



Examining the Antecedents of Public Value in E-Government Services

A thesis submitted for the degree of Doctor of Philosophy

by

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Abstract

Over the last two decades, public sector organisations in the UK have invested heavily on electronic government (E-Government) projects to transform the services offered to citizens. E-government is seen as an enabler that helps public services to become more efficient, transparent, cost effective and accountable. In this respect the implementation of e-government projects have been influenced by private sector thinking borrowed from New Public Management (NPM) principles. However, the evaluation of e-government under the influence of NPM has been primarily focused on economic and technical outputs whereas its value to citizens has been largely ignored. Furthermore, research shows that many e-government projects have failed to deliver the desired outcomes when influenced by NPM principles. Recent studies have emerged that highlights the significance of public value to understand the broader outcomes of e-government services. The aim of this study is to explore the concept of public value and identify the antecedents that affect value and the consequences of value on e-government. To do so, this study develops a conceptual model grounded on Public Value Theory, DeLone and McLean IS Success Model and Means End Chain Theory combining the disciplines of Public Administration, Information Systems and Marketing. The conceptual model was validated through Structural Equation Modelling (SEM) based on online surveys of 705 users of e-government services in the UK. The findings have highlighted significant theoretical and practical implications for researchers and policy makers. This research highlights that the key dimensions (services, outcome and trust) of public value theory cannot be validated on their own as they are far too abstract in current literature. Therefore, this study verifies that public value can only be validated by drawing from the multiple fields of Public Administration, Information System and Marketing. From a practical perspective, the study offers policy makers a frame of reference to understand the influence of value on the adoption and re-use of e-government services.

Key words: E-government, Re-use Intention, Public Sector, New Public Management, Public Value Theory

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Declarations

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7. Osmani, M., Weerakkody, V. and El-Haddadeh, R. (2012) Developing a Conceptual Framework for Evaluating Public Sector Transformation in the Digital Era. *Electronic Government and Electronic Participation: Joint Proceedings of Ongoing Research and Projects of IFIP EGOV and IFIP ePart 2012*, Volume 30, pp. 31-42.

Chapter 1: Introduction

1 Introduction

1.1 Research Background

Over the last five decades there have been several major efforts to transform the organisation and management of central government in the UK (Metcalf and Richards, 1992; Christensen and Lagreid, 2007; Barberis, 1995). The management of public sector has been the centre of reforming attention for many years in the UK (Greer, 1994). Through these reforms successive UK governments have aimed for a reduction of waste and bureaucracy and improved efficiency and transparency (Theakston, 1995). In addition, successive governments have favoured a more 'business like' approach and emphasised on the three core principles of efficiency, effectiveness and economy (Thomson, 1992). During the mid and late 1980s the UK government had considerable interest in the potential of computer based systems for delivering the three Es (Willocks, 1989). Dunleavy *et al.* (2005) also argued that during 1980's the UK government used Information technology tools as a main vehicle to transform government organisations. Information technology was used to shift public organisations from a traditional hierarchical bureaucracy to a more dynamic customer focussed network that provided better public services. Computers were used to improve accuracy and response times, and reduce government costs (CITU, 1996). Common examples include the use of bar coded benefit order books in the Benefit Agency which resulted in a saving of £50 million; the unemployment benefit system (NUBS2) in the department of social security which saved an estimated 8 million pieces of paper and removed the need for 1.5 million phone calls; and the MEDICS system at the department of vehicles and licencing agency (DVLA) which helped reduce paperwork and administrative tasks through the use of electronic medical information to assess drivers' medical history that may affect their ability to drive (CITU, 1996). Furthermore, in the 1980's the UK government launched Europe's biggest information technology project in the department of social security (Willocks, 1989). The project involved the installation of 35000 computer terminals in all social security departments where 18 million benefit enquiries a year were handled (Theakston, 1995). There is also evidence from the 1980's that major public sector computerisation projects had failed due to weakness in project management, staffing

and design. An example would be the failure of major projects in Inland Revenue that lead to a loss of 16.5m (Willocks, 1989). Despite these major implementation challenges, 1980's witnessed most of the UK government agencies implementing information technology project to improve their administrative processes.

However, during the 1990's there has been a move from administrative process to citizen centric services and a new era started whereby services were delivered electronically direct to the public (CITU, 1996). In 1994, the UK public services moved towards radical change when the Cabinet Office announced that all central government and agency websites would be routed through open.gov.uk portal (Cabinet Office, 2010). Subsequently, in 1996, The UK government launched a Green Paper 'Government Direct' which provided a strategy to deliver central government services electronically and directly to the public (CITU,1996). In 1998, this vision was further articulated in a Cabinet Office discussion paper "our information age: The government vision". Thereafter, in 1999 the 'Modernising Government' White paper provided a detailed plan of making 100% of services available electronically by 2008 (Cabinet Office, 1999). The following year, a new strategy (The e-government: A Strategic framework for public services in the information age) changed these plans and set a new commitment of making 100% of all key government services available electronically by 2005 (Cabinet Office, April 2000).

The 2000 e-government strategy was completed in 2005 and the majority of websites at local and central government departments were launched. Soon after, under the banner of 'Transformational Government Enabled by Technology' strategy central government departments were asked to review their websites and develop plans for their migration of content to the Directgov website for citizens and the Business link website for businesses (Cabinet Office, 2006). The UK government later declared that departments have closed more than one website every working day since the start of the project in April 2006. As such, the UK government has invested a significant amount of tax payer's money to develop these websites in the first instance and later decided to abandon them due to strategic misalignment with the transformation government programme. The government then redirected the closed websites to the 'Directgov' portal which delivered a single point of access where different organisations are interconnected enabling citizens to access public services through a single government portal. More recently the 'Digital by default strategy' has criticised

Directgov and Business link portals and replaced them with a new single portal 'Gov.UK'. The Gov.UK portal site provides a single point of access for all 24 ministerial departments and provides government services and information that make it more simple, clear and fast for citizens. The UK government has revealed that Directgov cost £21.4 million which was five times more than the current gov.uk portal, which cost approximately £4.6 million (Cabinet Office, 2012).

The ICT alterations that occurred in the late 1980's had very limited transformative impact, yet the current period with the rapid developments in the Internet had great implications on public services. During the 1990s ICT was used to provide electronic services that published information and enabled citizens to interact and transact with government organisations. During this period, the UK government focused on ways in which to deliver integrated and joined up services built around the citizens' needs. 'Tell Us Once' is an example of a joined up service in which the citizens can inform the government (both central and local) about a birth or death once and the government will make sure that information is passed to any other departments that need to know (Cabinet Office, 2008). Such initiatives clearly show that since the early 1990's the UK government has adapted new technologies to deliver improved public services.

As discussed above, ICT in general and e-government in particular was introduced in the late 1990s as a tool to improve the range and quality of public services offered to citizens and businesses and to make governments more efficient, effective, transparent and accountable (Hanna, 2011; Dunleavy *et al.*, 2005; Weerakkody *et al.*, 2011). Thus, e-government has increasingly become an integral part of transformation efforts in the UK public sector. To realise further benefits from e-government, the UK government launched several e-government strategies: e-government strategic framework (Cabinet Office, April 2000), Transformational government strategy (Cabinet Office, 2006), Government ICT Strategy: Smarter, cheaper, greener (Cabinet Office, 2010), Government ICT Strategy (Cabinet Office, 2011) and Government Digital strategy (Cabinet Office, 2012). It is evident that all e-government strategies have emphasized on the creation of online services for citizens. Furthermore, it can be argued that since the first e-government strategy in 2000, the UK government has spent billions of pounds to put their services online, however, the level of take up of

these services have not met expectations (Carter and Weerakkody 2008; Cabinet Office, 2012).

Bennett (2009) examined the e-government strategies in the UK and claimed that a large number of services are available online, however many citizens are not aware of these services and the number of citizens using e-government has not met government expectations. According to the Cabinet Office, Digital Landscape Survey (2012), 77% of adults in the UK use the internet daily; however, many of these users have never had any online interaction with government. Furthermore, the Oxford Internet Institute (2011) carried out a survey from 2005 to 2011 and indicated that the numbers of e-government users have steadily increased from 39% to 57%, however there was little or no change since 2007. Such evidence suggests that the UK government should continuously assess its e-government strategy and find ways to improve its online services to further increase the level of take up and re-use. Furthermore, in the normative literature, many authors have identified the poor take up of e-government services as major challenge for government organisations in terms of adoption and diffusion (Al-Shafi and Weerakkody, 2010; Carter and Bélanger, 2005; Bélanger and Carter, 2008).

Over the years, numerous theories and models have been used to examine the factors that influence the level of adoption and re-use of e-government services. These theories include technology acceptance model (TAM) (Hu *et al.*, 2011; Carter and Bélanger, 2005); Theory of planned Behaviour (TPB) (Lu *et al.*, 2010); Unified theory of Acceptance and use of technology (UTAUT) (Venkatesh *et al.*, 2003; Carter *et al.*, 2011; Gupta *et al.*, 2008) and Diffusion of Innovations Theory (DOI) (Rogers, 1995; Carter and Bélanger, 2005; Hussein *et al.*, 2011). However, these studies have focused on using technology acceptance models that were derived from organisational context where the users have different motivations and purpose for using technology or a service. The user of e-government services are citizens who have different needs and motivations for using public services and their expectations are different to users (or employers) in an organisational context. Therefore, to look beyond the narrow focus on economic and technical outputs as borrowed from private organisational contexts, governments should underpin their e-government strategy through the concept of public value (Kelly *et al.*, 2002, Moore, 1995). Public value management (PVM) has been proposed as lens to tackle some of the challenges posed by New

Public Management (NPM) principles when applied to a public sector context (Cordella and Bonina, 2012; Bonina and Cordella, 2008; Kelly *et al.*, 2002). In particular, PVM has been promoted in recent years in the UK as a result of the 1990's public sector reforms being heavily influenced by NPM principles. However, as outlined above, such initiatives have not met the desired outcomes in terms of delivering value added services to citizens. Some have attributed this directly to e-government projects following NPM principles without understanding the public value of the services offered (Moore, 1995; Cordella and Bonina, 2012). Furthermore, many researchers have argued that e-government projects have failed to deliver the desired outcomes under NPM initiative due to NPMs focus on private sector principles (Cordella and Bonina, 2012; Kelly *et al.*, 2002; Grimsley and Meehan, 2006).

The pattern that has emerged in e-government led service transformation suggests that the UK government has underpinned their transformation on the principles of NPM and focused on creating value by copying managerial, organisational and financial practices used by private sector businesses (Kelly *et al.*, 2002). However, businesses generally use a set of techniques to measure and manage value based on the concept of cost efficiency and ignoring other outcomes that are hard to measure in quantitative terms (Moore, 1995). In this respect, Moore (1995) proposed Public Value Theory as an alternative to NPM that looks beyond efficiency. Public Value Theory argues that the e-government reforms under the influence of NPM solely focus on private sector indicators of efficiency, effectiveness and economy (Moore, 1995). However, NPM neglects the fact that private sector strategies differ from public sector strategies as the latter are driven by the prime goal of creating public value, while the former are focused on creating private value (Moore, 1995; Cordella and Bonina, 2012). Therefore, e-government services should focus on the public value paradigm as an alternative to NPM (Grimsley and Meehan, 2006). Since its emergence, public value theory has grown in interest among both academics and practitioners. Many researches have investigated public value theory in reference to e-government services (Kearn, 2004; Codagnone & Boccadelli, 2006; Golubeva, 2007; Grimsley and Meehan, 2007; Cordella and Bonina, 2012). However, these studies have limitations in terms of measuring public value of individual users of e-government services. They also acknowledge and highlight the need to further study public value

from a citizen's perspective within the e-government domain. There are also calls for further investigation of public value and its influence on e-government services (Cordella and Bonina, 2012; Williams and Shearer, 2011). Given this context, this study will specifically focus on the following two research questions.

What are the antecedents of value in e-government services?

What are the consequences of value in e-government services?

With this premise, the following aim and objectives are introduced for this research.

1.2 Aim and Objectives

The aim of this research is to investigate the concept of public value and its influence on citizens' intention to re-use e-government services within the UK.

This study will follow the following five objectives in order to achieve its aim.

Objective 1: Conduct a comprehensive literature review on Public management paradigms and public value theory.

Objective 2: Interpret the research need and propose a conceptual model and set of hypotheses that defines the influence of the public value of e-government.

Objective 3: Using the public value conceptual model, conduct a quantitative based empirical enquiry in the UK to evaluate the public value of e-government.

Objective 4: Analyse the empirical data and validate the proposed research hypotheses and model

Objective 5: Offer practical and theoretical implications of the key findings and provide recommendations for future research.

1.3 Research Methodology

This study is investigating the antecedents of public value and its consequence on re-use of e-government services. To do so, this study has developed a conceptual model along with eight measurable hypotheses based on previous literature. Therefore, this study selected a positivist approach (Orlikowski and Baroudi, 1991) to conduct the research as the primary focus of this study is to test the proposed public value model in an attempt to increase the understanding of the influence of public value on citizens' re-use intention of e-government services. Thereafter, this research has chosen a quantitative research approach as it follows a deductive approach (Collis and Hussey, 2014), whereby it is empirically testing eight hypotheses to confirm or reject their validity. Furthermore, a quantitative approach would best suit this study as its epistemological orientation is positivist which is primarily attempting to investigate the conceptual model of public value in e-government that has got priori fixed relationships (Saunders *et al.*, 2012). As the research has chosen a quantitative approach to examine the set of eight hypotheses; hence it would require a large amount of quantitative data collection and statistical analysis (Cresswell, 2009). Therefore, a survey was selected as the most appropriate methodology as it is cost effective, fast and easy to collect responses from a large number of participants (Bryman and Bell, 2007; Collis and Hussey, 2014). This study chose a web based questionnaires to collect data as it offered many services for designing the questionnaire that are not available in traditional paper based formats and it also benefited this research in terms of convenience and access to large samples (Gray, 2014). The collected data is analyzed through Structural Equation Modelling (SEM) in AMOS 20 software to validate the hypotheses and the performance of the proposed conceptual model (Hair *et al.*, 2010).

1.4 Thesis Outline

This thesis is structured in seven chapters and is broken down into four stages: (1) background theory, (2) focal theory, (3) data theory and (4) novel contribution (Phillips and Pugh, 2005). The background theory (chapter 1 and 2) involves the identification of the research domain and the research need based on the evaluation of the literature. Then the second stage is focal theory (chapter 3), which involves the

development of a conceptual model to cover the research need. Thereafter, the third stage is referred to as data theory (chapter 4 and 5), whereby it identifies and justifies the selected research strategy and also highlights the results of the collected data. Finally, the last stage is novel contribution (Chapter 6 and 7), which involves the discussion of the results with justification of previous literature and also presents the conclusion. As explained, the four stages are spread out in seven chapters and are briefly outlined below.

(1) Background Theory

Chapter 1: Introduction

This chapter will outline the research background and identify the research need. It will indicate the research aim and objectives. It will also explain the structure of the thesis by briefly outlining the focus of each chapter.

Chapter 2: Literature review

This chapter will discuss the research need in light of the previous literature. It will initially describe the transformations that took place in the UK's public sector since the 1960's. It will further analyze these transformation based on their underpinning public management paradigms. It will then identify the challenges of these paradigms and the emergence of Public Value Theory. It will also elaborate on the importance of public value to assess e-government services within the public sector. Finally, it will highlight the research limitations and outline the need for conducting this study.

(2) Focal Theory

Chapter 3: Conceptual Model

This chapter will briefly outline the research need for a conceptual model in public value to assess the user's value of e-government services. It will then identify the theories that will underpin this conceptual model and provide justification for the theoretical background. Based on public value theory, IS success Model and Means end chain theory, it will develop a conceptual model for assessing the user's public value of e-government services. It will then outline the research hypotheses with justification of prior research.

(3) Data Theory

Chapter 4: Research Methodology

This chapter will present the methodology to validate the proposed conceptual model. It will highlight different research philosophies, research approaches, research strategies and research design. It will then choose the most relevant method for conducting this study and provide justification for choosing it.

Chapter 5: Results

This chapter will present the results of the surveys to examine the conceptual model. Using SPSS version 20, this chapter will present the results for demographic profile, descriptive statistics and reliability tests. Thereafter, using AMOS version 20, it will conduct Structural equation modelling (SEM) and present the results for confirmatory factor analysis and structural model fit. Finally this chapter will test the proposed hypotheses and present the results.

(4) Novel Contribution

Chapter 6: Discussion

This chapter will examine the proposed conceptual model based on the results and the literature review. It will discuss the result of each hypothesis and provide reflection from previous literature. It will then validate the conceptual model based on the achieved results.

Chapter 7: Conclusion

This chapter will provide a summary for the theses. It will initially revisit the aims and objectives of this thesis and to what extent it has met them. It will present the theoretical and practical contributions of this study. It will then identify the limitations and provide recommendations for future research.

1.5 Summary

This chapter has provided an overview of public sector transformation in the UK during the last five decades. It also highlighted that information communication

technology in general and electronic government (e-government) in particular has been used as a tool to improve the range and quality of public services offered to citizens and businesses and to make governments more efficient, effective, transparent and more accountable (Hanna, 2011). It has further revealed that UK public services have moved radically since the launch of its first online portal open.gov.uk in 1994. It is evident from the discussion in this chapter that the UK government has invested heavily on providing online services for citizens, however the level of take up of these services have not met expectations (Cabinet Office, 2012). This study argues that e-government projects have failed to realise the high level of expectations that the UK government had due to implementation of projects being influenced by New Public Management principles. The evaluation of e-government under the influence of NPM has been primarily focused on economic and technical outputs resulting in a failure to capture the public value of e-government. Therefore, this chapter outlined the importance of public value as alternative for NPM and highlighted the need for developing a conceptual model for public value in e-government. Subsequently, it identified the research aim and objective and research methods for conducting the study. Finally, this chapter outlined the structure of this thesis in seven chapters. The next chapter will provide a detail literature review on public sector transformation, management paradigms, public value theory and its relevance to the e-government domain.

Chapter 2: Literature Review

2 Literature Review

2.1 Introduction

The previous chapter has outlined the research need and the aim and objectives of this study. This chapter will further discuss the research need in light of the previous literature. It will highlight public sector transformation in the UK and the evolution of e-government within this context. Thereafter, it will categorise the transformation that occurred in the last three decades into public management paradigms. Then it will emphasise on the challenges of public management paradigms and highlight the importance of public value in an e-government context. Subsequently, it will highlight the limitations of previous studies that have investigated the public value of e-government. Finally, this chapter will highlight the need for this research and the importance of a conceptual model to assess the user's value of e-government services that will overcome the limitations of previous studies.

The chapter is presented in the following sections: Section 2.2 will describe the public sector transformation in the UK and the rise of e-government. Section 2.3 provides a description of New Public Management paradigm (NPM) and then section 2.4 presents the Post NPM paradigms. Thereafter, section 2.5 will provide a summary of all public management paradigms. Section 2.6 will then provide description of Public Value Theory (PVT). Then section 2.7 will define E-government and section 2.8 will highlight the previous literature that examined public value in e-government. Finally section 2.9 will provide a summary of the chapter and identify the research need.

2.2 Public Sector Transformation in the UK

The UK Government had a huge emphasis on transforming the management and service delivery capabilities of public administrations. In the past five decades, the UK government transformation agenda was based on structural reforms, efficiency, control, coordination, performance management and managerial leadership (Christensen and Lagreid, 2007). The early waves of transformation were introduced in the UK public sector in the 1960s, affecting its organisation, recruitment and training (Theakston, 1995). During this era Government Departments started using

new techniques of expenditure planning, policy analysis and management. During this period a number of government departments were created, merged and abolished and the government made some structural changes by introducing five new departments including the Ministry of Technology (Theakston, 1995). The UK government emphasised on the role of a meritocracy and the importance of technological revolution which led to the Fulton review of civil service structures and procedures. The Fulton report in 1968 is a notable landmark in the historical development of the British civil service which sought to managerialise Whitehall. The report believed in a 'big government', focused on the need for management expertise at times of rising public expenditure, the expansion of government activities and large departments.

In the late 1970's under the regime of Margaret Thatcher a new era started referred to as 'Thatcherism' which made a clear political commitment to reduce the size of civil services and increase efficiency of government. In line with this objective, the UK government launched an efficiency strategy programme that improved management and efficiency within civil services (Metcalf and Richards, 1992). The major contribution of this unit was the introduction of Management Information Systems for Ministers (MINIS) and Financial Management Initiative (FMI) (Flynn, 2007). MINIS made new sub units within Departments and each were then set tasks and objectives and the cost associated with them (Greer, 1994). The development of MINIS played a major role in bringing the idea of management information system in the culture of British civil services. The FMI concept was to bring fundamental reforms in the management and control of public spending. FMI objectives comprised of setting targets, measuring outputs and performance against those targets, specifying resources and identifying the individuals responsible for those resources (Theakston, 1995). FMI is a system in which middle and junior managers were giving the authority and responsibility and they were made accountable to meet their costs and other performance targets (Gray *et al*, 1991). Accountable management consist of three main elements, top management systems, decentralised budgetary control and performance appraisal. FMI intended to be flexible programme that departments would modify to their own circumstances and needs (Metcalf and Richards, 1992). Overall, FMI has fundamentally changed both the process and culture of civil service.

Since the launch of FMI in 1982, the government was paying too much attention on each departments costs and too little attention paid to results achieved with resources (Barberis, 1995). Therefore, it paved the way for NEXT Steps in 1988 (Theakston, 1995). NEXT Steps argued that the government was too big to be efficient with too much jobs duplication; hence it recommended a separation between core civil services and ministerial policy advisers. Furthermore, it suggested the creation of independent executive agencies employing a large number of officials involved in the service delivery and operational level. By 1998, a total of 138 executive agencies were created and employed 62 percent of all civil servants (Theakston, 1995). Next Steps argued that it will reduce the load of work at ministerial level and allow greater freedom for the heads of the new agencies to manage the department at their set policy framework (Theakston,1995). Moreover, it allowed the head of each agency to control recruitment, grading, organisation and pay of their staff in order to meet their particular targets. The Next Steps programme improved the performance of service delivery, for example the Passport Agency cut the average time of processing an application from three and half week to only one week. Hence government marked Next Steps as clear changed in the nature of civil services.

In 1991, the UK government launched two further Initiatives the Citizen's Charter and market testing. Citizen Charter is defined as 'the most comprehensive programme ever to raise quality, increase choice, secure better value and extend accountability' in the UK public sector (Cabinet Office 1991, p.4). It emphasised on improving the quality of public services and making them more consumer orientated. The basic point was to provide consumers of public services with more information and a greater transparency. The Charter also claimed it could be done by strengthening complaints procedures, use the mechanism of privatisation, contracting out and completion to provide more consumer choice. Moreover, the Citizen's Charter paved the way to Market Testing and its main initiative was 'competing for quality' and mostly focused on outcomes and outputs rather than inputs (Oughton, 1994). To achieve this initiative, the Government developed the 'prior option framework' to examine areas of work in each department. A number of questions were asked about various activities which are carried out, whether they needed to be done at all and, if so, how and by whom services would be delivered. By asking these questions, the government directed some functions to private contractors and abolished a few

executive agencies from public sector. Between April 1992 and October 1994, government market test over £2bn worth of activities and claimed an annual savings of over £400m, and a reduction of nearly 27,000 posts (Next Steps Briefing Note April 1995, p.15).

2.2.1 The Evolution of E-government

By the 1980's the UK government were seeing and using ICT as a vehicle to transform public organisations across government (Dunleavy *et al.* 2005). ICT was used to shift the public organisations from traditional hierarchical bureaucracy to a more dynamic customer focussed networks that provided better public services. A good example of an information technology project in the 1980s is the installation of 35000 computer terminals in all social security departments where 18 million benefit enquiries a year were handled (Theakston, 1995). During the 1990s the pace of using ICT in public sector accelerated reaching a seminal point in 1996 when the UK government launched a Green Paper entitled 'Government.Direct' (CITU,1996). This green paper provided a strategy to deliver central government services electronically and directly to the public. The main focus of the Government.Direct strategy was to deliver efficient services to businesses and citizens, making the government administration more efficient and open and finally secure huge cost savings for the taxpayer.

In the late 1990's another major set of transformations was launched under the title of 'Modernising Government Initiative' by the newly elected government in the UK (Bovaird and Russell, 2007). This reform intended to be a key element in the UK reform of the public sector and meant to bring a 'step change' in the functioning of civil service rather than a continuous improvement (Bovaird and Russell, 2007). The main objective of this reform was to focus on the following six themes: i) Stronger leadership with a clear sense of purpose, ii) better business planning, iii) sharper performance management, iv) dramatic improvement in diversity, v) more open service to bring in and bring on talent, and vi) deliver better employment arrangements for staff. One of the five key commitments of the Modernising government initiative was to use new technology to meet the needs of citizens and businesses and proposals for the development of a cohesive ICT strategy for

government. Therefore, the government developed a number of ICT strategies to improve public services labelled as e-government strategic framework (Cabinet Office, April 2000), Transformational government strategy (Cabinet Office, 2006), Government ICT Strategy: Smarter, cheaper, greener (Cabinet Office, 2010), Government ICT Strategy (Cabinet Office, 2011) and Government Digital strategy (Cabinet Office, 2012).

2.2.1.1 e-government strategic framework

Moving into the new millennium, e-government was seen as a strategic priority for the UK government and other governments across the globe. The UK e-government strategy based on the report and concepts outlined therein, 'E-government: A Strategic framework for public services in the information age', was based on four main principles of building services around citizen's choices, making services more accessible, providing more inclusive services and managing information in a better way. Moreover, the e-government strategy set a target that by 2005 all key government services should be accessible electronically and was later declared that it was not successfully achieved (Weerakkody and Dhillon, 2008; Irani *et al.*, 2007). This target was set for the whole of the public sector in England, including central government departments and agencies, local government, the NHS and NDPS's. This strategy suggested that public sector should provide electronic service delivery to citizens through their websites that provide information, allow interaction and transaction. In addition, the main focus of e-government strategy was to provide accessible services through portal services and enable interoperability across public sector through government gateway and government secure intranet (GSI) (Cabinet Office, 2000).

