FACTORS AFFECTING THE PERCEIVED PUBLIC VALUE OF SOCIAL MEDIA IN QUEENSLAND LOCAL GOVERNMENT COUNCILS

A Thesis submitted by

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ABSTRACT

The open government initiatives across the world have stimulated wide adoption and use of social media technology (SMT) platforms. SMT has become a mainstream tool in both the private and business sectors. SMT is expected to offer net benefits for public sector and governments at all levels, which can contribute the interactions between government and the citizens. Local government councils have started to exploit the potential that social media offers for citizens to communicate with their councils. These interactions might provide net benefits as public value created by government to stakeholders. Measuring the ability of SMT to interact with citizens to create public value is an issue facing local government in their adoption of SMT. Merely having a social media icon on a webpage does not demonstrate usage of SMT, nor does it necessarily create value nor improve interaction with citizens. This study aims to investigate the factors affecting on the public value of using SMT to communicate with local councils, to measure the public value of social media as perceived by citizens in local councils in Queensland Australia.

In order to achieve the research aims, the study model proposed draws upon the Technology Acceptance Model (TAM), Technology Acceptance Model (TAM2), Public Value theory, and Public Value Net Benefits model. The model proposed includes seven constructs: demographic factors, perceived usefulness, and perceived ease of use, intention to use, usage behaviour, types of user participation, and public value of SM. Quantitative research was undertaken with residents across 20 urban and rural Queensland local council areas. The online survey was conducted by a third-party organisation (My Opinions Pty Ltd), obtained 313 responses from residents who use information technology and networks. This study has collected rich and original data regarding public value through social media use in Queensland local councils. A structural equation modelling tool (CO-SEM) was used to assess the online survey results.

This study makes a significant contribution to both theoretical and practical perspectives in the management information systems. In the theoretical perspective, the results indicated that the model and its constructs are reliable and valid to identify the concept of SMT initiatives towards public value. Theoretically, the study offers a value-add to the fields of information system (IS), open government, and public

administration research by examining the public value of social media use in local government councils. In terms of the practical contributions, this research study offers an in-depth understanding of the public value of SMT in local government. As well as, a practical contribution to local government councils and citizens by providing a framework to examine public value through social media use. Our research findings from the main survey sample indicate that social media technology offers economic and social values. Economic benefits include easy of information, convenience cost, time saving, and increased communication. Using SMT reduces the economic cost of accessing and collecting local councils' information. Increased communication that achieves more value relating to participation with local councils. Social benefits include well-informedness, trust and participation diction making with local councils. The findings of this research could be a support for Queensland's local governments to justify their investments in social media. The investments in social media also help local councils' improvements of the public services effectively and efficiently, particularly who wish to interact effectively with their citizens.

Certification of Thesis

This thesis is entirely the work of **Ahmed Muyed Attiya** except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness-of-Fit Index
AVE	Average variance extracted
C2C	Citizen to Citizen
C2G	Citizen to Government
C.R.	Critical Ratio
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
G2C	Government to Citizen
GFI	Goodness-of-Fit Index
GoF	Goodness-of-Fit
ICT	Information Communication Technology
ITU	Intention to Use
IS	Information System
ISE	Information System Evaluation
LCs	Local Councils
QLCs	Queensland Local Councils
PCLOSE	P of Close Fit
PLS-SEM	Partial Least Squares Structural Equation Modeling
PV	Public Value
PVC	Public Value Cost
PVCOM	Public Value Communication
PVCONV	Public Value Convenience
PVEI	Public Value Ease of Information Retrieval
PVP	Public Value Personalisation
PVPDM	Public Value Participation
PVT	Public Value Time
PVTR	Public Value Trust
PVWI	Public Value Well-Informedness
RMR	Root Mean-square Residual
RMSEA	Root Mean Square Error of Approximation
S.R.W.	Standardized Regression Weight
SEM	Structural Equation Modelling
SMC	Squared Multiple Correlation
SM	Social Media
SMT	Social Media Technology
SRMR	Standardise Root Mean-square Residual
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TRA	Theory of Reasoned Action
PU	Perceived usefulness
PEOU	Perceived ease of use
UB	Usage Behaviour
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER 1: INTRODUCTION

The purpose of this chapter is to provide an introduction to explain this study. Section 1.1 provides an introduction to this chapter. Section 1.2 includes the background of this study and describes the issues and problems associated with evaluating the perceived public value of social media. Section 1.3 provides definitions of key terms for this study. Section 1.4 outlines motivations for this study and the problems it aims to address. Section 1.5 presents the objectives of the study, while section 1.6 describes the significance of the study. Section 1.7 of this chapter provides the structure of the thesis. Finally, section 1.8 concludes the chapter.

1.1 Chapter introduction

This research was planned to address issues and problems regarding social media practice in local government. Empirical evidence suggests that these issues need to be examined for a better understanding. The identification of the research problem and objectives and motivation to conduct the research are considered to be essential steps in this process. Accordingly, the first stage of this study is to research the issues related to the factors affecting the perceived public value of social media in Queensland local councils. Social media technology (SMT) has become a mainstream tool in private and business sectors. Governments and public sector organisations are also involved in the evaluation and adoption of social media technologies. Social media technology is an increasingly important component of information between government and citizens, because social media are based on two-way communication between government and citizens. In addition, social media provide greater chances to be dialogic and interactive with users through direct communication or sharing of information, opinions, and ideas (Hong 2013). Past studies have examined several aspects of adoption and use of social media technology in private and public sectors. Measuring the ability of SMT as a means for interacting with citizens to create public value is one of the key issues facing local councils in their adoption of SMT (Criado et al. 2013a; Mergel 2013b; Mossberger et al. 2013; Omar 2015b; Dwivedi et al. 2017). Merely having a social media (SM) icon on a webpage does not demonstrate usage of SMT (Oliveira & Welch 2013), neither does it necessarily create value or improve interaction with citizens. The issues and problems associated with evaluating the perceived public value of social media, the background of the study, problems and

research questions for this study and its objectives, the research significance, and the structure of the thesis are all outlined in this chapter.

1.2 Background of study

The development of Information Communication Technology (ICT) has seen significant changes in human interaction, the management of corporations, and the governance of states. A new generation of technologies facilitates social networking, information sharing and collaborative work, and cooperation with residents and societal organisations (Osimo et al. 2009). Social media technology (SMT) refers to "mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content" (Kietzmann et al. 2012, p. 241). Governments and public sector organisations are focusing on investments in these technologies as part of their Information Technology (IT) strategy (Dadashzadeh 2010).

In July 2010, the Australian Government made its declaration of Open Government (Department of Finance and Deregulation 2010) stating: "Collaboration with citizens is to be enabled and encouraged. Agencies are to reduce barriers to online engagement, undertake social networking, crowdsourcing, and online collaboration projects and support online engagement by employees". The Australian Government made a commitment to join the Open Government Partnership in April 2014 (Open Government Partnership 2013).

Australian governments have been seen as progressive in adopting new information technology as a tool of government engagement and openness, and ensuring effective citizen access to official information (Transparency International Australia 2016). Public access to official information plays an active role in promoting transparency, increasing civic participation, fighting corruption, and harnessing new technologies to make government more open and effective (Transparency International Australia 2016). One of the strategies that were identified by the Australian government was to integrate social media into the Australian public sector and establish social media governance, along with a 'how to' on obtaining feedback from citizens through online consultations (Heaselgrave & Simmons 2016). Open Government Partnership was a strong mission statement from the federal government indicating that it intended to collaborate and engage with the Australian public, and to use electronic methods, as

social media are widely adopted by the public. Open Government implies that the new role of the public sector, as an information provider, strengthens democracy and improves the impact of government work through increased transparency, participation and collaboration (Jetzek 2013). Some areas where open government is creating value include:

a) Transparency and democratic control (Zuiderwijk 2014a);

b) Self-empowerment, improved or new private products and services (Magalhaes et al. 2014);

c) Innovation, improved efficiency and effectiveness of government services (Janssen et al. 2015a).

The use of social media by Australian people is growing quickly. A survey issued to 243 of Queensland's public authorities in 2010 indicated that just over half (51%) of the 132 responding agencies were already using SMT as part of their business processes (Queensland State Archives 2010). A diverse range of SMT was reported as being used, as shown in Table 1.1.

Table 1.1 Queensland public authorities' use of social media tools (2010).

	Social media tools	Currently use %	Likely to use in future %
1	Facebook	52.2	13.0
2	Twitter	49.3	15.9
3	YouTube	15.9	4.3
4	RSS feeds	49.3	10.1
5	Blog	37.7	17.4
6	Wiki	39.1	13.0
8	Other web 2.0 Tools	15.9	4.3

Source: (Queensland State Archives 2010)

The Australian Centre of Excellence for Local Government (ACELG) surveyed the councils during October 2011. A questionnaire was sent to 560 councils across Australia, and the ACELG received completed responses from 235 councils. The ACELG found that many local government websites are still based on the one-way communication design of Web 1.0 and had not yet adopted Web 2.0 design with its interactive technology capabilities. More than half of the councils indicated that they

use social media. Sixty-four councils had a Facebook page, 61 used Twitter, 23 had YouTube channels, seven had blogs and six had Flickr pages (Howard 2012).

A later study in February 2012 comprised a survey designed specifically to investigate a group of 105 councils located in remote areas of Australia. The survey included some exploratory questions on social media use as part of that work. A questionnaire was sent to a group of councils in Western Australia, the Northern Territory, Queensland, New South Wales and South Australia, and received responses from 43 councils in rural-remote areas, including Indigenous communities. Thirteen councils indicated that they were using social media to communicate with constituents. Nine councils indicated that they were considering introducing social media, and 21 indicated that social media were not being used (Morris 2012).

Social media usage is growing at an unprecedented rate and is rapidly becoming a viable channel for communication with stakeholders. In 2017 it was estimated that there were over 15 million Australians registered on Facebook and approximately 2.5 million Australians using Twitter (QGCIO 2017). Social media presents an opportunity for the Queensland Government to augment its traditional communication methods with the use of emerging technology as it develops communication methods. Not only is usage increasing, but public demand is also growing around the use of social media as a convenient communications platform, along with the expectation from residents that government will participate (QGCIO 2017). There is a lack of published statistics on actual use of these initiatives, and on the actual percentage of use of these initiatives in Queensland's local councils. Analysis of websites of 78 councils in Queensland by the researcher (March-May 2016) found that Facebook is the most widely adopted SMT by councils (65 out of 78 councils). In Queensland, 25 councils use Twitter, while 20 have a presence on YouTube, nine use Instagram, seven use LinkedIn, and six councils use RSS. Only 13 councils did not have a social media presence, as shown in Appendix B.

The Queensland Government has invested in a suite of social media community engagement tools, such as Facebook and Twitter, which can be used to support or deliver a wide range of activities including community engagement, communication, policy development and implementation, service delivery and urban planning (Queensland 2010). The Queensland Government launched the One-Stop Shop plan

2013-2018 to make government services simpler, clearer and faster for Queenslanders. This aligns with the government's broader digital transformation agenda and its "digital first" approach, whereby customers will have access to Queensland government information anytime and anywhere, on any device. As part of the One-Stop Shop program, a channel management strategy has been developed with the official use of social media forming part of this strategy (WebCentre 2014a).

Local government is the tier of government closest to citizens (Omar 2015b). It most directly interacts with and serves citizens, providing a range of services that may include libraries, parks, road maintenance, and parking (Majekodunmi 2012). Local government is an important subject for the study of social media and interactivity because of its traditions of citizen participation at the local level (Mossberger et al. 2013). This is especially the case in remote communities where the opportunity for face-to-face interaction between citizens and government specialists is limited due to the large distances that often need to be travelled and the associated costs involved. The key reason for public sector organisations to embrace digital communication is to reach, and engage with, traditionally hard-to-reach audiences such as the younger generation and people in remote locations (Tsui et al. 2010). The use of ICT to improve government connectivity and interactivity is a potential means to improve public value for citizens (Castelnovo & Simonetta 2008). Public value is the value created by government services, laws, regulation and other actions (Kelly et al. 2002).

1.3 Definitions of key terms

A variety of descriptions of the terms used in this study have been suggested in the literature. This study adopts the definitions presented below in order to provide a contextual clarification of the terminology that has been used to describe key research concepts.

Social media (SM): Social media employ "mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content" (Kietzmann et al. 2012, p. 241).

Public value (PV): Public value can be understood as the value or importance citizens attach to the outcome of government policies and their experience of public services (Moore 1995). It is used to measure the "context-specific preferences of individuals concerning, on the one hand, the rights, obligations, and benefits to which citizens are

entitled, and on the other hand, obligations expected of citizens and their designated representatives" (Bozeman 2007, p. 13).

Local government: Local government is the closest tier of government to citizens, and thereby constitutes the level of government that directly interacts and serves citizens. Local governments need to be in the same space as citizens in order to inform, serve, and interact with them (Scott 2006).

1.4 Problem and justification of study

The public sector has been radically affected by developments in information technology. In local government, social media technology is believed to be an important platform for adopting and using new and more advanced IT in the public sector (Reddick & Norris 2013). Measuring the ability of social media technology to interact with citizens and create public value is one of the key issues facing local councils in their adoption of these technologies (Criado et al. 2013a; Mergel 2013b; Mossberger et al. 2013; Omar 2015b; Dwivedi et al. 2017). Research into social media technology in local councils can be justified for a number of reasons.

Firstly, social media sites are used by government today but they are often one-way communication tools and do not have the capacity to increase citizen engagement with local councils (Bryer & Zavattaro 2011). Most local government agencies use social media passively to communicate information from government to citizen (Mergel 2013a; Reddick & Norris 2013). While there are large audiences of the official social media pages of local councils, a high number of followers does not automatically mean an engaged audience. Citizen engagement in local council social media, in general, is still low (Bonsón et al. 2016a). Fostering participation in SM platforms is an issue that continues to present challenges for researchers and practitioners alike. In an era where the scope and role of local government are constantly being scrutinized and where levels of citizen engagement are low, municipalities need to actively use SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison & Hardey 2014).

Secondly, the majority of local councils does not have a clear vision for the use of SMT to interact with citizens (Omar et al. 2014). Social media have not yet moved society very far in the direction that optimistic theorists had predicted in terms of allowing citizen participation (Katz & Halpern 2013). A study by Macnamara (2011)

found that 65 percent of organizations (including government organizations) have no policy regarding social media use, and almost 50 percent of these organizations do not monitor social media regularly.

Thirdly, the majority of councils are adopting social media as a method of disseminating information; that is, as a noticeboard to post information to their citizens rather than to interact with them (Omar et al. 2012). In this regard, local government should be living "in the network" and not be negative onlookers (Bonsón et al. 2012). These governments should have moved from using some traditional communication activities and shifted towards enhancing the use of social media (Howard 2012).

Fourthly, a theoretically motivated investigation of SMT in the work place is now an imperative for the fields of communication, management, and information systems (Leonardi et al. 2013). Further research is required for the development of methods and practices of effective of SM utilization in government, the investigation of their impact and value, and also the challenges faced (Criado et al. 2013a). Creating public value is becoming the primary goal of e-government using Web 2.0 and social media technologies (United Nations 2014). The concept of public value is increasingly becoming an innovative driver in modern e-government endeavours (Bonina & Cordella 2008). The research on public value on local government is flourishing, but empirical studies of public value creation are still immature (Meynhardt & Bartholomes 2011).

The four reasons outlined above indicate a need for research to explore factors that affect the public value of social media. This study researches factors affecting the public value of social media technology, and specifically, how citizens perceive social media value in Queensland's local councils. Usage of IT, as a medium of communication, can play a significant role in understanding public perceptions in relation to the services that governmental institutions deliver (Cresswell et al. 2006). The evaluation of SMT for local councils (LCs) helps government officials and ICT managers understand the real value that the use of these tools offers public services in terms of engaging with their stakeholders. Against this backdrop, it is now essential for the public sector, especially in the local government context, to evaluate SMT in order to identify the challenges and the value added when leveraging these technologies for the delivery of e-Government services. An extensive review of the

literature in this study indicates that there is a lack of empirical studies that specifically examine the public value of social media from the citizen's perspective within the context of local councils. Although a number of frameworks and methodologies have been developed to evaluate the public value of e-government (e.g. Kearns 2004; Grimsley & Meehan 2007; Karunasena & Deng 2010a; Omar et al. 2014), there is a lack of research on evaluation of the public value, where social media tools are employed in government service delivery and interactions with citizens. The literature review that was conducted as part of the research reported on in this thesis found that no frameworks have yet been developed to evaluate the public value of social media tools that are implemented and used by the government to interact and serve their constituents. There is some concern about the extent to which citizens in rural, remote and isolated communities, and people in positions of socio-economic disadvantage, have been able to fully engage in the digital environment, to access web-enabled services in their lives, and particularly the public value of social media (Howard 2012). The key research questions are therefore the following:

- What is the public value that citizens believe they derive from using social media technology in local councils in Queensland Australia?
- What are the factors affecting the perceived public value of social media in local councils in Queensland Australia?

