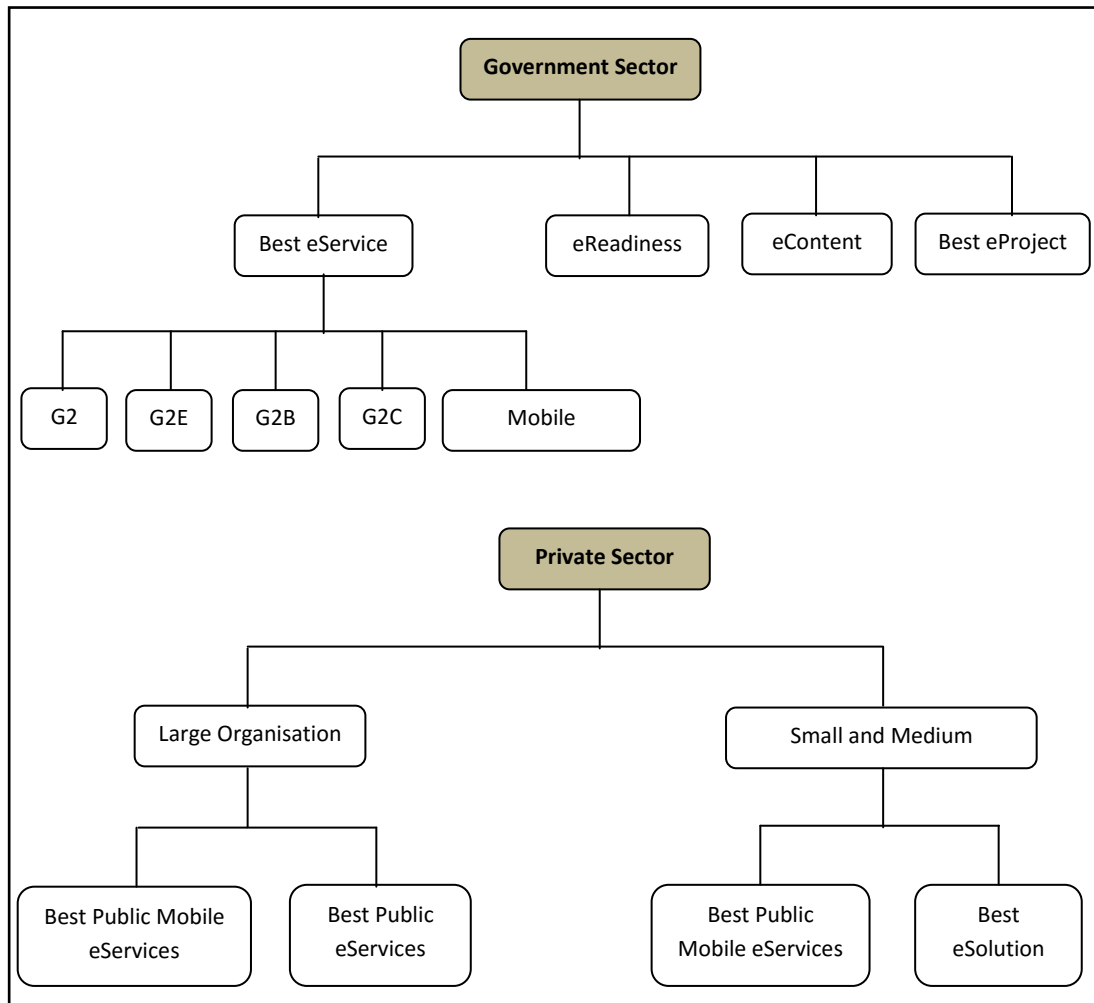
Source: (ITA 2016)

However, certain standards had to be met for any project to be entered for the prize. Each organisation can participate in different categories with different projects. However, until now many of the public sector organisations have still not participated in this award for a number of different reasons such as they do not have any system to participate in this award or they have some faults with the current systems that not allow them to participate. Moreover, to participate with any project in this award the project maturity should be not less than 6 months which is one of the challenges for some organisations as most of the systems still new. Overall, in 2014 award, 39 organisations with 70 electronic projects from both public and

private sectors were participates to compete in different categories of this award. 27 organisations were from public sector organisations with 58 digital projects whereas 12 organisations from private sectors 7 of them represent large organisations and other 5 represent small and medium organisations.

Appendix 3.2: Electronic Government Transformation Plan

Stage No.	Stage Name / Targets Within Stage	Stage / Target Description	Target Completion
1	ePresence Stage	As the most basic form, governments publish simple and limited information on their web sites, such as the agency's vision and mission, office hours, contact information, and official documents. Government agencies have to publish in both Arabic and English.	June 2013
	Target 1.1	Government agencies to create an eGovernment Steering Committee (headed by Minister or equivalent)	July 2012
	Target 1.2	Government agencies to have eGovernment Transformation Plan approved by their respective eGovernment Steering Committees.	September 2012
		The plan has to be aligned with national targets for eGovernment Transformation. (This plan is to be submitted to ITA who then will compile government wide plan to be submitted to the Cabinet)	
	Target 1.3	Government agencies to list all services, including the pre-requisites or conditions to obtain these services; and to transform related manual forms into electronic forms	December 2012
	Target 1.4	Government agencies to document business processes related to each service	December 2012
	Target 1.5	Government agencies to improve business processes (identified in Target 1.4 above) with the aim to implement quality eServices (*Note*: Suggest to remove the line below from the target as it is a never-ending timeline policy statement: "and to continuously improve these business processes so as to meet the ever-increasing demands of the public")	December 2012
	Target 1.6	Government agencies to install computers, printers for basic office automation (only for office staff)	December 2012
	Target 1.7	Government agencies' main office to be connected to Government Network	January 2013
	Target 1.8	Government agencies to have email accounts @agency domain name hosted locally for staff who communicates with public	June 2013
	Target 1.9	Government agencies will have updated websites in Arabic and English. Websites must be linked to the Oman eGovernment Official Portal	June 2013
2	Interaction Stage	This stage provides simple interaction between the government agency and the public that includes email systems, basic search engines and official form downloads. Government agencies can also have a call centre to receive both phone calls and SMS. Government agencies also interact among themselves online through email, SMS and digital data exchange.	December 2013
	Target 2.1	Government agencies to convert key public information such as processes and procedures from paper into digital form	September 2013
	Target 2.2	Government agencies to stop creating public personal records. Instead government agencies to receive basic	December 2013