2.2.1.2 Transformational government strategy

With the e-government strategy set to be completed in 2005, the UK central government announced a new Transformational Government strategy enabled by Technology that aimed to transform government services. The main focus of the transformational government strategy was to ensure that organisational processes and back office operations in public agencies were reengineered and aligned with front end e-government services (Weerakkody and Dhillon, 2008; Irani *et al.*, 2007).

Whereas, the objective of e-government strategy was on quantitative measure in term of being 100% online, the transformational government strategy stressed more on quality of the services. The *Transformational government strategy* highlighted the need for the government to keep pace with the remarkable technological changes that were occurring at the time and learning innovative ways of using new technologies to transform public services (Cabinet Office, 2006). The vision of this strategy was to require three key transformations; services must be designed around the citizens or businesses, government must move to share services culture and IT enabled change should be delivered professionally in term of planning, delivery, management, skills and governance (Weerakkody and Dhillon, 2008). The transformational government strategy emphasised on designing the services around the citizens and businesses needs through engaging with them. Furthermore, it proposed the idea of shared services that would make the public service organisation more efficient through the creation of a common infrastructure and data sharing (Cabinet Office, 2007, 2008). The government vision was to join-up front and back office services to enable further sharing of resources in government corporate services (human resources, finance, IT and procurement etc.,). By 2008/09, the Department of Work and Pension (DWP) shared services and were able to deliver a huge saving of 100 million (Cabinet Office, 2008). In 2010, over 80% of civil servants shared Finance, HR and Procurement services and made huge savings (Cabinet Office, 2010). The transformational government reports in 2006, 2007 and 2008 have highlighted a number of successful cases of using ICT to transform public services in the UK.

2.2.1.3 Government ICT Strategy: Smarter, cheaper, greener

The first decade of the new millennium saw the UK government spend around £16 billion on ICT projects and this trend had to be reduced due to the global economic downturn of 2008/09. Therefore, in 2010 the Government ICT Strategy: Smarter, cheaper, greener was launched which offered a commitment to savings of £3.2 billion per year. The strategy suggested these savings through focusing on a common infrastructure, common standards and common capabilities. The key enabler of this strategy was the proposal of creating a Government Cloud (G-Cloud) infrastructure, where different public bodies can share their services and choose the right supplier

from the available multiple suppliers on the Cloud. The policy paper highlights that “the Government Cloud infrastructure will provide a secure and resilient shared environment through which public sector bodies can resource ICT services at greater speed and lower cost” (Cabinet office, 2010). G-Cloud will further develop the key commitment of shared services in the transformational government strategy.

2.2.1.4 Government ICT Strategy

In 2011, the new elected UK government argued that big ICT projects in public sector have got significant failings. To overcome this challenge government ICT strategy was introduced that focused attention in four areas; reducing waste and project failure, creating a common ICT infrastructure, using ICT to enable and deliver change and strengthening governance (Cabinet Office, 2011). Furthermore, on 27 October 2011, the government published four sub strategies of Government ICT strategy covering G-Cloud, End User Devices, ICT Capability and Greening Government: ICT. These strategies stressed on different digital approaches of transforming public services in a very cost effective way. The common term between Government ICT Strategy (2010) and (2011) was the move toward a G-Cloud infrastructure to make the government more integrated and more efficient. Furthermore, the Government ICT Strategy (2011) suggested to increase citizens involvement with the government through digital channels such as social media.

2.2.1.5 Government Digital strategy

More recently in November 2012, the Government Digital strategy was launched and is mainly about the services provided by the central government departments and associated agencies; however, it does not focus on local government services. It stresses on all public bodies working together in order to be digital by default. The main emphasis of digital by default strategy is about transactional services such as applications, tax, licensing and payments. It also stresses on the use of social media by the policy teams to engage and consult with the public. Furthermore, it supported the use of G-Cloud as stated in the Government ICT Strategy, as it would offer leaner and lightweight tendering processes (Cabinet Office, 2012).

2.2.1.6 Challenges of e-government implementation and adoption

A review of the literature that has been published during the last two decades suggests that e-government implementation across the globe has faced numerous challenges. Bennett (2009) studied the progress of e-government strategies from 1999 to 2007 and highlighted that many citizens are not aware of online services and the numbers of citizens using services have not met government expectations. The most commonly cited e-government challenges include: awareness (Bennett, 2009), security (Sahraoui *et al.*, 2006), accessibility (Sahraoui *et al.*, 2006), trust (Carter and Bélanger, 2005), privacy (Al-Khoury and Bal, 2007), digital divide (Weerakkody *et al.*, 2012) and understanding the citizens' needs. Dugdale *et al.* (2005) has argued that one of the leading challenges to the success of e-government is the lack of participation in the information society by those groups of population who are the biggest users of government services such as unemployed and socially disadvantaged citizens. Many other studies have identified trust as a major factor that influences adoption and re-use of e-government services (Al-Shafi and Weerakkody, 2010; Carter and Bélanger, 2005; Bélanger and Carter, 2008).

It is also evident that all e-government strategies have emphasized on the creation of online services for citizens. Overall, it can be argued that since the first e-government strategy in 2000, the UK government has spent billions of pounds to put their services online, however, the level of take up of these services have not met expectations (Carter and Weerakkody, 2008). According to the Cabinet Office, Digital Landscape Survey (2012), 82% of the UK population is currently online and the remaining 18% is offline. The same survey highlighted that 77% of adults in the UK use the internet daily; however, many of these users have never had any online interaction with government. Furthermore, an Oxford Internet Institute (2011) carried out a survey from 2005 to 2011 and indicated that the numbers of e-government users have steadily increased from 39% to 57%, however there was little or no change since 2007. On the other hand, the same survey suggested a steady increase of online shoppers for private services from 74 to 86%. Therefore, there is a perfect opportunity for the government to increase the number of e-government users by providing high quality services as provided by the private sector.

2.3 The Role of New Public Management in the UK Public Sector

As discussed above, there have been several major public sector transformation efforts in the UK since the early 1980's (Hood, 1991). The changes attempted through these various initiatives were different in their intentions, contents, methods, speed of implementation and degree of success (Bovaird and Russell, 2007). The first attempt to find a pattern in the UK Public Sector reform movements was Lewis Gunn (1987). He labelled the new approach as 'Public Management' and argued that it was characterised by, 'a merger of the normative orientation of traditional public administration and the instrumental orientation of general Management'. Hood (1991, 1995) further investigated this pattern and called it 'New Public Management' (NPM). NPM is explained as a way of reorganising public sector bodies to bring their management, reporting, and accounting approaches closer to business methods (Pollitt 1993, Greer 1994, Dunleavy and Hood, 1994). It is an influential set of management techniques drawing on private sector performance criteria and practices (Lapsley, 2009). NPM was not a normative model or a template for change, it was rather seen as a reflection of what had been happening in the 1980s in the UK (Lapsley, 2009). The answer to the question of when NPM began is still unknown, although Hood (1991) identifies it as a product of 1980s change movement. NPM was a move from traditional or Progressive Public Administration (PPA) and this shift involves two basic designs of 'down grid' and 'down group' in public sector departments (Douglas, 1982). Down Grid refers to reducing the extent to which discretionary power is limited by uniform and general rules. Whereas Down group refers to make the public sector less distinctive as a unit from the private sector. Progressive Public Administration (PPA) was built on the idea of a highly distinct group and grid (Hood, 1991).

Hood (1991) stated that NPM was born due to four other administrative megatrends. The first trend was the government's attempt to slow down or reverse growth in terms of over spending and staffing in the Public sector. Second trend was the shift toward privatisation, and quasi-privatisation and away from core government institutions. Third trend was the development of information technology in the production and distribution of public service. Fourth trend was the development of more international

agendas. Furthermore, Hood (1991) argued that NPM doctrines were a mixture of two different streams of ideas. One was the new institutional economics (Niskanen's, 1971), which generated a set of administrative reform doctrines built on the ideas of contestability, user choice, transparency and close concentration on incentive structures. The other was the movement of business type managerialism (Pollitt, 1993) in the public sector, which helped to generate set of administrative reforms based on the idea of professional management. Hood (1991, 1995) identified seven doctrines of NPM focused on: i) visible hands on top-management in the public sector; ii) explicit standards and measures of performance; iii) greater emphasis on output control; iv) disaggregation of units in the public sector; v) more competition in public sector; vi) stress on private sector style of management practice; and vii) stress on greater discipline and frugality in resource use. These principles emulate private sector practices and were often criticised by scholars (Pollitt & Bouckaert, 2004; Stoker, 2005; Osborne, 2006)

The concept of NPM was widely adopted in the UK and internationally since its emergence (Pollitt and Bouckaert, 2004). It has been widely deployed by Governments seeking to modernise and transform their public sector organisations (Bovaird and Löffler, 2003). Recently, it became evident in the Public Management literature that NPM was a failure as it did not achieve its promised results of efficiency, accountability and equity (Stoker 2006). However, Lapsley (2009) stated in his paper that NPM is not a failure and it is still working in some European and developing countries. Pollitt (1993) also argued that the value structure of NPM is unknown, it is paying more attention on economy and efficiency and very less on the quality and consumer responsiveness. Dunleavy *et al.* (2005) mentioned that NPM is dead and it is time for digital governance. Due to the disappointing results of government reforms based on the principles of NPM, many studies presented post NPM paradigms (Dunleavy *et al.*, 2005; Osborne, 2006; Stoker, 2006). These are discussed in the following section.

2.4 Post NPM Paradigms

After two decades of dominance by NPM in the public sector, it became evident that there was increasing dissatisfaction with its limited focus on outdated private sector

business models (Lapsley, 2009). A Study by Dunleavy *et al.* (2005) argued that the torch of leading edge change has passed from NPM and will not return. The study looked at NPM from three different themes, Disaggregation, competition and incentivisation (Pollitt, 2003). Furthermore, the study declared the NPM themes have been reversed and it led to policy disasters in many countries. Therefore, an alternative to NPM was posed under the banner of Digital-Era Governance (DEG) by Dunleavy *et al.* (2005). Osborne (2006) criticised NPM for its intra-governmental focus in an increasingly plural and pluralist world and for its dependability to the application of outdated private sector techniques to public sector. Moreover, NPM emphasised more on service inputs and outputs rather than the service processes and outcomes (Thatcher, 1995). Osborne (2006) argued that there is a need to move towards a more holistic theory of public administration management. He believed that NPM was a transitory stage in the evolution from traditional public administration to a new paradigm called New Public Governance (NPG). Stoker (2006) argued that NPM seeks to confine politics to the role of initial input into the system of management and final judge, while politics should be seen as the process that breathes life into the whole process (Moore, 1995; Smith, 2003). Furthermore, politics can play a major role through encouraging participation of citizens in meeting of all these three challenges of efficiency, accountability and equity (Bovaird and Löffler, 2003). Furthermore, the paradigms of Traditional Public Administration (TPA) and New Public Management (NPM) do not support the idea of networked governance. Stoker (2005) believes that governments started steering in new ways through the development of complex networks and the rise of more bottom-up approaches to decision making. As a result of this transformation, the politicians as well as public sector managers should imply different ways of working in order to add public value in the services delivered. Therefore, they need a vision for a new paradigm in which to put their new practices. Stoker (2006) came up with a solution by creating a new paradigm labelled as Public Value Management (PVM). Given this context, overall, it is evident from the literature that a number of post NPM paradigms have emerged. As indicated above these paradigms are known as Digital era governance (Dunleavy *et al.*, 2005), New Public Governance (Osborne, 2006) and Public Value Management (Stoker, 2006). These concepts have been introduced by various scholars because of the complexity of PS transformation in the digital era. In particular, NPM has limitations in conceptualising digital era transformation due to the complexity of the

service landscape that is hugely influenced by the Internet and associated array of innovative ICTs as well as the pressure to deliver value and new networked governance mechanisms that can facilitate the needs of a variety of stakeholders with different needs.

2.4.1 Digital-Era Governance (DEG)

DEG highlights that ICT plays a central role in changing the way public sector organisations run their business processes and the way of delivering services to citizens and customers (Margett, 1998). DEG is not solely about digital changes; however, it also focuses on governance (Ferlie and Andresani, 2006). Dunleavy *et al.* (2005) argued that DEG will impact governance under three main themes: Reintegration, Need-based Holism and Digitization changes. Joined up governance (JUG) is the main component of reintegration in the UK (Pollitt, 2003), for example the integration of the Inland Revenue and HM customs and Excise into single UK national tax agency (Dunleavy *et al.*, 2005). Need-Based Holism is considered to steer more towards a citizen, service and needs based public organisations (Pollitt & Bouckaert, 2011). Digitization changes is linked with the impact of internet, social media, e-mail and other online services on public agencies and it is often known as e-government in the literature (West, 2005).

2.4.2 New Public Governance (NPG)

NPG claimed that the nature of state is plural (multiple inter-dependent actors contribute to the delivery of public service) and pluralist (multiple processes inform the policy making system). As a result of plural and pluralist nature of state public organisation should stress more on inter-organisational relationship. In addition, public organisation should focus more on service processes and outcomes rather than the service inputs and outputs (Osborne, 2006). Finally, NPG emphasised more on the design and evaluation of a stable inter-organisational relationships, where trust or relational contracts act as a core governance mechanisms (Bovaird, 2006).

2.4.3 Public Value Management (PVM)

PVM is a framework based on the practices of networked governance and its core objective is to achieve public value (Moore, 2005). In contrast to NPM, it does not confine politics but rather see it as central to the management challenge (Smith 2003). PVM declares the service delivery can create public value if there is an engagement and an exchange between the stakeholders and government officials (Stoker, 2006). It relies on legitimacy of a wide range of stakeholders and the main challenge for politicians are to find ways of engaging people on their own terms, for example ICT can play a major role by making citizens participation more flexible and easy (Dunleavy *et al.*, 2005). PVM also focuses on a good long run relationship between clients and contractors rather than focusing on any contract narrowly (Aldridge and Stoker, 2002). Furthermore, it is argued that politicians should imply an adoptable and learning based approach to the service delivery (Moore, 2005).

2.5 Summary of Public Management Paradigms

The notion of public value as a paradigm has risen within the current debate about what direction public sector transformation is heading after the prominence of new public management (NPM). The most known one in the literature is made by Stoker (2006) who argued that Public Value Management (PVM) is a new paradigm attempting to balance democracy and efficiency. The PVM paradigm is drawn from Moore's (1995) Public Value framework. Moore (1995) argued that managers should seek to maximize the degree of alignment among these three elements. For example, if a more valuable purpose is not achievable with the currently available operational capabilities, then the manager has to tailor the purpose accordingly (Alford and O'Flynn, 2009). Therefore, Moore urged that public managers have a key role to play in creating public value by knowing what the public values are and by creating an environment that values public programs. However, Rhodes and Wanna (2007) criticised Moore's Public value framework and suggested that his theory gives far too much responsibility to managers and demands insufficient accountability from them. Stoker (2006) supported many of Moore's Hypotheses and extended his work by creating the PVM paradigm arguing that a new context of networked governance emerged in the mid-2000s and that PVM is more suited to comprehend network

governance. The main argument is that public value is not only created by the public sector but can be generated by the private sector, the voluntary sector and the government. So the PVM paradigm focuses on a system that involves many stakeholders to make good decisions and to effectively manage delivery and implementation (Stoker, 2006; Moore, 1995). Managers should then adjust the system on a continuous basis to add value in public services. In short, PVM as part of wider networked governance argues that legitimate democracy and effective management are partners, and politics and management go hand in hand (Stoker, 2006). PVM promotes that people are motivated by their involvement in networks and partnerships, and their relationship with others are formed in the context of mutual respect and shared learning.

As opposed to PVM, Digital-era Governance (DEG) highlights the central importance of information and communication technology (ICT) in the public sector management systems and in the methods of interacting with citizens. DEG paradigm argues that the current development of public sector organisational and managerial changes revolve around IT changes and alterations in information systems (Dunleavy *et al.*, 2005). Furthermore it sees information systems as linked to wide range of cognitive, behavioural, organisational, political and culture changes. DEG promises a potential transition to more genuinely, integrated, agile, and holistic government, where organisational operations are visible in detail both to the personnel operating in public agencies and to citizens and civil society organisations (Dunleavy *et al.*, 2005).

In contrast to PVM and DEG, the theory of new public governance (NPG) was developed on the concept of public governance (PG). The NPG idea was drawn from the work of Kickert (1993) and Rhodes (1997), who defined public governance as the machinery of self-organising inter-organisational networks that function both with and without government to provide public services. Furthermore, Klijn and Koppenjan (2000) stated that the concept of governance fall into two groups of definitions, firstly it pertains to notions of reducing the state and doing more with less resources by employing NPM techniques, secondly it refers to self-organising networks that take into account the interdependencies of public, private and voluntary actors. In addition to these definitions, Kickert *et al* (1997) believed that PG is not only an internal organisational matter, but a complex activity involving the steering of complex networks in societal policy sectors. Thus, it can be said that public governance focuses

on network management that mediate and coordinate inter-organisational policy making. Peter and Pierre (1998) further added that the dominant feature of the governance model is the argument that networks has come to dominate public policy. Therefore, network management is an independent variable in the development of policy processes. The literature indicates that network management is divided into two main strategies, process management and network constitution (Klijn *et al.*, 1995; Kickcrt *et al.*, 1997). Process management intends to improve the interaction between actors in the policy process. For instance, it is concerned with steering strategies that try to unite the various perceptions of actors. It further believes that actors are mutually dependent and cannot achieve their objectives without resources that are possessed by other actors (Rhodes, 1997). So, process management strategies improve the interaction by means of process and conflict management, while network constitution strategy is focused on realising changes in the network, for example changing the position of actors, changing the rules and reframing the networks (Klijn & Koppenjan, 2000). In short, NPG themes encounter network management strategies to implement the main theory of public governance.

In comparison to PVM, DEG and NPG, NPM was focusing more on private sector business models to increase efficiency, effectiveness and economy growth. NPM themes included such as, breaking up activities into smaller units with freedom to manage and targets for performance, using contractors to deliver rather than providing them directly, creating incentives for good performance, including performance pay, and turning civil servants into managerial executives (Hood, 1991). Post NPM models rejected the idea of disaggregation that led to smaller units and instead the models suggested for a more integrated public service (Dunleavy *et al.*, 2005). However, the themes such as contracting out, performance measurement, public private partnership are supported by the NPG paradigm (Pollitt and Bouckaert, 2011). Critiques argue that some elements of NPM are still in use and encompass in post NPM themes. In table 2.1 this study presents a taxonomy of the four models that have been used in the normative literature to explain public sector transformation in the last three decades and the associated core concepts and themes.

Table 2.1: A Taxonomy of Public Management Paradigms (Source: Osmani et al., 2012)

Models	Concept	Themes	Definitions
Public Value Management	Participation	Public value	Public managers should create value by engaging and exchanging ideas between the different stakeholders and government officials
		Legitimacy of a wide range of stakeholders	Relies on stakeholder's conception of legitimacy in its governance arrangements and the main challenge is to find ways of engaging people on their own terms, for example ICT can play a major role by making citizens participation more flexible and easy
		An open-minded and relationship approach	There should not be a great divide between client and contractors, both should see each other as partners looking to sustain a relationship over the long run and should not be narrowly focused on any contracts.
		Continuous Adjustments	Managers are tasked with steering networks of deliberation and delivery and maintaining the overall vigour of the system on a continuous basis.
Digital era governance	ICT enable efficiency, collaboration and participation	Reintegration,	The key opportunities for exploiting digital-era technology opportunities lie in putting back together many of the elements that NPM separated out into discrete corporate hierarchies, offloading onto citizens and other civil society actors the burden of integrating public services into usable packages.
		Need-based Holism	Need-Based Holism is considered to steer more towards a citizen, service and needs based public organisations
		Digitization changes	Digitization changes is linked with the impact of internet, social media, e-mail and other online services on public agencies
New Public Governance	Collaboration	Plural and Pluralist state	The nature of state is plural (multiple inter-dependent actors contribute to the delivery of public service) and pluralist (multiple processes inform the policy making system)
		Inter-organisational governance	It focuses on inter-organisational theory, where the environment of organisations consists of other organisations. It believes on exchange of recourses within different organisations; as result of this engagement a network of mutually dependent actors emerge.
		Service outcomes	Service outcomes can manifest itself through customer satisfaction and can be assessed by organisational accomplishments relatives to its objectives.
		Ongoing relationships of inter-dependent agents.	It places emphasis on the design and evaluation of maintaining inter-organisational relationships, where trust, relational capital and relational contracts act as the core governance mechanisms.

Table 2.1 (Continuation): A Taxonomy of Public Management Paradigms (Source: Osmani et al., 2012)

Models	Concept	Themes	Definitions
New Public Management	Efficiency	Visible hands on top-management	Accountability requires clear assignment of responsibility not diffusion of power
		Performance measurement	Accountability means clearly stated aims, efficiency needs hard look at goals
		Output control	Need for greater stress on results
		Disaggregation	Make units manageable, and focus blame; split provision and production to create anti-waste lobby
		Competition	Rivalry as the key to lower costs and better standards; contracts as the key to explicating performance standards
		Managerialism	Need to apply proven private sector management tools in the PS
		Discipline and frugality in resource use	Need to cut direct costs, raise labour discipline, do more with less

After discussing all four models (NPM, PVM, DEG, NPG), it is observed that under NPM the government organisations have focused on efficiency to create public value through producing citizen satisfaction and increasing government's legitimacy and trust (Smith, 2011, Grimsley and Meehan, 2007). On the other hand, under the New public governance (NPG) paradigm government organisations are creating public value by working in inter organisational networks and by promoting collaboration rather than competition as is the case with NPM (Fattore and Dubois, 2012). Furthermore, NPG have claimed that to create public value, government organisations should encourage participation between government and society, and between public, private and voluntary sectors. Similarly, Public value management (PVM) argued that to create public value public managers should assess the social and economic outcomes of their service delivery through engaging and exchanging ideas between relevant stakeholders and government officials. Moreover, managers should use new ICT tools to facilitate participation between these different stakeholders in ways that are flexible, easy to use and attractive to use. DEG paradigm further supported the claims of NPM, NPG and PVM paradigms and highlighted the central importance of information and communication technology (ICT) to enable these claims and ultimately achieve public value.

The above post NPM paradigms believe in one common term of network governance (Alford and Hughes, 2008). The new public governance also known as collaborative governance and collaborative public management transcended NPM by viewing public value creation as the end of governance and collaboration (Morse, 2011). Similarly DEG shares with NPG the focus on network governance and illustrated the importance of ICT in facilitating collaborations between these networks. In the same manner, the PVM paradigm argues that in an era of network governance public managers should set the achievement of public value as their core objective (Stoker, 2006). A recent book by Benington and Moore (2011) suggested that NPM has shifted to an era of network community governance; whereas NPM was underpinned by public choice theory and network governance is underpinned by public value theory.

2.6 Public Value Theory

When evaluating public management paradigms in the last three decades, it is observed that NPM aims to improve government's performance by promoting the three Es (efficiency, effectiveness and economy) and by applying management principles of private sector (Fattore and Dubois, 2012). Kelly *et al* (2002) outlined that in 1980s and 1990s governments underpinned their reforms on these principles of NPM and governments created value by mimicking managerial, organisational and financial practices used by private sector businesses. However, businesses use a set of techniques to measure and manage value based on the concept of cost efficiency and ignored other outcomes that are hard to measure in quantitative terms. Furthermore, the concept of public value in private sector is to meet individual customer preferences through price mechanism and downplays other citizens or community members who are not using the service. Therefore, it does not consider the overall service need of different user groups and does not encourage democratic engagement with citizens and different stakeholders. To overcome these challenges, public value is offered as a new normative approach to guide the work of public managers and also enable them to look beyond the achievement of efficiency alone as the key task (Gains and Stoker, 2009). Furthermore, Moore (1995) argued that public sector should not imitate private sector in search for public value, instead public managers should be given the task of defining public value in the context of public sector and should reposition their organisations to create that value. Similarly, Stoker

(2006) argued that governing is not the same as buying and selling goods in a market economy, thus defining public value from private sector experiences may not be appropriate in the public sector. O' Flynn (2007) argued that under NPM, the concept of public values were marginalised in the quest for efficiency and thus, the adoption of public value perspective from public sector context will represent a further paradigmatic change. As such, to look beyond efficiency Moore (1995) proposed public value theory.

The concept of public value theory was first introduced in Moore's book *creating public value: strategic management in government* (1995). Since its emergence in US the public value theory has grown interest among both academics and practitioners. Moore (1995) came up with a public value strategy called 'strategic triangle', which posits that a strategy for a public sector organisation must meet three broad tests. First, it must be aimed at creating something significantly valuable, secondly it must be legitimate and politically sustainable, and thirdly it must be operationally and administratively feasible. In order to implement this strategy successfully, he argued that managers should seek to maximize the degree of alignment among these three elements. For example, if a more valuable purpose is not achievable with the currently available operational capabilities, then the manager has to tailor the purpose accordingly (Alford and O'Flynn, 2009). Therefore, Moore urged that public managers have a key role to play in creating public value by knowing what public value is and by creating an environment that values public programs. However, Rhodes and Wanna (2007) criticised Moore's Public value framework and suggested that his theory gives far too much responsibility to managers and demands insufficient accountability from them.

In the UK the concept of public value theory was first introduced in a Cabinet Office report by Kelly *et al.* (2002). This report further developed public value and used it as an analytical framework for public service reform. Kelly *et al.* (2002) argued public value can be outlined in three broad dimensions; *services*, *outcomes* and *trust* or legitimacy. This Cabinet Office report also suggested that the concept of public value provides a useful way of setting out the ultimate goals of public service reform and government's performance of public policies in achieving them. Furthermore, Stoker (2006) proposed public value management (PVM) as a new public governance paradigm or different narrative of reform based on the public value theory. The study

outlined four new propositions to guide public managers in generating public value. However, the propositions are normative and are not tested empirically in real life. Stoker (2006) suggested that public value management paradigm is most suited in the era of network governance. As well, it will help public managers in meeting the challenges of efficiency, accountability and equity.