1.5 Study objectives

This study deals with factors affecting the perceived public value of social media in Queensland's local councils. This study takes into account the public value of social media from the perspective of citizens who live in the state of Queensland. Accordingly, measuring the perceived public value of social media from the perspective of citizens is the main objective of this study. To achieve this objective, a model has been proposed. The two objectives of this study are as follows:

1. To investigate the factors affecting the public value of social media in local councils in Queensland Australia.

The focus of this objective is to select factors from the literature that are believed to impact the public value of social media. The selected factors are placed in a model to guide the evaluation of the perceived public value of social media. The relationships

among the factors in the proposed model are measured based on the theoretical justifications from information systems and public value literature.

2. To measure the public value of social media as perceived by citizens in local councils in Queensland Australia.

Social media offer an innovative and sophisticated means for government-citizen communication and interaction, as reflected by the growth and development of a new stream of social media research. Information systems researchers are challenged to research the effects of using web-based technologies for citizens (Sivarajah et al. 2015). Despite the fact that understanding within this area has grown, the theoretical platform relating to the assessment of Gov. 2.0 initiatives from the public value point of view has not received much attention. Additional scientific research is needed to fill the research gaps associated with the public value, particularly that of using social media for citizens in local government.

1.6 Significance of the study

This study contributes to the fields of Information Systems (IS) and public administration research from both theoretical and practical perspectives.

This research is expected to make contributions in different ways: firstly, it evaluates citizens' perspectives on the public value creation of social media technology use by local councils. Secondly, it enriches the current information system literature through empirical evidence. Thirdly, this study opens a new avenue of knowledge in two different academic branches, namely public value and information systems. This research has some policy implications for Australian local councils in general, and Queensland local councils in particular. It addresses a current gap in the body of knowledge and develops a conceptual model, based on existing theories and models, to assess the factors affecting the public value of social media in local councils in Queensland Australia. The use of SMT by local councils can help government officials understand the implications of these tools in the context of government. It may help government officials to understand the real value that these tools have to offer public services in terms of engaging with their stakeholders. In effect, using SMT leads to a stronger relationship between government organisations and their stakeholders (Uthayasankar 2014). A better relationship means that they can sense and respond to what is needed and wanted by their stakeholders more effectively. Overall, this study

is of significant relevance to public sector and information systems (IS) researchers, policy makers, local government authorities, and practitioners when implementing SMT to be used by local government and citizens to enhance e-Government services.

This study aims to capture the way citizens perceive the value based on their interactions with their local government on SM platforms, and provide local government with a clearer picture of what their citizens think about many aspects of the interactions taking place on these platforms. Understanding how citizens think and behave helps governments steer interactions more effectively to create public value among citizens. The research results will help Queensland local councils to justify investments in these initiatives, and may help Queensland local councils to attract more support for the implementation of future SM initiatives.

1.7 Structure of thesis

The structure of the thesis is based upon the recommendations of Perry (1998) and the University of Southern Queensland PhD guidelines (USQ 2017). The thesis is presented as seven inter-related chapters. The content of each chapter in this thesis is as follows:

Chapter one is the first chapter of the thesis and introduces the background to the study, research aims and questions, research contributions to the study, definition of key terms, and structure of the thesis.

Chapter two is allocated to a review of the literature related to this study. The chapter explores the concept of public value of social media. This chapter also discusses existing frameworks developed to assess public value of e-government, their strengths, and limitations. The emphasis of this chapter is an overview of the studies dealing with the public value of social media initiatives in Queensland, Australia. In addition, the review includes literature related to the constructs of the study model.

Chapter three presents a model to measure the public value of social media in Queensland's local councils. This chapter comprises the proposed model, studies that support the establishment of this model, the selection of the constructs of the model, and the formulation of the hypotheses based on the relationships among the model's constructs.

Chapter four focuses on the methodology employed for this study. It begins with the context of the research, followed by a discussion of the research philosophical perspectives employed, the study's methods and the justification for their adoption. The chapter also presents details of the study sample, study instruments, data collection methods, data analysis, and the ethical considerations in this study.

Chapter five presents an analysis of the citizens' survey data. Survey development and data collection procedures are described including sampling selection, sample size, and respondents' profiles. The chapter discusses the procedures undertaken to prepare the data for structural equation modelling (SEM) analysis, and describes how the data was screened, assessed for normality; it further discusses a validity and reliability test of the questionnaire to perform confirmatory factor analysis (CFA), which is followed by an examination of the hypotheses' results.

Chapter six presents the study's results obtained from chapter five and discusses these in detail.

Finally, chapter seven provides a conclusion to the study and focuses on an overview of the findings about the research objectives, the research theoretical and practical contributions, recommendations, limitations, and suggestions for future research.

1.8 Conclusion

This chapter has presented an overview of the research study. The background to the study focused on the public value of social media and the issues related to evaluating these terms. Then, the motivations for conducting this study were provided, followed by a description of the research problems to be investigated, the objectives of the research and its contribution to current knowledge in measuring the public value of social media in Queensland local councils. The next chapter is the literature review, which provides a detailed analysis of the supporting parent theories and summarises the literature related to the constructs of the study model.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to discuss the background against which this research project is set. To provide a theoretical foundation for this study, the review of the literature is arranged into four sections. Section 2.2 presents the process of e-government and open government in order to clarify the emergence and use of social media technology in governments. This section begins with a review of the concept of e-government and open government as an evolutionary process. Section 2.3 includes social media technologies; their increased use by governments is highlighted along with the social aspect of these new technologies (types of social media technologies). Section 2.4 discusses the issues associated with public value (public value sources, inventories of public value). Section 2.5 presents the factors affecting citizen engagement to create public value (demographic factors, intention to use and types of users. Section 2.6 outlines the gap in the literature. Finally, section 2.7 provides the conclusion to the chapter. Google Scholar and Scopus were used to identify studies relevant to the phenomenon of interest because they encompass a wide range of academic databases available through the University of Southern Queensland. A wide range of interrelated terms and keywords have been used to find relevant literature. The terms 'e- government', 'open government', ‘SMT’, ‘Web 2.0’, ‘demographic factors’, and ‘intention to use’ were searched, along with ‘PV’ and ‘social value’, to find relevant literature. This literature review covers research publications of the period from 2009 to 2017.

2.2 The process of e-government and open government

2.2.1 E-government

Governments across the world are adopting information communication technologies for their activities and operations, which has resulted in e-government (Mnjama & Wamukoya 2007). E-government has become a primary trend in the information revolution and almost every country in the world has been part of it (Taylor et al. 2007). The term ‘e-government’ was introduced by a joint report entitled ‘Access America: Reengineering through Information Technology’ released by the National Performance Review and the Government Information Technology Services Board in 1997 (Relyea 2002). E-government is defined as ‘the use of technology, especially web-based applications to enhance access to and efficiently deliver government

information and services' (Brown & Brudney 2001, p. 1). A service delivery channel is 'a means whereby governments deliver services of an informational or transactional nature to citizens, and citizens communicate with governments about the services they need or want' (Kernaghan 2013, p. 123). Common channels used by citizens are web sites, office visits, and voice-phone calls. Increasingly, there will be greater demand for alternative service delivery channels, such as social media or mobile phones (Mergel & Bretschneider 2013). Channels for government access can be classified into three types:

(1) The traditional channels comprise office visits and face-to-face contacts, voice-phone calls and surface mail (Ebbers et al. 2008);

(2) E-government channels include government web sites and e-mailing options to public officials. E-government is a growing and important area of public service delivery, and it has been extensively studied (Reddick & Anthopoulos 2014);

(3) The new digital media channels represent a transition to Web 2.0 and towards the creation of what some have classified "we-government" (Linders 2012). Social media, as commonly found in Web 2.0 technologies, have increasingly become popular among governments (Nam 2012; Mergel & Bretschneider 2013).

Improving e-government capabilities is an important driver to transform public sector service delivery because it is not only changing the method in which governments provide information and services for citizens, but it is also enabling government capabilities to become a critical part of government strategies. Governments have adopted e-government to improve their service provision and increase the efficiency of public management as a support for many functions and services, such as: information and service delivery (Bekkers & Zouridis 1999), efficiency and effectiveness (Heeks 2001), interactivity and transparency (Wong & Welch 2004), and accountability (McGregor 2001). The main principles of the e-government phenomenon include fast and easy access to government information, open government, people's right to know, transparency, and responsiveness (Doty & Erdelez 2002).

The concept of e-government activities can be considered in relation to any of its components including e-administration, e-citizens, e-services, and e-societies (Heeks 2002; Heeks 2006; Jones et al. 2007):

(1) E-administration deals mainly with improving work within the public sector, including: a) reducing financial costs and time costs; b) planning, monitoring and controlling the performance of process resources; c) connecting government arms, agencies, levels and data stores; and d) transferring power, authority, and resources for processes from their existing locations to new locations (Heeks 2002);

(2) The E-citizen approach to e-government is about how government connects and interacts with citizens, by consulting with and engaging them to improve public services and listening to their opinions, in order to support users' democracy and government accountability (Heeks 2006);

(3) An E-services approach is when governments focus on improving the delivery and quality of public services to citizens by providing them with online services (Jones et al. 2007);

(4) An E-society perspective is generally about building relationships between public organisations and other organisations including public and private organisations, not-for-profit organisations, and community organisations (Heeks 2002; Heeks 2006; Jones et al. 2007).

2.2.2 **Open government**

The concept of open government has become an important global trend in recent years since President Obama's 'Memorandum for the Heads of Executive Departments and Agencies' in March 2009 (Wirtz & Birkmeyer 2015). Open government has attracted public and researchers' attention; the literature on open government is mostly derived from Obama's 2009 Open Government Directive (Jetzek & Avital 2013). Obama emphasized three principles of open government: 'participation, transparency, and collaboration' (Obama 2009). This mandate advocates the usage of social media as a way to engage communities, and some government institutions have begun implementing this endorsement and engaging citizens on critical state issues through social media (Unsworth & Townes 2012). Open government is a powerful new trend that is clearly related to citizen participation and collaboration (Sandoval-Almazan & Gil-Garcia 2012). Web portals could support objectives of open government to facilitate communications. New technologies are relatively inexpensive and motivations exist to adopt them, which could make e-government a reality.

The idea of open government in general is not a new concept and has historically been used in various contexts, including in relation to freedom of information, anticorruption, and transparency (Nam 2012). One approach to modernization in the public sector since the 1980s has been the so-called new public management (Fishenden & Thompson 2012). New public management is an approach that integrates more elements of the private sector, such as decentralization, autonomous agencies, or customer orientation, into the public sector in order to create a more efficient public administration (Larbi 1999). A more recent open government movement emerged from the initial adoption of e-government in the mid-1990s (Evans & Campos 2013). Specifically, it is claimed that 'the expansion of the Internet during the late 1990s changed the public administration and government dramatically' (Wirtz & Birkmeyer 2015).

A variety of definitions has been suggested in the literature in attempts to define the term 'open government'. Openness in government will work to ensure the public trust and establish a system of transparency, public participation, and collaboration, strengthen democracy, and promote efficiency and effectiveness in government (Obama 2009). Open government is defined as the extent to which citizens can monitor and influence government processes through access to government information and decision making areas (Meijer et al. 2012). Other definitions of open government focus on the technological context, where information technologies generate a participatory, collaborative dialogue between policymakers and citizens (Evans & Campos 2013).

Open government has attracted interest in a number of countries, including some members of the European Union, Australia, New Zealand, China and Russia (Wirtz & Birkmeyer 2015). All this indicates that 'Open Government is entering a new phase and becoming an important global agenda' (Lee & Kwak 2012, p. 492). In July 2010, the Australian government made its declaration of Open Government (Department of Finance and Deregulation 2010) by stating: 'Collaboration with citizens is to be enabled and encouraged. Agencies are to reduce barriers to online engagement, undertake social networking, crowdsourcing, and online collaboration projects and support online engagement by employees'. The Australian government made a commitment to join the Open Government Partnership in April 2014 (Open Government Partnership 2013).

The Australian government has been seen as progressive in adopting new information technology as a tool of government engagement and openness, and ensuring effective citizen access to official information (Transparency International Australia 2016). Public access to official information plays an active role in promoting transparency, increasing civic participation, reducing corruption, and harnessing new technologies, to make government more open, effective, and accountable (Transparency International Australia 2016). One of the strategies that was identified was to integrate social media into the Australian public sector and establish social media governance, along with a 'how to' guide on obtaining feedback from citizens through online consultations (Heaselgrave & Simmons 2016). Open Government Partnership was a strong mission statement from the federal government, indicating that it intended to collaborate and engage with the Australian public, and use electronic methods to do so, as social media have been widely adopted by the public. Open Government implies that the new role of the public sector as an information provider, strengthens democracy and improves the impact of government work through increased transparency, participation and collaboration (Jetzek 2013). Some areas where open government is creating value include:

(1) Transparency and democratic control (Zuiderwijk 2014b);

(2) Self-empowerment, improved or new private products and services (Magalhaes et al. 2014);

(3) Innovation, improved efficiency and effectiveness of government services (Janssen et al. 2015b).

2.3 Social media technologies

2.3.1 The definitions of social media

Social media technologies have become the mainstream tools to support activities for internet users worldwide. Using social media is considered to be an effective way for government to engage and collaborate with citizens (Warren et al. 2014; Zheng & Zheng 2014; Bonsón et al. 2015; Zavattaro et al. 2015). Recent figures from around the globe indicate that almost one in seven people use social networking sites at least once a month and it is predicted that by 2018 the global social network audience will be at least 2.62 billion (Statistica 2018).

New social media technologies have contributed to a paradigmatic change in the way users interact online with businesses and other organisations (Kim et al. 2009; McAfee 2009; Wattal et al. 2010a). Social media technologies have provided governments with an unprecedented opportunity to provide more personalised, citizen-centric services (Campbell et al. 2014), engage citizens, and encourage democratic participation (Peristeras et al. 2009). Those types of interactions enable the co-creation of value in both the private and public sectors (Culnan et al. 2010; Mancini 2012). Organisations in both the private and public sectors are urged to redress the out-dated economic approach to value creation by working to achieve social progress 'to create economic value by creating social value' (Porter & Kramer 2011).

The term 'social media technology' (SMT) refers to web-based and mobile applications that allow individuals and organizations to create, engage, and share new user-generated or existing content in digital environments through multi-way communication (Kietzmann et al. 2012). There has not been a commonly accepted definition of social media in the literature, despite significant interest in social media use (Magro 2012). Criado et al. (2013b) defined social media as 'a group of technologies that allow public agencies to foster engagement with citizens and other organizations using the philosophy of Web 2.0' (p. 320). Macnamara et al. (2012) have argued that the two-way flow of information that is facilitated through social media use can foster democracy by allowing for greater citizen participation, knowledge of government actions, and more opportunities for engagement. These two definitions align with the context of this study and highlight the same characteristics of social media technologies: two-way interactivity, allowing public agencies to foster engagement, providing more opportunities for citizens' engagement with others and with government. Several definitions of social media are provided in

Table 2.1.

Table 2.1 Definitions of social media

Social media is	Authors
A group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content.	(Kaplan & Haenlein 2010, p. 61)
Any interactive communication channel that allows for two-way interaction and feedback, potential for real-time interaction, reduced anonymity, a sense of propinquity, short response times, and the ability to 'time shift,' or engage the social network whenever suits each particular member.	(Kent 2010, p. 645)
Mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content.	(Kietzmann et al. 2012, p. 241)
Internet-based applications that enable people to communicate and share resources, e.g. Facebook, Twitter, YouTube, blogs, chat rooms.	(Taylor et al. 2012, p. 20)
A set of online tools that are designed for and centered around social interaction.	(Bertot et al. 2012, p. 1)
A group of technologies that allow public agencies to foster engagement with citizens and other organizations using the philosophy of Web 2.0.	(Criado et al. 2013b, p. 320)
The two-way flow of information that is facilitated through social media use and can foster democracy by allowing for greater citizen participation, knowledge of government actions, and more opportunities for engagement.	(Macnamara et al. 2012)
An emphasis on interactivity, co-creation of content, subscription-based information services, and third-party application development.	(Kingsley 2010)
A broad term of variety of web-based platforms and services that allow users to develop public or semi-public profiles and/or content, and to connect with other users' profiles and/or content.	(Houston et al. 2015, p. 3)
Internet-based, disentranced, and persistent channels of mass personal communication facilitating perceptions of interactions among users, deriving value primarily from user-generated content.	(Carr & Hayes 2015, p. 49).