303

		public personal information (new and amended) records) through ROP via the Oman eGovernment Official Portal	
	Target 2.3	Government agencies to stop creating public commercial establishment records. Instead government agencies to receive basic public commercial establishment information (new and amended records) through MOCI via the Oman eGovernment Official Portal	December 2013
3	Transaction	This stage enables public to conduct complete online transactions such as license applications, course registrations and personal information updates. The stage includes the ability to carry out ePayments. Government agencies can use a mixture of internet and telephony technologies. At the same time, data exchanges among government agencies increases. For more details, please refer to OeGAF Business Reference Model (BRM) & Technical Reference Model (TRM).	December 2014
	Target 3.1	Public can update their personal details online at Oman eGovernment Official Portal	September 2013
	Target 3.2	Companies can update their details online at Oman eGovernment Official Portal	September 2013
	Target 3.3	Government agencies to have electronic documentation system	March 2014
	Target 3.4	Government agencies to automate their core government functions (please see OeGAF BRM for details)	June 2014
	Target 3.5	Government agencies to convert manual registration process to online / SMS registration	December 2014
	Target 3.6	Government agencies to convert manual license application process to online / SMS application	December 2014
	Target 3.7	Government agencies to convert manual payment collection process to online collection	December 2014
4	Transformatio n	This stage provides value-added, public-oriented eServices. It focuses on services from public's perspective and convenience. These eServices involve both vertical (i.e. government agencies in the same Line of Business such as health and education) and horizontal integration (i.e. government agencies in different Line of Business but carry out similar function like HR). This transformation requires detailed coordination work and improving business process. Please refer to OeGAF Business Reference Model (BRM) for details on Line of Business.	December 2015
	Target 4.1	Public (Job-seekers) and companies can search for matching employment opportunities online	June 2015
	Target 4.2	The less-fortunate public, such as the disabled and poor, can access to a single integrated portal to register and obtain relevant welfare support	June 2015
	Target 4.3	Public and health professionals can access basic health records online	December 2015
5	eParticipation	This is a long-term goal for eGovernment development. By offering tools such as online voting, polling and surveys, government agencies can improve their government performance through social participation and citizen involvement. At the same time, eGovernment gradually changes the way in	This is a long-term, continuous goal. Thus no final target date has been

		which the government and people interact to make consensus and transparent government decisions. Another attribute of this stage is the increased participation of vendors who can carry out some of the tasks that the government has been carrying out such as payment collection and physical distribution.	set
	Target 5.1	Public can make payment to government on alternative channels such as ATMS, supermarkets and petrol stations	
	Target 5.2	Vehicle owners can register, update, renew and pay their licenses, insurances, etc via insurance companies	
	Target 5.3	Only 5% counter services available (compared to January 2012)	
	Target 5.4	Public can vote and give their feedback and comments online (through e-polls, eSurveys & social media) for proposed major national developments and changes to laws & regulations	(Date can be set to next election)
6	eBorder / eRegional	Another long-term goal is to offer collaborative services with the neighbouring countries and countries in the region. It requires sharing and exchanging dynamic data among the countries with agreed SLAs. At least Stage 4 Transformation should be reached before embarking on this stage.	This is a long-term, continuous goal. Thus no final target date has been set
	Target 6.1	On-demand data exchange of basic public information	Date to be set
	Target 6.2	Single registration and linking of same companies with presence in different countries	Date to be set

Appendix 3.3: Example of the evaluation report for one of the public sector organisations (In Arabic Language)

التقييم العام للجاهزية للتحول للحكومة الالكترونية

المستهدف — متوسط الحكومة — المؤسسة

الجاهزية العامة — التواجد — التفاعل — التعامل — التحول
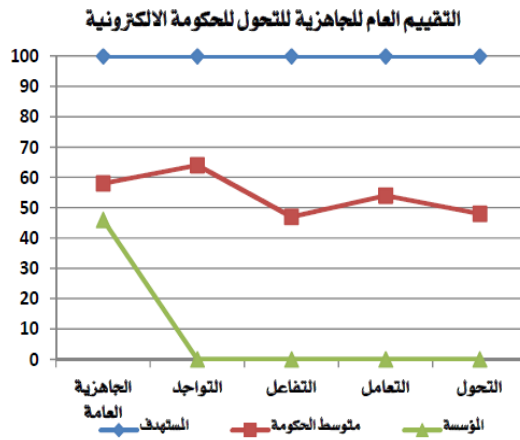
وزارة الشؤون الرياضية

✓	شكلت المؤسسة لجنة التحول للحكومة الالكترونية
✓	صاغت المؤسسة خطة للتحول إلى الحكومة الالكترونية
	تشتمل خطة التحول للمؤسسة على المراحل التالية:-
✓	مرحلة التواجد الالكتروني
✓	مرحلة التفاعل الالكتروني
✓	مرحلة التعاملات الالكترونية
✓	مرحلة التحول الالكتروني
✓	تم ارسال خطة التحول إلى هيئة تقنية المعلومات
✗	لدى المؤسسة موازنة كافية لمتطلبات خطة التحول

التقييم	درجة	قصوى
الجاهزية العامة	46	100
التنظيم و إدارة التحول	14	25
الموارد البشرية	11	20
ميكنة العمل	10	20
التوافق مع المعايير القياسية	6	20
توثيق العمليات و هندستها	5	15

مرحلة التواجد الالكتروني	0	100
الموقع على الانترنت	0	50
مقومات التواجد الرقمي	0	50

مرحلة التفاعل الالكتروني	0	100
قنوات التواصل	0	100

مرحلة التعاملات الالكترونية	0	100
قياس الطلب على الخدمات	0	20
مستوى ميكنة الخدمات	0	35
قنوات المعاملات الالكترونية	0	20
التكامل مع البنية التحتية المركزية الوطنية	0	25

مرحلة التحول الالكتروني	0	100
الادارة الالية للمعاملات	0	40
الخدمات الالكترونية المتكاملة	0	60

خدمات المؤسسة	107	100%
معلوماتية	35	33%
تفاعلية	3	3%
اجرائية	69	64%

تصنيف الخدمات (*)		
من الحكومة إلى الافراد	68	64%
من الحكومة إلى الشركات	38	36%
من الحكومة إلى الحكومة	28	26%

تصنيف الخدمات (يتبع)		
من الحكومة إلى موظفيها	37	35%
من الحكومة إلى المجتمع	72	67%

اهمية الخدمات للمستفيدين		
تهم عدد كبير من المستفيدين	35	33%
تهم قطاع أو مجموعة من المستفيدين	65	61%
تهم عدد صغير من المستفيدين	7	7%