Similarly, the literature indicates a number of other writers who examined the shift from new public management to public value (O’Flynn, 2007; Alford and Hughes, 2008). The study by O’Flynn (2007) examined the managerial implications of shifting from new public management to public value paradigm. This paper argued that paradigmatic change will create a number of managerial challenges. O’Flynn (2007) proposed that in order to effectively navigate the complexities that come with paradigmatic changes, it would require a radical redefinition of the role of managers within the public sphere. Similarly, Alford and Hughes (2008) called the next phase of public management as public value pragmatism. This study argued that public value management paradigm (Stoker, 2006) and all the other post NPM models tend toward one best way orientation and tend to be unclear about the level of the public sector to which it applies. Alford and Hughes (2008) suggested that public managers should not use a universally fit model for delivering public value, rather they should use an approach that focuses on what is most appropriate on the particular circumstance.

Benington (2009) further developed Moore’s theory and applications and transposes them into an alternative framework. He argued that public value should include ecological, political, economic, social and culture aspects of value. Furthermore, public value can only be created through participation of a wider network of organisation, actors and cultures. However, government and political leadership are essential to successfully achieve public value. Moreover, Alford and O’Flynn (2009) reviewed public value theory and discussed the developing critiques and the emerging meanings of public value. The critiques were whether public value is empirical theory or normative prescription and the actual meaning of public value is not very clear to understand. Furthermore, the study observed that Moore’s public value framework is further developed as a paradigm (Stoker, 2006), as rhetoric (BBC, 2004; Coats, 2006; Blaug *et al.*, 2006), as narrative (Smith, 2003, Stoker 2006) and finally value as performance (Kelly *et al.*, 2002).

Coats and Passmore (2008) modified the public value strategic triangle in a report for the UK's Work foundation. This report proposed the dynamic of public value into a new triangle consisting of three elements of authorise, create and measure. Coats and Passmore (2008) proposed three main questions to public managers for production of public value; what is this organisation for, to whom are we accountable and how do we know if we have been successful. A recent report in 2010 by Warwick Business School and NHS Institute for innovation and improvement thoroughly observed public value theory literature and found out that there is lack of empirical investigation either of its normative propositions or its value as a framework for understanding public management practices. Furthermore, Morrell (2009) argued that there is no specific definition of the term public value and it offers no theoretical propositions to tests or provide guidance on how to empirically test the term. Moreover, Williams and Shearer (2011) suggested that future research must fill this gap through defining the central concept of public value and identify propositions that could be empirically tested. However, there are a few studies that empirically tested the propositions of public value. Try and Radnor (2007) and Try (2008) used public value theory as an analytical framework to understand executive adoption of result based management within a public sector environment. These studies interviewed top executives within a Canadian federal government based on Kelly *et al.* (2002) framework of services, outcome and trust and found that elements of public value theory does assist in understanding the limited progress in implementing result based management within the public sector.

2.7 The Emergence of E-government and its Impact on the Public Sector

Since the advent of the internet some 40 years ago (Ho, 2002), ICT has played an important role in incrementally changing and shifting traditional and bureaucratic government models into the current digital era model, which is referred to commonly as e-government. E-government is defined as the transformation of internal and external processes of government using ICTs to provide efficient and user-focused services to citizens, businesses and other stakeholders (Evans, 2003). Furthermore,

Weerakkody *et al.* (2011) define the e-government influenced transformation of public sector organisations as the “transformation of government operations, internal and external processes, structures and culture to enable the realisation of citizen-centric services that are transparent, cost effective and efficient” (p321). According to the World Bank (WB), “E-Government” is the use of information technologies by government agencies (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. According to the WB these technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption (Weerakoddy *et al.*, 2009), increased transparency (McIvor *et al.*, 2002), greater convenience (Layne and Lee, 2001), revenue growth (Weerakoddy *et al.*, 2009), and cost reductions (Irani *et al.*, 2008).

E-government involves a wide range of services: Dissemination of information, commerce with the private sector, services to individual citizens and businesses, and participatory democracy (Irani *et al.*, 2005). Brown and Brudney (2001) have defined e-government services into three categories: Government-to-Government (G2G), Government-to-Citizen (G2C) and Government-to-Business (G2B). Moreover, many researchers have proposed various stages of e-government development (Layne and Lee, 2001; Siau and Long, 2005). These stages revolve mainly around four phases: (1) cataloguing, (2) transaction, (3) vertical integration, and (4) horizontal integration or transformational phase (Layne and Lee, 2001). Web presence is referred to creation of a state website that provide government information to citizens, transaction stage is referred to government websites that enable citizens to fulfil government requirements online instead of having to go to a government office to complete paperwork; Vertical integration stage is referred to integrating functions at local and central government levels, finally horizontal integration is referred to integration of different function across government to provide a one stop service for citizens (Layne and Lee, 2001). Furthermore, OECD (2009) has defined e-government service maturity into five stages: information, one-way interaction (downloadable forms), two-way interaction (electronic forms), transaction (full electronic case handling) and personalisation (pro-active, automated). The transformation phase encompasses redefining the delivery of

government services by providing a single point of contact to citizens that makes the government completely transparent to citizens and businesses (Bannister, 2005; Affisco and Soliman, 2006). To realise the aforementioned and to provide citizens with seamless services, public sector organisations will need business processes that can be continuously optimised and expanded outside the organisation and internal systems (Weerakkody *et al.*, 2007; 2011). Therefore, it is arguable that in order for e-government to facilitate the transformation of public sector organisations, they will need to streamline their business processes and integrate ICT systems that have been historically fragmented (Hu *et al.*, 2006; Weerakkody *et al.*, 2007).

There are a number of motivations behind e-government; among these the most prominent are, efficiency and cost reduction, assurance of providing better services to customers, centralisation of government agencies, economic development, reducing corruption, improving transparency of public services, and creating a more participative form of government by encouraging online debating, voting and exchange of information (Davison *et al.* 2005; Al-Khouri and Bal 2007; Gil-García and Pardo 2005; Kim *et al.* 2009; Irani *et al.* 2008; Carter and Belanger 2005; Gupta *et al.* 2008). To enjoy these benefits the UK's government developed a number of e-government strategies to improve public services which were previously discussed. The current Gov.UK portal site provides a single point of access for all 24 ministerial departments and provides government services and information that make it more simple, clear and fast for citizens.

2.8 E-government and Public Value theory: Realising the Public Value of Online Services

E-government is used as tool to improve the delivery of public services as envisaged by NPM through increasing transparency, government accountability and improving coordination of public administration procedures and overall management (Dunleavy *et al.*, 2005; Cordella and Bonina, 2012). Furthermore, Cordella and Bonina (2012) argue that e-government and NPM are deeply linked as both share the same aims and the same reform goals. The NPM techniques and e-government both affect the main characteristic of classic public management paradigm. The interconnection between

NPM components and e-government is explained by potential benefits that e-government can bring to the re-organisation of internal strategies in the public sector (Bonina and Cordella, 2009). A good example of this relationship is the ability of e-government to provide citizens with the appropriate services and reduce the cost of these services as envisaged in initial NPM policies.

The use of e-government inspired by NPM policies have informed the digitalisation of public services, however the NPM led drivers did not take into account the implications that a change in the structure of public administration can have on the quality and value of the provided services (Cordella and Bonina, 2012). Furthermore, the e-government reforms under the influence of NPM solely focus on private sector indicators of efficiency, effectiveness and economy. However, it neglects the fact that private sector strategies differ from public sector strategies as the later are driven by the prime goal of creating public value, while the former are focused on creating private value (Moore, 1995; Cordella and Bonina, 2012). Therefore, e-government services should focus on public value paradigm as an alternative of NPM.

Since its introduction, public value theory has grown interest among both academics and practitioners. A large number of studies have investigated public value theory in reference to e-government services (Kearn, 2004; Codagnone & Boccardelli, 2006; Golubeva, 2007; Grimsley and Meehan, 2006, 2007, and 2008; Seltsikas and O'Keefe, 2010; Liu *et al.*, 2008; Yu, 2008; Mills *et al.*, 2010; Friedland and Gross, 2010; Omar *et al.*, 2011; Karunasena and Deng, 2012a; 2012b; Accenture, 2004; Scott *et al.*, 2009; 2011). Kearns (2004) has evaluated the impact of e-government on creating public value and proposed a public value framework to investigate the value created by e-government services and to improve the decision making process as well as to assess the performance of e-government projects. He has developed an analytical framework based on Kelly *et al.* (2002) public value components (high quality services, outcomes and trust) and defined quality services in terms of the availability of services, the level of satisfaction with services, the level of importance for the services provided, the fairness of service provision and the cost of services. However, Kearns (2004) framework is very broad and generic and it neglects the public value sources of outcomes and trust as defined by Kelly *et al.* (2002).

The European commission proposed a second framework of public value of e-government that encapsulates three value drivers of efficiency, democracy, and effectiveness (Codagnone & Boccardelli, 2006). The eGep framework claimed that high efficiency resulting from online services will generate financial value in terms of producing tangible financial gains, while the democracy value driver would make the policy making process more accountable and would foster the participation and involvement of different stakeholders (citizens, businesses and voluntary sector) thus generating political value. Furthermore, the improved effectiveness generated within government organisations as a result of e-government services should increase the public value delivered to constituencies. However, the eGep framework is bias against e-administration and e-society as it is based on an understanding of e-government users only as taxpayers (efficiency), consumers (effectives) and citizens or voters (democracy) (Heeks, 2008). Furthermore, Golubeva (2007) proposed a public value concept to evaluate the online portal services of Russian regional government and specified three main major sources of public value: public services quality, public policy outcomes and public trust. Furthermore, Golubeva (2007) specified five major indicators: openness, transparency, interactivity, citizen centricity and usability that will have an impact on public value elements. Golubeva (2007) argued that the government portal that delivers a high service quality will result in an increase in public trust and better policy outcomes leading to an increase in public trust. However, these relationships are based on pilot research results and it only emphasises on regional government portals.

Elsewhere, Grimsley and Meehan (2006, 2007, and 2008) applied Kelly *et al.* (2002) public value framework dimensions (services, outcome and trust) and quantitatively validated the framework hypothesis on two live e-Government case studies in UK. Grimsley and Meehan's public value framework focused on four themes (service provision, service related outcomes, satisfaction and trust) and demonstrated a positive correlation between satisfaction and trust and the three mediating factors (well informedness, personal control and influence) that have a positive influence on citizen trust and satisfaction. The limitation of the framework is that it sought to avoid using any theme that was specific to their chosen case study. Seltsikas and O'Keefe (2010) further used Grimsley and Meehan's public value framework and studied the role of trust in implementing and maintaining electronic identity management system

in government. They developed framework highlighting that e-ID enabled services will contribute to outcomes which will lead to trust in e-government. Their study also highlighted a direct link between services and trust.

Liu *et al.* (2008) proposed an integrated public value assessment framework to evaluate e-government projects within the EU context and introduced four value categories for value assessment: financial value, social value, operational/foundational value, and strategic/political value. The limitation of their framework is that it is developed under the government to business context and it ignores the value from citizen's perspective (Liu *et al.*, 2008). Moreover, Yu (2008) proposes a value centric e-government service framework based on four value centric business model perspectives: public beneficiaries, government internal organisation and process, government service chain, and society and national environments. Yu (2008) further defined the e-government related values of these four perspectives in terms of 10 dimensions: service values, citizen values, business values, government employee values, organisation values, service chain values, institution values, administration values, society values, and nation values. However, these dimensions are too broad and are not measurable.

Mills *et al.* (2010) have developed a conceptual framework for assessing public service value within e-government services and they have emerged the concept of perceived value from services literature to illustrate public value creation in the public sector. Mills *et al.* (2010) further argued that public services that are not subsidised by government could be evaluated using a means-end approach (Zeithaml, 1988). Mills *et al.* (2010) suggested that satisfaction and service quality impact perceived value of e-government, which in turn, increases usage intentions and public trust. However, their framework is normative and needs empirical investigation to approve its validity. Furthermore, another study proposed and validated a methodology to measure the public value of e-government using a case study in South Africa and categorised public value into three themes of operational value, political value, social value (Friedland and Gross, 2010). The operational value is related to measures such as effectiveness and efficiency, political value is related to the degree to which a public organisation achieves its missions and objectives as stated in its political agenda, the social value relates to the society as whole or specific groups within the society (Friedland and Gross, 2010).

Based on public value theory and IS success model (Kelly *et al.*, 2002; DeLone and McLean, 2003), Omar *et al.* (2011) developed a framework that defined service quality in term of information quality, system quality and service quality and argued that quality dimensions have direct impact on public value creation within the services criteria of public value. Furthermore, Omar *et al.* (2011) emphasises on understanding public value phenomena from citizen's perspective and assessing how citizens perceive and evaluate e-government services. However, they neglect other sources of value such as trust and broad outcomes, and their framework is normative and needs empirical investigation to approve its validity. Similarly using the same theories (public value and IS success model), Scott *et al.* (2009, 2011) provides empirical assessment of e-government success from a citizen perspective. They defined public value as benefits derived by citizens after using an online service and categorised it in nine dimensions: cost, time, personalisation, communication, ease of information retrieval, convenience, trust, well informedness and participate in decision making. Furthermore, they identified that important quality dimensions (system quality, information quality and service quality) have a positive impact on public value. Scott *et al.* (2009, 2011) argued that government organisations can focus on creating public value by targeting perceived benefits of users; however they neglect the consequence or the result of user's individual value of using the service.

Karunasena and Deng (2012a, 2012b) proposed a conceptual framework that examined the critical indicators for evaluating public value of e-government in Sri Lanka. Their conceptual framework is underpinned by three theoretical perspectives of the concept of public value: public value theory (Moore, 1995); sources of public value creation (Moore, 1995; Kelly *et al.*, 2002); and Public value inventory (Jorgensen & Bozeman, 2007). Karunasena and Deng's public value framework has three major public value creation drivers including delivery of quality public services, effectiveness of public organisation, and achievement of socially desirable outcomes. Their framework is evaluating e-government through the public value lens; however it does not see the impact of public value on the service. Furthermore, another similar study established a public sector value model based on two primary levers of public value: outcomes and cost effectiveness (Accenture, 2004). The public sector value model predicts that public sector value is created through generating improved outcomes in a more cost effective manner and any government organisation can create

value for its citizens when both outcomes and cost effectiveness increase at the same time and it can be used to compare the performance of different government agencies over time (Accenture, 2004). However, this relationship is based on conceptual level arguments and it also ignores the service quality dimension of value creation.

As explained above through previous studies that have developed public value frameworks for e-government services, the current literature has a number of limitations which require further study. These limitations are outlined in table 2.2.

Table 2.2: Limitations in Current Research on Public Value of E-Government

Study	Public Value Composition	Research Limitations
Kearn (2004)	Services Outcomes Trust	This framework is very broad and generic and neglects the public value sources of outcomes and trust. Moreover, the framework is only validated through secondary data and does not offer any measurable hypothesis.
Codagnone & Boccardelli, (2006)	Financial & organisation value Political Value Constituency Value	eGep framework is biased against e-administration and e-society as it is based on an understanding of e-government users only as taxpayers (efficiency), consumers (effectives) and citizens or voters (democracy). Moreover, it is not empirically validated.
Golubeva (2007)	Public services quality, Public policy outcomes Public trust	This framework is only based on pilot research results and only emphasises on regional government portals. It has got no measures for public value.
Grimsley and Meehan (2006, 2007, and 2008)	Service provision, Service related outcomes Satisfaction Trust	The limitation of this framework is that it has sought to avoid using any dimension that was specific to their chosen case study. Moreover, it does not examine the impact of individual value on the chosen case studies.
Seltsikas and O'Keefe (2010)	Services Outcomes Trust	It relates services to outcomes and the development of trust and ignores service quality dimensions. Moreover, its central focus is on trust and avoids the value of users.
Liu <i>et al.</i> (2008)	Financial value Social value Operational value Strategic/political value	The limitation of this framework is that it is developed under the government to business context and it ignores the value from citizen's perspective. Further, it does not provide any specific guidelines for measuring KPIs of Value

Table 2.2 (Continuation): Limitations in Current Research on Public Value of E-Government

Study	Public Value Composition	Research Limitations
Yu (2008)	Service values Citizen values Business values Government employee values Organisation values Service chain values Institution values Administration values Society values Nation values	This framework is too broad and generic and thus not possible to empirically examine or evaluate. Further, it is based on conceptual level and the themes outlined do not offer any measurements.
Mills <i>et al.</i> (2010)	Satisfaction Service quality Perceived value Usage intentions Public trust	It neglects other sources of value such as trust and outcome. The framework is normative and needs empirical investigation to approve its validity.
Friedland and Gross (2010)	Operational value Political value Social value	It neglects the user's individual value after using a service. Further, it is based on conceptual level and need further empirical evidence to validate
Omar <i>et al.</i> (2011)	Service Value Information quality System quality Service quality	Other sources of public value (trust and outcome) are ignored. Further, it is a conceptual study and need validity through empirical examination. Finally, it does not offer any measureable hypothesis to validate the proposed value model.
Karunasena and Deng (2012a, 2012b)	Quality public services Effectiveness of public Organisation Achievement of socially desirable outcomes.	The framework is evaluating e-government through the public value lens; however it does not see the impact of public value on the service.
Accenture (2004)	Outcomes Cost effectiveness	The model assumes that public sector value is created through generating improved outcomes in a more cost-effective manner, hence ignores the service quality dimension. Moreover, it does not offer any measureable hypothesis for public value.
Scott <i>et al.</i> (2009, 2011)	Information quality System quality Service quality Use Satisfaction Net Benefits	This framework defines value as an end result of a good service however it does not examine the consequence of the generated value.

As shown in Table 2.2 a number of studies have investigated public value theory in reference to e-government services (Kearn, 2004; Codagnone & Boccadelli, 2006; Golubeva, 2007; Grimsley and Meehan, 2006, 2007, and 2008; Seltsikas and O’Keefe, 2010; Liu *et al.*, 2008; Yu, 2008; Mills *et al.*, 2010; Friedland and Gross, 2010; Omar *et al.*, 2011; Karunasena and Deng, 2012a, 2012b; Accenture, 2004; Scott *et al.*, 2009, 2011). However, it is evident from these studies that there is a need to further study public value from citizen’s perspective within the e-government domain due to the limitations found in terms of measuring public value of individual users of e-government services. It is also found that there are a number of calls to further investigate public value and its influence on e-government services (Cordella and Bonina, 2012; Williams and Shearer, 2011). Therefore, this study will overcome these limitations by proposing a conceptual model of public value in e-government and will highlight the antecedents that influence value and the consequences of value on the e-government services. The proposed public value model will seek to address the limitations found in existing studies by defining constructs that represent public value as measurable indicators that can be validated through empirical enquiry. Therefore, the present research will contribute to the existing body of knowledge and help address a gap that has been left ignored for several years through quantifying public value from an e-government context.

2.9 Summary

When evaluating Public Sector transformation efforts in the UK during the last few decades, it is evident that information technology has played a major role in making the government more efficient, effective and more economical. As stated before, UK government made e-government as an integral part of transformation efforts in its public services by launching a number of e-government strategies. This study found that UK has invested heavily on e-government to transform their services; however the level of adoption and re-use of e-government services has not met expectations. This study found a link between e-government services and New Public Management (NPM) initiatives. The literature review of this study found that government evaluated its e-government services under the influence of NPM and have failed to deliver the desired outcomes (level of adoption and re-use) as it primarily focuses on economic and technical outputs. The study then highlighted the importance of Public Value

Theory (PVT) and how it will overcome limitations of NPM. The study then found that several researchers have investigated PVT and e-government services; however, these studies did not delineate a clear definition of value, have not proposed measurable hypothesis, have not empirically validated their propositions, and have only proposed conceptual level frameworks. Based on the literature review, this study found the need to develop a conceptual model for defining the public value of e-government and investigating the antecedents of value in e-government services. The next chapter will discuss the development of the conceptual model and its theoretical background.

Chapter 3: Conceptual Model

3 Conceptual Model

3.1 Introduction

The literature chapter has discussed public sector transformation efforts that have taken place in the UK during the last five decades. The investigation of the pattern of transformation that took place in the 1980's is seen to be influenced by New Public Management (NPM) (Hood, 1991, 1995) principles. Since the 1990's, public sector organisations in the UK have invested heavily on e-government projects to transform the way services are delivered to citizens and used the concept to reduce costs, improve internal process efficiency, and increase transparency and citizens participation in democratic process (Cabinet Office, 2010, 2011, 2012). In this respect the implementation of e-government projects followed the same NPM principles that were attempted in the previous decade (Cordella and Bonina, 2012). As such, the evaluation of e-government under the influence of NPM has been primarily focused on economic and technical outputs rather than real change to policy or the democratic process. Furthermore, research shows that many e-government projects have failed to deliver the desired outcomes under the NPM umbrella. Due to the disappointing results of public sector transformation based on principles of NPM, recent studies have emerged that highlights the significance of public value to understand the broader outcomes of ICT enabled transformation and resulting online public services (or e-government).

A number of studies have investigated public value theory in reference to e-government services (e.g. Kearns, 2004; Codagnone & Boccadelli, 2006; Golubeva, 2007; Grimsley and Meehan, 2006, 2007, and 2008; Seltsikas and O'Keefe, 2010; Liu *et al.*, 2008; Yu, 2008; Mills *et al.*, 2010; Friedland and Gross, 2010; Omar *et al.*, 2011; Karunasena and Deng, 2012a, 2012b; Accenture, 2004; Scott *et al.*, 2009, 2011). However, it is evident from these studies that there is a need to further research public value from citizen's perspective within the e-government domain. These studies have acknowledged limitations in terms of measuring the public value that users gain from using e-government services; none have developed constructs for evaluating the public value of e-government and tested these statistically. It is also found from the literature that there are a number of calls to further investigate public value and its

influence on e-government services (Cordella and Bonina, 2012; Williams and Shearer, 2011). Therefore, this study will overcome these limitations by investigating the concept of public value and propose a conceptual model that will identify the antecedents which affect value and the consequences of value on e-government services.

The conceptual model is drawn from three distinct theories. The justification of choosing these three theories is detailed in section 3.2. Thereafter, section 3.3 will present the conceptual model and the proposed hypotheses for carrying out this research. Finally, section 3.4 will provide a summary of this chapter.

3.2 Theoretical Background

This study develops a conceptual model to define the public value of e-government drawing from public value theory (Kelly *et al.*, 2002; Moore, 1995), DeLone and McLean IS Success Model (DeLone and McLean, 1992, 2003) and Means end chain theory (Zeithaml, 1988). This study has selected public value theory developed by Kelly *et al.* (2002). Kelly *et al.* (2002) has developed Moore's public value theory and argued that public value can be outlined in three broad dimensions; services, outcomes and trust or legitimacy. They suggested that the concept of public value provides a useful way of setting out the ultimate goals of public service reform and government's performance of public policies in achieving them. Kearns (2004) has evaluated the impact of e-government on creating public value by Kelly's framework. Kearns (2004) argued that the public value framework can be used to investigate the value created by e-government services and can also help improve the decision making process and assess the performance of e-government projects. Similarly, Grimsley and Meehan (2006, 2007, and 2008) developed an evaluative design framework for e-Government projects based on Kelly *et al.* (2002) public value framework dimensions of services, outcome and trust and quantitatively validated the framework hypothesis on two live case studies in UK. Grimsley and Meehan's public value framework focused on four themes of service provision, service related outcomes, satisfaction and trust. It is evident from the discussion of Kelly *et al.* (2002) that the public value framework is useful as a theoretical lens to examine e-government services in a number of different cases (Grimsley and Meehan, 2008;

Kearn, 2004; Omar *et al.*, 2011; Seltsikas and O'Keefe, 2010). Hence, this study will use Kelly *et al.* (2002) public value framework as it is the most used in e-government context and thus offers a strong basis for empirical examination (Grimsley and Meehan, 2008).

The second theory for underpinning the conceptual model is DeLone and McLean IS Success Model (1992, 2003). Several studies have applied the IS Success model to evaluate the impact of service quality on e-government use (Chen, 2010; Sambasivan *et al.*, 2010; Scott *et al.*, 2009; Teo *et al.*, 2008; Rana *et al.*, 2013; Omar *et al.*, 2011). Omar *et al.* (2011) studied the impact of e-government service quality on public value creation based on the IS Success Model. They defined service quality in terms of information quality, system quality and service quality and argued the three service quality dimensions have direct impact on public value creation within the services criteria of public value. Furthermore, Omar *et al.* (2011) framework emphasises on understanding public value phenomena from citizen's perspective and assessing how citizens perceive and evaluate e-government services. Similarly, Scott *et al.* (2009, 2011) adopted a public value approach and IS Success Model to provide empirical assessment of e-government success from a citizens' perspective. They defined public value as benefits derived by citizens after using an online service and further argued that government organisations can focus on creating public value by targeting benefits as perceived by citizens. From these previous studies this study found a link between public value theory and IS success model, hence this study will further develop this relationship by using it as theoretical lens to understand public value.