The open, dialogic nature of social media eliminates many of the barriers to citizen communication that governments have historically experienced (Bertot et al. 2010). Social networks, especially Facebook, are considered the most important social media in public relations and strategic communication efforts (Wright & Hinson 2013). Social media have grown beyond the purely 'social' realm and are now increasingly used to cause real impact, in terms of community activism, civic engagement, cultural citizenship and user-led innovation (Foth 2011).

Major advantages of social media are that they do not require specific technical skills, are reasonably intuitive to use, and enable individuals to generate content and interact with other users (Kaplan & Haenlein 2010). Although social media have experienced rapid growth and provide advantages, there are still a number of challenges facing social media stakeholders such as 'damaging behaviour by citizens, uncertainty, fear of risk, lack of knowledge, and lack of trust' (Omar et al. 2014), the digital divide (Yi et al. 2013), and inadequate technological infrastructure and skills to take on new technologies in local government (Picazo-Vela et al. 2012). Therefore, in the age of social media, Wigand (2010) has called for further research to identify the 'metrics that can be used to assess the effectiveness of social media' Wigand (2010, p. 13). These technologies open up a new set of benefits and social values, in the context of the use of social media in local government, to enhance local governments' work. Although social media provide an opportunity to achieve a more engaged society by promoting interaction between the government and society, recent research has shown that social networks are still mainly used to transmit messages (Mergel 2013b). In this regard, Gil de Zúñiga et al. (2014) and Mergel (2013b) have stated that there is no clear evidence that citizens are actually using social media for interactive participation in the activities of government agencies. In order to understand these technologies for government organisations, it is necessary to evaluate the relevant tools from a citizen's perspective.

2.3.2 **Types of social media technologies**

Social media are classified into two groups depending on their purpose of use (Kotler et al. 2010). The first group is expressive social media, such as pictures, video, and music, Facebook, Myspace, Twitter, YouTube, and Flickr. The second group consists of collaborative social media such as Wiki and Google Docs. There is already a 'bewildering array' of social media tools available (James 2009). There are two groups

of commonly used social media tools: one-way tools (e.g. web pages, targeted email campaign, SMS messaging podcast, webcasts, YouTube videos) and two-way communication tools (e.g. blogs, e-surveys, wikis, Twitter web conferencing, and social networking). Table 2.2 presents some types of two-way social media technologies.

Table 2.2 Types of social media technologies

Types of social media Technologies	**Description**	**Reference(s)**
Blogs	A regularly updated website containing entries, a bit like a diary. Posts are labelled with the time, date and name of the poster or 'blogger'. Blogs have been demonstrated to be effective for increasing engagement with target groups	(Juch & Stobbe 2005) (Ivala & Gachago 2012)
Social Networking Sites	An online service, platform or site through which users can create their own 'profile page' and share their similar interests with other web users and to connect with their friends. Facebook, Google+, LinkedIn, Flickr.	(Constantinides & Fountain 2008) (Kaplan & Haenlein 2010)
Wikis	A structured website (i.e. collection of pages sharing the same structure using templates) developed collaboratively by a community of users, allowing the creation and editing of content by any number of users. Wikipedia is a website that enables multiple authors to collaboratively edit and easily contribute their content to an often much larger collection of knowledge.	(Bughin 2007)
Microblog	A web diary ('web log') in which posts are made and appear in reverse chronological order. Posts are limited to a small number of characters. Real-time stream of posts is an important element. (e.g. Twitter is a microblogging platform that facilitates a marked increase in interaction)	(Fischer & Reuber 2011)

2.3.3 Social media use by local councils

Local, state and federal government levels have used social media for different purposes, including: to increase transparency; facilitate citizens' participation; resolve issues in communities; and encourage collaboration (Bonsón et al. 2012; Mossberger et al. 2013; Oliveira & Welch 2013; Bonsón et al. 2015; Sivarajah et al. 2015). The use of social media allows the government to access citizens' knowledge, understanding and opinions, and thus make government processes more effective and efficient (Mergel 2013b). Agostino (2013) has pointed out that social networks offer the possibility to change the relationship between government and citizens from a one- or two-way exchange of information to a many-to-many communication process. Local governments are aware of the need to interact with citizens in order to achieve an engaged society, and not just to publish information as one-way traffic through social networks (Zavattaro & Sementelli 2014). Bertot et al. (2010) believe that social media should foster a sense of connectedness amongst and between citizenry and government by building two-way, dialogic organization/public relationships. Through the use of social media technologies, local councils can better manage resources and local knowledge, monitor and resolve issues in communities, and engage with constituents in their own environment (Danis et al. 2009). The rapid adoption of social media technologies by citizens has meant that governments have gradually started to use social media to reach these social media audiences, but there still appears to be little consistent organised effort (Kuzma 2010). Table 2.3 presents some literature on the use of social media by local governments.

Table 2.3 Literature review of use of social media by local governments

Attention	Studies, countries and social media
Adoption and diffusion	Zheng (2013) (China-Microblog); Omar et al. (2014) (Australia-Social media in general); Ma (2014) (China-Microblog); Reddick and Norris (2013) (USA-Social media in general); Sharif et al. (2015b) (Australia-Social media in general); Williamson and Ruming (2016) (Australia- Capital City - Twitter)

Engagement with citizens	Agostino (2013) (Italy-Facebook, Twitter and YouTube); Bonsón et al. (2016b) (European Countries-Facebook); Ellison and Hardey (2014) (England-Facebook, Twitter and YouTube); Graham and Avery and Graham (2013) (USA-Facebook and Twitter); Hofmann et al. (2013) (Germany-Facebook) Mossberger et al. (2013) (USA-Social media in general); Rustad and Sæbø (2013) (Norway-Facebook); Gruzd and Roy (2016) (Canada-Facebook, Twitter and YouTube); Sandoval-Almazán and Valle-Cruz (2016) (Mexico–Facebook and Twitter); De Rosario et al. (2016) (Spain-Facebook);
Transparency, accountability, and participation	Bonsón et al. (2012) (European Countries-Social media in general); Ellison and Hardey (2014) (England-Facebook, Twitter and YouTube); Sobaci and Karkin (2013) (Turkey-Twitter)
Developing and Planning	Evans-Cowley and Hollander (2010) (USA-Facebook and Second Life); Fredericks and Foth (2013) (Australia-Facebook and Twitter); Williamson and Parolin (2013) (Australia-Social media in general)
Emergency and Crises	Panagiotopoulos et al. (2014) (England-Twitter); Tyshchuk and Wallace (2013) (USA-Social media in general); Medina and Diaz (2016) (Madrid city government-Twitter).

Below is a summary of the findings in the extant literature that have been reported in Table 2.3: use of social media by local governments

Adoption and diffusion

Adoption initiatives need to demonstrate the benefits that can be offered to public sector organizations by social media. This might also include perceived risk, which might be mitigated if positive adoption decisions are to be made. Policy support and formalized specific lower level operational procedures about social media use are critical and necessary for social media adoption. Findings of previous research relating to adoption of social media may assist stakeholders, including the public sector and the communication office, in their decision-making process. Studies may further help with stimulating interest in the use of social media for local government activities. Most existing studies have focused on Facebook and Twitter. Researchers often analyse these platforms because they are accessible and have many users around the world.

Engagement with citizens

SM offer an opportunity for direct interaction with an audience and provide an innovative and better channel for participation, information dissemination, and education than a traditional, static website. Social media, open data portals, and other interactive features online offer new challenges and opportunities for local public administrators and elected officials to provide more transparent government and opportunities for citizen participation. The audiences of the official Facebook pages of municipalities are reasonably large. However, a high number of site visitors does not automatically mean an engaged audience and engaged citizens. These findings suggest that the interest for engaging in conversations with local governments is mostly limited to citizens. The absence of extensive participation by citizens on government websites also raises questions about what citizens want, as well as what government should do.

Transparency, accountability, and participation

In theory, there has been a strong conviction that social media tools can contribute to transparency, participation, communication, and the improvement of public services. Social media applications offer public sector entities the opportunity to integrate information and opinions in the policy-making process in several innovative ways.

Though social media presents a challenge to managing communication in local contexts, local governments are experimenting with social media to communicate with their constituents and other stakeholders. Informing citizens about what governments are doing can encourage transparency and accountability as well as trust and more democracies practice, making social media a source of legitimization and credibility. Furthermore, they offer increased transparency through better information sharing and collaboration with the public in making decisions and/or searching for solutions to government problems. Most local governments are using social media tools to enhance transparency but, in general, the concept of corporate dialogue and the use of social media to promote e-participation are still in their infancy at the local level.

Developing and planning

There is limited use of these new technologies to engage in planning. In part, this may be a result of the technology being new, or because planners have not yet learned how to effectively use this technology in planning processes.

Local governments have significant opportunities to combine traditional and digital public participation practices with new techniques afforded by social media. If managed and funded correctly within a well-resourced and considered engagement strategy framework, the use of social media in local governments can: provide communities with a greater ability to be actively involved in the planning process; create avenues for participation that complement existing participatory planning processes; and allow for an entirely new generation of forms and practices of public participation that promise to elevate the public discourse in an unprecedented manner while providing an interactive, networked environment for decision-making. This is occurring with a variety of planning subjects, and it allows for more democratic planning and more meaningful participation.

Emergencies and crises

Social media have changed how public administrations face their strategic communications, to the point that social media networks are considered even more effective tools for managing risk or a crisis than traditional media. Social media offers clear advantages for managing any institutional conflicts. In the specific case of crises in a local context, the use of social media is even more crucial, because proximity leads to direct influence on stakeholders and victims. News and emergency organizations

around the world are now regularly incorporating social media into their crisis activities. Social media plays a significant role in a crisis in many ways: 1) they often deliver real-time information about any particular crisis to stakeholders, 2) SM can disseminate breaking news, coordinates responses, monitor new developments, and express sympathy with victims of the crisis.

Social media have become the mainstream tool for local councils to engage with stakeholders and create public value. Studies have found various benefits obtained from social media use. Benefits include social values such as openness (Stamati et al. 2015), trust in government (Warren et al. 2014; Park et al. 2016) and effectiveness (Abdelsalam et al. 2013). Use of social media by local councils has presented opportunities in several fields by 'improving efficiency and productivity, improving local public services, improving policy making, strengthening the local democracy, and collaboration and knowledge management' (Sobaci 2015, p. 12).

The Queensland government has invested in a suite of social media community engagement tools, such as Facebook and Twitter, which are used to support or deliver a wide range of activities, including community engagement, communication, policy development and implementation, service delivery and urban planning (Queensland 2010). The Queensland Government launched the One-Stop Shop plan 2013-2018 to make Government services simpler, clearer and faster for Queenslanders. This plan aligns with the Government's broader digital transformation agenda and its 'digital first' approach where customers will have access to Queensland Government information anytime and anywhere, on any device. As part of the One-Stop Shop program, a channel management strategy has been developed, and the official use of social media forms part of this strategy (WebCentre 2014b).

Social media present an opportunity for the Queensland government to augment its traditional communication methods with the use of emerging technologies as it develops communication methods. Not only is usage increasing, but public demand is also growing around the use of social media as present convenient communications platforms, along with the expectation from residents for participation from the government (QGCIO 2015).

There is a lack of published statistics on the actual use of these initiatives, and on the actual percentage of use of these initiatives in Queensland's local councils. Analysis

of websites of 78 councils in Queensland by the researcher (March - May 2016) found that Facebook is the most widely adopted SMT by councils (65 out of 78 councils). In Queensland, 25 councils use Twitter, while 20 have a presence on YouTube, nine use Instagram, seven use LinkedIn, and six use RSS. Only 13 councils did not use social media. Based on a pre-analysis of the websites of 78 councils, and feedback from unofficial interviews with officers communication of some Queensland local councils, this study focuses on the most common social media used by Queensland local councils and citizens.

Social media include communication channels such as Facebook, Twitter, and Instagram, which have been increasingly used by governments. The majority (68%) of internet users in Australia have a social media (SM) profile and nearly all (93%) SM users are on Facebook, spending an average of 8.5 hours per week on the site (Sensis 2015). The majority (70%) of SM users also use a smart phone to access various platforms (Sensis 2015). The majority (95%) of Australian SM users access social networking sites to catch up with family and friends. Nearly half (47%) use social media to access news and current affairs (Sensis 2015). Overall, the use of social media by Australians is growing rapidly (QGCIO 2015).

2.3.3.1 Facebook

Facebook's mission is to give people the power to share and make the world more open and connected, and it is considered that it will be the largest and fastest growing networked community on the internet within a few years' time (Facebook 2013).

Facebook has obtained popularity amongst citizens and SM users. Facebook is in first place among SM sites, according to Alexa rankings (Alexa.com 2014). Facebook has the highest levels of engagement among SM users, with 63 percent of Facebook users visiting the site at least once a day and 40 percent doing so multiple times throughout the day. In terms of the number of active users per month, Facebook has an overwhelming advantage, with 1.37 billion daily active users (Facebook 2017). Facebook has an average of 293,000 updates per minute (Erdmann 2014). Facebook allows its users to carry out many different activities. For example, it permits users to create a cover photo, to publish contact details, to share content, and post a message, while it allows visitors to comment or leave feedback to the owner of the Facebook

account, and the user can send messages to other Facebook and non-Facebook users (Aladwani 2014).

Facebook is one of the social networks most commonly used by local governments (Aladwani 2014). This social network provides the opportunity for them to efficiently interact with citizens and is a valuable tool for engaging with society (Strecker 2011). For governments to make best use of social networks, they need accurate, targeted performance to improve service delivery and to interact and engage with citizens, and for this purpose an appropriate metric is required (Sobaci 2015). Although there is debate about how Facebook can be successfully integrated into communication strategies, little research has appeared regarding the construction of a set of metrics in order to assess reactivity, dialogic communication and stakeholder commitment (Bonsón & Ratkai 2013), and less still with respect to the metrics of governmental use of Facebook.

Hughes et al. (2012) has associated user preferences for Facebook or Twitter with differences in users' personalities, suggesting that more sociable people use Facebook more often. Facebook involves its users through conversation and dialogue, providing a sensation of exclusivity (Hofmann et al. 2013). Therefore, it is ideal for organisations that wish to build a relationship with their fans and to share and convey emotions (Kim et al. 2014).

2.3.3.2 Twitter

Twitter is a social networking and microblogging service, enabling registered users to read and post short messages, so-called tweets. Twitter messages are limited to 140 characters and users are also able to upload photos or short videos. Tweets are posted to a publicly available profile or can be sent as direct messages to other users. Twitter has also become an important communications channel for governments and heads of state. In 2018, former US President Barack Obama obtained the third ranking in terms of Twitter followers in the world, while Indian Prime Minister Narendra Modi has obtained the first ranking in terms of Twitter followers in India. Kevin Rudd was ranked second by followers in Australia in 2017. As of the third quarter of 2017, the Twitter service averaged at 330 million monthly active users (Twitter 2017). Twitter allows users to not only share their information with followers but also has an ability to easily "retweet" information from others, thus extending their own and others'

reaches (Boiy & Moens 2009). As pointed out by Mergel (2012), Twitter can be used appropriately to increase inclusion of public opinion in policy formulation through information aggregation, so that updates are seen as public conversations and are increasing not only transparency but also potentially accountability. Amongst the whole range of social media applications, Twitter provides an immediate and flexible tool to disseminate information and communicate through brief public messages. As such, it has been used in the public sector to reach new audiences, build relationships with citizens and other stakeholders, as well as broadcast and share information across networks (Wigand 2010; Waters & Williams 2011). Twitter's conversational features have specifically evolved to facilitate this kind of interaction as they allow networked audiences to engage in ad hoc conversations of a one-to-one or many-to-many nature (Honey & Herring 2009; Boyd et al. 2010). Twitter can be used for many different purposes. The daily interactions for local government can be divided into four main Twitter strategies: push, pull, networking, and customer service (Mergel 2012).

2.3.3.3 Instagram

Instagram is a photo-sharing mobile application that allows users to take pictures, apply filters to them, and share them on the platform itself, as well as other platforms like Facebook and Twitter (Stec 2015). Instagram is the second most daily frequented platform in Canada, behind Facebook, with 61 percent of online Canadian adults visiting the platform daily (Gruzd et al. 2018). Instagram has over 400 million active monthly users who shared over 40 billion pictures, with an average of 3.5 billion daily likes for more than 80 million photos shared daily on the site (Instagram, 2016). More than half of young adults (18–29 years old) report using Instagram, thus making them the largest group of Instagram users (Duggan 2015). The 2014 Swedish elections were among the first elections in which political parties used Instagram as a campaign tool. (Filimonov et al. 2016). Using Instagram as a new way to engage citizens and stakeholders in urban planning and governance is emergent. Guerrero et al. (2016) examined how Instagram can be used to document spatial tendencies regarding citizens' uses and perceptions of urban nature with relevance for urban green space governance. Their findings revealed that Instagram allows citizens to act as sensors of their environment, producing and sharing rich spatial data useful for new types of collaborative governance to support situations of interest to planners, citizens, politicians, and scientists.