الخدمات التي تتم عملياتها		
آلية بالكامل	2	2%
آلية جزئيا	1	1%
يدوية	104	97%

تصنيف الخدمات المقدمة للمستفيدين (*)		
الكترونية	3	3%
تقليدية مطورة	2	2%
تقليدية	103	96%

ارتباط الخدمات بخدمات اخرى		
قائمة بذاتها - لا يوجد ارتباط	71	66%
ارتباط داخلي	28	26%
ارتباط خارجي	8	7%
ارتباط داخلي و خارجي	0	0%

إحصاءات اخرى عن الخدمات (بالنسبة إلى إجمالي الخدمات)	
يمكن إتاحتها إلكترونيا	96%
تتوافر معلوماتها الكترونيا	2%
قابلة للتسليم الفوري	93%
موسمية (يزيد الطلب في أوقات معينة من السنة)	45%
تبدأ (تطلب) من المستفيد	59%
تستلزم دفع رسوم	26%
تستلزم زيارة / زيارات للمؤسسة	30%

(*) يسمح بأكثر من اختيار

وزارة الشؤون الرياضية

القابلية للجاهزية الالكترونية بحسب طبيعة الخدمة

- غير قابلة: 4 / 0
- قابلة: 65 / 3
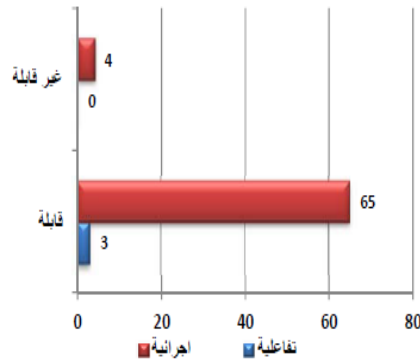
■ اجرائية   ■ تفاعلية

إتاحة الخدمات بحسب طبيعتها

- متاحة إلكترونيا: 2 / 1 / 0
- تقليدية مطورة: 1 / 1 / 0
- تقليدية غير إلكترونية: 67 / 1 / 35

■ اجرائية   ■ تفاعلية   ■ معلوماتية
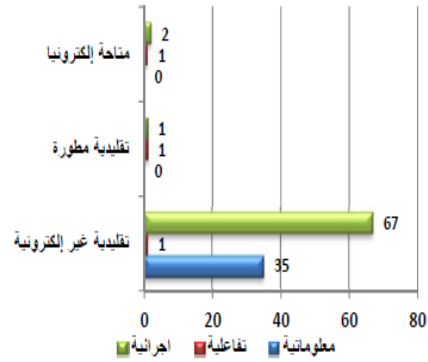
إتاحة الخدمات بحسب متلقيها

- للمجتمع: 3 / 1 / 69
- إلى موظفيها: 1 / 1 / 35
- إلى الحكومة: 2 / 0 / 26
- إلى قطاع الأعمال: 2 / 0 / 36
- إلى الأفراد: 3 / 1 / 65

■ متاحة إلكترونيا   ■ تقليدية مطورة   ■ تقليدية غير إلكترونية
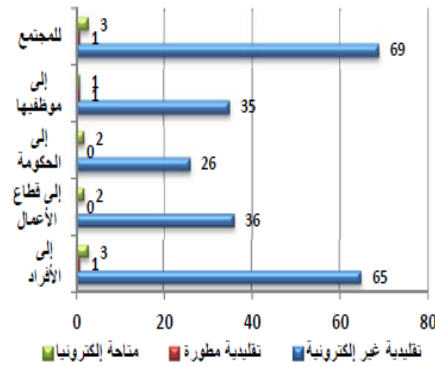
ادارة عمليات الخدمات بحسب طبيعة الخدمة

- ألية بالكامل: 0 / 2 / 0
- ألية جزئيا: 1 / 0 / 0
- يدوية: 68 / 1 / 35

■ اجرائية   ■ تفاعلية   ■ معلوماتية
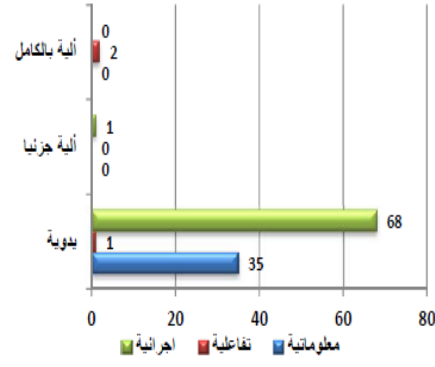
الخدمات المعلوماتية بحسب اهميتها و إتاحتها

- متاحة إلكترونيا: 0 / 0 / 0
- تقليدية مطورة: 0 / 0 / 0
- تقليدية غير إلكترونية: 0 / 22 / 13

■ تهم عدد صغير   ■ تهم قطاع أو مجموعة   ■ تهم عدد كبير
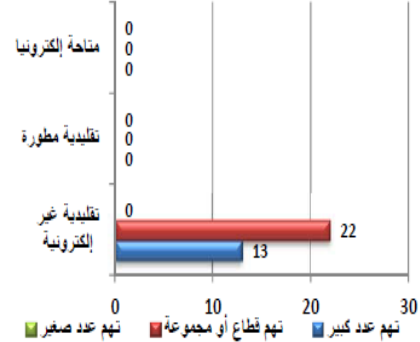
أهمية الخدمة بحسب طبيعتها

- تهم عدد كبير: 19 / 3 / 13
- تهم قطاع أو مجموعة: 43 / 0 / 22
- تهم عدد صغير: 7 / 0 / 0

■ اجرائية   ■ تفاعلية   ■ معلوماتية
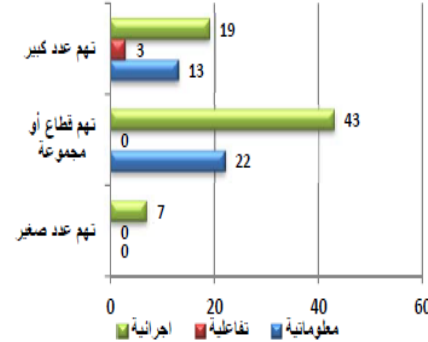
الخدمات الاجرائية بحسب اهميتها و إتاحتها

- متاحة إلكترونيا: 0 / 0 / 2
- تقليدية مطورة: 0 / 0 / 1
- تقليدية غير إلكترونية: 7 / 43 / 17