The third theory for underpinning the conceptual model is Means end chain theory (Zeithaml 1988). The public value theory mentions that the users of services will observe value from the personal use of public services and are therefore identical to the value achieved from consumption of a service in the private sector (Kelly *et al.*, 2002). Furthermore, Heeks (2008) mentioned that public value is the equivalent of private value in the public sector, i.e. the return that business delivers for their shareholders. Often citizens expectation are influenced by their experience of private sector, therefore they expect the same level of service value from consumption of a service in the public sector (Kelly *et al.*, 2002). Therefore, it is argued that user's value is similar to the definition of perceived value in the marketing literature. Perceived value of using a service is the trade-off between what customers receive

and what they give up to acquire the service (Zeithaml 1988). Perceived value can be improved by adding benefits to the service and by reducing the costs associated with the use of the service (Lovelock, 2001). Price is often used as the key measure to represent what customers have to sacrifice to obtain the service. However, it is noted that non-monetary costs such as time, physical and psychological efforts are also considered as the outlays to obtain the service (Lovelock 2001). In reference to e-government services, as they are free services for citizens, the 'get component' is the benefits provided by the provider and the 'give component' is the non-monetary cost of acquiring the offering (Parasuraman and Grewal, 2000). Therefore, the perceived value of e-government is the trade-off between give and get components. In this respect, Mills *et al.* (2010) have developed a conceptual model for assessing public service value within e-government services. Their framework has merged the concept of perceived value from services literature to illustrate public value creation in the public sector. It further argued that public services that are not subsidised by government could be evaluated using a 'means end' approach (Zeithaml, 1988). In the framework, satisfaction and service quality impact the perceived value of e-government, which in turn, increases usage intentions and public trust. Overall, it can be argued that there is strong relationship between value theory in marketing and public value theory in a public services context. Therefore, this study argues to use means end chain theory as one of the three underpinning building blocks for its conceptual model. The next few sections will provide an overview of the chosen three theories.

3.2.1 Public Value Framework

Kelly *et al* (2002) has developed Moore's original public value theory and argued public value can be outlined in three broad dimensions. As shown in figure 3.1 these dimensions are labelled as *services*, *outcomes* and *trust* with examples of sub-dimensions for each, which are further discussed below.

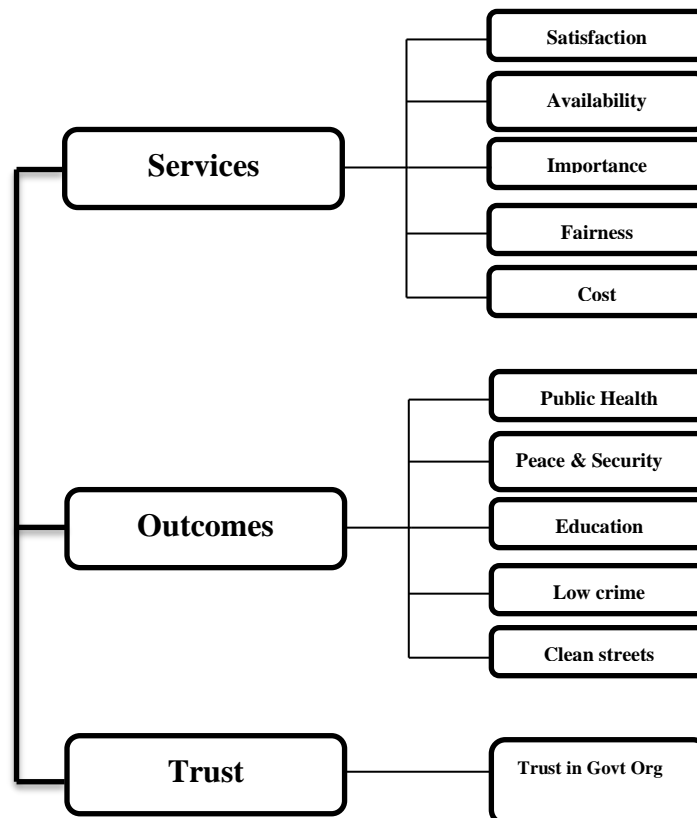


Figure 3.1: Public Value Framework (Kelly *et al.*, 2002)

3.2.1.1 Services

The value created by services for users are very similar to the benefits attained from purchasing services from the private sector. Services value can be achieved through the cost effective provision of high quality services (Try and Radnor, 2007; Try, 2008). Kearns (2004) highlighted five underlying factors that influence the perception of high quality services. These are service availability, satisfaction of services, importance of services offered, fairness of service provision and cost. Moreover, Kelly *et al.* (2002) observed that user's satisfaction is important determinant of creating value in services and user satisfaction is formed by implying

factors including; Customer service, information, choice and use of services. In addition, Grimsley and Meehan (2007) found that satisfaction has great impact on creating services value. It is evident from these studies that citizen satisfaction plays a huge role in maintaining the value through services.

Kearn (2004) argued that ICT enabled services plays a major role in creating public value through services. An example would be the services aimed at citizens through the Gov.UK portal website that enable them to purchase a TV license, make an application for a student loan, file a tax assessment return, apply for child tax credit etc., (Cabinet Office, 2012). The mentioned online services would add value to both the service users in term of more accessible, convenient and faster services and to the government in terms of cost efficiency.

For the government to maximise the creation of public value through service provision, it needs to understand the factors that are most valuable to the public in a given service. As information and transactions offered through e-government are perceived as services provided by worldwide governments, it is essential for governments to measure what are the important factors that will result in creating private value from consumption of these services. Kelly *et al.* (2002) and Kearn (2004) argued that for any reforms, such as e-government, to be successful it needs to be underpinned by the concept of public value. The success of e-government is explained as the level of adoption or the number of people using online government services. Therefore, this research posits that the individual users who once use the service and received private value will eventually re-use that service. As such, it is argued that the success of e-government will be reliant on adoption and re-use of services (Kearn, 2004). Kearn (2004) observed in the public value category of services that quality services will result in creating user value which then leads to success (re-use intention). Further, Kelly *et al.* (2002) posits that the achievement of individual user value will result in their satisfaction which then leads to success. Finally, Kearn (2004) highlighted that the achievement of value will result in trusting the service which in return contributes to success.

3.2.1.2 Outcome

The second component of public value identified by Kelly *et al.* is the achievement of the desired outcomes or end result. The value of outcomes is experienced individually by a user who is directly using the services and collectively by citizens as a community who have never personally used the services directly (Grimsley and Meehan, 2007). The public expect better outcomes from government in areas such as peace and security, poverty reduction, public health, high employment, low crime rates, clean streets, an improved environment and better educational achievements. These outcomes may overlap with services; however, services and outcomes are clearly different and should be managed separately by public managers (Kelly *et al.*, 2002).

Kelly *et al.* (2002) has outlined that public value that can be produced as a joint effort between both government and citizens is particularly significant for outcomes. They further mentioned that governments cannot deliver lower crime and better health without changing the social norms of citizens. Examples would be changing the citizen's norms to better diet and exercise which will eventually result in better health outcomes; likewise cutting the drink driving will result in lower crime outcomes (Kelly *et al.*, 2002). Similarly, Kearn (2004) studied the impact of ICT on creating better outcomes in the fields of education, health and transport in the UK. He provided evidence that ICT has played a significant role in creating better outcomes in these three fields. For example, in the health field electronic record systems have facilitated economic outcomes in terms of saving cost as it avoids the repetition of tests, appointments and examinations (Kearn, 2004). In the field of transport, the technology facilitated congestion charging scheme in central London has delivered better economic, social and environmental outcomes. In the field of education, the ICT facilitated services have played major role in widening participation between pupils, parents and teachers. Therefore, overall, the ICT facilitated innovation can be used by governments as a policy instrument to deliver better outcomes (Kearn, 2004).

3.2.1.3 Trust

The third component of public value is trust and it is highly valued by the public. Public managers should maintain a high level of trust between citizens and government as it is the heart of relationship between them (Kearn, 2004). For example

if level of trust in public organisations increases over time, then citizens are most likely to accept government actions. A failure of trust will effectively destroy public value even if improved services or outcome targets are met (Kelly *et al.*, 2002). Trust in government can be determined in three main ways; firstly the way politicians behave and public organisations behave, secondly in the way government manages its economy and deliver services, thirdly the general level of social trust and trust in public organisations (Kelly *et al.*, 2002; Kearn, 2004).

Kearn (2004) examined the impact of e-government on the level of trust and highlighted that security and privacy of information have an impact on trust in government. For example, the misuse and inappropriate access of a citizen's personal information would result in weakening their trust in government. Therefore, government should find ways of improving the relationship between e-government and trust and how the trust in e-government could lead to wider level of trust. For example, e-democracy and e-participation activities can strengthen the trust of citizens on their government (Kearn, 2004). Social media platforms in particular are used by public organisations as a participation tool to engage with citizens. Social media refers to a set of online tools that provide platforms to create online communities to connect people and share information. The social media tools include Blogs, Wikis, Facebook, Twitter, LinkedIn, Four- Square, YouTube or Flickr and many more. Social media tools are designed to promote and to facilitate the sharing and diffusion of information through social linking and interactions among people (O'Reilly, 2007). The public sector agencies that use social media applications often experience a high level of participation and engagement with citizens (Snead, 2013). Therefore, social media has a huge impact on public services and exploits connections between users, thus providing multiple opportunities to strengthen their trust on the government as it make them part of the policy making process (Huijboom *et al.*, 2009).

Kearn (2004) also outlined that it is very important for governments to understand the nature of linkage between e-government and trust. Several studies have focused on this relationship and argued that trust is an important factor that influence the adoption and re-use of e-government services (Al-Shafi and Weerakkody, 2010; Carter and Bélanger, 2005; Bélanger and Carter, 2008; Teo *et al.*, 2008; Srivastava and Teo, 2009; Morgeson *et al.* 2011). Therefore, governments should place emphasis on

different measures of increasing the level of trust in e-government as it is strongly linked to the success of e-government services (Teo *et al.*, 2008).

3.2.2 IS Success Model

DeLone and McLean (1992) proposed an IS Success Model that incorporate the quality dimensions of a service. DeLone and McLean (1992) comprehensively reviewed the research published during the period of 1981-1987 and proposed a model of interrelationships between six success categories: (1) system quality, (2) information quality, (3) IS use, (4) user satisfaction, (5) individual impact, and (6) organization impact. Based on the model categories, Seddon (1997) has criticised the DeLone and McLean (1992) model and claimed that IS use is a behaviour rather than a success measure. In line with this argument he replaced DeLone and McLean's "use" variable with "perceived usefulness". Later, DeLone and McLean (2003) added Service Quality as a new dimension of IS success, and replaced Individual Impact and Organizational Impact into a single impact variable of Net Benefits. As shown in Figure 3.2 the updated IS Success Model encapsulates six interrelated dimensions: Information Quality, System Quality, Service Quality, Use, User Satisfaction, and Net Benefits.

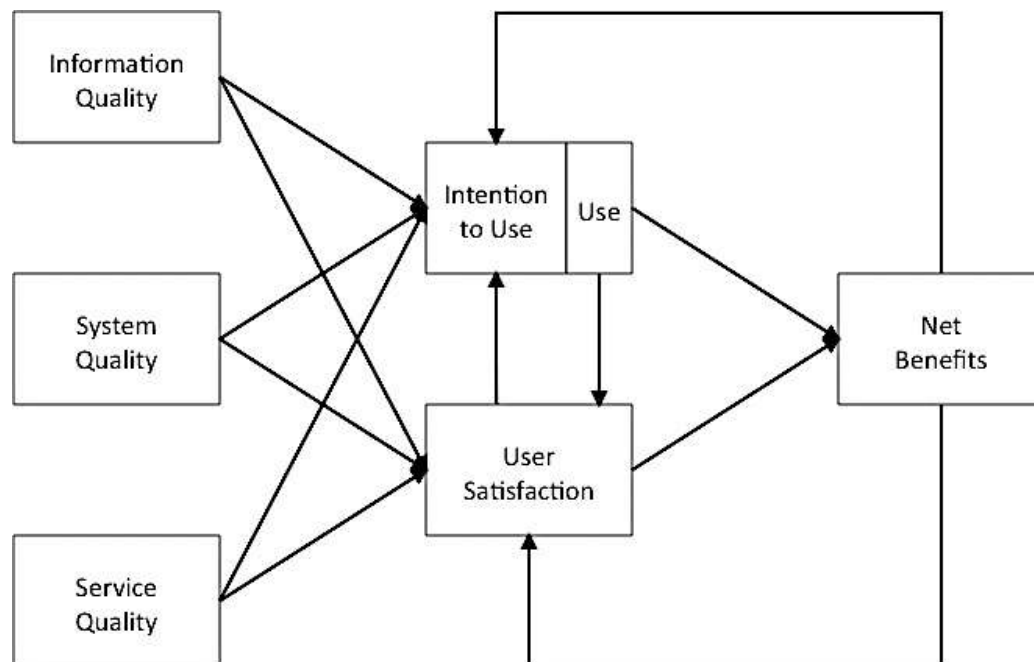


Figure 3.2: IS Success Model

Wang and Liao (2008) further adapted the updated DeLone and McLean model to an e-government context. They argued that the e-government service process fits well into the DeLone and McLean model and its six success dimensions'. In line with this updated model, Wang Liao (2008) proposed the e-government systems success model comprising of six success variables: information quality, system quality, service quality, use, user satisfaction, and perceived net benefit. Based on DeLone and McLean's IS Success model, Prybutok *et al.* (2008) have also developed a theoretical model to examine the effect of leadership and IT quality on positive delivery outcome of an e-government service. They argued that government organisations can create value for their citizens by improving the quality of e-government services (i.e information quality, system quality and service quality).

Teo *et al.*, (2008) further used the updated DeLone and McLean IS success model as the theoretical model to examine the role of trust in e-government success. They found information quality, system quality, and service quality are important for the success of e-government services. They went on to suggest that the DeLone and McLean model can be further extended by examining the nature of IS use. More recently, Rana *et al.*, (2013) have further evaluated the validity of Is Success model in the context of e-government in India. They found that information quality, system quality and service quality are important dimensions and are very useful for the success e-government services. Scott *et al.* (2009, 2011) adopted public value approach and IS Success Model to provide empirical assessment of e-government success from a citizen perspective. In their model the net benefits construct is underpinned by public value theoretical framework and comprises nine dimensions: cost, time, personalisation, communication, ease of information retrieval, convenience, trust, well informedness and participation in decision making. Furthermore, Scott *et al.* (2009, 2011) identified the important quality dimensions (system quality, information quality and service quality) that have positive impact on public value indicators in the net benefits construct.

Based on the IS success model, Omar *et al.* (2011) studied the impact of e-government service quality on public value creation and defined service quality in terms of information quality, system quality and service quality. They argued that the three service quality dimensions have direct impact on public value creation within the services criteria of public value. Furthermore, Omar *et al.* (2011) emphasises on

understanding the public value phenomena from citizen's perspective and assessing how citizens perceive this from IS success quality dimensions. However, the model is normative and needs empirical investigation to approve its validity. It is evident from the literature that there are limited number of studies that examined the IS Success model in the context of e-government. However, the very few studies that examined it have shown the validity of using the quality dimension (information quality, system quality, service quality) in the context of e-government.

3.2.3 Means End Chain Theory

Zeithaml (1988) developed a means–end chain model that provided justification for the close relationship between consumer's values and their behaviour. Means is defined as products or service in which people engage, while ends are valued states such as happiness, security, accomplishment (Gutman, 1982). Based on these definitions the means-end model explains how a product or service selection facilitates the achievement of desired end states. The means–end model by Zeithaml (1988) incorporates a hierarchy of relationships among three variables: perceived price, perceived quality and perceived value. Furthermore, Zeithaml (1988) argued that consumers assess the services according to their perception of price, quality and value and eventually make their decisions of using the service. He clustered the definitions of consumer value into four categories: (1) value is low price, (2) value is whatever a consumer want in a product, (3) value is the quality a consumer gets for the price he or she pay, and (4) value is what a consumer get for what he or she give. After exploring all these four categories, he finally defines perceived value as the trade-off between what customers receive and what they give up to acquire the service (Zeithaml 1988). The means end model conceptualises perceived value as involving a user's assessment of the ratio of perceived quality and perceived sacrifice (Zeithaml 1988). Furthermore, Zeithaml (1988) claimed that perceived sacrifice is influenced by both perceived monetary price and perceived non-monetary price. The monetary price is referred to transaction cost of using a service, for example value is generated when a user pays less to acquire a service. The non-monetary price is referred to time incurred during using the service, search cost and physical effort (Zeithaml, 1988; Dodds *et al.*, 1991; Monroe, 1990). Parasuraman and Grewal (2000) further supported this claim and stated that perceived value is a function of a 'get' component (the

benefits a service user derives from a service) and a 'give' component (the user's monetary and non-monetary costs of using the service). Therefore, perceived Value involves a trade-off between give and get components (Zeithaml, 1988; Parasuraman & Grewal, 2000).

Means-end chain theory claims that individual's value guide their evaluations of relevant attributes and the benefits of a service, thereafter these evaluations initiate their purchase behaviour (Zeithaml, 1988). In the marketing literature there has been an extensive theoretical debate on Means-end chain theory, with an extra interest on the construct of Value in more recent years. Based on means end chain, many authors have suggested that service quality will positively result in high level of perceived value which, in return, contributes to Loyalty or re-use intention (Oh, 2000; Parasuraman and Grewal, 2000; Wang, 2008; Barrutia and Gilsanz, 2012; Benardo *et al.* (2012); Pearson *et al.*, 2012; Kim and Niem, 2009; Lin *et al.*, 2005; Hu *et al.*, 2009). Furthermore, many other studies have highlighted that the achievement of individual user value will result in their satisfaction which then leads to loyalty (Oh, 2000; Yang and Peterson, 2004; Chang *et al.*, 2009, Kuo *et al.*, 2009; Chang and Wang, 2011; Barrutia and Gilsanz, 2012). Similarly, the achievement of value will result in trusting the service which in return contributes to loyalty in studies by Harris and Goode (2004), He *et al.* (2012), Jiao *et al.* (2012), Karjaluo *et al.* (2012), and Lam and Shankar (2014).

As discussed in the studies cited above, the services literature establishes three relationships of quality→value→loyalty, value→satisfaction→loyalty and value→trust→loyalty. These relationships offer valuable insights and a reference point for evaluating value in a public sector context. Drawing from the three theoretical angles discussed above (IS Success, Public value and Means end chain theory), the following section sets out the conceptual model for this study.

3.3 Development of Conceptual Model and Research Hypotheses

Based on the theoretical background discussed above, a conceptual model for evaluating the public value of e-government is formulated. The model defines quality dimensions in three different categories: information quality, system quality, service quality. It hypothesises that quality dimensions will result in user's value which then leads to re-use intention. Furthermore, the conceptual model hypothesises that the achievement of value for the user will result in their satisfaction which then leads to re-use intention. Finally, the conceptual model hypothesises that the achievement of user value will result in trusting the service which in return contributes to re-use intention. As shown in figure 3.3, the conceptual model is consisting of 7 constructs and eight hypotheses which are detailed and discussed below:

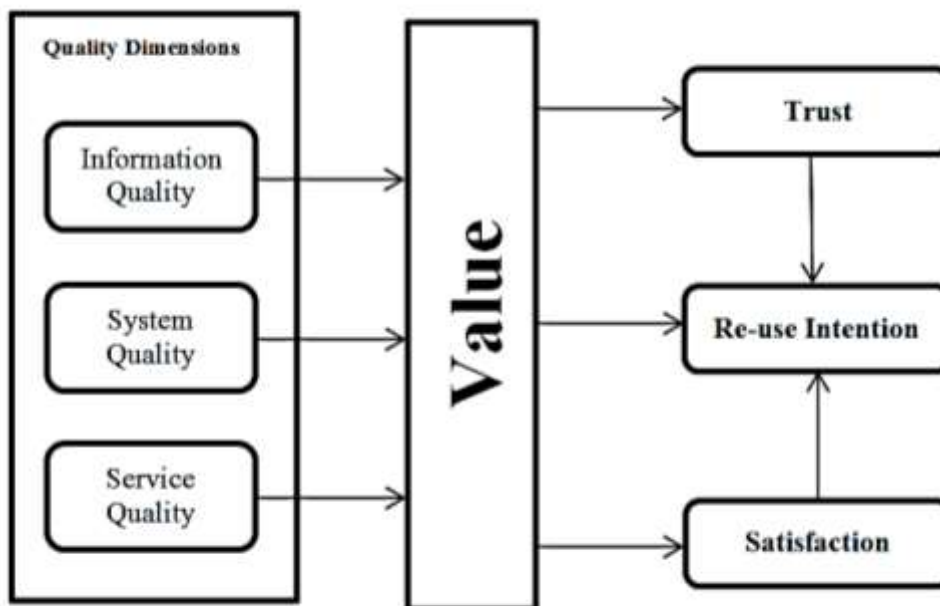


Figure 3.3: Conceptual Model for Value of E-government Services

H1: Information quality has a significant positive effect on perceived value in an online government service.

H2: System quality has a significant positive effect on perceived value in an online government service.

H3: Service quality has a significant positive effect on perceived value in an online government service.

H4: Perceived value has a significant positive effect on re-use intention in an online government service.

H5: Perceived value has a significant positive effect on user's satisfaction in an online government service.

H6: Perceived value has a significant positive effect on trust in an online government service.

H7: User satisfaction has a significant positive effect on re-use intention in an online government service.

H8: Trust has a significant positive effect on re-use intention in an online government service.

3.3.1 Information Quality and Value

Information quality is referred to the information provided in the services that is personalized, complete, relevant, easy to understand, and secure (DeLone and McLean, 2003). Services with high quality content are a source of value creation for the users (Hartman *et al*, 2000). Kim and Niehm (2009) examined the effect of information quality on user's value in the context of online shopping and the results indicated that online retailers can influence consumer's perceived value.

Wang (2008) and Pearson *et al.* (2012) examined the effect of information quality on the user's perceived value of e-commerce context and the results of these study highlighted that information quality had significant positive influences on user's perceived value. Therefore, it can be argued that e-government service providers can generate individual user's value by providing information which is easy to

understand, complete and relevant to the users requirements. Therefore, this study proposes the following hypothesis.

H1: Information quality has a significant positive effect on perceived value in an online government service.

3.3.2 System Quality and Value

System quality is referred to the attributes of services that are highly valued by users in term of usability, availability, reliability, adaptability, and response time (DeLone and McLean, 2003). Wang (2008) examined the effect of system quality on user's perceived value and indicated that system quality has a significant positive affect on perceived value. Furthermore, Scott *et al.* (2009, 2011) have highlighted that system quality has a positive impact on value creation in the context of e-government. In this context, it can be argued that e-government service providers can generate individual user's value by providing a system which is easy to use, reliable and response on time to the user's needs. Therefore, this study proposes the following hypothesis.

H2: System quality has a significant positive effect on perceived value in an online government service.

3.3.3 Service Quality and Value

Service quality is described as overall support delivered by the service provider to the users of the services (i.e. the customers) and poor user support will result in loss of sales (DeLone and McLean, 2003). Furthermore, Parasuraman *et al.* (1988) established a SERVQUAL model which defines service quality in five dimensions; tangibility, reliability, responsiveness, assurance, and empathy. Wang (2008) examined the influence of service quality on the user's perceived value in the e-commerce context. The empirical evidence from the 240 users of e-commerce in Taiwan suggested that users with high perceived service quality have significant positive affect on their perceived value. Barrutia and Gilsanz (2012) posit that electronic service quality (ESQ) is essential for describing user's value perception in B2C e-commerce contexts. They proposed the hypothesis that ESQ perception will have a significant positive effect on value perception and the evidence from their

empirical investigation revealed that ESQ directly and positively affect value perception. Kuo *et al.* (2009) studied the influence of service quality on the user's perceived value in mobile value added services and their findings highlighted that service quality positively influence perceived value. Therefore, this study will empirically examine this relationship and proposes the following hypothesis.

H3: Service quality has a significant positive effect on perceived value in an online government service.

3.3.4 Value and Re-use Intention

Perceived value of using a service is the trade-off between what customers receive and what they give up to acquire the service (Zeithaml 1988). Therefore, the perceived value of e-government is the trade-off between give and get components. Wang (2008) examined the influence of user's perceived value on re-use intention and suggested that users with high value perception have significant positive affect on re-use intention. Furthermore, another study by Kuo *et al.* (2009) examined the impact of perceived value on re-use intention and the findings revealed positive relationship between value and re-use intention.

Therefore, this study will be the first to empirically validate this relationship by proposing the following hypothesis.

H4: Perceived value has a significant positive effect on re-use intention in an online government service.

3.3.5 Value and Satisfaction

Barrutia and Gilsanz (2012) proposed a model to conceptualise value perception in Business to consumer e-commerce context and highlighted a significant relationship between value and satisfaction. Kuo *et al.*, (2009) also studied the relationship of perceived value, satisfaction and re-use. They found that perceived value positively influences on satisfaction and satisfaction positively influences re-use of a service. Similarly, Tam (2004) empirically examined the relationship of value, satisfaction and re-use in the restaurant industry. Their results revealed that perceived value will

positively influence satisfaction which then leads to re-use of a service. Another study by Yang and Peterson (2004) also supported the same relationship and found similar results. Chang and Wang (2011) constructed a model on the effect of perceived value and satisfaction on customer loyalty (re-use) based on Bagozzi's (1992) self-regulation process. The model posits that appraisal processes (customer value) leads to emotional responses (customer satisfaction), which then leads to coping responses or behaviour (customer loyalty or reuse). The relationship between satisfaction and loyalty (reuse) is stronger with high perceived value than low perceived value (Chang *et al.*, 2009). Hence, Chang and Wang (2011) suggested that customer value will lead to emotional responses, i.e. customer satisfaction. Moreover, based on a sample of hotel industry, Oh (2000) examined the relationship between perceived value and satisfaction and found that ignoring customer value may cause lowered customers satisfaction and the results also indicated that perceived value is an immediate antecedent to satisfaction. Therefore, based on the prior results this study will be proposing the following hypothesis.

H5. Perceived value has a significant positive effect on user's satisfaction in an online government service.