While the benefits of social media have been identified, studies have indicated different levels of social media use among local government councils. Social media have become a mainstream tool for local councils to engage with stakeholders and create public value. Studies have found various benefits from the usage of social media. Benefits include social and economic values such as openness, trust in government and effectiveness. Use of social media by local councils has presented opportunities in several fields by 'improving efficiency and productivity, improving local public services, improving policy making, strengthening local democracy, and collaboration and knowledge management' (Sobaci 2015, p. 12).

The next section highlights and provides details of the public value of social media.

2.4 Public value

The public value approach has become a new tool to evaluate the level of public services' success around the world, as seen in Australia and some other countries. An extensive review of the literature indicates a lack of empirical studies that specifically examine the public value of social media from a citizen's perspective within the context of local councils. This section discusses the issues associated with public value.

2.4.1 Definitions of public value

The concept of public value is a normative theory for measuring the performance of public services (Moore 1995; Alford & O'Flynn 2009). Public value can be understood as the value or importance citizens attach to the outcome of government policies and their experience of public services (Moore 1995). The underlying principle of the public value concept is that the value to citizens should guide the operations of public organisations on the delivery of public services (Moore 1995), as the ultimate goal of public programs, including e-government initiatives, is to create value for citizens (Moore 1995; Try 2007; Meynhardt 2009).

The public value concept is popular in the United States, some European nations, Australia, and even in a number of developing nations, in evaluating the performance of public services resulting from public value capacity, in order to examine the performance of public services from the perspective of citizens (Kelly et al. 2002; Alford & O'Flynn 2009; Benington 2009). Public value is used to measure the total impact of government activities on citizens in terms of the value they create (Kelly et

al. 2002; Alford & O'Flynn 2009). Governments need to consider the public's views when defining public value because public value is created 'not just through 'outcomes' but also through processes which may generate trust or fairness' (O'Flynn 2007, p. 358). Table 2.4 presents some definitions of public value.

Table 2.4 Some definitions of public value

Reference	Public value definition
(Kelly et al. 2002, p. 4)	The value created by government through services, laws, regulation and other actions.
(Bozeman 2007, p. 13)	1) The rights, benefits, and prerogatives to which citizens should (and should not) be entitled.2) The obligations of citizens to society, the state and one another. 3) The principles on which governments and policies should be based.
(Alford and Hughes 2008, p. 131)	Consumed collectively by the citizenry rather than individually by clients.
(Meynhardt 2009, p. 206)	The values held about the relationship between an individual and societal entity (constructs like group, community, state, nation) that characterize the quality of this relationship.
(Talbot 2011, p. 27)	The combined view of the public about what they regard as valuable.
(Nabatchi 2012, p. 699)	The appraisal of what is created by government on behalf of the public.
(Harrison et al. 2012, p. 90)	The product of governmentally-produced benefits, produced when market mechanisms are unable to guarantee their equitable distribution.

The concept of public value is increasingly becoming an innovative driver in modern e-government endeavours (Bonina & Cordella 2008). As pointed out by Castelnovo and Simonetta (2008), since 'public administration aims at producing value for citizens, the use of ICT to improve government is a means to improve the public value' (p. 22). The prime objective of e-government is to produce public value. Through the

replacement of government tasks by user-driven innovation, online interaction, using social media tools, impacts on governments where public value can also be generated by individuals (Misuraca 2012a). This type of interaction via social media technologies can potentially impact on public e-governance domains in the areas of political participation, transparency, accountability, user involvement and empowerment, collaboration, and public services delivery, along with reinforcing knowledge sharing and management (Misuraca 2012a), and creating public value (Karunasena & Deng 2012a). This interaction with communities has the potential to add value to the organization if it is well designed and aligned with the organization's values.

2.4.2 Public value of social media

Governments worldwide are striving to deliver more efficient and effective public services in order to meet the increasing demands and expectations of citizens, whilst overcoming the major hurdle of reduced public budgets (Ferro et al. 2013). ICT in this context is considered to be instrumental in the improvement and innovation of public services (Zissis & Lekkas 2011). 'People express preferences, the government uses ICT to enhance its own capacity to deliver what people want, and eventually public value is created' (United Nations 2003). E-government is often seen as a process of creating public value with the use of modern ICT (United Nations 2003). In the light of the discussion above, creating public value is becoming the primary goal of e-government using Web 2.0 technologies (United Nations 2014). The concept of public value has become significant for public sector administrators, as stressed by Moore (1995) and Jorgensen and Bozeman (2007), because there is 'no more important topic in public administration and policy than public values' (Jorgensen & Bozeman 2007, p. 355). The value is created for citizens by the government, and the public value can then be used to aid decision making, to assess performance and, in the e-government context, to provide a bridge between the technology and wider policy communities (Kearns 2004).

Social media tools are thus increasingly being adopted by the public sector around the globe (Noveck 2009). The main advantage of SM use for the public sector lies in its capabilities for collaboration, participation, and empowerment of citizens to take part in governance (Bertot et al. 2010). The tools offer governments significant means by which to engage communities and make services more efficient (Jayakanthan 2011). They also allow for the encouragement of governments to value civil society as a

legitimate partner for change (Williamson 2011). This new era of government social media is associated with the values of openness, transparency and collaboration, along with the concept that the voices of many are smarter than the voice of one (Sadeghi et al. 2012). Online interaction, using social media platforms, fosters the creation of public value through public services and legislation (Misuraca 2012a). With the use of SM technologies, modern society saves time and cost and overcomes geographic limitations, while citizens are not passive recipients of services anymore because they become more active stakeholders. This type of citizens' use of SM initiatives will improve the public sector and it 'can be considered as a means to increase the public value produced by public administration' (Savoldelli et al. 2013, p. 376).

While overall social media networks in Australia and worldwide have grown, little is known about the value of these new technology platforms at the local government level. The empirical research on governments' public value creation is immature (Meynhardt & Bartholomes 2011). Little attention has been paid to the value creation mechanisms involved (Warren et al. 2014; Park et al. 2016). With regards to social media, there is a need for further research to identify the metrics that are used to assess their effectiveness. One method of evaluation that takes citizens' feedback helps to gain a better understanding of the benefits and public value of SM (Wigand 2014).

2.4.3 **Frameworks for the evaluation of public value.**

The public value approach has become a new tool to evaluate the level of success of public services in Australia and some other countries. A considerable number of frameworks have been established to help the public sector evaluate its efforts in implementing e-government initiatives using the public value approach, including: a framework for evaluating the public value created through quality public service delivery (Kearns 2004); a framework for concepts and relational pathways for public value production (Grimsley & Meehan 2007); indicators for government portals assessment and their impact on public value (Golubeva 2007); a conceptual framework for evaluating the public value of e-government (Karunasena & Deng 2011a); and evaluation of the quality of public services delivered through Gov. 2.0 (Omar et al. 2011).

The public value approach (Moore 1995) represents a paradigmatic shift in the narrative of public service reform. Kelly et al. (2002) referred to public services as an

essential part of the mechanism through which government creates public value. The models proposed by Moore (1995) and Kelly et al. (2002) are included in Figure 2.1.

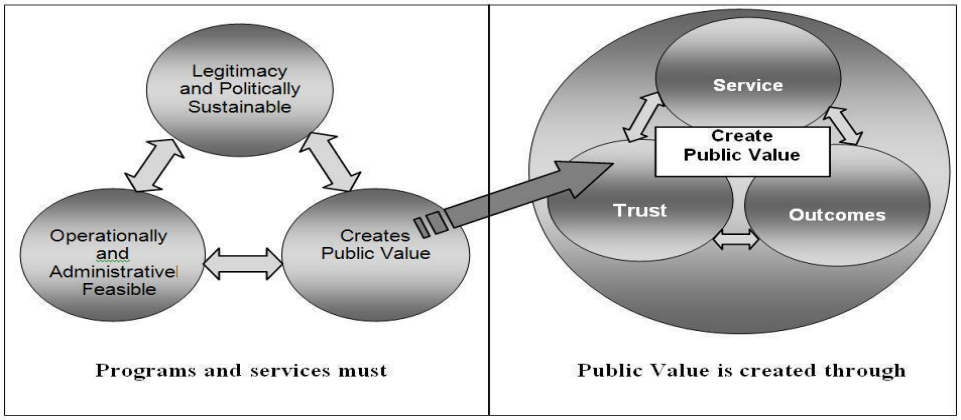


Figure 2.1: Strategic triangle (Moore, 1995) and public value main sources (Kelly et al. 2002).

These models call for moving beyond responsiveness into a collaborative, consultative approach in government activity, whereby citizens should be treated as equal partners (Stoker 2006). Kelly et al. (2002) identified three main sources of public value: outcome, trust (including legitimacy and confidence), and services. These three sources of public value creation provide governments with the foundation for new ways of thinking about the value they create for their citizens.

Today, social media technologies play an active role for government and citizens in creating public value. Governments invest more in business change processes that are supported by many major ICT programmes to ensure that it is not only the ICT that is delivered but also the service quality improvements, the efficiency gains, and the improved outcomes, which justify the ICT investment in the first place (Kearns 2004). ICTs help governments to strengthen trust in public institutions by enhancing transparency, cost efficiency, effectiveness, and political participation (Moon 2003). Although Moore (1995, 2013) consistently focuses on the challenge of creating public value from the perspective of public managers, it has become more pressing to assess value from the experience of individuals (Meynhardt 2009).

Using public value as a modern driver for e-government development, there have been different perspectives for evaluating the public value of e-government. Kearns (2004), for example, has adapted the main public value concepts of Kelly et al. (2002), namely delivery of quality public services, achievement of socially desirable outcomes, and development of public trust. Kearns' framework is proposed for evaluating the public

value created through quality public service deliver, based on the following set of key criteria (Kearns, 2004):

1- The level of information provision;

2- The extent of e-government use;

3- The level of user satisfaction;

4- The extent to which e-government is focused on user priorities;

5- The extent to which e-government is focused on those most in need;

6- The cost effectiveness of e-government services.

The main weakness of Kearns' (2004) framework is that it focuses on evaluating public value created through the delivery of quality public services, a limited number of e-government service quality elements, and components such as information and system quality. It does not offer any indicators on how to measure e-government contributions towards public trust or outcomes from the public value perspective. The framework does not take into account the values related to the relationship between public administration and citizens. Figure 2.2 shows Kearns' (2004) framework.

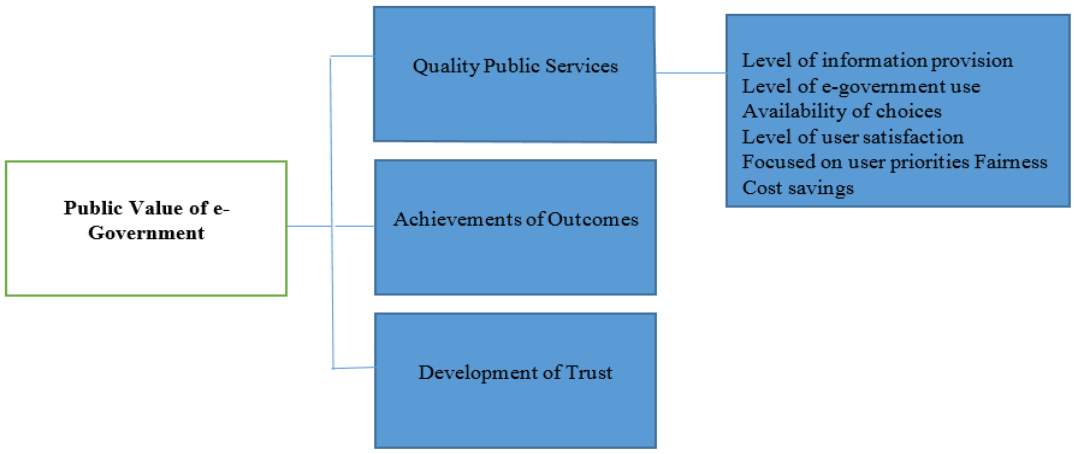


Figure 2.2: Kearns' (2004) framework of public value.

Grimsley and Meehan (2007) developed a framework for evaluation of e-government with a focus on services, user satisfaction, trust, and outcomes. Their framework is based on Moore's concept of public value. It takes into account users' perceptions of service provision and service outcomes for the development of public trust. The framework was developed and validated based on survey data collected from e-

government projects in the United Kingdom. It focuses on relational pathways between public value production concepts, including service provision, service related outcomes, user satisfaction, and trust, as shown in Figure 2.3. Their framework reveals that trust is 'related to the extent to which people feel that an e-government service enhances their sense of being well-informed, gives them greater personal control, and provides them with a sense e-government users experience' (Grimsley & Meehan 2007, p. 134).

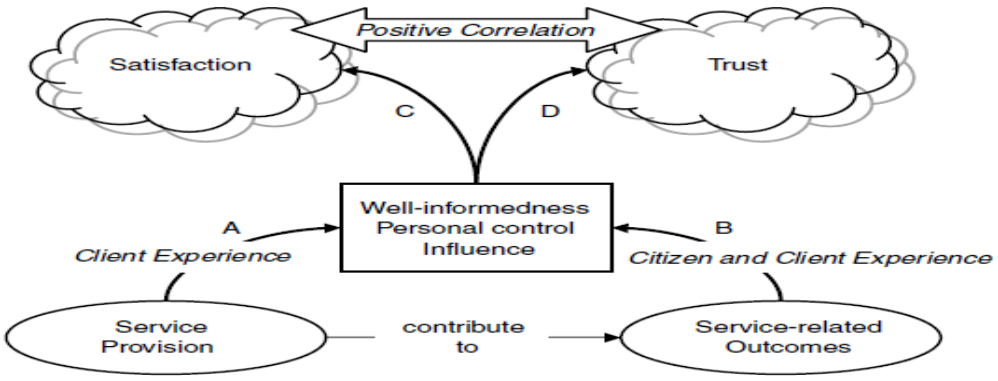


Figure 2.3: Framework for concepts and relational pathways for public value production (Grimsley & Meehan 2007).

Golubeva (2007) developed a framework on the basis of the public value concept to assess the potential governance quality improvement of regional government portals of the Russian Federation government. The framework was built on the main sources of public value, as identified by Kelly et al. (2002) and Moore (1995), and it includes three main dimensions: quality of public services; public trust; and public policy outcomes. This approach uses the openness, citizen-centricity and usability indicators to assess the service quality dimension. Transparency and interactivity indicators are proposed to measure the public value of public trust, as shown in Figure 2.4.

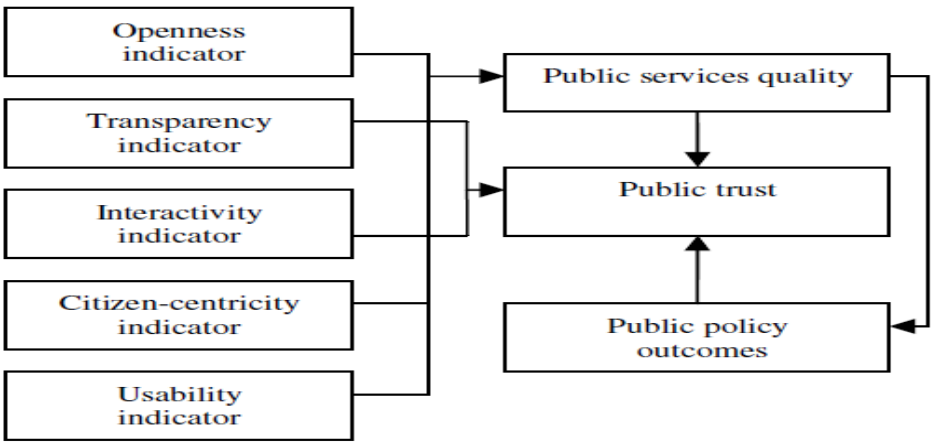


Figure 2.4: Indicators for government portals assessment and their impact on public value (Golubeva 2007).

The main problem of Golubeva's (2007) framework is that it does not propose direct indicators to evaluate public policy outcomes, but it still suggests that public service quality contributes to public policy outcomes. This framework proposed only three indicators (openness, citizen-centric, and usability) to assess the public value of public service quality. Two indicators (transparency and interactivity) can be used to measure the public value created through public trust. This limitation of indicators will narrow the real value perceived by residents from the use of social media tools with local government.