■ تهم عدد صغير   ■ تهم قطاع أو مجموعة   ■ تهم عدد كبير
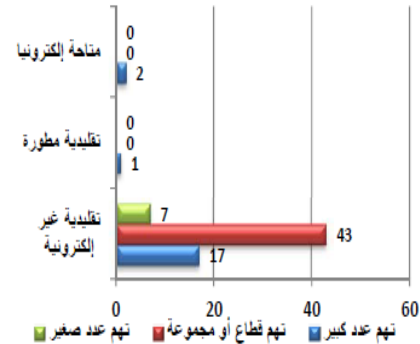
الخدمات التفاعلية بحسب اهميتها و إتاحتها

- متاحة إلكترونيا: 0 / 0 / 1
- تقليدية مطورة: 0 / 0 / 1
- تقليدية غير إلكترونية: 0 / 0 / 1

■ تهم عدد صغير   ■ تهم قطاع أو مجموعة   ■ تهم عدد كبير

قنوات الوصول إلى الخدمات و توصيل مخرجاتها

عدد الموافقات المطلوبة للحصول على الخدمة

عدد المرفقات المطلوبة للحصول على الخدمة

عدد الزيارات لاستكمال الحصول على الخدمة

عدد وقفات المسار لتنفيذ الخدمة

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
حجز وتخطيط وتمديد أراضي للاندية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	لا	لا	لا	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
حجز ومسح اراضي للفرق الرياضية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	لا	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
طلبات الاراضي لميادين الهجن والفروسية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	لا	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
عضوية المجمع الرياضي للافراد	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
طلب المشاركة في فعاليات اليوم الرياضي الماني المفتوح للنساء	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد
حجز الصالات الرياضية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
حجز المضمار الخارجي	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
تسجيل وادخال بيانات المستفيدين من خدمات مركز الطب الرياضي	إجرائية	لا	متاحة إلكترونياً	آلية جزئياً	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب المشاركة في مسابقة دوري كرة الطاولة	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى المجتمع
طلب المشاركة في مسابقة الثلاثي الحديث	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع
فعاليات مسابقات خماسيات كرة القدم داخل الصالات	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى قطاع الأعمال, من الحكومة إلى الأفراد, من الحكومة للمجتمع

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
فعاليات مسابقة دوري الرياضات التقليدية	معلوماتية	نعم	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع
ارسال القوائم المالية الختامية المدققة للاندية الرياضية للجهة	معلوماتية	نعم	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال
استخدام المرافق رياضية بالمجمعات الرياضية	معلوماتية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
طلب الانتساب بعضوية في المجمعات الرياضية	إجرائية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
ممارسة نشاط على الملعب المعشب	إجرائية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
خدمات توفير المياة	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع
نشاط بدني للنساء – الايروبيك	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
تقديم خدمات طلب تأشيرة دخول للاندية	معلوماتية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد
طلب اقامة أنشطة رياضية مائية	تفاعلية	لا	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
سجل العضوية للمنتسبين للمجمع الرياضي	إجرائية	لا	تقليدية مطورة, متاحة إلكترونياً	يدوي متاحة إلكترونية	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
طلب الإقامة بسكن الفرق بالمجمعات الرياضية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
خدمات صحية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى موظفيها
خدمة ادارية ومالية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع, من الحكومة إلى الأفراد
تجديد تاشيرت مقيم	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	لا	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى موظفيها
اعمال ادارية ومالية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى موظفيها
مراجعة حسابات الاندية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
خدمة الصيانة الدورية لمرافق الاندية الرياضية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
علاج طبيعي	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب التسجيل في برنامج صيف الرياضة	تفاعلية	نعم	متاحة إلكترونياً	آلية	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
حجز قاعة المحاضرات	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب تنظيم مسابقات رياضية مختلفة للاندية والفرق الاهلية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	لا	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب تنظيم مسابقات رياضية كروية	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
تقديم خدمات إدارة المشاريع الاستثمارية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	نعم	لا	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القبلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
طلب المشاركة في مسابقات الرياضات	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب استخدام مرفق ملعب الهوكي في المجمع الرياضي بصحار	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب المشاركة في فعاليات الايام الرياضية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب المشاركة في نشاط الرياضة للجميع	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب المشاركة في فعاليات سباق القوارب	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	لا	لا	نعم	لا	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب المشاركة في فعاليات الايام الرياضية المدرسية والجامعية	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
طلب المشاركة في الايام الرياضية لذوي الاعاقة	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
طلب استخدام مرافق المجمع	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى قطاع الأعمال, من الحكومة إلى الأفراد, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
طلب المشاركة في برنامج شبابي	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	لا	لا	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب صيانة مرافق المجمع وتصاريح استخراج اراضي الاندية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
خدمة توثيق البريد	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
تقديم محاضرات توعوية	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى الحكومة, من الحكومة للمجتمع
تقديم بيانات ومؤشرات احصائية	معلوماتية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب المشاركة في الانشطة النسوية	معلوماتية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع
طلب ارسال التقارير الشهرية للمستفيدين من مرافق المجمعات	معلوماتية	نعم	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
تقديم دراسات وبحوث رياضية	معلوماتية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
خدمة تقديم الدعم الفني للبرامج الداخليه	تفاعلية	لا	تقليدية مطورة	آلية	نعم	لا	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى موظفيها
طلب وقود	إجرائية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	لا	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال
طلب تامين مركبه	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الحكومة
طلب مركبة حكومية	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب صيانة مركبة حكومية	إجرائية	لا	تقليدية غير إلكترونية	يدوي	لا	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال
طلب صرف مواد اضافية	إجرائية	نعم	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الحكومة
طلب الموافقة على اذن صرف مواد	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	نعم	نعم	لا	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها
طلب تموين	إجرائية	لا	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب تاشيرات للاندية	إجرائية	نعم	تقليدية غير إلكترونية	يدوي	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
طلب ارجاع مواد للمخازن	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب اعتماد محضر لجنة فحص مواد	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب الموافقة على اعتماد عقود اللاعبين	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب بيع او شطب مواد	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب الموافقة على اجازات اللاعبين	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع, من الحكومة إلى الأفراد
طلب تعبئة بطاقة عهدة فرعية / شخصية	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب استصدار بطاقة علاج مجاني للاعبين والمدربين واسرهم	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة بطاقة مخزن	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب صرف مواد	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب حجز الفنادق	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب اقرار استلام عهده	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب استئجار سيارة	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة استيفاء معاملة	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع, من الحكومة إلى موظفيها
طلب صيانة ألة تصوير / فاكس	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى موظفيها
طلب حصر اثاث	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية مكننة الإجراءات الداخلية	القبلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
طلب استخدام مرافق رياضية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
طلب حجز قاعة الاجتماعات	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب تنفيذ انشطة كرة القدم والعاب القوى واستخدام سكن الفرق	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	نعم	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها
طلب تصريح تصفح مواقع الكترونية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها
طلب صيانة جهاز حاسب الالي و ملحقتها	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب حجز بريد الالكتروني	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب تعبئة استمارة استلام جهاز حاسب الي	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها
طلب تعبئة استمارة استلام مواد واجهزه فنية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب تعبئة استمارة توزيع اجهزة حاسب	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	نعم	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى موظفيها
طلب إضافة بعض مميزات الهاتف الذكى	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها
طلب تعبئة استمارة تكريم المجيدين للالعاب الفردية والجماعية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد كبير من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع
طلب تعبئة استمارة طباعة تقرير	إجرائية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم عدد ضغير من المستفيدين	من الحكومة إلى موظفيها
طلب تعبئة استمارة طلب رعاية	إجرائية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى قطاع الأعمال, من الحكومة إلى الأفراد, من الحكومة للمجتمع