3.3.6 Value and Trust

Harris and Goode (2004) have empirically examined the relationship between perceived value and trust based on data collected from two surveys of online purchasers of books and online flight purchasers. They found that online purchasing retailers who add value for consumers through reducing complexity would lead to online purchasers trust. Furthermore, He *et al.* (2012) examined the relationship of value, trust and loyalty framework in the context of branded product or services and highlighted a positive relationship between value and trust. Jiao *et al.*, (2012) also conducted an empirical study of customer loyalty to internet banking and investigated the role of perceived value on trust and re-use. The results from 429 internet banking customers in their study suggest a positive relationship between value and trust. Moreover, Karjaluoto *et al.* (2012) examined the effect of value and trust on loyalty in wireless telecommunications industry and the findings support the argument that perceived value relates positively to loyalty and trust mediates this relationship. More

recently, Lam and Shankar (2014) studied the consumer's adoption of branded mobile devices and presented a conceptual model that included the constructs of value, trust and re-use. The results highlighted that consumers with high level of value will trust the products which then leads to repurchase intention of the product. Therefore, this study will also validate this relationship in the context of e-government by proposing the following hypothesis.

H6. Perceived value has a significant positive effect on trust in an online government service.

3.3.7 Satisfaction and Re-use Intention

The user satisfaction is best explained in the expectancy disconfirmation theory for the services (Oliver, 1981, Parassuraman *et al.*, 1988). The theory explains that user satisfaction is formed in a service as result of subjective comparison between their expectation and perceived performance of the service. The users will be more satisfied when the service performance exceeds their expectation and will be less satisfied when performance is below their expectation. Teo *et al.* (2008) examined satisfaction and re-use intention of e-government through the feedback mechanism where an effective satisfaction from prior use will influence user's intention to re-use. They argued that a user has had a pleasant and easy experience of finding the information needed from an e-government Web site will be satisfied and hence will come back to re-use the service if they need information in future. In line with this argument, Teo *et al.* (2008) empirically found that satisfaction with an e-government Web site is positively associated with intention to continue using that Web site. Therefore, based on the same argument, this study proposes the following hypothesis

H7. User satisfaction has a significant positive effect on re-use intention in an online government service.

3.3.8 Trust and Re-use Intention

Trust is defined as “the confidence in the exchange partner's reliability and integrity” (Morgan and Hunt, 1994, p.23). Trust is the belief that the trusted party will behave as expected in a socially responsible manner to meet the expectation of the trusted party

(Gefen, 2000). Trust is central and important to exchange in an online environment (Sultan and Mooraj, 2001; Reichheld and Schefer, 2000). Trust in the context of e-government is the belief that the website will act responsibly during a visit or transaction (Teo *et al.*, 2008). Based on an online survey of 491 Internet grocery shoppers, Rafiq *et al.* (2013) examined the role of trust on intention to re-use an online service in the e-tailing environment. They used structural equation modelling to test the influence of trust on re-use purchase intention and found positive relationship between trust and repurchase intention. Similarly, Teo *et al.* (2008) argued that trust plays an important role on re-use of e-government services and high level trust will influence the behaviour of e-government users towards reusing the service. So many other studies have also supported this relationship and found that trust in e-government has an impact on the behaviour of users (e.g. Al-Shafi and Weerakkody, 2010; Carter and Weerakkody, 2008; Carter and Bélanger, 2005; Bélanger and Carter, 2008; Belanger and Hiller, 2006; Teo *et al.*, 2008; Welch *et al.*, 2005; Pina *et al.* 2010). Based on empirical evidence, this study argues that increased trust will lead to more favourable behaviour towards reusing an e-government service. Hence this study proposes the following hypotheses.

H8. Trust has a significant positive effect on re-use intention in an online government service.

3.4 Summary

This chapter has briefly presented the research need and the importance of carrying out this research. Thereafter, the need for developing a conceptual model for evaluating the public value of e-government was justified. The theoretical background which underpins the conceptual model was categorized into three theories: public value theory, DeLone and McLean IS Success Model and Means End Chain Theory. All three theories were discussed and justified for their selection accordingly. Based on theoretical background section, a conceptual model with eight hypotheses was presented. Consequently, all the hypotheses were supported from previous literature accordingly. The next chapter will define the most suitable methodology to validate these hypotheses.

Chapter 4: Methodology

4 Methodology

4.1 Introduction

In the previous chapter this study has developed a conceptual model for defining the public value of e-government to overcome the limitation found in existing studies highlighted in chapter 2. The conceptual model identified eight relationships among seven constructs and developed eight hypotheses. This current chapter will look into different research methodologies to address the most suitable to validate the proposed conceptual model. In doing so, it will provide a detail plan of how to conduct the empirical work in the study to obtain valid findings. As such, this chapter will highlight different research philosophies, research approaches, research strategies and justify the chosen methodologies to conduct this study.

The chapter is presented in the following sections as follows: Section 4.2 provides a description of different research philosophies and the justification for choosing a positivist philosophical approach to conduct this study. Section 4.3 provides an overview of research design in the form of a diagram which explains the overall plan to achieve the main aim and objectives of this study. Section 4.4 highlights the two main research approaches and provides justification for choosing a quantitative approach for the study. Section 4.5 defines the research strategy for this study and outlines the significance of surveys and its suitability for this research. Section 4.6 provides details of sampling techniques and sample size. Section 4.7 outlines the data collection method followed by defining instrument measurements and pilot testing of the surveys. Section 4.8 discusses the data analyses technique used to validate the proposed conceptual model. Section 4.9 outlines the ethical considerations while collecting the data through surveys. Lastly, Section 4.10 briefly summarises the chapter.

4.2 Research Philosophy

Research philosophy is referred to as the development of knowledge and the nature of that knowledge (Saunders *et al.*, 2012). The development of knowledge can be in the form of creating a new theory or answering a specific problem in a particular context.

The research philosophy adopted to conduct a research would shape the researcher's assumption about the way in which the world is viewed. Based on these assumptions the researcher can choose the most suitable research strategy and the methods as part of that strategy (Saunders *et al.*, 2012). There are two main assumptions known as ontological assumption and epistemological assumption (Collis and Hussey, 2009). Ontology is concerned with nature of reality, while epistemology concerns what establishes acceptable knowledge in a field of study (Saunders *et al.*, 2012). The latter is the most significant philosophical assumption that guides the research (Myer, 1997). Epistemology is very important for any research as it forms the selection of an appropriate research strategy and methods to collect empirical evidence (Orlikowski and Baroudi, 1991). There are three main epistemologies that researcher can use in the field of information systems labelled as positivist, interpretive, critical (Straub *et al.*, 2005). Positivist assumes that reality is given objectively and is described by measurable properties and is independent of the researcher's instruments, while interpretivist rests on the assumption that social reality is in our minds and is subjective and multiple (Collis and Hussey, 2009). In contrast, Critical researchers tend to critically evaluate and transform the social reality under investigation (Orlikowski and Baroudi, 1991). The following sections will provide further explanation for all three epistemologies and the relevance of each for this current study.

4.2.1 Positivist

Positivist assumes that reality is given objectively and is described by measurable properties and is independent of the researcher's instruments (Collis and Hussey, 2014). Positivist studies primarily attempts to test theory in an attempt to increase predictive understanding of the phenomena. In short positivist studies are "premised on the existence of a priori fixed relationships within phenomena which are typically investigated with structured instrumentation" (Orlikowski and Baroudi, 1991, p. 5).

As positivist believes that a social phenomenon is measurable, therefore it is linked with quantitative methods of analysis based on the statistical analysis of quantitative research data (Collis and Hussey, 2014). This study is investigating the antecedents of public value and its consequence on the e-government services. To do so this study has developed a conceptual model along with eight measurable hypotheses based on previous literature. Therefore, this study selected a positivist approach to conduct its research as the primary focus of this study is to test the proposed public value conceptual model in an attempt to increase the understanding of the public value of e-government.

4.2.2 Interpretive

Interpretivism is a paradigm that rests on the assumption that social reality is in our minds and is subjective and multiple. Thus social reality is affected by the act of investigating it (Collis and Hussey, 2009). This paradigm entails the belief that a strategy is needed that respects the differences between people and objects of the natural sciences and thus requires the social scientist to grasp the subjective meaning of social science (Bryman and Bell, 2007). The interpretive researchers assume that people create and associate their own subjective and intersubjective meaning as they interact with the world around them. The aim of these researchers is to understand phenomena through accessing the meanings that participants assign to them (Orlikowski and Baroudi, 1991). To do so the interpretivist researchers claim to use qualitative method of analysis to understand social phenomena. Interpretive approach is not relevant to this study as it emphasises on exploring the complexity of social phenomena with a vision to achieve interpretive understanding as opposed to positivist approach which focuses on measuring social phenomena (Collis and Hussey, 2014). As this study is focused on measuring a social phenomenon, that is, to empirically validate the conceptual model consisting of eight measurable hypotheses, interpretive approach is not a valid option for this study.

4.2.3 Critical

Orlikowski and Baroudi (1991) observed previous studies in Information system (IS) literature and indicated that 96.8% studies have adopted positivist approach followed

by 3.2% interpretive approach and 0% critical studies. Furthermore, Mingers (2003) examined previous IS studies and highlighted that 75% studies have adopted positivist approach followed by 17% interpretive approach and 5% critical studies. It can be argued from these studies that positivist approach is the most dominant in the IS field. Critical researchers tend to critically evaluate and transform the social reality under investigation. It is concerned with critiquing existing social systems and enlightening the conflicts that may inhere within their structure (Orlikowski and Baroudi, 1991). The critical perspective assumes that social reality is produced and reproduced by people, although people can intentionally act to change their economic and social circumstances, critical researchers recognise that their ability to do so is constrained by various forms of social, cultural and political domination (Orlikowski and Baroudi, 1991). The critical approach is not suitable option for this study as it is not related to critical evaluation or opposition, rather it is examining the antecedents of public value and its consequence on e-government services. Subsequently the review of all three research epistemologies has helped this study to choose the positivist approach.

4.3 Research design

Research design is defined as the general plan of how a researcher will go to answer the chosen research question (Saunders *et al.*, 2012). Collis and Hussey (1997) defined research design as “science (and art) of planning procedures for conducting studies so as to get most valid findings (Vogt, 1993, p.196)” A detailed plan is used by the researcher to guide and focus their study. The plan will include a clear objective derived from the research questions, specify the sources of data collection, analysis of data and ethical issues (Saunders *et al.*, 2012). The plan of this study involves three stages: research design, data collection and data analysis. In research design phase, this research has conducted a detailed literature review on public value of e-government and identified the reasoning for carrying out this research. Thereafter, a conceptual model was developed where by eight hypothesis were proposed. The research strategy chosen for this study is survey and its justification is given in the above section. The second stage was the data collection phase where this research carried out a pilot study and checked the reliability and validity of the questionnaire. Then, the researcher amended the questionnaire accordingly and presented the final questionnaire. Thereafter, the main data collection was conducted

and a total of 705 completed surveys were generated. The third and final phase of this research was to analyse and discuss the results of the collected data using SEM software. The end result of this plan is that it enabled this research to achieve the aim and objectives set in chapter 1. The overview of the research plan is detailed in figure 4.1 below:

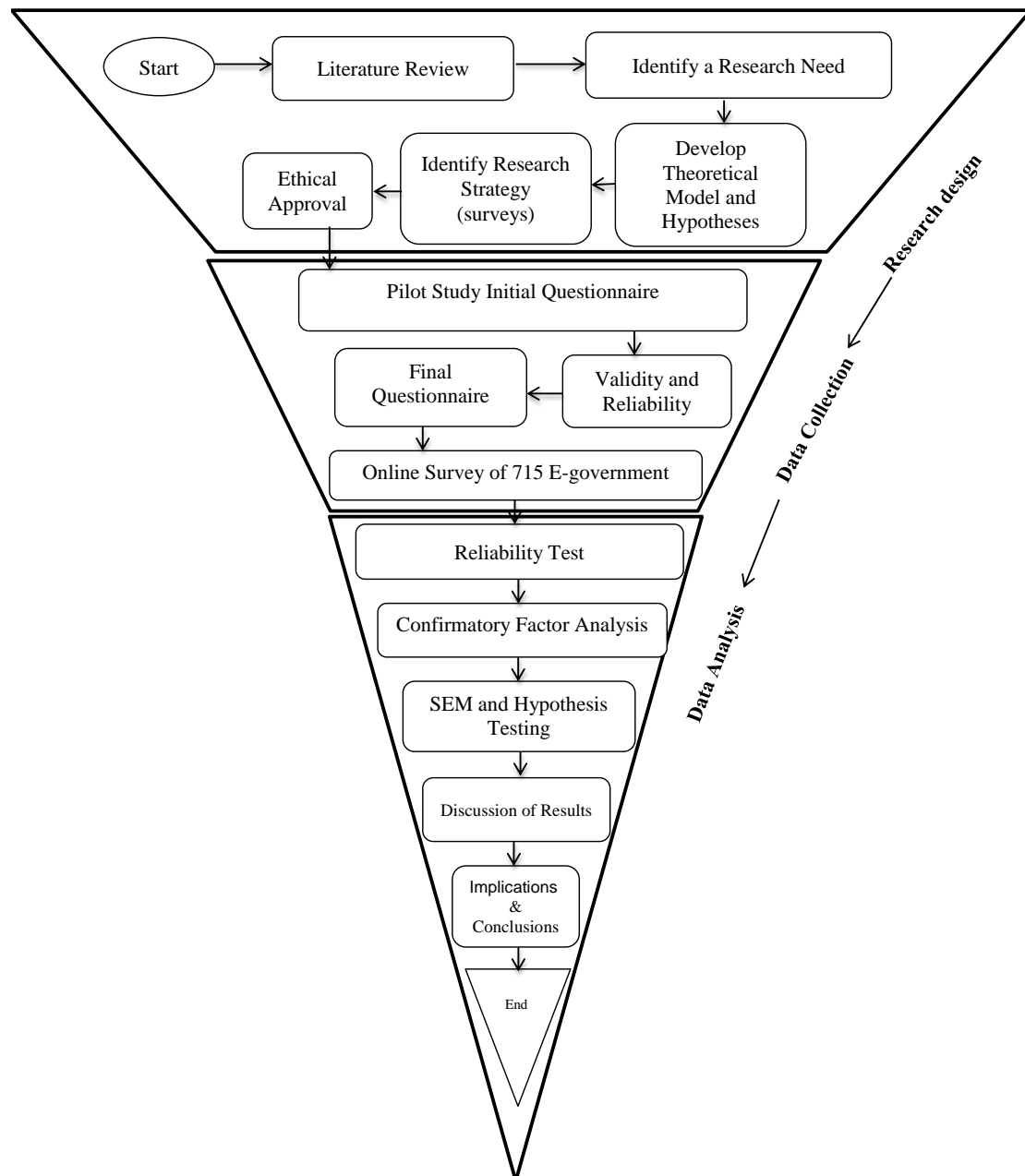


Figure 4.1: Research Design

4.4 Research Approach

There are two main research approaches labelled as quantitative and qualitative.

4.4.1 Quantitative Approach

Quantitative research is a means for testing objective theories by examining the relationship among variables (Cresswell, 2009). Quantitative research emphasises on quantification in the collection and analysis of the data (Bryman and Bell, 2007). Quantitative research incorporates a deductive approach whereby the theory guides the research (Collis and Hussey, 2014). In a deductive approach, the researcher starts with the theory and leading to research hypothesis, thereafter the next phase is data collection and findings, then it finally confirm or reject the hypotheses and revision of theory (Bryman and Bell, 2007). The quantitative approach is associated with positivism which primarily attempts to test theory in an attempt to increase predictive understanding of the phenomena (Saunders *et al.*, 2012). Quantitative studies generally entail experimental and survey research strategies (Collis and Hussey, 2014). Quantitative research conducts surveys through the use of questionnaires, structured interviews or structured observation (Saunders *et al.*, 2012).

4.4.2 Qualitative Approach

Qualitative research is a means for exploring and understanding the meaning individuals or groups assign to social or human problem (Cresswell, 2009). Furthermore, qualitative research emphasises on words in the collection and analysis of data (Bryman and Bell, 2007). Qualitative research entails inductive approach where the theory is an outcome of a research (Collis and Hussey, 2014). In an inductive approach, the researcher draws generalizable inference out of observations or findings to build a new theory (Bryman and Bell, 2011). Qualitative research is associated with interpretive philosophy where the researcher studies the topic within its context and uses an emerging design where categories are identified during the process (Collis and Hussey, 2014). Qualitative studies can choose from a variety of research strategies labelled as: case study, grounded theory, narrative research and ethnography (Saunders *et al.*, 2012).

Table 4.1: Differences between Quantitative and Qualitative Research

Areas	Quantitative	Qualitative
Characteristics	It examines the relationship between variables and are measured numerically and analysed statistically.	Using a variety of data collection techniques, it studies participant's meanings and their relationship to develop a new theory.
Role of theory in Research	Deductive (hypotheses testing and after which the principle is confirmed or rejected)	Inductive (the researcher draws generalizable inference out of observations or findings to build a new theory)
Research philosophy	Positivism (It primarily attempts to test theory in an attempt to increase predictive understanding of the phenomena)	Interpretivism (where the researcher studies the topic within its context and uses an emerging design where categories are identified during the process)
Research strategy	Experimental Surveys	Case study, grounded theory, narrative research and ethnography

As illustrated in table 4.1, Saunders *et al.* (2012) have made a clear distinction between Quantitative and Qualitative research in term of the four areas: characteristics, role of theory in research, research philosophy and research strategy.

This study has chosen quantitative research approach as it follows a deductive approach, whereby it is empirically testing eight hypotheses to ascertain whether they are confirmed or rejected. Qualitative approach is not valid for this study as it is not collecting data first and developing a theory at a later stage. Furthermore, the epistemological orientation of this study is positivist which is primarily attempting to investigate the conceptual model proposed for evaluating the public value of e-government that has got priori fixed relationships; hence quantitative approach would best suit this purpose. This study has also developed measurement instruments for each of the seven constructs (information quality, system quality, service quality, value, trust, satisfaction, re-use) used to assess the public value of e-government services drawn from previous studies to form a questionnaire and statistically examine the results; hence a quantitative approach is selected. In term of research strategy, quantitative research has an option of experiment and surveys and the next section will provide full details of the chosen research strategy and its justification.

4.5 Research Strategy

A research strategy is defined as a plan of how a researcher will go about answering a research question. Furthermore, it is the methodological link between chosen philosophy and later choice of methods to collect and analyse data (Saunders *et al.*, 2012). There are different research strategies: experiment, survey, archival research, case study, ethnography, action research, grounded theory, narrative inquiry (Saunders *et al.*, 2012). Furthermore, Collis and Hussey (2014) suggested that research strategy associated within quantitative research includes experimental studies and surveys. As stated in the previous section, this study has adopted a quantitative approach, hence survey is chosen as its research strategy. The section below will give a full overview of surveys and the justification for it as a chosen research strategy for this study.

4.6 Surveys

Surveys are mainly used to collect data from a sample, with a view to analysing the collected data statistically and generalizing the results to a population (Collis and Hussey, 2014). It is a highly economical means of collecting a large amount of data from a sizeable population and gives the researcher more control over the research process (Saunders *et al.*, 2009). The survey strategy is usually associated with deductive approach which starts with the theory and leading to research hypothesis, thereafter confirm or reject the hypotheses (Bryman and Bell, 2011). Surveys are further linked to positivist methodology which primarily attempts to test theory in an attempt to increase predictive understanding of the phenomena (Collis and Hussey, 2014). In survey strategy there are a number of data collection methods: postal, internet self-completion questionnaires, telephone and face to face interviews.

Surveys can be divided into two types; Descriptive survey and Analytical survey. A Descriptive survey is conducted to provide an accurate representation of phenomena at one point or various time, while an analytical survey determines whether there is a relationship between pairs of variables or multiple variables (Collis and Hussey, 2014). It is very important to understand the phases and steps before conducting a survey. The process involves five stages: survey design, pilot testing the survey, amending the questionnaire and sample, data collection and finally data analysis

(Czaja and Blair, 2005). Furthermore, Flower (2002) has claimed three important steps while conducting a survey which are sampling, data collection and instrument development. Sampling is referred as taking a portion of the population, creating observations on this chosen smaller group and then generalising the findings to the large population (Burns, 2000). Data collection is referred to choosing a suitable method such postal, internet self-completion questionnaires, telephone and face to face interviews. Furthermore, instruments should be developed well and it should raise quality information to answer the research questions of this study.

This research has chosen a quantitative approach to examine the set of eight hypotheses; hence it would require a large amount of quantitative data collection and statistical analysis. Surveys are the most appropriate methodology as it is cost effective, fast and easy to collect from a large amount of participants (Collis and Hussey, 2014). Furthermore, this study follows positivist methodology and deductive approach; hence survey methodology is most appropriate for the purpose of this study (Collis and Hussey, 2014). As mentioned this study has followed three main stages while conducting the survey which are sampling, data collection and instrument development (Flower, 2002). The next sections will outline further details on each of these steps.

4.7 Sampling Strategies

The concept of sampling is referred to as taking a portion of the population, creating observations on this chosen smaller group and then generalising the findings to the large population (Burns, 2000). A sample is defined as any part of the population regardless of whether it is representative or not. Population is defined as the full set of cases from which a sample is taken (Saunders *et al.*, 2012). The population of this study is the UK citizens who have previously used an e-government service. It may rarely be possible to collect and analyse data from every possible group members or cases known as census. However, it is impracticable for this research to survey the entire population due to the restriction of time, budget constraints and access. Furthermore, using smaller number of cases would make possible a higher level of accuracy and more time can be spent designing and piloting the means of collecting

the data. Hence, this study has the choice of selecting a sampling technique from the available two; probability or representative sampling and non-probability sampling.

The probability sampling means that each case in the population has the chance to be selected or the probability of each case is usually equal. The type of probability sample includes simple, systematic, stratified, and cluster sampling (Saunders *et al.*, 2012). On the other hand, non-probability sampling means that the probability of each case being selected from the total population is not known (Saunders *et al.*, 2012). The types of Non-probability include the convenience sampling, quota sample and snowball sample (Bryman and Bell, 2011). This study adopted convenience sampling as it is least costly in terms of money, time, effort, and easy to collect. Convenience sampling involves gaining access to the most easily accessible subjects such as students, neighbours or internet invitation to complete a survey. This study has chosen convenience sampling as it often meets purposive sample selection criteria that are relevant to the research aim of this study (Saunders *et al.*, 2012). Furthermore, it is the convenience issues that have motivated the researcher to adopt this technique for the purpose of this study.

4.8 Sample Size

After selecting the sampling technique the next important issue is determining the sample size. Sample size should be large enough to address the research question and large sample size would better represent the population (Collis and Hussey, 2014). Therefore, to generalise the results the research must choose sample size to reflect the population. At times a small sample size may prevent some important statistical tests among the proposed relationships or hypothesis (Collis and Hussey, 2014). As this study uses SEM to analyse the proposed conceptual model, hence it would require a larger sample. Sampling in SEM can be categorised as; 100 being poor, 200 being fair, 300 being good, 500 being very good and 1000 or greater being excellent (Comrey and Lee 1992, Tabachnick and Fidell, 2001). Based on this argument the sample size of this study is very good as it has collected more than 700 surveys.

4.9 Questionnaires as Data collection method

Questionnaires are one of the most popular data gathering tool as it is easy to design. This study has adopted questionnaires to collect data due to its low cost both in term of money and time. Furthermore, it is quicker to code the questions and hence would make the analyses easy (Gray 2014). This research has chosen questionnaire as opposed to interviews because it can be sent to hundreds or even thousands of respondents at little cost. Furthermore, interviews are difficult as it can be difficult to find convenient time to meet the respondents. Questionnaires overcome this limitation since respondents can choose a suitable time and location to complete it. Therefore, this research is motivated to use questionnaires as a method to collect the primary data. It is very important for the researcher to examine the design of the questionnaire because it will affect the response rate and reliability and validity of the data (Saunders *et al.*, 2012). Design of a questionnaire would differ according to the method it is delivered or collected. There are two main ways of collecting questionnaire data known as self-completed and interviewer completed. While, the later refers to those questionnaires where interviewers record each respondent's answer, the self-completed refers to questionnaires that are completed by the respondents. Interviewer completed involves telephone questionnaires and structured interview. Self-completed questionnaires involves web based questionnaires, intranet mediated questionnaire, postal or mail questionnaire and delivery and collection questionnaires. This study has chosen web based questionnaires as it offer many services for designing the questionnaire that are not available in traditional paper based formats (Gray, 2014). Web based survey tools include the use of pop up instruction boxes, drop down menus, choice of colour and style font. Furthermore, web based surveys would benefit this research in terms of convenience and access to large samples (Gray, 2014).

4.9.1 Instrument Measurement

As illustrated in table 4.2, the measures employed in this study were drawn from the literature. A total of seven construct (Information quality, system quality, service quality, value, satisfaction, trust and re-use intention) is formed along with 47 measurements. This study has used the Likert scale (Bryman and Bell, 2007) for rating the questions or to collect the respondent's opinion. Seven point rating scale is

used in this study where 1 = extremely disagree, 2 = strongly disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = strongly agree, 7 = extremely agree. Furthermore this study included both positive and negative questions in order to ensure that the respondents reads each carefully and thinks about which scale to select (Saunders *et al.*, 2012).

Table 4.2: Instrument Measurement

Constructs	Item codes	Item Measurements	References
Information Quality	IQ1	This government website provides sufficient information.	Teo <i>et al.</i> , (2008); Seddon and Kiew(1996)
	IQ2	Through this government website, I get the information I need in time.	
	IQ3	I am satisfied with the accuracy of this government website.	
	IQ4	Information provided by this government website meets my needs.	
	IQ5	Information provided by this government website is in a useful format.	
	IQ6	Information provided by this government website is clear.	
	IQ7	Information provided by this government website is accurate.	
	IQ8	Information provided by this government website is up-to-date.	
	IQ9	Information provided by this government website is reliable.	
System Quality	SQ1	This government website is user friendly.	Wang and Liao (2008); Mckinney <i>et al.</i> (2002)
	SQ2	This government website is easy to use.	
	SQ3	This government website has a simple layout for its content.	
	SQ4	This government website is well organised.	
	SQ5	This government website has a clear design.	
	SQ6	This government website is responsive to your request.	
	SQ7	This government website is quickly loading all the text and graphics.	
	SQ8	This government website is easy to go back and forth between pages.	
	SQ9	This government website is locating the information with few clicks.	
	SQ10	This government website is easy to navigate.	