Karunasena and Deng (2011a) have extended Kearns' (2004) framework with the inclusion of effectiveness of public organisations as a dimension of evaluating the public value of e-government. Their modified framework used an extensive analysis of the appropriate literature and empirically examined and validated the literature through structural equation modelling survey data gathered in Sri Lanka. The later framework developed by Karunasena and Deng (2011a) is considered to be an improvement on their initial frameworks (Karunasena & Deng 2010c, 2010b). In this framework the public value of effectiveness of public organisations is evaluated by: (a) efficiency; (b) accountability of public organisations; and (c) citizens' overall perceptions about the effectiveness of public organisations. Citizens' trust in public organisations is evaluated through: (a) security and privacy of citizens' information; (b) transparency of e-government services; (c) trust of citizens in e-government services; and (d) participation of citizens in e-government. In a similar way to Kearns' (2004) approach, the public value of public service delivery is evaluated by examining: (a) the availability of information; (b) citizens' perceptions about the importance of

the information; (c) availability of multiple channels for citizens to access public services; (d) cost savings; (e) fairness of services delivery; (f) citizens' satisfaction with e-government service delivery; and (e) the take-up of e-government services. This framework is used to evaluate the performance of e-government in Sri Lanka with the use of much secondary data (Karunasena & Deng 2011a). Figure 2.5 shows (Karunasena & Deng 2011a) framework.

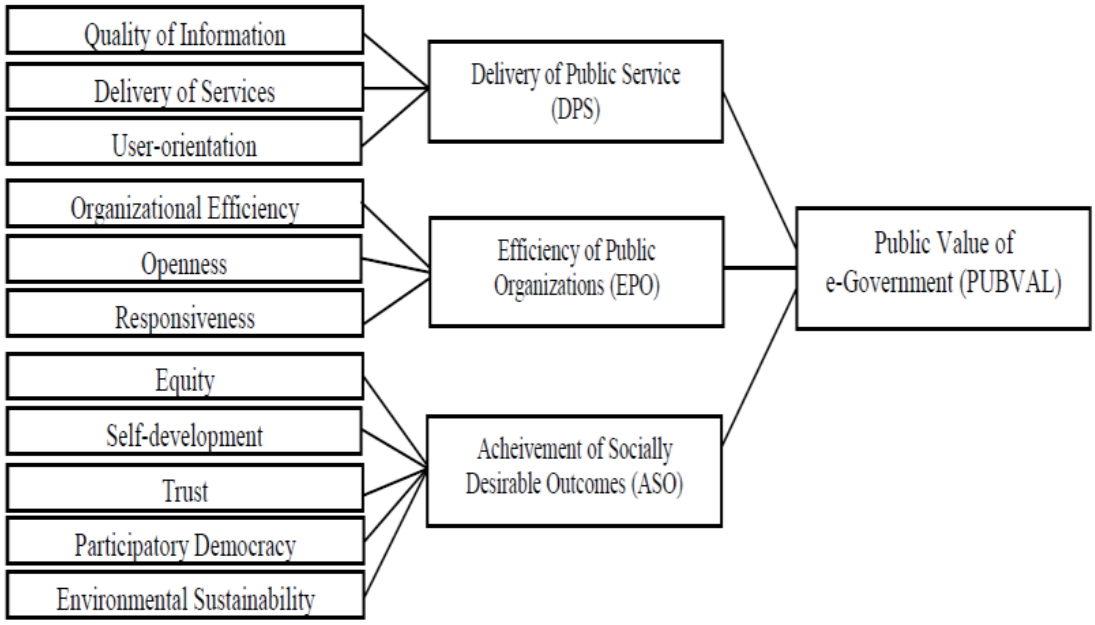


Figure 2.5: Conceptual framework for evaluating public value of e-government (Karunasena & Deng 2011a).

The main determinants for Karunasena and Deng (2011a) frameworks are that they have all been established for developing countries such as Sri Lanka. The majority of citizens in Sri Lanka live in rural areas, have low e-readiness, low ICT literacy, poor information infrastructure, and low householder internet penetration (Karunasena & Deng 2010c). These frameworks are therefore inappropriate for use in developed countries, such as Australia, which have mature e-government and social media initiatives.

Omar et al. (2011) proposed a conceptual framework to evaluate public value by examining the quality of e-government service delivery, which is shown in Figure 2.6. In their framework, the public value of e-government service quality is examined by considering service quality, information quality, and system quality issues. This framework aims to evaluate public value from the view of citizens, and considers how citizens perceive and evaluate e-government services (Omar et al. 2011).

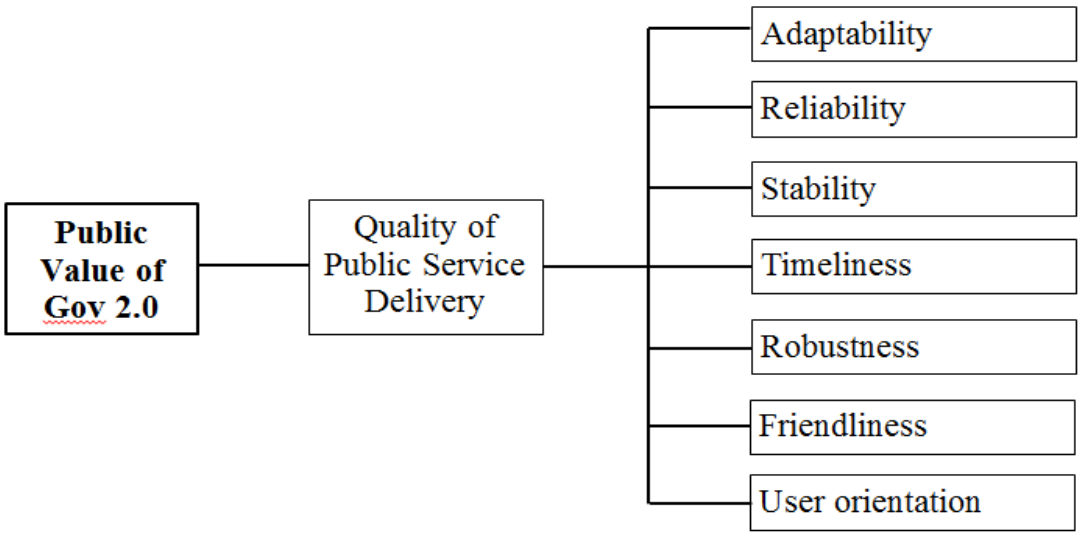


Figure 2.6: Evaluation of quality of public service delivered through Gov 2.0 (Omar et al. 2011).

Furthermore, the model developed by Scott et al. (2016) proposes that public value theory should encompass three value clusters: efficiency, effectiveness, and social value. The efficacy of this approach is demonstrated by creating a public value-based construct to measure IS success from the citizens' perspective, within the context of e-Government 2.0 systems. The objective of this research is to contribute to e-government and IS research by developing and validating for the first time a public value-based construct to measure net benefits of e-Government 2.0 systems from a citizen's perspective, and stratifying public value constructs for different e-Government user types. Scott et al. (2016) proposed, and empirically validated, measures for a multidimensional definition of public value comprising nine cross-constructs: cost; time; convenience; personalisation; communication; information retrieval; trust; well-informedness; and participation.

Although a considerable number of frameworks have been developed to evaluate public value and development of specific methodologies and frameworks for evaluating the public value of e-government (e.g. (AGIMO 2004; Kearns 2004; Grimsley & Meehan 2007; Karunasena & Deng 2010b; Omar et al. 2014), there is a lack of research on evaluating public value where social media tools are employed in government service delivery activity and interaction with their citizens. None of these frameworks has been developed to evaluate the public value of social media tools that are implemented and used by local councils to interact and serve their constituents. A

summary of studies that have reported limitations on public value are included in Table 2.5.

Table 2.5 Summary of limitations reported in current research on public value

Studies	Public value constructs	Research limitations
(Kearns 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.
(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 does not for empirical examination or evaluation. Furthermore, it is based on a conceptual level and the themes outlined do not offer any measurements.
(Mills et al. 2010)	Satisfaction Service quality Perceived value Usage intentions Public trust	This neglects other sources of value such as trust and outcome. The framework is normative and needs an empirical investigation to confirm its validity.
(Friendland & Gross 2010)	Operational value Political value Social value	This neglects the user's individual value after using a service. Furthermore, it is based on a conceptual level and needs further empirical evidence for validation.
(Karunasena & Deng 2012b)	Quality public services Effectiveness of public Organisation Achievement of socially desirable Outcomes	This framework evaluates e – government through the public value lens; however, it does not see the impact of public value on the service. It is based also on secondary data, and no indicators are proposed to measure outcomes
(Omar et al. 2011)	Service Value Information quality System quality Service quality	Other sources of public value (trust and outcome) are ignored. Furthermore, it is a conceptual study and needs empirical examination for validation. Finally, it does not offer any measurable hypothesis to validate the proposed value model.

2.4.4 **Public value sources**

The concept of public value can be seen as being linked with the following:

1- Delivery of quality public services creates public value (Kelly et al. 2002; O'Flynn 2007; Try 2007);

2- Achieving socially desirable outcomes is another way to create public value (Kelly et al. 2002; Cole & Parston 2006; Try 2007);

3- Effectiveness of public organisations creates public value (Moore 1995; Karunasena & Deng 2010c, 2012b); and

4 - Developing trust between the public and the government creates public value (Kelly et al. 2002).

2.4.5 **Measuring public value**

This study views public value from the use of social media to engage with citizens as the total benefits created for citizens by Queensland local councils. These benefits include social value and economic value. Previous studies on public value have suggested, and empirically tested, public value from several perspectives. With a focus on the relationship between government and stakeholders, Jorgensen and Bozeman (2007) identified an inventory of seven main perspectives, including 72 categories of public values based on 230 studies in the United States, the United Kingdom, and the Scandinavian countries. Kernaghan (2003) examined 32 kinds of public values in governments, including in Australia, New Zealand, Canada and the United Kingdom. Kwon (2014) classified the dimensions of public value along three major public value categorisations: democracy (political value), reflexivity (social value), and productivity (economic value). The development of measures of public value has further been based on administrative values (Van der Wal & Huberts 2008; Bannister & Connolly 2014), methods of governance (Andersen et al. 2013), and the strategic triangle of public value as established by Moore (1995).

There are two groups of values associated with Web 2.0 use in the public sector from a communication perspective, including Gov 2.0 values and social values (Alam & Lucas 2011). Quality, openness, responsiveness, efficiency, user orientation, equity, citizen self-development, democracy, and environmental sustainability are important kinds of public value (Kernaghan 2003; Bozeman 2007; Jorgensen & Bozeman 2007).

Jorgensen and Bozeman (2007) concluded that 'public value is not governmental' (p. 372) by arguing that public value can also be created by citizens.

Table 2.6 shows the public value in e-government framework and identifies some of the prominent values highlighted by a range of studies, for example effectiveness, efficiency, and reliability, as well as some of the social values lacking in empirical tests in previous studies in e-government with social media technology (Kernaghan 2003; Van der Wal & Huberts 2008; Berman & West 2012; Andersen et al. 2013). This gap suggests a need for more empirical testing in order to assess public value of using social media in the local councils. In this table Yes/No are used to indicate whether e-government and social media context were mentioned as part of public values reported in previous studies, while the ticks denote the types of public values.

Table 2.6 Summary of types of public values reported in previous studies

Authors	Efficiency	Effectiveness	Social value	E-government context	Social media
(Kernaghan 2003)	√	√	√	No	No
(Jorgensen & Bozeman 2007)	√	√	√	No	No
(Grimsley & Meehan 2007)			√	Yes	No
(Van der Wal & Huberts 2008)	√	√	√	No	No
(Berman & West 2012)	√	√	√	No	No
(Karunasena & Deng 2012b)	√		√	Yes	No
(Andersen et al. 2013)	√		√	No	No
(Omar et al. 2014)			√	Yes	Yes
(Bannister & Connolly 2014)	√	√	√	Yes	No
(Scott et al. 2016)	√	√	√	Yes	Yes

As shown in Table 2.6, prior studies have indicated that some values have been empirically tested in relation to public value in an e-government context while others have only been proposed as concepts. This study proposes empirical testing for three clusters of public value: efficiency, effectiveness, and social value, to measure the citizens' perspective within the context of social media technologies in the local councils. This research utilises this conceptual framework to construct a public value measure centred on the perspective of the citizen. It focuses on the public value of e-Government services based on the model proposed by Scott et al. (2016) and on Moore's framework (1995).

Efficiency

The literature in both information systems and public administration has cited the efficiency measure as an important value (Kernaghan 2003; Karunasena & Deng 2012b; Bannister & Connolly 2014). The majority of studies mention that the use of ICT reduces the economic cost of collecting and accessing government information (Tolbert & Mossberger 2006; Ku & Leroy 2014). In general, measuring efficiency is not easy (Kavanaugh et al. 2012); therefore, social media is a more efficient means to collect and access information, and to increase engagement among governments and citizens (Bekkers et al. 2013). This study has considered cost, time and communication as values to measure the perceived public value of social media in Queensland's local councils.

Effectiveness

Effectiveness is the degree to which a service achieves an intended outcome. Effectiveness is one of the most important values in public service provision (Jorgensen & Bozeman 2007; Kernaghan 2013). Effectiveness is a crucial measure of economic value in the information technology field (Schryen 2013). Although it is difficult to connect social media use to overall government effectiveness, some studies have confirmed that social media provide effective information sharing, information reach and information collection (Chun & Reyes 2012; Bekkers et al. 2013). This study has considered convenience, ease of information retrieval, and personalisation as values to measure the perceived public value of social media in Queensland's local councils.

Social value

Social value refers to citizens' perceptions of the trade-off between the benefits gained from the social media services, such as engagement or chatting with others, versus the sacrifices (e.g., costs, stress, and time) required to obtain them (Jiao et al. 2017). In other words, citizens involve themselves in social media in order to be socially connected to others (Kietzmann et al. 2011), thus satisfying their social value. Citizens can fulfil their social value by satisfying their need for belongingness and their need for cognition with those who have shared norms, values, and interests (Gangadharbatla 2008).

In the most recent era of information systems and online communities (e.g. via blogs, online communities and social networks) there is an increasing focus on the design and measurement of information systems based on social value (Connolly et al. 2016). Petter et al. (2012) have pointed out that the challenge for researchers to define and measure social value plays a pivotal role. In order to capture the perceived social value of citizens and to determine the degree of value of social media, it was deemed necessary to develop a new social value construct that includes the following dimensions: influence, participation, well-informedness, and trust (Connolly et al. 2016). This study has therefore considered trust, well-informedness, and participation as values to measure the perceived public value of social media in Queensland's local councils.

2.5 Factors affecting the perceived public value of SM users

This section focuses on the set of factors in the TAM2 model by Venkatesh and Davis (2000) and uses measurements from Teo et al. (1997) and Scott et al. (2016) to measure types of participants and interaction in relation to the local council's social media activities. Based on the literature, six factors are proposed as the most important factors influencing public value through social media use: demographic factors, perceived usefulness, perceived ease of use, intention to use, usage behaviour, and type of participants.

2.5.1 Demographic factors

The literature has confirmed the determining effects of demographic, socioeconomic, generational, and geographical differences in adopting technology (Tolbert & McNeal 2003; Reddick 2005; Becker et al. 2008). Some empirical examinations have found

for example that e-government usage was stratified by gender (Goldfinch et al. 2009), while other studies have identified that men are more likely to adopt technology than women (Mossberger et al. 2003). A further study has found that elderly people, especially the over 50s, adopt technology less than younger age groups (Helsper 2008).

At present, social media are widely used in all countries and all regions of the world. Little research has been conducted to reveal the influences of user characteristics on social media usage and application. User characteristics refer to demographic variables, user personality, and cultural differences. Researchers analyse how these characteristics of social media users can influence the strength and direction of the relationship between antecedents and resulting behaviour. This study explores the influences of demographic variables on public value through the use of social media. Some studies (e.g. Chen (2011); Correa et al. (2010); Zhang et al. (2009) have used demographic variables, including age, gender, income, and education, as variables in analysing the moderating effects of use social media.

2.5.1.1 Age

Differences in access to social media technology exist between those of different ages. Research shows that younger individuals are significantly more likely to be online than seniors (Hargittai & Hinnant 2008). Although age has been proven to be an important demographic predictor of interest in individuals' attitudes and organisational behaviour (Ford et al. 1996), it has received very little attention in IT acceptance research (Venkatesh & Morris 2000). As a result, a number of studies have more recently begun to examine its direct and indirect on effect individuals' acceptance and usage behaviour (Morris et al. 2005; Wang et al. 2009). Despite little evidence of the impact of age in the IT acceptance literature, there is still no study on the impact of the age on creating public value. This study evaluates the impact of age on the creation of public value through the use of social media.