متلقي الخدمة	القيمة الاستراتيجية	هل الخدمة تتطلب زيارة مواقع	قابل للتسليم الفوري	تستلزم رسوماً	القبلية للجاهزية الإلكترونية	وضعية ميكنة الإجراءات الداخلية	قنوات توفير الخدمة الحالية	خدمة موسمية	طبيعة الخدمة	الاسم العربي
من الحكومة إلى الأفراد, من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	إجرائية	طلب استيفاء شروط الترشح لمسابقة كأس صاحب الجلالة للشباب
من الحكومة إلى الأفراد, من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة مركز اعداد القيادات
من الحكومة إلى الأفراد	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة حصر انشطة الدائرة
من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها	خدمة تهم عدد كبير من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	لا	معلوماتية	طلب تعبئة استبانة قياس رضى المستفيدين من خدمات المجمعات الرياضية
من الحكومة إلى الأفراد	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	لا	معلوماتية	طلب حصر استثمارات الاندية الرياضية
من الحكومة إلى الأفراد, من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة الانشطة الرياضية المنفذة بدوائر الشؤون
من الحكومة إلى الأفراد, من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة الايام الرياضية للمدارس
من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها	خدمة تهم عدد كبير من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة الانشطة الرياضية لدائرة النشاط الرياضي
من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع, من الحكومة إلى موظفيها, من الحكومة إلى الأفراد	خدمة تهم عدد كبير من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	لا	معلوماتية	طلب تعبئة استمارة التقرير الشهري للمجمعات الرياضية
من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	لا	معلوماتية	طلب تعبئة استمارة المشاركات لذوي الاعاقة
من الحكومة إلى الأفراد, من الحكومة للمجتمع	خدمة تهم مجموعة أو قطاع من المستفيدين	لا	نعم	لا	نعم	يدوى	تقليدية غير إلكترونية	نعم	معلوماتية	طلب تعبئة استمارة انشطة الهيئات النوعية

الاسم العربي	طبيعة الخدمة	خدمة موسمية	قنوات توفير الخدمة الحالية	وضعية ميكنة الإجراءات الداخلية	القابلية للجاهزية الإلكترونية	تستلزم رسوماً	قابل للتسليم الفوري	هل الخدمة تتطلب زيارة مواقع	القيمة الاستراتيجية	متلقي الخدمة
طلب تعبئة استمارة انشطة التسويق	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة إلى الحكومة, من الحكومة للمجتمع
طلب تعبئة استمارة انشطة اللجان الرياضية	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع, من الحكومة إلى الأفراد
طلب تعبئة استمارة برنامج شجع فريقك	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة لحصر الجماهير الحاضرة لمشاهدة المباريات المقامة في	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة تقييم ومتابعة خطط الدوائر المنفذة للانشطة الرياضية	معلوماتية	لا	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة حصر الانجازات	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة للمجتمع, من الحكومة إلى الأفراد
طلب تعبئة استمارة انشطة دائرة الرياضة	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة تقرير انشطة دوائر	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة للمجتمع
طلب تعبئة استمارة الدعم المقدم من الوزارة للاندية الرياضية	معلوماتية	نعم	تقليدية غير إلكترونية	يدوى	نعم	لا	نعم	لا	خدمة تهم مجموعة أو قطاع من المستفيدين	من الحكومة إلى الأفراد, من الحكومة إلى قطاع الأعمال, من الحكومة للمجتمع

Appendix 4.1 Semi-structured Interview Questions

Information Sheet (Interview)

Dear Participant,

We would like to interview you about your experiences and views of the organisational culture effects on the implementation of digital government. This Interview is part of the fulfilment for the PhD degree in Artificial Intelligence.

The main aim of this study is to explore the impact of organisational culture in the implementation of digital government in public sector organisations. The interview will be semi-structured and will take about 30 to 40 minutes. All the information that we collect from you during this interview will be kept strictly confidential and only the researcher will have access to this information. Moreover, the audio recordings made during this interview will be used only for the research analysis and no other use will be made of them without your written permission. Furthermore, no one except the researcher will be allowed to access to the original recording.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time before the final write-up. You do not have to give a reason.

Thank you for taking the time to read this information sheet and taking part in the research.

Sincerely,

Mohammed R H ALmamari
PhD Artificial Intelligence
School of Electrical Engineering and Computer Science
University of Bradford,
Bradford, West Yorkshire, BD7 1DP
Email: M.R.H.Al-Mamari@student.bradford.ac.uk

Consent Statement

Researcher: Mohammed Almamari.

Title of the research: The role of organisational culture in digital government implementation.

Thank you for participating and sharing your experiences of digital government implementation as part of my research. Please read through the following statements and questions and indicate your response to each question. This is important as both you and I need to be clear what elements of the research you are agreeing to take part in so that I can be sure that you are fully informed about the purposes of the project.

No.	Statement	Yes	No
1	I have read all of the accompanying information about the study.		
2	I understand that I can contact Mohammed to ask questions about the research and my involvement if I feel I need to.		
3	I understand that I can withdraw from the research at any stage before the final write-up. I do not have to give a reason and providing it is before the stated date none of my account will be used in the research.		
4	I understand that my response will be saved in a secure place and that only Mohammed will have access for the duration of the research and that this and any paper copies will be destroyed once the research is written up and completed.		
5	I understand that identifying information about me will be removed from my response and every attempt will be made to ensure my anonymity.		
6	I understand that my response may be reproduced in the research dissertation and this may be read by others in its anonymous form and may be published later		
7	I, (YOUR NAME), give my consent to take part in the research by responding to the questions from the researcher.		