Table 4.2 (Continuation): Instrument Measurement

Constructs	Item codes	Item Measurements	References
Service Quality	SV1	When you have a problem, this government website service shows a sincere interest in solving it.	Wang and Tang (2003); Wang and Liao (2008)
	SV2	This government website performs the service right the first time.	
	SV3	This government website provides its services at the time it promises to do so.	
	SV4	This government website tells you exactly when services will be performed	
	SV5	This government website gives you prompt service	
	SV6	This government website is always willing to help you	
	SV7	You feel safe in your transactions with this government website	
	SV8	This government website is consistently courteous with you	
Service Quality	SV9	This government website has the knowledge to answer your questions	Wang and Tang (2003); Wang and Liao (2008)
	SV10	This government website gives you individual attention	
	SV11	This government website has your best interests at heart	
	SV12	This government website understands your specific needs	
Trust in e-government	TEG1	This government website is trustworthy	Teo <i>et al.</i> (2008)
	TEG2	This government website seems to be honest and truthful to me	
	TEG3	This government website can be trusted	
Perceived Value	PV1	Overall, using this government website is convenient	Parasuraman <i>et al.</i> , (2005); Khalifa (2004)
	PV2	This government website gives you a feeling of being in control to a great extent	
	PV3	You get the value from this government website for your effort	
	PV4	Compared with the tangible and intangible costs you paid, using the service of this web site is worthwhile	
	PV5	Overall, this government website offers high quality service	
	PV6	The time you spend on this government website is time well spent	
	PV7	Overall, I value this government website's services highly	

Table 4.2 (Continuation): Instrument Measurement

Constructs	Item codes	Item Measurements	References
Satisfaction	SAT1	This government website has met your expectations	Wang and Liao (2008); Teo <i>et al.</i> (2008); Seddon and Kiew (1996)
	SAT2	This government website meets your needs of interaction with the government agency	
	SAT3	Overall, you are satisfied with this government website	
Re-use Intention	IR1	You will re-use this government website in the future	(Teo <i>et al.</i> (2008); Seddon and Kiew (1996); Wang and Liao (2008)
	IR2	Your intention is to continue using this government website rather than use any alternative means (e.g., offline interaction with the government agency)	
	IR3	You will frequently use this government website in the future	

4.9.2 Pilot Testing

It is important to pilot test the questionnaire before using it for data collection. The main aim of pilot test is to refine the questionnaire and enable the researcher to obtain assessment of validity and reliability of the questions (Saunders *et al.*, 2012). Validity involves the process of asking an expert or group of experts to comment on the representativeness and suitability of the questionnaire, while reliability is concerned with consistency of responses to questions (Saunders *et al.*, 2012). Initially this study has validated the questionnaire by a group of academic and experts in Brunel University. Each respondent was asked about the clarity of the instructions, their opinions and if the layout was clear and attractive (Saunders *et al.*, 2012). Thereafter, a pilot study was conducted based on the revised questionnaire. A total of 52 surveys were collected to check the clarity of the questionnaire. This study has ensured that each respondent have had no problem understanding or answering the question while piloting. Then, the reliability of the items loading on the same construct was tested using internal consistency. The main aim of internal consistency is to measure the consistency of questions. The most frequent method used to measure it is known as Cronbach's α . As a rule of thumb for Cronbach's α the figure of ≤ 0.90 is excellent reliability, 0.70-0.90 is high reliability, 0.50-0.70 is moderate reliability, and ≤ 0.50 is low reliability (Hinton *et al.*, 2004). This study used Cronbach's α to test the pilot study and achieved a high reliability of 0.75 (Hair *et al.*, 2010).

4.10 Data Analysis

The data analysis begins with data cleaning to ensure the data has got no missing value or outliers. SPSS was used to code the data and screening was carried out to clean the data. This study did not find any missing values and hence proceeded to the next phase. Thereafter, descriptive statistics were produced from the sample of the collected data and reliability tests were carried out to ensure the consistency of the measurements. Then SEM was conducted to validate the theoretical model.

4.10.1 Reliability and Validity

This study has adopted convergent and discriminant validity to ensure that the measurements of the construct accurately represents the concept of interest. Convergent validity is defined as the extent to which observed variables of a particular construct share a high portion of the variance in common (Hair *et al.*, 2010). Convergent validity is assessed by employing three tests: factor loading, average variance extracted (AVE) and composite reliability. Thereafter, Discriminant validity is carried out by comparing the average variance extracted values for any two constructs with the square of correlation estimate between these two constructs. Discriminant validity is defined as “the degree to which two conceptually similar concepts are distinct” (Hair *et al.*, 2010, p.125). Furthermore, Cronbach’s alpha (α) is used to test the internal reliability of the instruments. Internal reliability involves the issue of whether or not the indicators that make up the scale are consistent. As a rule of thumb figure of ≤ 0.90 is excellent reliability, 0.70-0.90 is high reliability, 0.50-.70 is moderate reliability, and ≤ 0.50 is low reliability (Hinton *et al.*, 2004).

4.10.2 Structural Equation Modelling (SEM)

In recent years, the popularity of SEM has risen enormously among social science researchers and it is used as a tool for testing theories with both experimental and non-experimental data among these researchers (Bentler & Dudgeon, 1996; Fan *et al.*, 1999). This study has chosen the Structural Equation Modelling (SEM) technique in Analysis of Moment Structures (AMOS) to validate the hypotheses and the performance of the proposed conceptual model. SEM is a statistical methodology that

takes a confirmatory approach to the analysis of a structural theory bearing a phenomenon. SEM is testing statistically the hypothesized model in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data. SEM is considered for this study since it fits the purpose of testing the hypotheses that involve multiple regression analysis among a group of dependent and independent variables (Ullman and Bentler, 2007).

A structural equation model involves two types of models known as the measurement model or confirmatory factor analysis and the structural model (Hair *et al.*, 2006). While, the confirmatory factor analysis confirms the relationship between a set of measurement items and their respective factors based on theory, the structural model confirms the relationships between the factors as hypothesized. If goodness-of-fit is adequate, the model argues for the acceptability of hypothesised relations among variables; if it is inadequate, the acceptability of such relations is rejected (Byrne, 2010). Hair *et al.*, 2010 suggest that at least four test of model fit should be used for CFA and Structural model. Chi square to (X^2) to the degree of freedom (Df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), incremental fit index (IFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were used in this study to examine both CFA and structural model. Furthermore, the hypotheses were tested using the standardised estimate, critical ratio (t-value) and critical value (p-value).

4.11 Ethical Consideration

Ethics refer to the moral values and principles that form the basis of a code of conduct and research ethics refers to the manner in which the research is conducted and how the results are reported (Collis and Hussey, 2014). Some of ethical considerations include avoiding harm to participants, voluntary participation, and the right to confidentiality and anonymity (Collis and Hussey, 2014). This study has considered all ethical requirements through all phases of the research. The participants were informed about the aim and importance of the study and why their participation is required for the research. The participants were also assured that participation is voluntary and can withdraw at any stage of survey completion. Additionally, the participants were assured their confidentiality and anonymity is protected. The code

of conduct for this study was guided by the Brunel University Research Ethic committee. According to the committee guidelines, both the researcher and researcher's supervisor is obliged to sign the research ethic form and thereafter it was submitted to the academic program office. This research was conducted after the approval of the committee.

4.12 Summary

This chapter has clearly outlined the research design of the study. The different research philosophies were examined and it was found that positivist philosophical approach was most relevant to conducting this study. Positivist assumes that reality is given objectively and is described by measurable properties and is independent of the researcher's instruments (Collis and Hussey, 2014). Therefore, this study selected positivist approach to conduct this research as the primary focus of this study is to test conceptual model proposed for assessing the public value of e-government and its influence on adoption and re-use in an attempt to increase the understanding of the phenomena.

Thereafter, this chapter has made clear distinctions in different research approaches and selected quantitative approach as opposed to qualitative. Quantitative research is a means for testing objective theories by examining the relationship among variables (Cresswell, 2009). This study has chosen the quantitative research approach as it follows a deductive approach, whereby it is empirically testing eight hypotheses whether it is confirmed or rejected. Qualitative approach is not valid for this study as it is not collecting data first and developing a theory at a later stage.

Then, this chapter highlighted different research strategies and selected a survey strategy to conduct the study. Research strategy associated within quantitative research includes experimental studies and surveys (Collis and Hussey, 2014). As this study has adopted quantitative approach to examine the set of eight hypotheses, it required a large amount of quantitative data to be collected and statistically analysis. Hence, surveys are the most appropriate methodology for this research as it is cost effective, fast and easy to collect from a large amount of participants. This chapter further explain sampling techniques, sample size, data collection method of survey strategy.

This chapter has also discussed the ethical issue for data collection purposes and highlighted the data analysis methods. This study has chosen the Structural Equation Modelling (SEM) technique in Analysis of Moment Structures (AMOS) to validate the hypotheses and the performance of the proposed conceptual model. SEM is considered for this study since it fits the purpose of testing the hypotheses that involve multiple regression analysis among a group of dependent and independent variables (Ullman and Bentler, 2007). The next chapter will present the results of the collected data using SEM.

Chapter 5: Results

5 Results

5.1 Introduction

This chapter will describe the results of the survey that was designed in chapter 4. This study has chosen Analysis of Moment Structures (AMOS) version 20 to carry out Structural Equation Modelling (SEM) on the survey results collected. SEM technique was used in this study to validate the hypotheses and the performance of the proposed conceptual model. This chapter presents the results of the SEM analysis follows: Section 5.2 provides the demographic profile of the respondents. Section 5.3 presents the descriptive statistics of survey constructs and it also outline the reliability test and KMO AND Bartlett's Test. Section 5.4 presents the confirmatory factor analysis (CFA), Construct validity and the Structural Model and Hypotheses Testing. Finally section 5.5 provides a summary of the chapter.

5.2 Demographic Profile

This study collected data from the users of e-government services in the UK between the periods of Jan 2014 to April 2014. As explained in the previous chapter, using online surveys this study collected a total of 746 questionnaires. After the cleaning stage, a total of 41 questionnaires were removed as they were incomplete or inconsistent. Therefore, this study has considered a total of 705 questionnaires for further analysis. As this study uses SEM to analyse the proposed theoretical framework, hence it would require larger sample (Comrey and Lee 1992; Hair *et al.*, 2010). Sampling in SEM can be categorised as; 100 being poor, 200 being fair, 300 being good, 500 being very good and 1000 or greater being excellent (Comrey and Lee 1992, Tabachnich and Fidell, 2001). Based on this argument the sample size of this study is very good as it has collected 705 surveys. The demographic profiles of these 705 respondents are detailed below.

The age of the respondents is presented in the table 5.1. The figures show that 23.1% of the respondents were over 64 followed by 21.4% between the ages of 30-44 and then 21% between the ages of 45-54.

Table 5.1: Age of Respondents

Age	Frequency	Percent
18-24	51	7.2
25-29	53	7.5
30-44	151	21.4
45-54	148	21.0
55-64	139	19.7
Over 64	163	23.1
Total	705	100.0

The gender of the respondents is presented in the table 5.2. The results reveal that gender of respondents is nearly equally split at 51.3% female and 48.7% male.

Table 5.2: Gender Breakdown of Respondents

Gender	Frequency	Percent
Valid	Male	343 48.7
	Female	362 51.3
	Total	705 100.0

The education level of the respondents is presented in table 5.3. A majority of the respondent's education level were at secondary school (27.9%) and at college (27.8%). Further, the table shows that 22.8% of the respondents were at undergraduate level followed by 16.6% at postgraduate level and then 2.2% at PhD level and finally 2.3 at other level.

Table 5.3: Education Level of the Respondents

Education Level	Frequency	Percent
Secondary School	197	27.9
College	196	27.8
Undergraduate	161	22.8
Postgraduate	117	16.6
PhD	18	2.6
Other please specify	16	2.3
Total	705	100.0

The internet usage frequency of the respondents is presented in table 5.4. A majority of (96.7%) respondents use internet daily followed by 3.1% using it several times a week and 0.1% using it several times a month.

Table 5.4: Respondents Internet Usage Frequency

Internet Usage		Frequency	Percent
Valid	Daily	682	96.7
	Several times a week	22	3.1
	Several times a month	1	.1
	Total	705	100.0

The purpose of using the internet as cited by the respondents is presented in table 5.5. The table highlights that 99% respondents used the internet for the purpose of emails, 90% for shopping, 64% for social networks, 66.5% for entertainment, 48.7% for education and 7.9% for other purposes.

Table 5.5: Purpose of Using the Internet

Purpose	Frequency	Percent
Email	698	99.0
Shopping	639	90.6
Social Networks	451	64.0
Entertainment	469	66.5
Education	343	48.7
Other	56	7.9

The last e-government service used by the respondent's in the UK is highlighted in table 5.6. From the total of 705 surveys, 246 respondents have chosen the *NHS Choose and Book* system and 244 respondents have chosen *Self-Assessment Tax* return and 215 respondents have chosen *Car Tax Disc Renewal*. This shows that survey respondents' use of e-government services are fairly equally distributed among all three services which were targeted for study.

Table 5.6: The Last E-government Service used by the Respondents

E-government Service	Frequency	Percent
Car Tax Disc Renewal	215	30.5
Self-Assessment Tax return	244	34.6
NHS Choose and Book	246	34.9
Total	705	100.0

5.3 Descriptive Statistics

This section presents the descriptive statistics of survey constructs. All items were rated on a seven point Likert scale with a score of 7 indicating *strongly agree* and a score of 1 indicating *strong disagree*. The mean score for all 7 variables are as follow; information quality is between 5.46 and 5.56, system quality is between 5.28 and 5.47, service quality is between 4.47 and 5.48, value is between 5.24 and 5.76, trust is between 5.54 and 5.61, satisfaction is between 5.41 and 5.54 and re-use intention is between 5.47 and 5.80. The figures from all items of the constructs show a mean of greater than the neutral point (4) which points out the respondents mostly agree with the items. A summary of mean and std. deviation for all the items are listed in the table 5.7.

Table 5.7: Descriptive Statistics of Survey Measurements

Information Quality		
Items	Mean	Std. Deviation
IQ_1	5.46	1.218
IQ_2	5.49	1.181
IQ_3	5.56	1.22
IQ_4	5.51	1.232
IQ_5	5.49	1.215
IQ_6	5.46	1.272
IQ_7	5.56	1.179
IQ_8	5.56	1.189
IQ_9	5.56	1.196

Table 5.7 (Continuation): Descriptive Statistics of Survey Measurements

System Quality		
Items	Mean	Std. Deviation
SQ_1	5.35	1.305
SQ_2	5.47	1.303
SQ_3	5.41	1.256
SQ_4	5.41	1.266
SQ_5	5.43	1.234
SQ_6	5.36	1.248
SQ_7	5.41	1.175
SQ_8	5.28	1.23
SQ_9	5.31	1.273
SQ_10	5.38	1.257
Service Quality		
Items	Mean	Std. Deviation
SVQ_1	4.47	1.174
SVQ_2	5.27	1.249
SVQ_3	5.37	1.188
SVQ_4	5.32	1.198
SVQ_5	5.43	1.182
SVQ_6	4.98	1.27
SVQ_7	5.48	1.251
SVQ_8	5.33	1.168
SVQ_9	5.08	1.315
SVQ_10	4.91	1.339
SVQ_11	4.91	1.359
SVQ_12	4.9	1.334
Value		
Items	Mean	Std. Deviation
V_1	5.76	1.16
V_2	5.43	1.221
V_3	5.24	1.249
V_4	5.35	1.234
V_5	5.42	1.207
V_6	5.4	1.285
V_7	5.42	1.277
Trust		
Items	Mean	Std. Deviation
T_1	5.56	1.172
T_2	5.54	1.167
T_3	5.61	1.143

Table 5.7 (Continuation): Descriptive Statistics of Survey Measurements

Satisfaction		
Items	Mean	Std. Deviation
S_1	5.48	1.315
S_2	5.41	1.271
S_3	5.54	1.257
Re-use		
Items	Mean	Std. Deviation
RU_1	5.8	1.358
RU_2	5.67	1.336
RU_3	5.47	1.411

5.3.1 Reliability Assessment

Reliability is defined as the consistency of a measure of concept (Bryman and Bell, 2007). Three important factors are involved while considering whether a measurement is reliable, i.e. stability, internal reliability and inter-observer consistency. Stability is considering whether or not a measure is stable over time. Internal reliability involves the issue of whether or not the indicators that make up the scale are consistent. Inter-observer consistency is referred to subjective judgement where more than one observer is involved in an activity which may produce lack of inconsistency in their decisions, for example, categorizing the open ended questions when each observer answers differently. This study will adopt internal reliability as it has multiple item measures where each individual answer to each question is combined to form an overall score and therefore may lack coherence. The best way of testing internal reliability is cronbach's alpha. As a rule of thumb figure of ≤ 0.90 is excellent reliability, 0.70-0.90 is high reliability, 0.50-.70 is moderate reliability, and ≤ 0.50 is low reliability (Hinton *et al.*, 2004). Table 5.8 presents the cronbach's alpha figures for all seven constructs of this study. The results revealed that all constructs have a reliability of above 0.90. Thus, it represents high reliability for all the constructs which highlights internal consistency of the scales.

Table 5.8: Reliability Assessment

Construct	Items	Cronbach's Alpha	Type
Information Quality	9	0.976	Excellent Reliability
System Quality	10	0.973	Excellent Reliability
Service Quality	12	0.959	Excellent Reliability
Value	7	0.960	Excellent Reliability
Trust	3	0.957	Excellent Reliability
Satisfaction	3	0.968	Excellent Reliability
Re-use Intention	3	0.921	Excellent Reliability

5.3.2 KMO and Bartlett's Test

It is very important to examine Kaiser-Meyer-Olkin (KMO) and Bartlett's test in order to proceed to confirmatory factor analysis. Hinton *et al.* (2004) suggested that KMO AND Bartlett's Test would highlight whether it is suitable to proceed with confirmatory factor analysis. Kaiser-Meyer-Olkin (KMO) is testing the variables in a given sample are adequate to correlate and Bartlett's test of sphericity test is carried out to confirm the relationship between the variables (Hair *et al.*, 2010). As a rule of thumb KMO value should exceed above the minimum value of 0.60 and Bartlett's test should have a value ($p < 0.05$) (Hair *et al.*, 2010). As shown in table 5.9, the results of this study indicated a KMO value of 0.986 and Bartlett's test of ($p < 0.05$). Therefore, the result exceeds the minimum value required and confirms the appropriateness of data for carrying out factor analysis.

Table 5.9: KMO and Bartlett's Test

Result	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.986
Approx. Chi-Square	46343.004
Bartlett's Test of Sphericity df	1081
Sig.	.000

5.4 Structural Equation Modelling

As indicated earlier, this study has chosen the Structural Equation Modelling (SEM) technique using Analysis of Moment Structures (AMOS) version 20 to validate the hypotheses and the performance of the proposed conceptual model. A structural equation model involves two types of models known as the measurement model or confirmatory factor analysis and the structural model (Hair *et al.*, 2006). While, the confirmatory factor analysis confirms the relationship between a set of measurement items and their respective factors based on theory, the structural model confirms the relationships between the factors as hypothesized. The next few sections will present the result of CFA and the structural model for this study.

5.4.1 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) using AMOS 20.0 was conducted to test the measurement model. Hair *et al.* (2006) has suggested that the validity of the CFA should be assessed through two stages: (1) goodness of fit indices and (2) Construct Validity. Therefore, this study has considered these two stages to validate its confirmatory factor analysis.

5.4.1.1 Goodness of fit indices

The initial CFA was conducted on 7 constructs along with 47 items. As shown in figure 5.1 these 7 constructs are information quality (IQ), system quality (SQ), service quality (SVQ), value, trust ,satisfaction (SAT) and re-use intention. Each construct is loaded with its measurement item and was examined through CFA analysis. Hair *et al.* (2010) suggest that at least four tests of model fit should be used for CFA and Structural model. Based on their suggestion , this study has used 7 goodness of fit indices: Chi square to (X^2) to the degree of freedom (Df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), incremental fit index (IFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA).

Table 5.10: Goodness of Fit Indices for Initial CFA

Model Fit Indices	Recommended Criteria	Default Model
X ² /df	1:3	5.332
GFI	≥ 0.90	.688
AGFI	≥ 0.80	.652
IFI	≥ 0.90	.906
TLI	≥ 0.90	.899
CFI	≥ 0.90	.905
RMSEA	<.80	.078

As shown in table 5.10, the initial figures illustrate that X²/df has achieved an unacceptable fit of 5.332 and is below the minimum requirement of (1:3). The results also indicate that GFI (.688) and AGFI (.652) are below the recommended criteria. Similarly, the results for TLI indicated a figure of 0.89p which is very close to the recommended criteria of ≥ in 0.90. In contrast the figures of IFI (.906) and CFI (.905) are above the recommended value of ≥ 0.90.

RMSEA has also met the recommended criteria of <.80 and achieved an acceptable figure of .078. Overall the figures generated from initial confirmatory factor analysis has indicated the need for further refinement of the model as some model fit indeces have inadequate values since they were below the minimum recommended criteria (Anderson and Gerbing, 1988). The refinement of the model can be carried out by relating the indicators to a different factor or deleting them and by relating the indicator to multiple factors or using correlated measurement errors (Anderson and Gerbing, 1988). Furthermore, the goodness of model fit can be improved by checking the standardised residuals, modification indices and specification searches (Hair *et al.*, 2010). This study has improved the model fit by carrying out these steps and deleted some items from information quality, system quality, service quality and value constructs. After removing the problematic items from the initial model, another test was run as shown in figure 5.2. The results of the final CFA was satisfactory as presented in table 5.11.

Table 5.11: Goodness of Fit Indices for Final CFA

Model Fit Indices	Recommended Criteria	Default Model
X ² /df	1:3	2.589
GFI	≥ 0.90	0.918
AGFI	≥ 0.80	0.897
IFI	≥ 0.90	0.981
TLI	≥ 0.90	0.977
CFI	≥ 0.90	0.981
RMSEA	<.80	0.048

The final CFA model indicates that all the figures illustrate a good fit for the measurement model. X²/df has achieved an acceptable fit of 2.589 and is well above the minimum requirement of (1:3). The results for GFI, IFI, TLI, CFI were 0.918, 0.981, 0.977, 0.981 respectively and all were above the recommended value of ≥ 0.90. The results for AGFI indicated a figure of 0.897 which met the recommended criteria of ≥ in 0.80. RMSEA has also met the recommended criteria of <.80 and achieved an acceptable figure of 0.04.

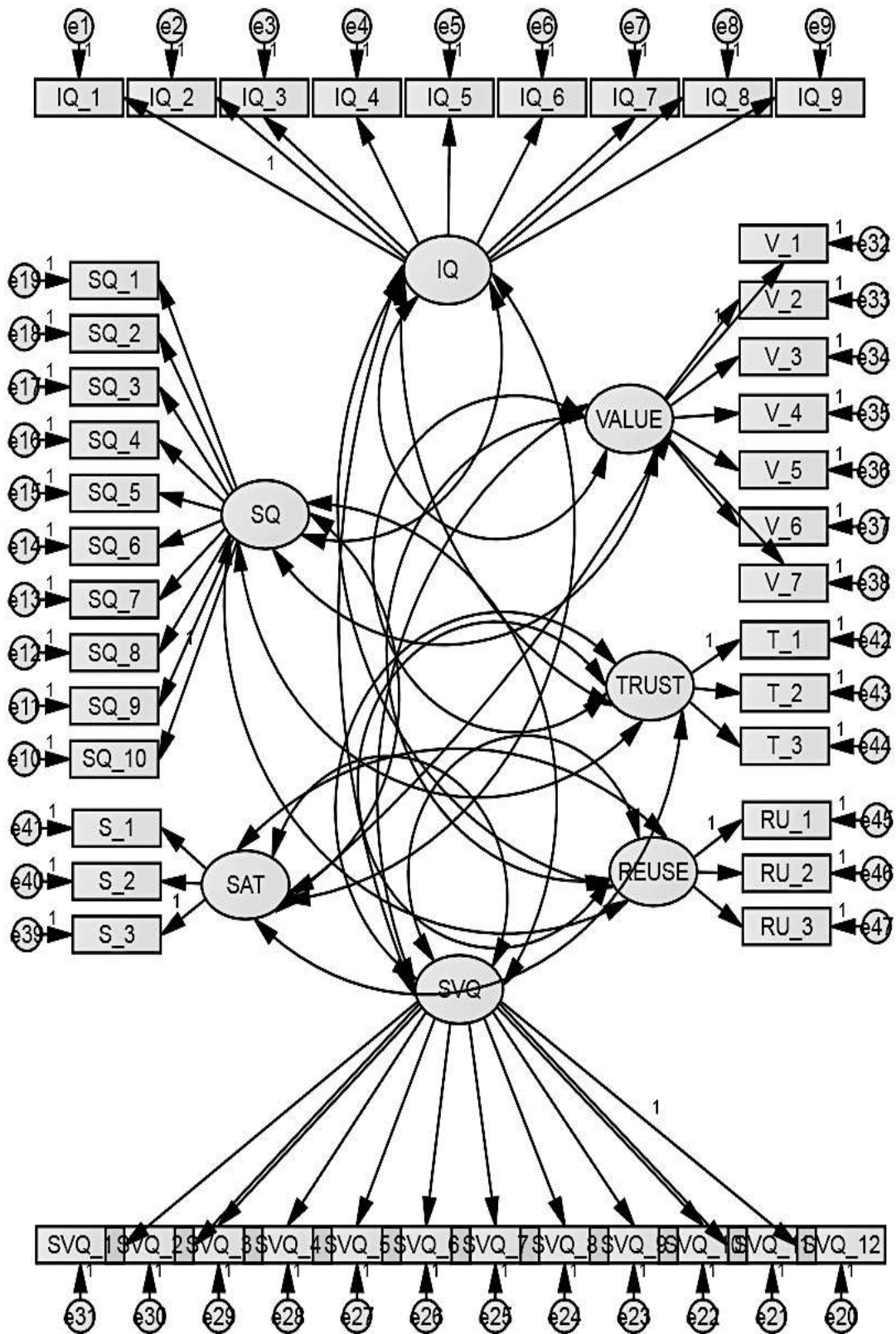


Figure 5.1: Initial Confirmatory Factor Analysis (CFA).