2.5.1.2 Gender

The literature has revealed the differences between men and women regarding the decision-making processes in different fields. Bimber (2000) found that a significant difference existed in usage of online services between men and women. Within the domain of information systems research, the role of gender as a direct or indirect construct on an individual's behavioural acceptance has received surprisingly little

consideration (Venkatesh & Morris 2000; Porter & Donthu 2006). This research assesses the impact of gender on perceptions of public value through the use of social media by local government.

2.5.1.3 Education level

According to the 'diffusion of innovation' theory, innovators are most likely to have higher levels of education, income, and leadership characteristics, and possess a more favourable attitude towards risky decisions in terms of accepting new technologies (Rogers 2010). In addition, an innovation without guiding principles might produce a misuse of new technology and result in discontinuance. Educational level is directly related to knowledge and skills, and thus shows a positive effect on beliefs pertaining to behaviour (Igbaria & Parasuraman 1989). Education, combined with experience, affects the attitudes of individuals. This study evaluates the impact of education level on creating public value through the use the social media.

2.5.1.4 Local council area (city, urban, rural)

Local councils are the tier of government closest to citizens. They most directly interact with and serve citizens, providing a range of services that may include libraries, parks, road maintenance, and parking. Local councils are an important subject for the study of social media and interactivity because of their traditions of citizen participation at the local level (Mossberger et al. 2013). This is especially the case in remote communities where the opportunity for face-to-face interaction between citizens and government specialists is limited due to the large distances that often need to be travelled and the associated costs and time involved. The key reason for public sector organisations to embrace digital communication is to reach and engage with traditionally hard-to-reach audiences, such as the younger generation and people in remote locations (Tsui et al. 2010). The use of ICT to improve government connectivity and interactivity is a potential means to improve public value for citizens (Castelnovo & Simonetta 2008). Public value is the value created by government services, laws regulation and other actions (Kelly et al. 2002).

The state of Queensland is divided into metropolitan and rural regions with a total population of about 5 million people (QG 2015). There are 78 local council areas, with 43 of these areas making up the urban regions, and the rural regions comprise 35 local

council areas (QG 2014). Preliminary research has been conducted involving a website analysis of the availability of SM tools in Queensland's local council areas.

Previous research has identified a lack of studies that examine the role of SMT within local councils, especially in remote communities (Campbell et al. 2014). In an era where the scope and role of local councils are constantly being scrutinized, and where levels of citizen engagement are low, municipalities need to actively use SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison & Hardey 2014).

Moreover, the meanings and interpretations of public value vary significantly from state to state, or even from society to society (Jorgensen & Bozeman 2007). In this regard, it is essential to evaluate the public value of social media for citizens who live in urban and rural regions.

2.5.2 **Technology acceptance model factors**

The first model underpinning this study is the Technology Acceptance Model (TAM), developed by Davis (1986). It has become the 'leading model in explaining and predicting system use' (Chuttur 2009) and the most commonly applied model in information systems research (Lee et al. 2003). TAM provides clarification of user behaviour regarding the acceptance of computer technology and focuses on two factors of actual usage: perceived usefulness, and perceived ease of use (Davis et al. 1989). TAM has been regularly used and has been tested in a wide range of states (Davis et al. 1989; Rai et al. 1998; Dennis et al. 2003; Burton-Jones & Straub Jr 2006; Chuttur 2009; Hong et al. 2011), and it has been extended through adding various constructs from different theories. The goal of TAM is to explain the determinants of computer acceptance by incorporating user behaviour across a broad range of technologies and populations (Davis et al. 1989). The main use of TAM is to measure the success of information systems through uptake and acceptance of these systems (Smart 2009). Many studies conclude that TAM is a valid and reliable way to measure the acceptance of technology.

The main contribution in developing TAM came from Venkatesh and Davis (2000) through their introduction of TAM2. The results of TAM2 invited further research in this area. Venkatesh and his team proposed and tested a unified model called the Unified Theory of Acceptance and Use of Technology (UTAUT) in 2003. They

incorporated four key determinants in their model: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitation conditions (FC); and four key moderators: gender, age, voluntariness, and experience.

This unified model was based on a review of eight prominent theories and models: the theory of reasoned action, TAM, the motivational model, the theory of planned behaviour, a model combining the technology acceptance model, the model of PC utilisation, the innovation diffusion theory, and the social cognitive theory.

Although published studies adopting or extending UTAUT are still scarce, this does not undervalue the importance of this model compared with other models of technology acceptance. The model has performed well in recent literature studies. Koivumäki et al. (2008) used UTAUT to examine the perception of individuals in northern Finland towards mobile service.

Another important contribution by Venkatesh and Bala (2008) was their establishment of TAM3. Venkatesh and Bala (2008) argued that an essential issue relates to 'how managers make informed decisions about interventions that can lead to greater acceptance and effective utilization of IT' (Venkatesh & Bala 2008, p. 273). To address this issue, an integrated model was proposed, i.e. TAM3. Eckhardt et al. (2009) examined the social influence of workplace referent groups in German companies, while Curtis et al. (2010) examined the adoption of social media in non-profit US organisations. Furthermore, Verhoeven et al. (2010) have examined computer usage in Belgian universities. An updated contribution to understanding factors affecting the user behaviour of information technology has been presented by Venkatesh et al. (2012) and named UTAUT 2. This model is an extended version of UTAUT. Three new constructs were added to create UTAUT 2: hedonic motivation; price value; and habit. This model was empirically examined with mobile Internet consumers. The results showed that the suggested extensions in UTAUT 2 produced a considerable improvement in attempts to explain behavioural intention compared to UTAUT. Existing research has applied the UTAUT 2 model in several contexts, including adoption of a location-based social media service for travel planning (Chong & Ngai 2013), mobile banking (Baptista & Oliveira 2015), and mobile payments (Oliveira et al. 2016).

Rauniar et al. (2014) used the revised TAM model to examine individual adoption behavior of the most popular social networking site Facebook. The influences on the intention of using social networking based on individuals' perceived ease of use (EU), users' critical mass (CM), social networking site capability (CP), perceived playfulness (PP), trustworthiness (TW), and perceived usefulness (PU) was empirically examined with a primary data set of 398 users of Facebook gathered from a web-based questionnaire. The results of this study provided evidence for the importance of additional key variables to TAM in considering user engagement on social media sites and other social-media-related business strategies.

Slade et al. (2015) applied the UTAUT and extended it with more consumer-related constructs to explore the factors affecting nonusers' intentions to adopt remote mobile payments (RMP) in the United Kingdom. Their findings revealed that performance expectancy, social influence, innovativeness, and perceived risk significantly influenced nonusers' intentions to adopt RMP, whereas effort expectancy did not. Also, there was a significant difference in the effect of trust on behavioral intention for those who knew about mobile payments compared to those who did not.

Ibrahim et al. (2016) used the UTAUT model to explain the behavioral intention of the citizens of Nigeria in relation to e-government services by adopting variables from the UTAUT model such as social influence, effort expectancy, facilitating conditions and performance expectancy. Their study showed that social influence had a strong impact on the intention of citizens to participate in, and use, e-government services.

Rodrigues et al. (2016) examined the UTAUT model of e-government services in the United Arab Emirates. Exploratory factor analysis was used to extract the important constructs from 19 factors identified in the literature. Their study identified confidentiality and users' trust and attitudes toward using technology as key determinants of overall satisfaction and the subsequent adoption of e-government services. The study also identified significant differences in how different genders adopt the use of e-government services.

Rabaa'i (2017) adopted a modified version of the UTAUT to examine factors that determine the adoption of e-government services in Jordan. A survey collected data from 1,132 users of Jordan's e-government services. The results showed that all the five factors, namely performance expectancy, effort expectancy, social influence,

facilitating conditions and behavioural intention, have a significant effect on the adoption of e government services in Jordan.

Bailey et al. (2018) reported on a study that was undertaken to explore the factors that drive social media use among young consumers in Latin America. Their research involved the application of an extended TAM, with the addition of three new model variables whose impact on social media use had not been explored previously: social facilitation experience, fear of missing out (FoMO), and general online social interaction propensity (GOSIP). The results showed that social influence, social facilitation experience, perceived ease of use (PEOU), and perceived enjoyment (PE) are all significantly linked to perceived usefulness (PU) of social media. GOSIP, PU, and PE are positively related to attitudes toward social media use, which are positively related to active social media behaviors.

TAM has been used widely to identify factors that affect acceptance of new systems and technologies in different areas, such as e-health, e-government, and e-commerce acceptance (Pavlou 2003), consumer use of social media, specifically Facebook (Rauniar et al. 2014), and acceptance of mobile shopping applications (Natarajan et al. 2017). A number of studies have been identified that apply TAM to social media, and these are listed in Table 2.7.

Table 2.7 Some studies that adopted TAM in the social media field

Author/s	Theoretical grounding of model	Constructs
(Casaló et al. 2010)	TAM and TPB	Perceived usefulness Perceived ease-of-use Identification Attitude Subjective norms Perceived behavioural control Intention to participate
(Casaló et al. 2011)	TAM	Perceived usefulness Trust Attitude Consumer susceptibility to interpersonal communication Influence intention
(Kwon & Wen 2010)	TAM	Social identity Altruism Telepresence perceived Ease of use Perceived usefulness Perceived encouragement

		Actual use
(Hossain & de Silva 2009)	TAM	Perceived ease of use Perceived usefulness Attitude towards use Behavioural intention to use Actual use
(Hsu & Lin 2008)	The theory of reasoned action, TAM	Perceived the usefulness Perceived ease of use
(Steyn et al. 2010)	TAM	Perceived usefulness Perceived ease of use, perceived enjoyment, knowledge sharing, and social factors
(Rauniar et al. 2014)	TAM	Perceived ease of use Perceived usefulness Intention to use Actual use
(Wirtz & Göttel 2016a)	TAM	Perceived ease of use Perceived usefulness Subjective norms
(Bailey et al. 2018)	TAM	Perceived usefulness Perceived ease of use, perceived enjoyment, attitude toward social media, social media behaviours

The scales for perceived PEU, PU, IU and UB were adapted from prior studies, many of which have already established their reliability and validity (Davis 1986; Mathieson 1991; Moore & Benbasat 1991; Taylor & Todd 1995). Davis (1989) proposed that future research could applied to TAM with emerging technology acceptance. This study's variables will be modified to reflect the measurement of these constructs (TAM2) for social media users. Figure 2.7 shows the framework of TAM2.

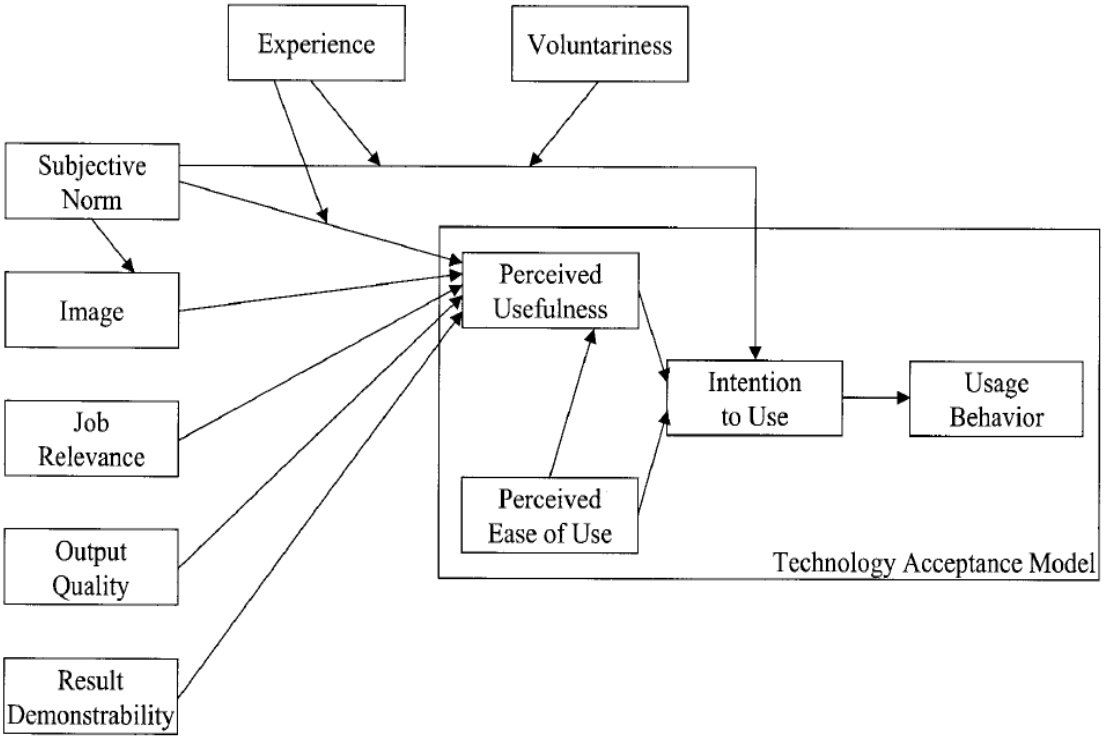


Figure 2.7: Interaction of the elements of TAM2 (Venkatesh & Davis 2000).

2.5.2.1 Perceived usefulness (PU)

Since the 1970s, there has been considerable effort to investigate the role of perceived usefulness in generating system utilisation (Davis et al. 1989; Burton-Jones & Straub Jr 2006). The reliability and validity of perceived usefulness as a predictor of intention to use information technology has been tested by Davis et al. (1989). Perceived usefulness is defined as the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organisational context (Davis et al. 1989). Perceived usefulness is considered to be the main construct in the original version of TAM and in the modified models of TAM. This construct has been employed to predict different factors, such as system acceptance, predicting user intentions, and measuring the web and wireless site usability of the system (Venkatesh et al. 2003; Alrafi 2007). These studies have proven that perceived usefulness is a valid and reliable construct to predict intention to use information systems in both types of usage: voluntary and mandatory. The ultimate goal of using social media is that the system increases a user's satisfaction by facilitating the interaction between community members through perceived usefulness. This study would expect that perceived usefulness has a positive influence on behavioural intention to use social media.

2.5.2.2 Perceived ease of use (PEOU)

Perceived ease of use (PEOU) was also theorised as the direct determinant of perceived usefulness and behaviour intention in a number of theories and models, including TAM, TAM2, and TPB. Perceived ease of use has been defined as the degree to which the prospective user expects the target system to be free of effort (Davis et al. 1989). Zhu et al. (2012) have since added that perceived ease of use signifies the degree to which an individual accepts that using certain technologies would be effortless and hassle-free. In the Unified Theory of Acceptance and Use of Technology (UTAUT), Venkatesh et al. (2003) regarded PEOU as similar to effort expectancy. PEOU is analogous with the complexity of perceived characteristics of Rogers' Innovations Diffusion Theory, although in the opposite direction (Venkatesh et al. 2003). Like many technologies and information systems, the model, which includes perceived ease of use, seems to have good predictive validity for the use of social media. This study would expect that perceived ease of use has positive influences on perceived usefulness and usage of social media.

2.5.2.3 Intention to use

Behavioural intention to use is an immediate antecedent of behaviour (Ajzen 2002). Intention to use is a cognitive process of an individual's readiness to perform a specific behaviour, where behaviour is an observable action performed by individuals on their experience, or mediated by some vicarious observations to a given target (LaRose & Eastin 2004). In order to enhance understandings of how users come to accept and use a technology, TAM proposes that when users are presented with a new technology, two factors, namely perceived usefulness and perceived ease of use, influence whether they will use it. For citizens, the intention to use SM as a relatively new technology in local government would have been affected firstly by their perceptions of its usefulness, and secondly by the ease of use. Consistent with the underlying theory for all of the intention models (Theory of Reasoned Action, Theory of Planned Behaviour, TAM, and TAM2), it is expected that behavioural intention will have a significant positive influence on technology usage. Behaviour intention to use is the strongest predictor of actual use (Usage Behaviour) (Venkatesh et al. 2003). According to the model in this study, the impact of intention to use can include public value through usage behaviour.