Name: Date: Signature:

Interview Questions

1. How normally does your organisation take decisions about implementing new systems in your organisation?

   Prop:

   i. What is taken into consideration? (Finance, resources, politics, processes?)

   ii. Do you involved in the decision-making for the digital government implementation? How? What about other employees do they involved?

   iii. Do you involve the other organisation departments in designing the electronic government services process or it is done according to the IT Department view only?

   iv. When a decision is made, what is the next step for implementing the system in your organisation?

2. Talking specifically about the implementation of digital government in your organisation, what do you know about the digital government's strategy and plans?

   Prop:

   i. How far does your organisation comply with this strategy?

   ii. Can you explain how (probe for what have they implemented/ (backend and front end systems)

   iii. When were these systems and services implemented? What is already in place, and what is not there?

   iv. Are all departments integrated electronically with each other? Are you integrated with other organisations?

   v. How you think the internal culture or environment inside the organisation affect the implementation of digital government? What factors of organisation culture that affect?

    vi.   Can you tell me who is responsible for implementing digital government in this organisation? does the high level management in this organisation intervenes in the implementation of the digital government? Do they support the implementation?

    vii.   Do you accept the digital government implementation? Do other employees in the organisation accepting the digital government implementation?

    viii.   Who is evaluating the implementation of digital government in your organisations? How? Do you have external evaluation?

3. In your opinion, how does an organisational culture impact on the digital government implementation?

Probe:

    i.   How you think policies and regulations or type of the organisation structure in the organisation could affect in the implementation of digital government?

    ii.   Do you think the current legislations and regulations of digital government in Oman are suitable to organise the use of the digital government in term of (Probe: electronic signature, electronic stamps, electronic crimes, privacy, security, web content, and transparency and predictability of ICT regulations)?

    iii.   What are the changes from your opinion in decision-making process related to digital government implementation in this organisation after you start implementing digital government? Do you have any changes in your job authorities as an employee?

4. Can you tell me what changes in the recruitments have done for implementing digital government in this organisation?

Probe:

    i.   Have you published new occupations or stop and delete old one when you start implementing digital government? Have any of employees loose his jobs?

ii. Does your organisation have any training programs or external support and awareness for employees when implementing new digital system? If yes what type of programs do you have?

5. In your opinion, what do you think is required from the public sector organisations to constitute the successful implementation of digital government inside the organisation?

Thank you ….

Appendix 4.2 The List of Public Sector Organisation in Oman

No.	Organisation Name
1	The Ministry of Agriculture and Fisheries
2	The Ministry of Awqaf (Endowments) & Religious Affairs
3	The Ministry of Civil Service
4	The Ministry of Commerce & Industry
5	The Ministry of Defense
6	The Ministry of Environment & Climate Affairs
7	The Ministry of Finance
8	The Ministry of Foreign Affairs
9	The Ministry of Health
10	The Ministry of Heritage & Culture
11	The Ministry of Education
12	The Ministry of Higher Education
13	The Ministry of Housing
14	The Ministry of Information
15	The Ministry of Interior
16	The Ministry of Justice
17	The Ministry of Legal Affairs
18	The Ministry of Manpower
19	The Ministry of Oil and Gas
20	The Ministry of Regional Municipalities & Water Resources
21	The Ministry of Social Development
22	The Ministry of Sport Affairs
23	The Ministry of Tourism
24	The Ministry of Transport & Communication
25	The General Authority for Civil Aviation
26	The National Records and Archives Authority
27	The Public Authority for Manpower Register
28	The Public Authority for Craft Industries
29	The Public Authority for Consumer Protection
30	The Public Authority for Radio and TV
31	The Public Authority for Social Insurance
32	The Public Authority for Stores and Food Reserve
33	The Public Authority for Electricity and Water
34	The Special Economic Zone Authority at Duqm
35	The Public Authority for Civil Defense and Ambulance
36	The Telecommunication Regulatory Authority
37	The Information Technology Authority
38	The Omani Centre For Investment Promotion & Export Development
39	The Capital Market Authority
40	Majlis A'shura
41	The Supreme Council for Planning
42	The State Council
43	The Research Council
44	The Administrative Affairs Council

45	Oman Medical Specialty Board
46	The Tender Board
47	The Secretariat General for Taxation
48	The General Secretariat of the Cabinet of Ministers
49	The General Secretariat of the Higher Committee for National Day celebrations
50	Civil Service Employees Pension Fund
51	Al Raphid Fund
52	The State General Reserve Fund
53	Oman Investment Fund
54	Royal Oman Police Pension Fund
55	Oman Housing Bank
56	Oman Development Bank
57	Central Bank of Oman
58	Muscat Securities Market
59	Muscat Municipality
60	Dhofar Municipality
61	The State Audit Institution
62	Internal Security Services
63	Majis Industrial Services Company
64	Muscat Clearing & Depository
65	Oman Chamber of Commerce and Industry
66	Oman Establishment For Press, News Publication & Advertising
67	Oman Post
68	The Public Establishment for Industrial Estates
69	Public Prosecution
70	Sultan Qaboos University
71	Royal Court Affairs
72	Royal Guard of Oman
73	Royal Office
74	Royal Oman Police
75	The Sultan's Special Force
76	Diwan of Royal Court
77	Governorate of Muscat
78	Institute Of Public Administration
79	Office of the Minster of State & Governor of Dhofar
80	Sultan Qaboos Higher Centre for Culture

Appendix 4.3 Survey Questions

Information Sheet (Survey)

Introduction:

Dear Participant,

Thank you agreeing to take part in this important survey about the impact of organisational culture on the implementation of digital government in public sector organisations in Oman. Your participation are valuable to all organisations who want to implement or to develop the implementation of digital government. This questionnaire is part of the fulfilment for my PhD degree in Artificial Intelligence.

The following questionnaire will take approximately 20 minutes to complete. Taking part in this research is up to each individual. All your answers will remain confidential and any identifying material will be removed in order to ensure your anonymity. Any individual answers will not be documented, only the group results will be documented or presented. If you feel you do not want to answer certain questions then you can omit them. If the questionnaire returns with answers completed, this will be taken as your agreement to partake in this research. However, you are still free to withdraw at any time without giving a reason before the final write-up.

Please give your opinion frankly as it will be of a high value for both the researcher and all public organisations as they want to improve their digital government for their citizens. Thank you for taking the time to read this information sheet and taking part in the research.