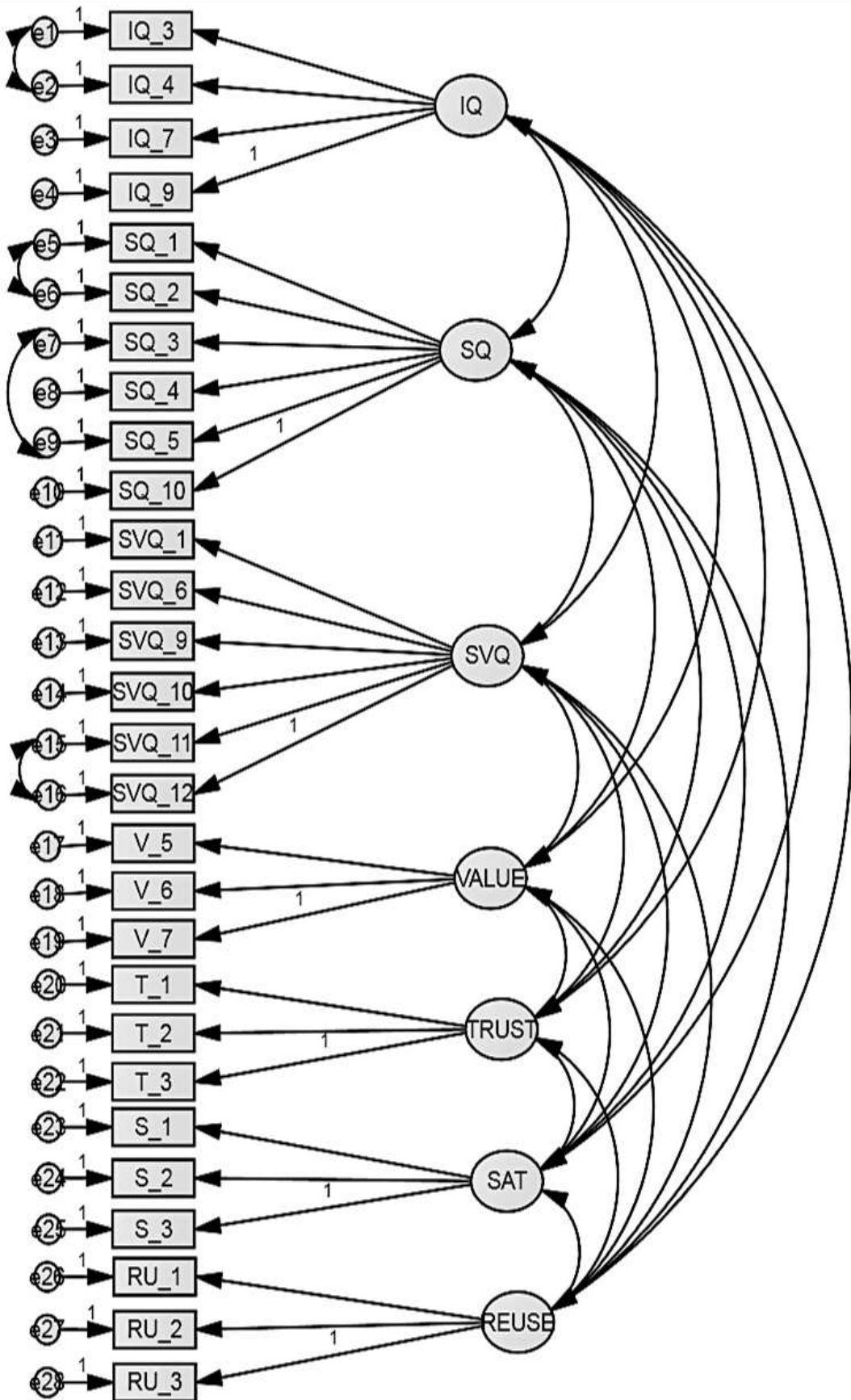


Figure 5.2: Final Confirmatory Factor Analysis (CFA).

5.4.2 Validity Assessment

It is important to validate the CFA results through construct validity (Hair *et al.*, 2010). Validity is the extent to which measurement of the constructs accurately represents the concept of interest. Scale validity is required to ensure that a scale is unidimensional, conforms to its conceptual definition and meets the necessary level of reliability (Hair *et al.*, 2010). The most widely accepted form of validity are convergent and discriminant which are used in the current study. The details of each type are outline accordingly in the following sections.

5.4.2.1 Convergent Validity

Convergent validity means the indicators measuring certain construct share a high proportion of variance in common (Hair *et al.*, 2010). For the purpose of this study convergent validity is assessed by factor loading, average variance extracted and composite reliability. As a rule, factor loading should have all standardised regression weight of above 0.50 and all critical ratios (t-value) should be greater than 1.96 (Hair *et al.*, 2010). Average variance extracted (AVE) calculates the overall amount of variance in the indicators accounted for by the latent construct. The rule of thumb is that AVE value should be greater than 0.5. As shown in the equation below, it can be calculated as the total of all squared standardised factor loadings (squared multiple correlations) divided by the number of factors.

$$AVE = \frac{\sum_{i=1}^n Li^2}{n}$$

Note: in the formula mentioned above λ represents factor loadings (standardized regression weights) and i represents the total number of items.

Composite Reliability measures the internal consistency and as a rule of thumb it should be greater than 0.70 (Bagozzi and Yi, 1988). The formula that is used to calculate composite Reliability is as follows

$$CR = \frac{(\sum_{i=1}^n Li)^2}{(\sum_{i=1}^n Li)^2 + (\sum_{i=1}^n ei)}$$

Note: in the formula mentioned above λ represents factor loadings (standardized regression weights) and i represents total number of items, and δ represents the error variance term for each latent construct.

Table 5.12: Convergent Validity

Construct	Item	Factor Loading	Critical Ration t-value	AVE	CR
IQ	IQ_9	0.933	-----	0.855	0.959
	IQ_7	0.925	45.363		
	IQ_4	0.908	41.842		
	IQ_3	0.933	46.005		
SQ	SQ_10	0.901	-----	0.837	0.969
	SQ_5	0.913	39.251		
	SQ_4	0.936	42.064		
	SQ_3	0.921	40.253		
	SQ_2	0.909	38.928		
	SQ_1	0.91	39.093		
SVQ	SVQ_12	0.835	-----	0.696	0.932
	SVQ_11	0.86	33.578		
	SVQ_10	0.875	29.487		
	SVQ_9	0.858	28.19		
	SVQ_6	0.858	28.258		
	SVQ_1	0.71	21.415		
VALUE	V_7	0.928	-----	0.85	0.944
	V_6	0.895	40.502		
	V_5	0.931	45.471		
SAT	S_3	0.961	-----	0.91	0.968
	S_2	0.94	55.566		
	S_1	0.96	62.146		
RE-USE INTENTION	RU_3	0.875	-----	0.745	0.898
	RU_2	0.931	36.136		
	RU_1	0.875	31.917		
TRUST	T_3	0.956	-----	0.89	0.961
	T_2	0.915	47.525		
	T_1	0.948	55.433		

5.4.2.2 Discriminant Validity

Discriminant validity is defined as “the degree to which two conceptually similar concepts are distinct” (Hair *et al.*, 2010, p.125). It can be assessed by comparing the average variance extracted values for any two constructs with the square of correlation estimate between these two constructs. Discriminant validity is significant when average variance extracted is greater than squared correlation estimates between

constructs. The result shown in table 5.13 highlights a significant level of discriminant validity as AVE is greater than the squared correlation estimate for all the constructs.

Table 5.13: Discriminant Validity

	IQ	SQ	SVQ	Value	Trust	Re-use	Sat
IQ	0.925						
SQ	0.79	0.915					
SVQ	0.657	0.738	0.835				
Value	0.8	0.796	0.766	0.922			
Trust	0.776	0.722	0.717	0.804	0.944		
Re-use	0.698	0.65	0.611	0.771	0.73	0.863	
Sat	0.823	0.803	0.751	0.902	0.809	0.772	0.954

5.4.3 Structural Model and Hypotheses Testing

After the validity of CFA, the next stage is to test the structural model as it will confirm the relationships between the factors as hypothesized. As suggested by Hair *et al.* (2010), a structural model should at least use four tests of model fit indices, therefore, this study has used 7 goodness of fit indices: Chi square to (X^2) to the degree of freedom (Df), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), incremental fit index (IFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA).

Table 5.14: Goodness of Fit for Structural Model

Model Fit Indices	Recommended Criteria	Default Model
X ² /df	1:3	2.768
GFI	≥ 0.90	0.908
AGFI	≥ 0.80	0.888
IFI	≥ 0.90	0.978
TLI	≥ 0.90	0.975
CFI	≥ 0.90	0.978
RMSEA	<.80	0.050

As shown in table 5.14, all the figures illustrate a good fit for the structural model. X²/df has achieved an acceptable fit of 2.768 and is well above the minimum requirement of (1:3). The results for GFI, IFI, TLI, CFI were 0.908, 0.978, 0.975, 0.978 respectively and all were above the recommended value of ≥ 0.90. The results for AGFI indicated a figure of 0.888 which met the recommended criteria of ≥ in 0.80. RMSEA has also met the recommended criteria of <.80 and achieved an acceptable figure of 0.050.

5.4.3.1 Hypotheses Testing

The research hypotheses are tested by analysing the path significance of each relationship. The standardised estimate, critical ratios and p-value are used to examine all eight hypotheses in this study. Critical ratio (t-value) is achieved by dividing the regression weight estimate by standard error (S.E). A relationship is significant when a t-value is above 1.96 and a p-value of (≤.05). Table 5.15 is presenting the results of path estimates for the eight hypotheses in this study. The results revealed that all eight casual paths are significant as the t-values are above 1.96 and the p-value is ≤.05.

The relationship between **information quality** and **value** is significant with a path estimate of 0.036, t-value of 13.734 and a significant p-value of ≤.05 and hence hypothesis (1) is supported. **System quality** is also significantly related to **value** with path estimate of 0.04, t-value of 4.847 and a significant p-value of ≤.05. Similarly, **service quality** has a direct positive impact on **value** with a significant path estimate of 0.034, t-value of 11.04 and p-value of ≤.05 and hence hypotheses (3) is supported.

Hypothesis (4) is also supported with significant path estimate of 0.136, t-value of 2.759 and p-value of 0.006.

Table 5.15: Hypotheses Testing

Hypotheses	Variables	Estimate	S.E.	C.R.	P value	Finding
H1	IQ → VALUE	0.496	0.036	13.734	***	Supported
H2	SQ → VALUE	0.196	0.04	4.847	***	Supported
H3	SVQ → VALUE	0.371	0.034	11.04	***	Supported
H4	VALUE → RE-USE	0.374	0.136	2.759	0.006	Supported
H5	VALUE → SAT	1.031	0.024	43.086	***	Supported
H6	VALUE → TRUST	0.826	0.025	32.814	***	Supported
H7	SAT → RE-USE	0.265	0.109	2.432	0.015	Supported
H8	TRUST → RE-USE	0.228	0.059	3.885	***	Supported

The relationship between **value** and **satisfaction** is significant with a path estimate of 0.024, t-value of 43.086 and a significant p-value of $\leq .05$ and similarly **satisfaction** is significantly related to **re-use intention** with a path estimate of 0.109, t-value of 2.432 and a significant p-value of 0.015. Therefore both hypotheses (5 and 7) is supported as the estimates exceed the minimum requirement. The path estimate of 0.025, t-value of 32.814 and p-value of $\leq .05$ also supported hypothesis 6. **Trust** has a positive and significant relationship with **re-use intention** with a path estimate of 0.059, t-value of 3.885 and p-value of $\leq .05$. In summary the results revealed that all eight hypotheses are supported with the achieved figures.

Figure 5.3 is presenting the path coefficients of all eight relationships in the proposed conceptual model. The results indicate a positive and significant relationship between **information quality** and **value** with a path coefficient of 0.47 and hence it supported hypothesis (1). **System quality** has a significant and positive impact on the **value** with a path coefficient of 0.19 and therefore it supports hypothesis 2. **Service quality** has a significant and positive impact on **value** with a path coefficient of 0.35 and hence it supports hypothesis (3). **Value** has a significant and positive impact on **re-use intention** with a path coefficient of 0.37 and hence it supports hypothesis (4). Further, **value** has a significant and positive impact on **satisfaction** with a path coefficient of 0.96 and hence it supports hypothesis (5). **Value** has a significant and positive impact

on **trust** with a path coefficient of 0.87 and hence it supports hypothesis (6). **Satisfaction** has a significant and positive impact on **re-use intention** with a path coefficient of 0.28 and hence it supports hypothesis (7). Finally, **trust** has a significant and positive impact on **re-use intention** with a path coefficient of 0.21 and hence it supports hypothesis (8). Overall, the path coefficients for all eight relationships were significant and all eight hypotheses were supported.

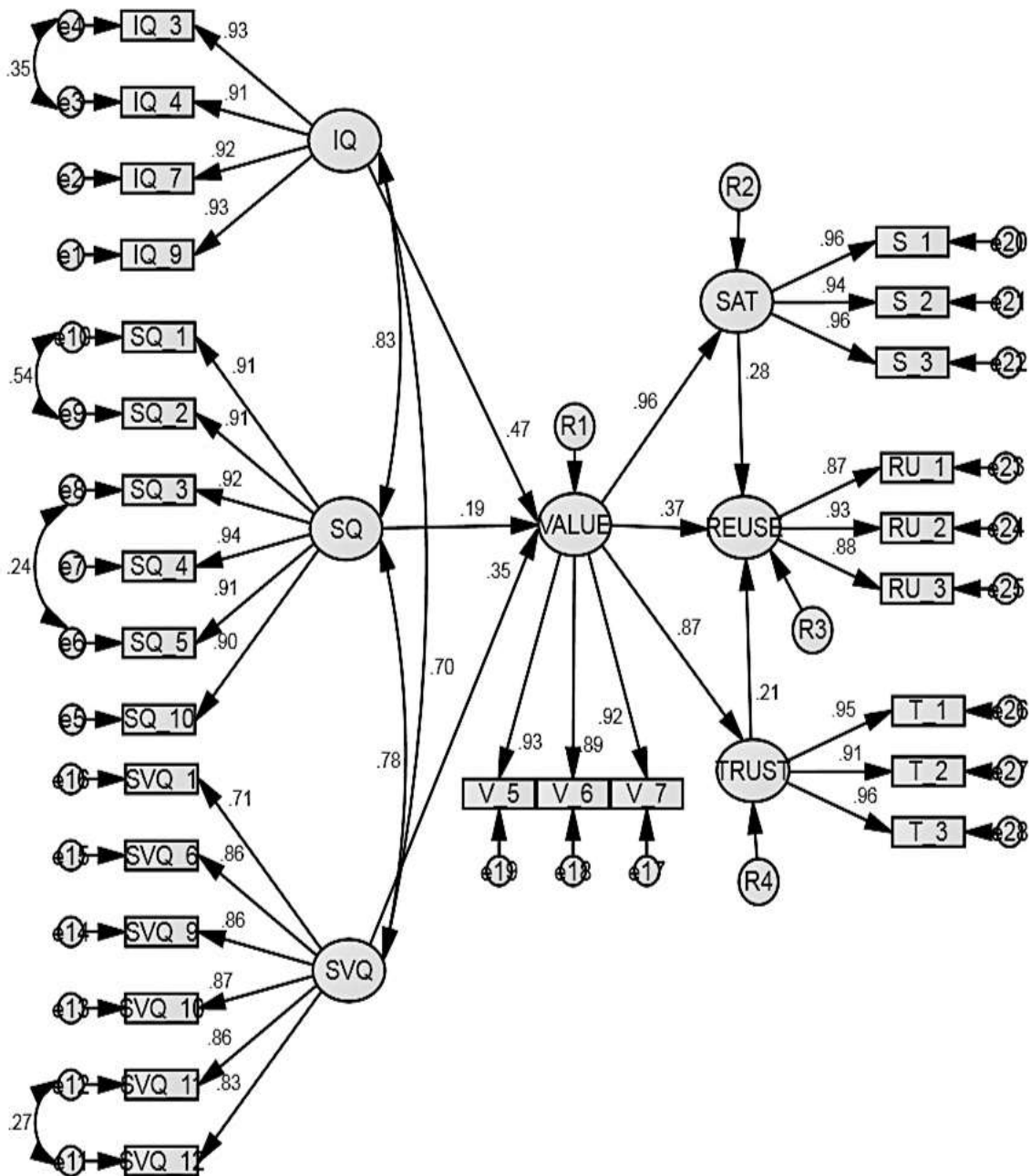


Figure 5.3: Structural Model.

5.5 Summary

This chapter has outlined that after cleaning the data it has considered a total of 705 completed survey questionnaires for further analysis. From the total of 705 surveys, 246 respondents have chosen the NHS Choose and Book system, 244 respondents have chosen Self-Assessment Tax return and 215 respondents have chosen Car Tax Disc Renewal as the e-government systems they last used. Based on their last used, chosen e-government service, the respondents filled the surveys. Using the completed surveys, this study used SPSS version 20 software to present the demographic profile of respondents and the descriptive statistic of the constructs. Thereafter, this study used AMOS version 20 to carry out Structural Equation Modelling (SEM). A structural equation model was conducted based on two stages: (1) the measurement model or confirmatory factor analysis (CFA) and (2) the structural model (Hair *et al.*, 2006).

As suggested by Hair *et al.*, (2006) the study has validated the CFA through two stages: (1) Goodness of Fit indices and (2) Construct Validity. The results of this study highlighted that all the goodness of fit indices and construct validity were above the minimum criteria. Thereafter, this study conducted a structural model and hypotheses testing and the results revealed that all eight hypotheses proposed in the research are supported. The next chapter will further discuss these result based on reflecting against previous literature.

Chapter 6: Discussion

6 Discussion

6.1 Introduction

This study has examined the evolution of change in the UK public sector through various reform programmes. In particular the review of literature on public sector change in the UK revealed arguments for a shift from new public management paradigms (NPM) to Public Value theory concepts during the last decade. Given the focus of this study is on the public value of e-government led service transformation, it discussed the relationship of both paradigms (NPM and PVT) in the context of e-government services. Based on the conducted literature review, this study argues that the public sector has been evaluating its e-government projects through using outdated private sector principles which focus on cost efficiency and ignoring other important outcomes desired by the public. Therefore, this study found that there is a need for better understanding how public value theory can be applied in the context of e-government services to explain the public value of e-government. To do so, this study developed a conceptual model based on public value theory, DeLone and McLean IS Success Model and means end chain theory combining the disciplines of public administration, information systems and marketing. Thereafter, this study discussed different methodologies to validate the conceptual model and choose a survey method as it best suited the purpose of the research. The study then presented the results of 705 collected surveys of e-government users in the UK to validate the conceptual model and research hypotheses proposed. This chapter will now revisit the research hypotheses and discuss the results of each hypothesis in reflection to prior literature.

6.2 Instrument Validation

This study has adopted convergent and discriminant validity to ensure that the measurements of constructs accurately represent the concept of interest. Convergent validity is assessed by factor loading, average variance extracted (AVE) and composite reliability (Hair *et al.*, 2010). As a rule, factor loading should have all standardised regression weight of above 0.50 and all critical ratio (t-value) should be greater than 1.96. The rule of thumb is that AVE value should be greater than 0.5 and should be greater than 0.70 (Hair *et al.*, 2010). The instrument in this study exceeded the minimum requirement for factor loading and t values, AVE and composite reliability respectively. Thus all the figures present a high level of convergent validity for all the latent constructs used in the measurement model. Discriminant validity is assessed by comparing the average variance extracted values for any two constructs with the square of correlation estimate between these two constructs (Hair *et al.*, 2010). Discriminant validity is significant when average variance extracted is greater than squared correlation estimates between constructs. The result of this study highlights a significant level of discriminant validity as AVE is greater than the squared correlation estimate for all the constructs.

Cronbach's alpha (α) is used to test the internal reliability of the instruments. As a rule of thumb figure of ≤ 0.90 is excellent reliability, 0.70-0.90 is high reliability, 0.50-.70 is moderate reliability, and ≤ 0.50 is low reliability (Hinton *et al.*, 2004). The results of the present study revealed that all constructs have a reliability of above 0.90. Thus, it represents high reliability for all the constructs which highlights internal consistency of the scales. Overall, the instruments of this study have shown high level of validity and internal reliability.

6.3 Hypotheses Testing

This section will provide an overview of the research hypotheses and discuss the results of each hypothesis with reflection of previous literature. Table 6.1 indicates all eight research hypotheses that were examined to identify the factors that influence public value of e-government and the consequence of achieved value. The result of each hypothesis is further discussed in the following sub sections.

Table 6.1: Hypothesis Testing

No.	Hypothesis	Results
H1	Information quality has a significant positive effect on perceived value in an online government service.	Supported
H2	System quality has a significant positive effect on perceived value in an online government service.	Supported
H3	Service quality has a significant positive effect on perceived value in an online government service.	Supported
H4	Perceived value has a significant positive effect on re-use intention in an online government service.	Supported
H5	Perceived value has a significant positive effect on user's satisfaction in an online government service.	Supported
H6	Perceived value has a significant positive effect on trust in an online government service.	Supported
H7	User satisfaction has a significant positive effect on re-use intention in an online government service.	Supported
H8	Trust has a significant positive effect on re-use intention in an online government service.	Supported

6.3.1 Information Quality and Value

Information quality is referred to user's assessment of whether the information delivered by the e-government service provider is personalized, complete, relevant, secure and easy to understand (DeLone and McLean, 2003). Furthermore, information quality of an e-government service is referred to the quality of the content provided by the service provider to their users (Teo *et al.*, 2009). This study has proposed that Information Quality has a significant positive effect on perceived value in an online government service (H1). The results found that information quality has positive impact on value and indicated a t-value of 13.734 and a p-value of ≤ 0.05 and hence it supported hypothesis (1). In addition, this study suggests that government websites can create individual user's value by providing information quality and the empirical result obtained is similar to previous studies in the context of online retailers that provide up-to-date and easy to understand information which in return generate value

for their shoppers (Wang, 2008; Benardo *al.*, 2012). Therefore, online shopper's perceived value will increase with the increase in the quality of information. Furthermore, other studies have argued that government websites can generate user value by focusing on information quality (Scott *et al.*, 2009, 2011; Omar *et al.*, 2011). This study further supported these arguments and found that information quality is an important dimension of creating public value for individual users. Therefore, in order to create value for users, government organisations should place strongly emphasis on providing information which is complete, relevant, up to date and easy to understand.

6.3.2 System Quality and Value

System quality is referred to user's perception of the technical performance of e-government services in information retrieval and delivery of the service (DeLone and McLean, 2003; Sedon, 1997; Teo *et al.*, 2009). Therefore, e-government service providers should maintain a system that is available 24/7, easy to use, reliable in terms of not freezing when needed by the user, and adaptable by the users (DeLone and McLean, 2003). As such, this study proposed that System Quality has a significant positive effect on perceived value in an online government service (H2). The findings of this study revealed that system quality has a significant and positive impact on the value of users. The results also found that system quality has positive impact on value and indicated a t-value of 4.847 and p-value of $\leq .05$ and therefore it supports hypothesis 2. The empirical results also support the argument that e-government service providers can generate individual user's value by providing a system which is easy to use, reliable and responds on time to the user's needs. The result of this study is further supported by Wang (2008) who has examined the influence of system quality on user's perceived value of online shoppers and indicated that system quality has a significant positive affect on perceived value. Scott *et al.* (2009, 2011) also examined this relationship in the assessment of e-government success from a citizens' perspective and their results highlighted that system quality has a positive impact on value creation. Therefore, the results of this study are consistent with previous studies and suggest that e-government service providers can create value by focusing on creating e-government system that are easy to use, reliable, adaptable and available 24/7.

6.3.3 Service Quality and Value

Service quality is referred to the overall support the e-government services provide to their users; for example, when the user requests for specific information then the e-government service provider should promptly respond to that request in order to improve the service quality (DeLone and McLean, 2003). This study has proposed that Service Quality has a significant positive effect on perceived value in an online government service (H3). Service quality is referred to as overall support delivered by the service provider to the users of the service (i.e the customers). The findings of this study revealed that service quality has a direct positive impact on value. The results found that service quality has positive impact on value and indicated a t-value of 4.847 and a p-value of ≤ 0.05 and hence supporting hypothesis (3). This result is similar to Wang's (2008) study that examined the influence of service quality on the user's perceived value which found that user's high perceived service quality has a significant positive affect on their perceived value. Furthermore, Kuo *et al.* (2009) studied the influence of service quality on the user's perceived value and their findings highlighted that service quality positively influence perceived value. Omar *et al.* (2011) also studied the impact of e-government service quality on public value creation and argued at a conceptual level that service quality has a direct impact on value creation. The results of this study is further consistent with previous studies and therefore suggests that service quality is an important factor to be considered by e-government service providers as it is strongly linked to user's value.