2.5.2.4 Usage behaviour towards public value

The concept of behavioural usage has been employed in the information systems literature since the 1980s. Usage behaviour is an observable act performed by an individual based on their experience, or mediated by some vicarious observations on a given target/level (LaRose & Eastin 2004). Achieving the value of using information technology is believed to be the main purpose of investment in information technology. Information technology is deemed to be a core source in generating organisational value (Tzeng et al. 2008). The impacts of information technology are not restricted to individual and organisational values, but are expanded to include the productivity of the economy as a whole (Gammelgård & Ekstedt 2006). The use of social media technologies have contributed to a paradigmatic change in the way users interact online with businesses and other organisations (Kim et al. 2009; McAfee 2009; Wattal et al. 2010b). Such new forms of interaction enable the co-creation of value in both the private and public sectors (Mancini 2012). This study expects that usage behaviour of SM has positive influences on the public value of social media.

2.5.3 Engagement and citizen types

In the current 'citizen-focused' era, the ability to personalise and customise the user experience of internet-based systems, particularly those using social media technologies, leads to varying perceptions of value among user groups and individuals (Petter et al. 2012). Accounting for this variation is critical, as not only may one stakeholder group view the system as a success while others may view it as a failure, but the functionality perceived by one user may vary considerably to that experienced by others (Myers 1995; Bartis & Mitev 2008; Petter et al. 2012).

In regard to the use of ICTs in local government, SM is ranked third among the preferred modes of communication by the identified stakeholder groups, after e-mail and the municipality web site (Johannessen et al. 2012). Social media technologies contribute to transforming the nature of interaction among individuals and organizations and have the potential to overcome some of the restrictive challenges of e-government (Cumbie & Kar 2015).

Linders (2012) has divided the typology of citizen participation into three categories, which reflect the models for citizen co-production in the age of SM: 1) citizen sourcing (C2G) is mainly about consultation and ideation, where citizens are enabled to share

their opinions with the government; 2) government as a platform (G2C) is mainly about informing and nudging, where citizens are equipped with data to make informed decisions; and 3) do-it-yourself government (C2C) is about self-organization. This typology may reinforce the idea that the transition from e-government (citizen as a customer) to we-government (citizen as a partner) is 'a new kind of social contract' (Linders 2012).

This new form of social media technology-enabled participation enables more effective communication with stakeholders, allows local government to gather feedback from citizens, and permits effective organisation of public services. This is more than simply about service provision, and instead accepts a view of accountability and discussion about the appropriate allocation of public resources. Citizen engagement in collaborative actions might involve activities related to service delivery, planning, financing, responding to unexpected events, or organizing other forms of partnership (Dawes & Préfontaine 2003; McGuire 2006). Research by Bernoff and Li (2011) has categorized citizens' engagement, in terms of the way in which they participate in social media activities, into six categories: inactive, spectators, joiners, collectors, critics, and creators (Bernoff & Li 2011), as shown in Figure 2.8. Each group on the ladder indicates a way to citizens' engagement. Allowing engagement by citizens to take place alongside traditional physical settings, and incorporating social media tools to engage people, are likely to capture a wider audience by including people who are unable to attend physically, as well as attracting younger participants. This will give community members the opportunity to participate in their own environment in their own time, with face-to-face encounters being optional, rather than required. Furthermore, it will reduce the reliance on physical resources because the public participation process is not as labour intensive, and planners and communication professionals can monitor participation progress online (Fredericks & Foth 2013). Digital communications are now facilitating government organisations to reach, and engage with, traditionally hard-to-reach audiences such as younger generations and people in remote locations (Tsui et al. 2010).

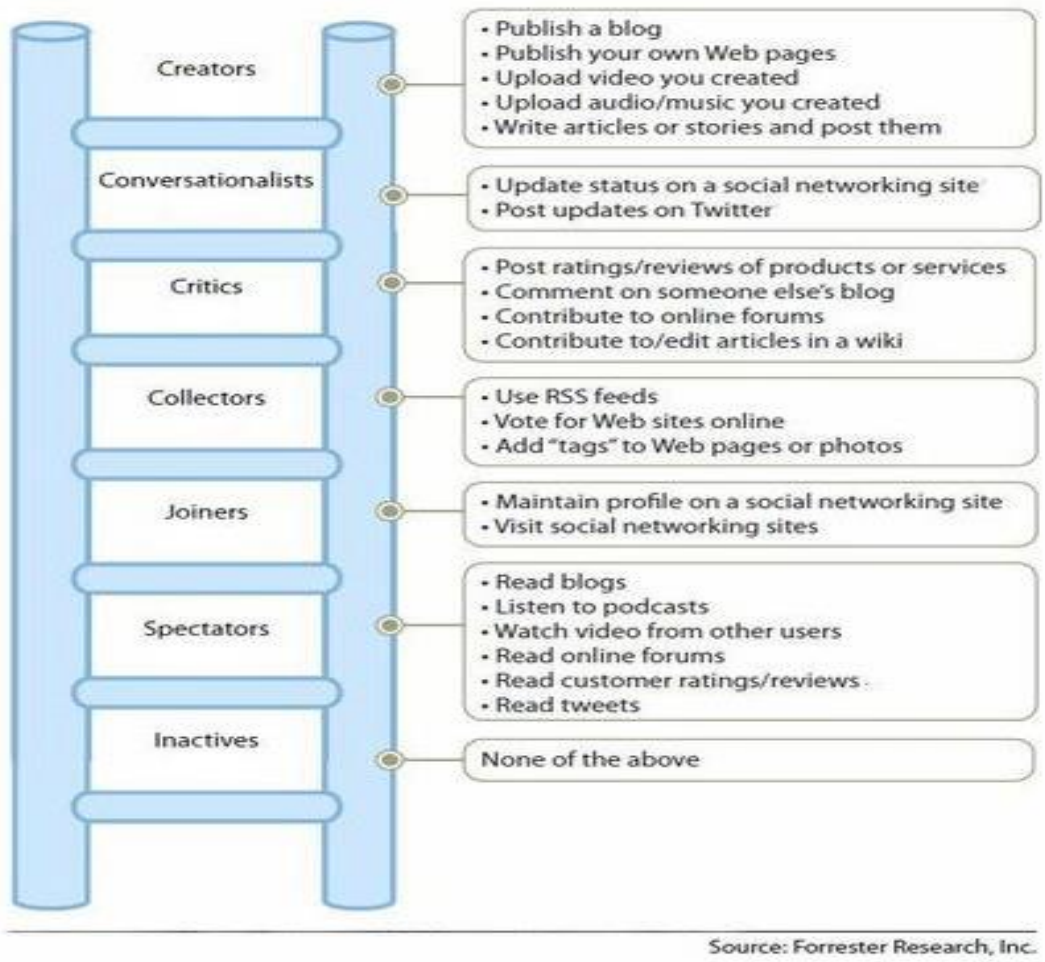


Figure 2.8: The social technographic ladder. Source: (Li & Bernoff 2011)

Previous studies have identified citizens' participation through social media as a key factor for public value through social media (Warren et al. 2014; Zheng & Zheng 2014; Bonsón et al. 2015; Zavattaro et al. 2015). In view of the important role of public participation, governments need to develop strategies to increase public participation through social media (Meijer et al. 2012; Abdelsalam et al. 2013; Mergel 2013b; Mossberger et al. 2013). Bonsón et al. (2016b) found no relationship between the level of government activity in social media and citizen engagement, and they suggested that an increase in the number of government posts in channels such as Facebook and Twitter does not necessarily produce higher levels of citizen engagement. Fostering participation in SM platforms is an issue that continues to present challenges for researchers and practitioners alike. In an era where the scope and role of local governments are constantly being scrutinized and where levels of citizen engagement are low, municipalities need to actively use SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison &

Hardey 2014). Various metrics have been introduced to measure the public's participation. They range from simple social media platform statistics (Abdelsalam et al. 2013; Chatfield & Brajawidagda 2013) to more comprehensive metrics that include popularity, commitment of the audience, and total engagement scores (Bonsón & Ratkai 2013). In this regard, this study uses measurements from Teo et al. (1997) and Scott et al. (2016) to measure user types and the participant's level of experience and interaction with the local council's social media activities, in order to assess which user type will be passive, active or participatory. In this field, Ksiazek et al. (2016) further analysed users' engagement based on their interactivity with online news obtained through social media (content–user and user–user interactivity).

2.6 The gap in the literature

Previous research indicates that there is a lack of studies that examine the role of SMT within local councils, especially in remote communities (Campbell et al. 2014). In an era where the scope and role of local government are constantly being scrutinized and where levels of citizen engagement are low, municipalities need to actively use SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison & Hardey 2014).

Public sector social media adoption remains an under-researched phenomenon in e-government (Sivarajah et al. 2014; Sharif et al. 2015a). There is very limited empirical research examining the impact of content types on stakeholders' engagement on social media platforms (Bonsón et al. 2015). Despite the growing number of local government organizations participating in social media implementations, and federal government investment in terms of financial and organizational resources to improve social media initiatives (Steward 2012), the uptake by Australian government organizations, including local governments, has not been commensurate with private sector developments (Samuel 2009). In this field, Gil de Zúñiga et al. (2014) and Mergel (2013b) have stated that no clear evidence exists that citizens are actually using social media for interactive participation in the activities of government agencies.

The challenge for government organisations in evaluating the use of existing social media technologies has not yet been fully explored empirically. This applies especially to studies that focus on the local and municipal level of social media and government.

Social media technology use, and its impact at local government level, is still tentative and remains a developing area (Sivarajah et al. 2015).

A theoretically motivated investigation of social media technologies in the work place is now an imperative for the fields of communication, management, and information systems (Leonardi et al. 2013). Further research is required for the development methods and practices of effective social media utilization in government, the investigation of their impact and value, and also the associated challenges (Chun & Reyes 2012; Criado et al. 2013b).

Although much research has been conducted on e-government supply-side metrics (Reddick 2005; Helbig et al. 2009), citizen needs or perceived values have not been adequately accounted for (Streib & Navarro 2006). Self-motivation plays a critical role in internet-based usage (Muhlberger 2005). There is an increasing imperative to understand the value of citizens in their interaction with local/municipal levels of social media. Due to the increased deployment of SM technologies by local government, there is a further challenge to measure what public value and impacts are pertinent in terms of this new form of citizen interaction. Although there is emerging research on the public value of social media use, the literature lacks a theoretical framework for explaining what public value can be created for citizens through the use of social media by local councils. The research of public value on local government is flourishing, but empirical studies of public value creation are still immature (Meynhardt & Bartholomes 2011). This gap suggests the need for more empirical testing in order to assess the public value of using social media in local councils.

2.7 Chapter summary

Chapter two has aimed to discuss the literature against which this research project is set, mainly the use of social media in local government councils, and the public value concept. The study focused on measuring the public value of social media as perceived by citizens, by selecting factors from the literature that are believed to impact on the public value of social media. The selected factors were placed in a model to guide the evaluation of the perceived public value of social media. The relationships amongst the factors in the proposed model were measured based on the public value of social media and the theories and issues related to evaluating these terms.

The first section of this chapter focused on the literature related to the process of e-government and open government in order to clarify the emergence and use of social media technology in governments. The next section focused on the literature related to social media technologies; their increased use by governments is highlighted along with the social aspect of these new technologies (types of social media technologies). The third section focused on the literature related to discuss the issues associated with public value, also reviewed existing frameworks developed to evaluate public value of e-government and social media. The review of these frameworks showed that have significant shortcomings. The final section of this chapter presented the set of factors in the TAM2 model, type of user participation, and demographic factors to establish the study model. Seven constructs were selected for the model: demographic factors, perceived usefulness, and perceived ease of use, intention to use, usage behaviour, and type of user participation, which together affect the public value of SM. These seven constructs will be explained in the next chapters. Thus, a review of the literature shows that although there is emerging research on the public value of social media, the literature lacks a theoretical framework for explaining what public value can be created for citizens through the use of social media by local councils.

CHAPTER 3: RESEARCH MODEL AND HYPOTHESEES

3.1 Chapter introduction

This chapter presents the research model and the theoretical background for the formulation of each hypothesis. Section 3.2 presents the theoretical background. Section 3.3 presents the construct definitions and research hypotheses. Section 3.4 provides the framework of the study model. Section 3.5 provides a conclusion for the chapter.

3.2 Theoretical background

The use of the public value concept to assess local councils and social media technologies is relatively new. In order to achieve the research target and objectives, a comprehensive theoretical framework is provided as a basis for conducting the research. The study draws upon the Technology Acceptance Model (Davis 1989), the Technology Acceptance Model (TAM2) (Venkatesh & Davis 2000), public value theory (Moore 1995), and the Public Value Net Benefits model (Scott et al. 2016). The main objective of this study is to establish a model to investigate the factors affecting the public value of social media in local councils, and to measure the perceived public value of social media in local councils from the perspective of citizens.

The first theory underpinning this study is public value theory (Moore 1995). This theory states that the ultimate goal of public service is to create values for citizens (Moore 1995; Try & Radnor 2007). Moore (1995) states that ‘value is rooted in the desires and perceptions of individuals’ (p. 52). The creation of public value very much depends on public organisations, various stakeholders, and their interactions (Jorgensen & Bozeman 2007; Benington 2009). Governments need to consider the public’s views when defining public value because public value is created ‘not just through ‘outcomes’ but also through processes which may generate trust or fairness’ (O'Flynn 2007, p. 358). Public value theory provides a framework that distinguishes between clusters of value dimensions, in the form of both tangible benefits of improved efficiencies and service effectiveness, and democratic values concerned with participation, engagement and trust (Jorgensen & Bozeman 2007; Bryson et al. 2014; Scott et al. 2016).

The second model underpinning this study is that of Scott et al. (2016), which proposes public value theory to encompass three value clusters: efficiency, effectiveness, and social value. The efficacy of Scott's approach is demonstrated by creating a public value-based construct to measure IS success from the citizens' perspective within the context of e-Government 2.0 systems. The objective of this research is to contribute to e-Government and IS research, by developing and validating for the first time a public value-based construct to measure net benefits of e-Government 2.0 systems from a citizen's perspective, and stratifying public value constructs for different e-Government user types. Scott et al. (2016) have proposed and empirically validated measures for a multidimensional definition of public value, comprising nine cross-constructs that include the following: cost, time, convenience, personalisation, communication, information retrieval, trust, well-informedness, and participation.

The third model underpinning this study is the Technology Acceptance Model (TAM), as developed by Davis (1986). It has become the 'leading model in explaining and predicting system use' (Chuttur 2009). TAM provided clarification of user behaviour regarding the acceptance of computer technology and focused on two factors of actual usage: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Davis et al. 1989). TAM has been regularly used and tested in a wide range of studies (Davis et al. 1989; Rai et al. 1998; Dennis et al. 2003; Burton-Jones & Straub Jr 2006; Chuttur 2009; Hong et al. 2011), and has been extended through adding various constructs from different theories. The goal of TAM is to explain the determinants of computer acceptance incorporating user behaviour across a broad range of technologies and populations (Davis et al. 1989). The main use of TAM is to measure the success of information systems through uptake and acceptance of these systems (Smart 2009). Many studies conclude that TAM is valid and reliable to measure the acceptance of the technologies.

The main contribution to developing TAM came from Venkatesh and Davis (2000) through their introduction of TAM2. The model was further refined by Venkatesh and Bala (2008) as TAM3. TAM has been used widely to identify factors affecting acceptance of new systems and technologies in different areas such as e-health, e-government, and e-commerce. The scales for perceived PEOU, PU, Intention to Use (IU) and Usage Behaviour (UB) were adapted from prior studies, which had demonstrated their reliability and validity (Davis 1986; Mathieson 1991; Moore &

Benbasat 1991; Taylor & Todd 1995). Davis (1989) proposed that future research could apply TAM with emerging technology acceptance. This study's variables were modified to reflect the measurement of these constructs (TAM2) for social media users.

This study has considered seven components in establishing the study model as shown in Figure 3.1. Specific constructs and relationships were identified in the study model.