Sincerely,
Mohammed R H ALmamari
PhD Artificial Intelligence
School of Electrical Engineering and Computer Science
University of Bradford,
Bradford, West Yorkshire, BD7 1DP
Email:M.R.H.Al-Mamari@student.bradford.ac.uk

Section I: Background Information

Please choose the appropriate choice that apply to you:

1. Gender:
   - ☐ Male
   - ☐ Female

2. Age:
   - ☐ Under 20 years
   - ☐ 20 – 30 years
   - ☐ 31 – 40 years
   - ☐ 41 – 50 years
   - ☐ Over 51 years

3. Educational Level:
   - ☐ Secondary school
   - ☐ Higher Diploma
   - ☐ Bachelor
   - ☐ Master
   - ☐ PhD
   - ☐ Others: ……………….….

4. Work Experiences:
   - ☐ Less than 5 years
   - ☐ 5 – 10 years
   - ☐ 11 – 15 years
   - ☐ Over 15 years.

5. What is the name of the organisation you work for: (this includes all public sector organisations such as ministries, authorities, and any other governmental organisations)?

   ………………………………………………………………………………………………
   …………..………………………………………………………………………………..

Section II: Assessment of the Organisational Culture

Istructions: Each question has four alternatives (A, B, C, D). Distribute 100 scores among these four alternatives depending on the extent to which each alternative is similar to your own organisation. Give a higher number of scores to the alternative that is most similar to your organisation (any alternative score between 0 and 100):

Q1. Dominant Characteristics		Points
A	The organisation is a very personal place. It is like an extended family. People seem to share a lot of themselves.	
B	The organisation is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.	
C	The organisation is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	
D	The organisation is a very controlled and structured place. Formal procedures generally govern what people do.	
	Total	

Q2.	Organisational Leadership	Points
A	The leadership in the organisation is generally considered to exemplify mentoring, facilitating, or nurturing.	
B	The leadership in the organisation is generally considered to exemplify entrepreneurship, innovating, or risk taking.	
C	The leadership in the organisation is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	
D	The leadership in the organisation is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.	
	Total	

Q3.	Management of Employees	Points
A	The management style in the organisation is characterized by teamwork, consensus, and participation.	
B	The management style in the organisation is characterized by individual risk-taking, innovation, freedom, and uniqueness.	
C	The management style in the organisation is characterized by hard-driving competitiveness, high demands, and achievement.	
D	The management style in the organisation is characterized by security of employment, conformity, predictability, and stability in relationships.	
	Total	

Q4.	Organisation Glue	Points
A	The glue that holds the organisation together is loyalty and mutual trust. Commitment to this organisation runs high.	
B	The glue that holds the organisation together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	
C	The glue that holds the organisation together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	
D	The glue that holds the organisation together is formal rules and policies. Maintaining a smooth-running organisation is important.	
	Total	

Q5.	Strategic Emphases	Points
A	The organisation emphasizes human development. High trust, openness, and participation persist.	
B	The organisation emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	
C	The organisation emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	
D	The organisation emphasizes permanence and stability. Efficiency, control and smooth operations are important.	
	Total	

Q6.	Criteria of Success	Points
A	The organisation defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.	
B	The organisation defines success on the basis of having the most unique or newest products. It is a product leader and innovator.	
C	The organisation defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	
D	The organisation defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.	
	Total	

Section III: The impact of organisational culture in the digital government implementation

Please state the extent to which you agree with the following statements on a scale of strongly disagree, disagree, neutral, agree, strongly agree.

No.	Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7	Employees in my organisation are involved in the decision-making process for implementing new electronic systems.					
8	Top management in my organisation is driving the implementation of digital government and their aim to make all the services of the organisation available online.					
9	I believe that the main reason for slow integration process in the digital government between my organisation and other public sector organisations is due to managerial reasons and not others.					
10	In general, I think the internal environment of this organisation positively supports the implementation of digital government.					
11	I am accepting the implementation of digital government in my organisation.					
12	The organisation provides different technical training courses for all employees before or after implementing any new system.					
13	I think the skills and experiences acquired from the training provided by the organisation are appropriate and useful for me to use the digital government systems.					
14	The IT department act on regular evaluation of new implemented system.					
15	I am aware of the digital government implementation and its plan in my organisation.					
16	The policies of the organisation are regularly updated according to the changes of the digital government system implementations.					
17	Digital government systems enable me to finish most of my work directly without the need to get approval from upper level management.					

NOTE: If you would like to add any comments related to any of the above statements please add them below:

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Q18: Please order the following factors starting with the less important to achieve the successful implementation of digital government in your organisation to the most important (1 = the lowest importance and 8 = the most importance).

Unranked Choices	Ranked Choices
1. Employee awareness of the new system being implemented.	
2. Support of management in the organisation for the implementation of digital government.	
3. Sufficient financial and human resources for the implementation in the organisation.	
4. Involving employees in the decision making for implementing the new system.	
5. Security and trust in new system.	
6. Evaluation of the public sector organisations for the implementation of digital government.	
7. Working collaboratively and integrating with other organisations.	
8. Training of employees in the use of the implemented systems.	

Q19: Please indicate the degree of implementation of the digital government in your organisation (Choose the percent that you think reflects the current situation of implementing digital government in your organisation considering that 0% = there is no implementation of digital government in the organisation and 100% = digital government is fully implemented by transforming all services and systems of the organisation electronically).

……………………………………………………………………………………………………
……………………………………………………………………………………………………

Appendix 4.4: Sample of interviews extracts with an initial codes.

Data extract	Initial Codes
The training courses are mostly not related to our job because they are general courses not specialised and technical ones. Most of the training courses or programs are related to leadership and management skills. Also, if it is related to our specialisation, it will be about old topic not up-to-date and some specialisations do not have training courses such as graphical designers or web designers.	Irrelevant training General courses/ lack of technical training Management programs of training Not up-to date training Lack of training
My manager will agree, but after his signature, it will go to the human resources development department where they will check the budget for this program. But now, in every new project, we try to request specialised training.	Approval of training/ Approval process Training budget/ lack of budget Overcome resistance in training / specialised training
Employee's awareness is very important as well as the support from the high level of management. Moreover, the environment and the infrastructure of the organisation are too important factors in the success of implementation. In addition, the technical support and quick responses to solve the technical problems are critical issues that motivate employees in using technology.	Employee awareness/ awareness importance/ top management support/ critical factors/ factors for success implementation/ technical support/quick responses technical problems/ employee motivation

Appendix 4.5 Sample of interviews concept mapping:

Conflict with their corruptions

Unknown the plan

Lose authorities

Middle Management

Lack of awareness

Not enough Budgets

Lack of knowledge

Unqualified employees

No readiness of Integration

No External Integration

Organisation implementation level

Current system implemented

Expected to implement

Internal Evaluation

External Evaluation

Involvement in check requirement

Involvement in take decisions

IT Department Recommendation

Stakeholders Involvement

Stakeholder request

Type of System

Resistance

Implemented System

Evaluation

Involvement

Feasibility Study

Fear to loos job

Old employee

Lack of Trust

Request new system

Satisfy with the old system

Lack of employee

Poor Networ

Policies not enough

Digital Government Implementation

Decision (Request) of new system implementation

Standards of implementation

Risk of security

Risk of third-party

Management approval

Top Management Support

Process after Decisions

Internal Integration

Integration

Overcome Resistance

E-government Transformation Plan

Required factors for successful implementation

Test the system

Motivating Employees

Update the policies according to needs

New division added

Organisation Structure changes

Changes on Organisation

Increase work performance

Awareness

Security Policies

Awareness

Built the IT culture

Merge division

New Jobs

Changes in Jobs

Work is organised

Training

331
External Training

Internal Training

Third-Party Employees

Training

Qualified employees

Appendix 6.1: Pearson correlation

Correlations

		A (Clan)	B (Adhocracy)	C (Market)	D (Hierarchy)	Level of Implementation
A (Clan)	Pearson Correlation	1	-.033	-.430**	-.484**	-.289**
	Sig. (2-tailed)		.366	.000	.000	.000
	N	732	732	732	732	732
B (Adhocracy)	Pearson Correlation	-.033	1	.085*	-.647**	.017
	Sig. (2-tailed)	.366		.021	.000	.642
	N	732	732	732	732	732
C (Market)	Pearson Correlation	-.430**	.085*	1	-.352**	.057
	Sig. (2-tailed)	.000	.021		.000	.123
	N	732	732	732	732	732
D (Hierarchy)	Pearson Correlation	-.484**	-.647**	-.352**	1	.178**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	732	732	732	732	732
Level of Implementation	Pearson Correlation	-.289**	.017	.057	.178**	1
	Sig. (2-tailed)	.000	.642	.123	.000	
	N	732	732	732	732	732

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 6.2: Tests of Normality using Kolmogorov-Smirnov test and Shapiro-Wilk test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Q1-A1. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.	.173	732	.000	.867	732	.000
Q1-B1. The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks.	.137	732	.000	.919	732	.000
Q1-C1. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	.175	732	.000	.912	732	.000
Q1-D1. The organization is a very controlled and structured place. Formal procedures generally govern what people do.	.180	732	.000	.921	732	.000
Q2-A2. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.	.188	732	.000	.910	732	.000
Q2-B2. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.	.157	732	.000	.899	732	.000
Q2-C2. The leadership in the organization is generally considered to exemplify a nonsense, aggressive, results oriented focus.	.206	732	.000	.896	732	.000
Q2-D2. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth running efficiency.	.175	732	.000	.905	732	.000
Q3-A3. The management style in the organization is characterized by teamwork, consensus, and participation.	.170	732	.000	.945	732	.000
Q3-B3. The management style in the organization is characterized by individual risk taking, innovation, freedom, and uniqueness.	.156	732	.000	.891	732	.000
Q3-C3. The management style in the organization is characterized by hard driving competitiveness, high demands, and achievement.	.172	732	.000	.909	732	.000
Q3-D3. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.	.185	732	.000	.869	732	.000

Q4-A4. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.	.167	732	.000	.904	732	.000
Q4-B4. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	.134	732	.000	.943	732	.000
Q4-C4. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	.166	732	.000	.912	732	.000
Q4-D4. The glue that holds the organization together is formal rules and policies. Maintaining a smooth running organization is important.	.151	732	.000	.921	732	.000
Q5-A5. The organization emphasizes human development, high trust, openness, and participation persist.	.174	732	.000	.952	732	.000
Q5-B5. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	.174	732	.000	.868	732	.000
Q5-C5. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	.168	732	.000	.915	732	.000
Q5-D5. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.	.195	732	.000	.899	732	.000
Q6-A6. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.	.184	732	.000	.913	732	.000
Q6-B6. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.	.146	732	.000	.898	732	.000
Q6-C6. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	.160	732	.000	.918	732	.000
Q6-D6. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low cost production are critical.	.183	732	.000	.889	732	.000

Q7. Employees in my organisation are involved in the decision making process for implementing new electronic systems.	.205	732	.000	.901	732	.000
Q8. Top management in my organisation is driving the implementation of digital government and their aim to make all the services of the organisation available online.	.296	732	.000	.840	732	.000
Q9. I believe that the main reason for slow integration process in the digital government between my organisation and other public sector organisations is due to managerial reasons and not others.	.227	732	.000	.874	732	.000
Q10. In general, I think the internal environment of this organisation is positively supported the implementation of digital government.	.307	732	.000	.848	732	.000
Q11. I am in accepting the implementation of digital government in my organisation.	.427	732	.000	.578	732	.000
Q12. The organisation provides different technical training courses for all employees before or after implementing any new system.	.254	732	.000	.889	732	.000
Q13. I think the skills and experiences acquired from the training provided by the organisation are appropriate and useful for me to use the electronic government systems.	.235	732	.000	.898	732	.000
Q14. The IT department act on regular evaluation of new implemented system.	.205	732	.000	.909	732	.000
Q15. I am aware of the digital government implementation and its plans in my organisation.	.202	732	.000	.905	732	.000
Q16. The policies of the organisation are regularly updated according to the changes of the electronic government system implementations.	.195	732	.000	.903	732	.000
Q17. Digital government systems enable me to finish most of my work directly without the need to get approval from upper level management.	.216	732	.000	.906	732	.000
Q18.A. Employee awareness	.149	732	.000	.910	732	.000
Q18.B. Management support	.206	732	.000	.857	732	.000
Q18.C. Sufficient financial and human resources	.156	732	.000	.897	732	.000
Q18.D. Employee involvement	.142	732	.000	.941	732	.000
Q18.E. Security and trust	.119	732	.000	.950	732	.000
Q18.F. Evaluation	.214	732	.000	.841	732	.000
Q18.G. Employees training	.124	732	.000	.946	732	.000
Q18.H. Integration	.168	732	.000	.918	732	.000

Q.19. The level of implementation of the digital government	.051	732	.000	.982	732	.000

a. Lilliefors Significance Correction

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