6.3.4 Value and Re-use Intention

The user's perceived value of e-government is the trade-off between the 'he or she gives and gets' components as described in the marketing domain (Zeithaml, 1988; Mills *et al.*, 2010). Therefore, the 'get component' is the benefits provided by the e-government service providers, such as service quality, and the 'give component' is the non-monetary costs, such as time, physical and psychological efforts (Parasuraman and Grewal, 2000; Mills *et al.*, 2010). This study has proposed that Perceived value has a significant positive effect on re-use intention in an online government service (H4). The findings of this study revealed that value has a direct positive impact on re-use intention. The results of this research found that value will lead to re-use

intention and indicated a t-value of 2.759 and p-value of 0.006 hence supporting hypothesis (4). Wang (2008) suggested that users who perceived high value from using a retailers website will most likely come and re-use or shop again from the retailer's site. Therefore, Wang (2008) argued that online retailers should focus on indicators that influence the perceived value of users as this will eventually lead to behaviour of re-purchasing. Furthermore, many researchers have examined the impact of value on re-use intention and the results found positive relationships between value and re-use intention (Pearson *et al.*, 2012; Benardo *et al.*, 2012; Kim and Niem, 2009; Hu *et al.*, 2009). The result of this study is also consistent with previous studies and indicates that individual users of e-government who once used the service and received private value will eventually re-use that service. Therefore, the e-government service providers should emphasise on the factors (information quality, system quality, service quality) that influence value which in return will lead to re-use intention.

6.3.5 Value and Satisfaction

This study proposed that Perceived value has a significant positive effect on user's satisfaction in an online government service (H5). The empirical results of this research found that value has positive impact on satisfaction and indicated a t-value of 43.086 and a significant p-value of ≤ 0.05 hence supporting hypothesis (5). Other previous studies have supported this result and indicated that ignoring customer value may cause lowered customer satisfaction and perceived value is also an immediate antecedent to satisfaction (Oh, 2000; Chang and Wang, 2011). A study by Barrutia and Gilsanz (2012) has also highlighted that online shoppers who are more satisfied with a particular retailer is due to the value the user achieves from using the services provided by the retailer. Once the online user retains value from using the online service then the user will respond emotionally by feeling more satisfied. Kearn (2004) also highlighted that satisfaction is an important antecedent of public value of e-government services, thus e-government service providers should deliver a service that exceeds the expectation of users. Based on the discussion, this study suggests that e-government service providers should focus on creating private value for users as it will lead to satisfaction which in return leads to re-use of the service (Kuo *et al.*, 2009)

6.3.6 Value and Trust

This study has proposed that Perceived value has a significant positive effect on trust in an online government service (H6). As discussed in chapter 3, this hypothesis was supported in many previous studies (e.g. Harris and Goode, 2004; He *et al.*, 2012; Jiao *et al.*, 2012; Karjaluoto *et al.*, 2012; Lam and Shankar 2014). In line with previous research, the results of this research found that value has a positive impact on trust and indicated a t-value of 32.814 and p-value of $\leq .05$. Therefore, the results support research hypothesis (6) as the t-values and p-values are above the minimum criteria of 1.96 and $\leq .05$ accordingly. A study by Harris and Goode (2004) has claimed that online purchasing retailers can build up user's trust by adding value for them through reducing the complexity of using the service. Once the users experience a better service from a service provider, it will result in creating trust which then leads to the user trusting the retailer (He *et al.*, 2013, Harris and Goode, 2004; Lam and Shankar, 2014). At a conceptual level, Kearn (2004) has suggested that the achievement of individual user's value will lead to trusting the e-government service. The empirical result of this study has validated this argument. Overall, the above discussion concludes that the results of this study is consistent with previous studies and provides evidence for e-government service providers to emphasise on private value of users as it is strongly linked to users trusting the e-government service.

6.3.7 Satisfaction and Re-use Intention

User satisfaction is the result of subjective comparison between their expectation and perceived performance of the service (Oliver, 1981, Parassuraman *et al.*, 1988).

In the context of e-government, Welch *et al.* (2005) have defined satisfaction as the extent to which expectations about e-government are perceived to have been met. If the e-government service performance exceeds the user's expectations, then he or she will be more satisfied and if the performance of an e-government service is below the user's expectations then they will be less satisfied (Oliver, 1981; Welch *et al.*, 2005; Hung *et al.*, 2006). Furthermore, Hung *et al.*, (2006) suggested that re-use intention of e-government service users can be determined by their past experience of using the service. Therefore, to retain e-government service users, Hung *et al.*, (2006) proposed to policy makers that their e-government strategies should seek to improve the user's

interface of e-government services. Based on these previous evidences, this study proposed in hypothesis (7) that User satisfaction has a significant positive effect on re-use intention in an online government service. The empirical results of this study revealed that satisfaction has a positive impact on re-use intention with a t-value of 2.432 and a significant p-value of 0.015. Therefore, the results support hypothesis (7) as it exceeded the t-value and p-value is above the minimum criteria of 1.96 and ≤ 0.05 accordingly. This result is further supported by previous research of Teo *et al.* (2008) who examined satisfaction and re-use intention of e-government through a feedback mechanism where an effective satisfaction from prior use will influence user's intention to re-use. Teo *et al.* (2008) found that a user who has had a pleasant and easy experience of finding the information needed from an e-government Website will be satisfied and hence will come back to re-use the service if they need information in future. Similarly, this study also found that satisfaction with an e-government Website is positively associated with intention to continue using that Website. Therefore, government service providers should consider improving their user's satisfaction level as it will lead to re-use of their services (Hung *et al.*, 2006; Kumar *et al.*, 2007).

6.3.8 Trust and Re-use Intention

Trust in the context of e-government is the belief that the website will act responsibly during a visit or transaction (Teo *et al.*, 2008). As discussed in chapter 3 there are many studies that have studied the influence of trust on the behaviour of users of e-government services (e.g. Al-Shafi and Weerakkody, 2010; Carter and Weerakkody, 2008; Carter and Bélanger, 2005; Bélanger and Carter, 2008; Belanger and Hiller, 2006; Teo *et al.*, 2009; Welch *et al.*, 2005, 2006; Pina *et al.* 2010). Belanger and Carter (2008) have suggested that citizens with a lower propensity to trust might represent the biggest opportunity for growth in e-government adoption. They further argued that e-government service providers should reach out to this group (Citizens with low trust) of citizens and provide them with incentives (i.e. guarantee that online service would be faster than other offline methods) as it will help the government to grasp the greatest return of their e-government investments. Therefore, trust is important for government agencies as it will increase the willingness of the users to use e-government services in the future (Carter and Bélanger, 2005; Bélanger and Carter, 2008; Belanger and Hiller, 2006). As trust is an important factor in the field of

e-government (Carter and Belanger, 2008, Teo *et al.*, 2009), this study has proposed that Trust has a significant positive effect on re-use intention in an online government service (H8). The findings of this study revealed that trust has positive impact on re-use intention with a t-value of 3.885 and p-value of $\leq .05$ and hence it supports hypothesis (8). This result is further supported by Rafiq *et al.* (2013) who examined the role of trust on intention to re-use an online service in the e-tailing environment. Another study by Teo *et al.* (2008) who examined the role of trust in e-government success and re-use intention found that trust plays an important role on re-use of e-government services and high level of trust will influence the behaviour of e-government users towards re using the service. The empirical results of this study also revealed that users trust in an e-government service would determine their behaviour towards re using that service. Hence, the results of this study suggest that e-government service providers should focus on factors that build users trust as it plays an important role on re-use of a service.

6.4 Summary

This chapter has discussed the results of research hypotheses presented in chapter 5. Initially it discussed the instrument validity of the measurements used in the survey to collect data from e-government service users in the UK. Thereafter, it discussed each research hypothesis and supported the results of each with previous literature. The discussion of the results has highlighted very important contribution to the field of e-government. In summary, the findings of this study has shown that quality dimensions (information quality, system quality, service quality) have positive influence on the value of e-government user. Kelly's analytical framework of public value suggested that government need to understand the factors that maximise the creation of public value through service provision. The results of this study highlighted that government has to measure three important factors (information quality, system quality, service quality) as they will result in creating public value from consumption of the service. Furthermore, the results indicated that the achieved public value from consumption of the service will lead to re-use intention. The findings of this study has also shown that the achieved value from consumption of a service will result into emotional response (satisfaction) and which then leads to behavioural response (re-use intention). The Findings of this study has further shown that the achieved value from consumption of

an e-government service will result in trusting the service which in return contributes re-use intention. As mentioned, these results of the study establish three relationships of quality→value→ re-use intention, value→satisfaction→ re-use intention and value →trust→re-use intention. The next chapter will further discuss the practical and theoretical contribution of this study.

Chapter 7: Conclusion

7 Conclusion

7.1 Introduction

This chapter will conclude the thesis by providing an overview of the important areas it has covered. The chapter will initially revisit the research aim and objectives and then discuss the achievement of each objective within the thesis. Thereafter, it will outline the research findings based on the two research questions posed in chapter 1. It will further provide a description of theoretical and practical contributions of this study. Finally, it will outline the limitation of this study and provide recommendations for future research.

7.2 Meeting the Research Aim and Objectives

The aim of the thesis was identified in chapter 1: To investigate the concept of public value and its influence on citizens' intention to re-use e-government services within the UK. In order to achieve the aim a number of objectives were set. Table 7.1 indicates each objective and the chapters where the objectives were achieved.

Table 7.1: Meeting the Research Objectives

Objectives	Chapters
Objective 1	Chapter 2
Objective 2	Chapter 3
Objective 3	Chapter 4 and 5
Objective 4	Chapter 6
Objective 5	Chapter 7

Objective 1:

Conduct a comprehensive literature review on Public management paradigms and public value theory.

This study carried out a detailed and critical review of the literature and highlighted the need for the research. Chapter 2 presented the trends of public sector transformation in the UK by identifying all the reforms that took place during the last five decades. Thereafter, the trends were translated into a public management

paradigm labelled as new public management (NPM). It highlighted the significance of NPM and its failure and highlighted the new alternatives labelled as post NPM (DEG, NPG, and Public value management). It was known that post NPM paradigms highlight the significance of public value to understand the broader outcomes of e-government services, hence proposing public value as an alternative to NPM. It is also found from the literature that there are a number of calls to further investigate public value and its influence on e-government services. Therefore, this study observed this need and proposed a public value conceptual model that will highlight the indicators that affect value and the consequences of value on e-government services.

Objective 2:

Interpret the research need and propose a conceptual model and set of hypotheses that defines the influence of the public value of e-government.

Chapter 3 of this study has presented a public value of e-government conceptual model and presented 8 hypotheses. The conceptual model was drawn from public value theory, IS success model, and Means end chain theory. It presented the importance and relevance of all the explained theories within the e-government domain. It then presented the justification for all eight hypotheses from previous literature.

Objective 3:

Using the public value conceptual model, conduct a quantitative based empirical enquiry in the UK to evaluate the public value of e-government.

Chapter 4 has presented the methodology for carrying out this research and provided a justification of its chosen research philosophy, research approach and research design. Thereafter in chapter 5, this study presented the results of the tested conceptual model based on the chosen methodology. It has presented the results for descriptive analysis, reliability and validity test, confirmatory factor analysis and structural model fit (SEM).

Objective 4:

Analyse the empirical data and validate the proposed research hypotheses and model.

Chapter 6 of this study has discussed the results that were presented in chapter 5. It has examined the results of each hypothesis and further discussed them in the light of previous literature. It was highlighted that all 8 hypotheses of this were positively supported by the literature and the goodness of fit for confirmatory factor analysis and SEM was well above the required criteria. Hence, the validated conceptual model remained the same as presented initially in chapter 2.

Objective 5: Offer practical and theoretical implications of the key findings and provide recommendations for future research.

Chapter 7 of this thesis concludes the study by revisiting the aim and objective of the study. Then, it has presented the theoretical and practical use of the proposed conceptual model. Thereafter, it states the limitations and recommendation for future work.

7.3 Research Findings

This study proposed a conceptual model in chapter 3 based on the literature review in chapter 2. The main focus of the conceptual model was to solve the two research questions proposed in chapter 1. Thereafter, the conceptual model was validated through a survey of 705 e-government users in the UK. Based on the two research question, the main findings of this research are as follows:

What are the antecedents of value in e-government services?

- This research found that information quality, system quality and service quality are the antecedents of value in e-government services. The results found that information quality has positive impact on value and indicated a t-value of 13.734 and a p-value of $\leq .05$. The results also found that system quality has positive impact on value and indicated a t-value of 4.847 and p-value of $\leq .05$. Furthermore, the results found that service quality has positive impact on value and indicated a t-value of 4.847 and a p-value of $\leq .05$.

- This research found that all three relationships are significant as their t-values are above 1.96 and p-values are ≤ 0.05). Therefore, this implies that e-government service providers should emphasise on the factors (information quality, system quality, service quality) as they are strongly linked to user's value. The value of user's is influenced by information that is complete, up to date, relevant and easy to understand. Furthermore, e-government system which features easy to use, reliable and available all the time will have an impact on the value of users. Finally, user's value will improve with a good service support provided the e-government service.

What are the consequences of value in e-government services?

- This research found that individual users of e-government who once used the service and received private value will eventually re-use that service. The results of this research found that value will lead to re-use intention and indicated a t-value of 2.759 and p-value of 0.006. Based on this finding, this research suggest that e-government service provides should focus on the value antecedents as it will in return lead to re-use intention.
- This research found that the achievement of individual user value will result in their satisfaction which then leads to re-use intention. The results of this research found value has positive impact on satisfaction and indicated a t-value of 43.086 and a significant p-value of ≤ 0.05 . Similarly, satisfaction has a positive impact on re-use intention with a t-value of 2.432 and a significant p-value of 0.015.
- This research found that the achievement of value will result in trusting the service which in return contributes to re-use intention. The results of this research found that value has positive impact on trust and indicated a t-value of 32.814 and p-value of ≤ 0.05 . Similarly, trust has positive impact on re-use intention with a t-value of 3.885 and p-value of ≤ 0.05 .
- Overall, this research found that value will result in high level of satisfaction and trust which in return will lead to re-use intention. Therefore, this research

suggests that e-government service providers can increase the level of satisfaction and trust by emphasising on the value antecedents.

7.4 Theoretical Contribution

- Theoretically, the study has contributed to the field of public administration and e-government research by developing a conceptual model for assessing public value of e-government from citizen's perspective.
- It is evident from the literature that there is a need to further study the public value ICT enabled transformation of public services in general and e-government in particular from a citizen's perspective (Cordella and Bonina, 2012; Williams and Shearer, 2011). Existing studies are limited to conceptual arguments and the public value of e-government, although highlighted by scholars and practitioners alike as important, is not empirically validated. This study has contributed to the literature by empirically investigating the factors that influence citizen's behaviour while using e-government services in the UK.
- The previous studies that have examined public value of e-government have got limitations in terms of measuring public value of individual users of e-government services. This study has contributed to the literature by identifying measures from marketing literature. Public value is the equivalent of private value in the public sector i.e. the return that business delivers for their shareholders (Kelly *et al.*, 2002). The citizens expectation are influenced by their experience of private sector, therefore they expect the same level of service value from consumption of a service in public sector (Kelly *et al.*, 2002). Therefore, it is argued that user's value is similar to the definition of perceived value in the marketing literature. Perceived value of using a service is the trade-off between what customers receive and what they give up to acquire the service (Zeithaml 1988). Hence, this study is the first to measure individual value of e-government service from citizen's perspective.
- Another important contribution is the integration of public value theory from the public administration field, IS success model from the Information system field and Means end chain theory from marketing field.

- It is evident from the literature that most public value studies are narrative; there are a number of calls to empirically investigate public value and its influence on the e-government services. This study has contributed to the literature by empirically validating the proposed conceptual model through a survey of 705 e-government users in the UK.
- Public value theory (Kelly *et al.*, 2002; Moore, 1995) is outlined in three broad dimensions - services, outcomes and trust. This study has examined the concept of public value and found that Kelly's analytical public value framework can only be validated by drawing from multiple fields of public administration, Information system and Marketing. In doing so, the study has proved the validity of Kelly's arguments; however at the same time it has shown that the three dimensions of public value are too high level and abstract. Therefore this study suggested that these dimensions cannot be hypothesised or validated on their own.

7.5 Practical Contribution

- From a practical perspective, the study will offer policy makers a frame of reference to understand the impact of value on the success of e-government projects and how public value will influence adoption and re-use. As such, the study findings offer policy makers and the research community a framework for developing e-government design, implementation and diffusion strategies, which are influenced by public value dimensions and looking beyond technology adoption and user satisfaction criteria. This will contribute to better informed decision making in the public sector when investing on new ICT enabled services and help decision makers to look beyond efficiency gains and cost savings (as influenced by New Public Management principles) and move towards public value principles as defined in Public Value Theory.
- For government organizations and policy makers, this study offers insights into the influence of public value and its impact on e-government services. For e-government to be successful it needs to be underpinned by the concept of public value (Kelly *et al.*, 2002 and Kearns, 2004). The success of e-government is explained as the re-use of a service that will result in high take

up of online services (Kearn, 2004). This research has shown that government organisations should focus on the quality of its services since it will result into user's value which then leads to success of e-government. Additionally, the achievement of individual user value will result in their satisfaction which then leads to the success of e-government. Furthermore, the achievement of value will result in trusting the service which in return contributes to the success of e-government. Therefore, government organizations should strongly emphasise these dimensions as this leads to success of e-government services.

- As the most recent Government Digital strategy is focusing on all the services provided by the central government departments and making them available through a single point of access, Gov.uk. Additionally, the main emphasis of the digital by default strategy is about transactional services such as applications, tax, licensing and payments. The survey measures of this study can offer a practical contribution by enabling the government departments to assess the success of their online services. Such assessment results will offer policy makers valuable insights into the public value of not only e-government services, but also the broader impact that ICT enabled service transformations have on communities and individual citizens.

7.6 Research Limitations

The limitations of this study are detailed below:

- The conceptual model proposed in this study has identified the indicators that affect value and the consequences of value on e-government services. The value construct only measures the user's individual value and ignores other values that are hard to measure in quantitative terms. For example, public value theory argues that the individual user who uses the e-government service will receive individual value from using the service, however other citizens who haven't used the service also expect better outcomes from the e-government service in areas such as low crime, peace and security, better public health, clean environment and better educational achievements. Therefore, the future research should focus on these broad outcomes and

examine to what extent the e-government services have achieved these outcomes.

- This study has quantitatively examined the proposed conceptual model with the use of self-administrated survey. The limitation of using this method is that it restricts the ability of accessing the in-depth view of e-government users in relations to the factor affecting their value.
- This study has adopted a non-probability sampling technique known as convenient sampling to collect the data. The limitation of using this technique is its ability to assure the validity of generalising the results of a small sample to the large population.
- Another limitation of this study is the research context being restricted to the 3 e-government service within a UK central government context. Different e-government services have different attributes and can significantly vary between central and local government levels. Therefore, it is hard to generalise the result of this study to local e-government services in the UK and other European countries.

Nevertheless, overlooking these limitations, this study has provided a strong empirical evidence of the factors that affect value and the consequences of value on e-government services in the UK.

7.7 Future Research

In considering the limitations of carrying out this research, the following recommendations are proposed for future research.

- As this study only focused on individual user's value of using e-government services, future research should incorporate other value constructs into the conceptual model which should focus on government value. Government value involves efficiency, effectiveness, collaboration, participation and transparency. Therefore, future work should evaluate the impact of e-government services on the mentioned government values.

- Future research can validate the conceptual model qualitatively using focus groups or interviews as it will allow the researcher to access the in depth views of users and hence will allow the extraction of more factors of value.
- This research further recommend that future research can consider the probability sampling technique for collecting the data as every unit of the population will have a probability of being chosen in the sample.
- This conceptual model is validated using the surveys of 3 e-government services within the UK central government. Therefore, future research should focus on other services locally or centrally as different services vary and it is hard to generalise the results based on the chosen 3 services in this study.
- Future research should assess alternative analytical methods. For example, the impact of service quality on intentions to re-use the e-government service may be mediated by the perceived value of the service. Furthermore, the satisfaction level of the user could also moderate the impact of service quality on perceived public value. Conditional process analyses such as moderated and mediation may shed additional light of the interplay of predictors of re-use intentions of citizens.
- This research is conducted in the context of UK and other contextual and political issues may need to be considered before the proposed conceptual model is applied to other European and non-European countries. Therefore, future research should be conducted in other countries to further validate the proposed conceptual model.

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8 References

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Appendices

9 Appendices



Brunel Business School

Research Ethics

Participant Information Sheet

Dear Participant,

The purpose of this research is to investigate the value perception of users in the context of electronic government in the UK. Electronic government is the employment of internet and World Wide Web for delivering government information and services to the citizens. This Study will investigate the indicators that will influence user's value perception and its impact on electronic government services.

Your participation in this survey is voluntary and you can stop the survey at any time. You will not be asked to reveal your identity and all your responses will be kept confidential. You are invited to take part in the attached survey which will take approximately 10 minutes. All questions require you to tick one or more boxes. Please answer the questions as accurately as possible.

Thank you for taking the time to participate in this research.

If you got any questions in relation this study, I will be happy to answer them.

Yours Sincerely,

Mohamad Osmani

Brunel Business School

Brunel University

Email: Mohamad.osmani@brunel.ac.uk

Q1) Which of the following age categories do you fall into?

- Under 18 18-24 25-29 30-44 45-54
 55-64 Over 64

Q2) Are you..?

- Male Female

Q3) What is the highest level of education you achieved?

- Secondary School College
 Undergraduate Postgraduate PhD Other please specify _____

Q4) How often do you use the internet?

- Daily a month Several times a week Several times a month Once
 Never

Q5) Do you use the internet for any of the following? Please tick all that apply.

- Email Shopping Social network Entertainment
 Education Other please specify _____

Q6) Have you ever used any of the following e-government services in the UK?

Please tick all the boxes that apply to you.

- Council Tax Payment Service
 Car Tax Disc Renewal Service
 Self-Assessment Tax return Service
 NHS Choose and Book Service
 Other service: please specify _____
 None of the above

Q7) Which was the most recent e-government service you used?

- Council Tax Payment
 Car Tax Disc Renewal
 Self-Assessment Tax return
 NHS Choose and Book
 Other service: please specify _____

Part B: In reference to the most recent e-government service you used, please rate the extent you agree or disagree with the following statement. Please circle

	Information Quality Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
IQ1	This government website provides sufficient information.	1	2	3	4	5	6	7
IQ2	Through this government website, I get the information I need in time.	1	2	3	4	5	6	7
IQ3	I am satisfied with the accuracy of this government website.	1	2	3	4	5	6	7
IQ4	Information provided by this government website meets my needs.	1	2	3	4	5	6	7
IQ5	Information provided by this government website is in a useful format.	1	2	3	4	5	6	7
IQ6	Information provided by this government website is clear.	1	2	3	4	5	6	7
IQ7	Information provided by this government website is accurate.	1	2	3	4	5	6	7
IQ8	Information provided by this government website is up-to-date.	1	2	3	4	5	6	7
IQ9	Information provided by this government website is reliable.	1	2	3	4	5	6	7
	System Quality Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
SQ1	This government website is user friendly.	1	2	3	4	5	6	7
SQ2	This government website is easy to use.	1	2	3	4	5	6	7
SQ3	This government website has a simple layout for its content.	1	2	3	4	5	6	7
SQ4	This government website is well organised.	1	2	3	4	5	6	7
SQ5	This government website has a clear design.	1	2	3	4	5	6	7
SQ6	This government website is responsive to your request.	1	2	3	4	5	6	7
SQ7	This government website is quickly loading all the text and graphics.	1	2	3	4	5	6	7
SQ8	This government website is easy to go back and forth between pages.	1	2	3	4	5	6	7
SQ9	This government website is locating the information with few clicks.	1	2	3	4	5	6	7
SQ10	This government website is easy to navigate.	1	2	3	4	5	6	7

	SERVICE QUALITY Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
SV1	When you have a problem, this government website service shows a sincere interest in solving it.	1	2	3	4	5	6	7
SV2	This government website performs the service right the first time.	1	2	3	4	5	6	7
SV3	This government website provides its services at the time it promises to do so.	1	2	3	4	5	6	7
SV4	This government website tells you exactly when services will be performed.	1	2	3	4	5	6	7
SV5	This government website gives you prompt service.	1	2	3	4	5	6	7
SV6	This government website is always willing to help you.	1	2	3	4	5	6	7
SV7	You feel safe in your transactions with this government website.	1	2	3	4	5	6	7
SV8	This government website is consistently courteous with you.	1	2	3	4	5	6	7
SV9	This government website has the knowledge to answer your questions.	1	2	3	4	5	6	7
SV10	This government website gives you individual attention.	1	2	3	4	5	6	7
SV11	This government website has your best interests at heart.	1	2	3	4	5	6	7
SV12	This government website understands your specific needs.	1	2	3	4	5	6	7
	Trust in government Web site	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
TEG1	This government website is trustworthy	1	2	3	4	5	6	7
TEG2	This government website seems to be honest and truthful to me	1	2	3	4	5	6	7
TEG3	This government website can be trusted	1	2	3	4	5	6	7

	Perceived Value Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
PV1	Overall, using this government website is convenient.	1	2	3	4	5	6	7
PV2	This government website gives you a feeling of being in control to a great extent.	1	2	3	4	5	6	7
PV3	You get the value from this government website for your effort.	1	2	3	4	5	6	7
PV4	Compared with the tangible and intangible costs you paid, using the service of this web site is worthwhile	1	2	3	4	5	6	7
PV5	Overall, this government website offers high quality service	1	2	3	4	5	6	7
PV6	The time you spend on this government website is time well spent	1	2	3	4	5	6	7
PV7	Overall, I value this government website's services highly	1	2	3	4	5	6	7
	Satisfaction Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
SAT1	This government website has met your expectations.	1	2	3	4	5	6	7
SAT2	This government website meets your needs of interaction with the government agency	1	2	3	4	5	6	7
SAT3	Overall, you are satisfied with this government website.	1	2	3	4	5	6	7
	Intention to Re-use Statements	Extremely Disagree	Strongly Disagree	Slightly Disagree	Neutral	Slightly Agree	Strongly Agree	Extremely Agree
IR1	You will re-use this government website in the future.	1	2	3	4	5	6	7
IR2	your intention is to continue using this government website rather than use any alternative means (e.g., offline interaction with the government agency)	1	2	3	4	5	6	7
IR3	You will frequently use this government website in the future.	1	2	3	4	5	6	7