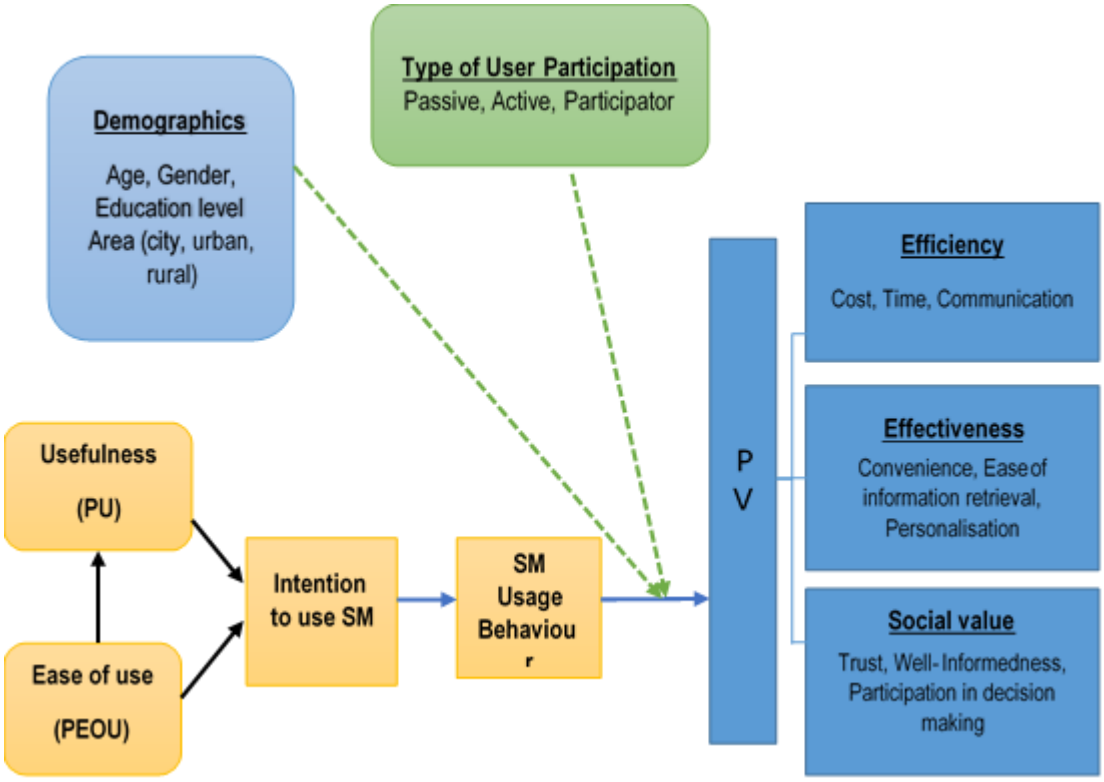


Figure 3.1: Research proposed model

Moreover, specific measurements were prepared to measure each construct in the study model. Accordingly, the model identified the context of the study in order to provide answers to the research questions discussed in this thesis. The key research questions were:

- What is the public value that citizens believe they derive from using social media technology in local councils in Queensland Australia?
- What are the factors affecting the perceived public value of social media in local councils in Queensland Australia?

The study's hypotheses were supported by the theoretical justifications, and the theoretical rationale was considered in formatting these hypotheses, as discussed in section 3.3.

3.3 Research constructs and hypotheses

3.3.1 Public value

This study is based on the three essential public value clusters most-cited in previous research to measure citizens' perspectives of social media technologies: efficiency, effectiveness, and social value. The focus of this study is on the public value of e-Government services based on the model proposed by Scott et al. (2016), and on Moore's framework (1995).

3.3.1.1 Efficiency

The literature in both information systems and public administration has identified the efficiency measure as an important value (Kernaghan 2003; Karunasena & Deng 2012b; Bannister & Connolly 2014). The majority of studies mention that the use of ICT reduces the economic cost of collecting and accessing government information (Tolbert & Mossberger 2006; Ku & Leroy 2014). This study has considered cost, time and communication as values to measure efficiency.

Cost

There may be a cost saving for the user from using online information channels (Scott et al. 2016). The potential for cost-savings has been well established from the earliest reviews of eGovernment (Al-Kibisi et al. ; Watson & Mundy 2001), which suggest there may be a benefit for citizens as a tangible outcome of using an online channel to interact or transact with government (Lau 2006). Anticipated cost savings have further been identified as one of the strongest predictors of willingness to use eGovernment (Gilbert et al. 2004; Reddick & Norris 2013). Social media are a tool for governments at all levels 'to rethink their IT strategies in order to save costs, come from capturing information more accurately' (Lawson-Body et al. 2014).

Time

Time saved by using the online channel was an important early promise of the benefits of using eGovernment, and has been established as a common perception among end users (Andersen et al. 2010; Reddick & Norris 2013; Lawson-Body et al. 2014). The

measure is the degree to which the information is sufficiently updated and accessible to the user within an adequate timeframe (Aschoff et al. 2007). The time refers to the perception of a faster response to an online interaction, particularly in comparison to other offline methods of service delivery (Scott et al. 2016). Due to of the active role of citizens in services, the value of time is perceived through many activities. Aschoff et al. (2007) proposed that citizens can contribute to: (a) the time it takes information to become available for the user (publication speed), (b) the speed of change of the referred objects in a certain domain (volatility), and (c) the revision cycle. Social media tools have the ability to disseminate information among citizens in a very short time frame, which can contribute to the perception of service timeliness.

Communication

As a mode of interaction, the internet is an efficient method of connecting citizens to government departments (Brown 2007; Gonzalez et al. 2007). New technologies have contributed to a paradigmatic change in the way users interact online with businesses and other organisations (Kim et al. 2009; McAfee 2009; Wattal et al. 2010a). New technologies have provided a range of forum communication tools such as blogs, chat rooms and other social networking media (Baumgarten & Chui 2009; Campbell et al. 2014). Communication through social media is characterized by rapid and informal information exchange (Bonsón et al. 2012; Abdelsalam et al. 2013). The public provides (unstructured) information, ideas and feedback to organizations through social media, without the formal organizational communication templates that are usually used in government reports. This requires organizations to be open to new ideas in order to establish effective communication. Those types of interaction enable the co-creation of value in both the private and public sectors (Culnan et al. 2010; Mancini 2012).

3.3.1.2 Effectiveness

Effectiveness is the degree to which a service achieves an intended outcome. Effectiveness is one of the most important values in public service provision (Jorgensen & Bozeman 2007; Kernaghan 2013). Effectiveness is a crucial measure of economic value in the information technology field (Schryen 2013). This study considers convenience, ease of information retrieval, and personalisation as values to measure effectiveness.

Convenience

The ability of the individual to easily access information and services is an important component of the convenience benefits from self-service technologies (Meuter et al. 2000; Chan et al. 2011). Having a convenient technology that minimizes the need for support will contribute positively to perceptions of facilitating conditions. Convenience is a citizen's perception of the time and effort required to use an e-government technology (Chan et al. 2011). Papacharissi and Rubin (2000) applied a construct called convenience for internet uses. The internet provides more accessible and available services than traditional channels, as online services can typically be reached regardless of location and time (Gilbert et al. 2004; Reddick & Norris 2013).

Ease of information retrieval

Online information dissemination is the primary function of eGovernment and information searching accounts for the majority of online activities with eGovernment websites (Teo et al. 2008). The ease with which information can be accessed, and the value of the available information, are key determinants of this benefit of eGovernment. Thomas and Streib (2003), Wong and Welch (2004), Welch et al. (2004), and Ahn (2011) have all argued that increased availability and provision of information through eGovernment can indicate improved openness and transparency. User friendliness is an extremely important measure and is good for all online service application design. The focus of any web page design in general is that it should be easy to follow, clear, and quick to load by users (Yen 2007). Simplicity of use is an essential factor to determine user-friendliness. Citizens can perceive value by the ease of accessibility to government services through Gov 2.0 initiatives, and through the ease of access to services and information, based on their preferences.

Personalisation

Personalisation or self-development refers to 'the empowerment of an individual's abilities, skills, and knowledge, as that person augments and realizes personal potential' (Savolainen & Kari 2004, p. 416). Frissen (2005) has stressed that the empowerment of users is one of the vital features of Web 2.0 technologies. User empowerment involves citizen empowerment (Misuraca 2012b). Empowering individuals through open dialogue is one of the main concepts behind Gov 2.0 (Sadeghi et al. 2012). Citizen dialogue with public officials and politicians on Web 2.0

platforms, supported with other features, such as accessible data and information, several accessible sources, and exchange of information and knowledge, can lead to citizen development. Kolsaker and Lee-Kelley (2008) found that personalised service ranked ahead of other tangible benefit factors of eGovernment. Web2.0 further provides a new potential method to provide personalisation features by allowing the individual to personalise their use and experience of particular websites, while at the same time participating in a much larger public representation (Weinberger 2002; Zimbra et al. 2009).

3.3.1.3 Social value

Social value refers to citizens' perceptions of the trade-off between the benefits gained from the social media services, such as engagement or chatting with others, versus the sacrifices (e.g., costs, stress, and time) required to obtain them (Jiao et al. 2017). This study considers trust, well-informedness, and participation as values to measure the perceived public value of social media in Queensland's local councils.

Trust

Trust is important topic for researchers and has been employed in numerous studies in eGovernment (Bélanger & Carter 2008; Teo et al. 2008; Belanche et al. 2014). Nye (1997) argued that trust in government in the United States and some other western countries has been on the decline since the 1960s. Chadwick and May (2003) have argued in response that using e-government could improve government services delivery to the citizens and reverse this decline. Trust in technology and government can be viewed as vital factors in the adoption of e-government services (Srivastava & Teo 2009). A group of studies found that higher levels of trust in government correlated with more intensive e-government service use, and that those satisfied with such services are more trusting of government (West 2004; Carter & Bélanger 2005; Tolbert & Mossberger 2006). Trust is an important determinant of citizens' intent to use e-government services. 'Utilization of e-government services', compatibility, trustworthiness, and perceived ease of use all have direct positive relationships with citizens' intent to use e-government services (Carter & Bélanger 2005). Trust includes responding to requests, acting in the best interests of the citizen, and reliably providing a service and meeting those obligations (Tolbert & Mossberger 2006; Jorgensen & Bozeman 2007; Teo et al. 2008). Public value is created through a process of co-

production and cooperation between citizens and government (Moore 1995). In this regard, trust is identified as a central element in the achievement of public value (Kelly et al. 2002; Stoker 2006). Seltsikas and O'Keefe (2010), who analysed the role of trust as a benefit outcome of using eGovernment in a public value context, supported this approach and sought to focus on partnership with government in the production of public value. This is in line with use of social media, which this study is focused on, and seeks to gather data about transacting, messaging, interacting, participating, and providing information between citizens and local councils. Thus, social media initiatives have significant potential to enhance government professionalism and consequently public trust in government (Misuraca 2012b).

Well-informedness

The ability of social media tools to facilitate citizens' dialogue and debate can encourage 'individual participants to engage in collective thinking about the common good. Individuals will not stop at stating their preferences, but to re-shape those preferences in terms of consensus values for ecosystem goods and services' (Wilson & Howarth 2002, p. 439) can promote more socially fair outcomes. Grimsley and Meehan (2007) have argued that citizens need to feel well-informed about government and government services. eGovernment provides the opportunity for citizens to be better informed, increase their understanding and build up their knowledge about issues of importance to them. Recent studies reveal that as citizens become more accustomed to searching for information, they become more knowledgeable about issues than non eGovernment users, and as a result, they are more able and likely to express their opinions via eGovernment websites (Kolsaker & Lee-Kelley 2008; Lee & Rao 2012). By extension, various other studies identify resultant implications for improved accountability and transparency through eGovernment (Thomas & Streib 2003; Wong & Welch 2004; Pina et al. 2007). Thus, well-informedness is a key benefit for the improvement of democratic processes and a core component of public value (Scott et al. 2016). Citizens' sharing of information and facts on social media can increase diffusion among citizens. This is to encourage government officials to improve their policy and practice, and to be more accountable.

Participation in decision-making

Citizen involvement creates improved participation in the democratic practice of government (Cresswell et al. 2006), and this engagement is essential to government citizen dialogue, for example in the form of citizen involvement in local planning hearings in local governments (Jorgensen & Bozeman 2007). Citizen participation is 'the social process of taking part (voluntarily) in either formal or informal activities, programmes and/or discussions to bring about a planned change or improvement in community life, services and /or resources' (Bracht 1991, p. 478). Citizen involvement and participation can make a significant contribution to improving citizens' understanding of processes, enhancing the quality of decisions, promoting citizen empowerment, and supporting democratic citizenship (Owens 2000). Participatory democracy is about the willingness of public organisations to listen to the public's opinions and give citizens opportunities to participate in public life (Jorgensen & Bozeman 2007; Benington 2009; Karunasena & Deng 2011a). It can be evaluated by the citizens' perceptions of the value of government keeping citizens informed about up-coming policies (Macintosh, 2004), their ability to participate in online discussions (Anttiroiko 2010), and their ability to post a topic or to set the agenda for public discussions online (United Nations 2005). The importance of involvement, and the perception of being able to exert influence with government, are important components of this dimension (Coleman 2004; Kolsaker & Lee-Kelley 2008). Social media are an example of the technologies that can help in achieving better participation in eGovernment, commonly referred to as eParticipation (Medaglia 2012).

3.3.2 **Demographic factors**

Social media are widely used in most countries. User characteristics refer to demographic variables, user personality, and cultural differences. Some studies (e.g. Chen (2011); Correa et al. (2010); Zhang et al. (2009) have used demographic variables, including age, gender, income, and education, to analyse the moderating effects of social media use. This study explores the moderating influences of demographic variables on perceptions and usage behaviour toward public value with regards to social media.

H1: Differences in demographics factors such as age, gender, education, and rural/urban location have a moderating influence on the relationships between usage behaviour (BU) and public value (PV) of SMT.

3.3.2.1 Age

Differences in access to social media technologies exist between those of different ages. Research shows that younger individuals are significantly more likely to be online than seniors (Hargittai & Hinnant 2008). Although age has been proven to be an important demographic predictor of interest in individuals' attitudes and organisational behaviour (Ford et al. 1996), it has received very little attention in IT acceptance research (Venkatesh & Morris 2000). In response, a number of studies have recently started to examine its direct and indirect effect on individuals' acceptance and usage behaviour (Morris et al. 2005; Wang et al. 2009). Despite little evidence of the impact of age in IT acceptance literature, there is still no study on the impact of age on usage behaviour toward public value. This study assesses the moderating impact of age on perceptions and usage behaviour toward public value with regards to social media use by local government.

H1a: The influence of usage behaviour toward public value is moderated by age.

3.3.2.2 Gender

Previous research has found differences between men and women in decision-making processes in different fields. Bimber (2000) found that a significant difference existed in usage of online services: women are less intensive internet users than men, and around one-half of the digital divide between men and women on the internet is fundamentally gender-related. Surprisingly, within the domain of information systems research, the role of gender as a direct or indirect construct in terms of an individual's behavioural acceptance has received very little consideration (Venkatesh & Morris 2000; Porter & Donthu 2006). This study assesses the moderating impact of gender on perceptions and usage behaviour toward public value with regards to social media use by local government.

H1.b: The influence of usage behaviour toward public value is moderated by gender.

3.3.2.3 Education level

According to 'iffusion of innovation' theory, innovators are most likely to hold higher levels of education, income, and leadership characteristics, and possess a more favourable attitude towards risky decisions related to accepting new technologies (Rogers 2010). Educational levels are directly related to knowledge and skills, and

thus show a positive effect on beliefs pertaining to behaviour (Igbaria & Parasuraman 1989). Education combined with experience affects the attitudes of individuals. This study evaluates the moderating impact of education levels on the perceptions and usage behaviour toward public value with regards to social media use by local government.

H1.c: The influence of usage behaviour toward public value of social media use by local government is moderated by education level.

3.3.2.4 Local council areas (city, urban, rural)

Local council is the tier of government that is closest to citizens. It most directly interacts with and serves citizens, providing a range of services that may include libraries, parks, road maintenance, and parking. Local councils are important for the study of social media and interactivity because of their traditions of citizen participation at the local level (Mossberger et al. 2013). This is especially the case in remote communities where the opportunity for face-to-face interaction between citizens and local government authorities is limited, due to the large distances that often need to be travelled and the associated costs and time involved. The key reason for public sector organisations to embrace digital communication is to reach and engage with traditionally hard-to-reach audiences, such as the younger generation and people in remote locations (Tsui et al. 2010). The use of ICT to improve government connectivity and interactivity presents a potential means to improve public value for citizens (Castelnovo & Simonetta 2008).

The state of Queensland is divided into metropolitan and rural regions with a total population of 4,778,854 million (QG 2015). There are 78 local council areas, and 43 of these areas make up the urban region, while the rural region comprises 35 local council areas (QG 2014).

Previous research has indicated that there is a lack of studies that examine the role of SMT within local councils, especially in remote communities (Campbell et al. 2014). In an era where the scope and role of local councils are constantly being scrutinized, and where levels of citizen engagement are low, municipalities need to actively use SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison & Hardey 2014). Moreover, the meanings and interpretations of public values vary significantly from state to state, or even from society to society (Jorgensen & Bozeman 2007). In this regard, it is essential to

evaluate the public value of social media for citizens who live in the urban and rural region.

H1.d: The influence of usage behaviour toward the public value of social media use by local government is moderated by geographic location for local government councils.

3.3.3 **Perceived usefulness (PU)**

Since the 1970s, there has been considerable effort to investigate the role of perceived usefulness in generating system utilisation (Davis et al. 1989; Burton-Jones & Straub Jr 2006). The reliability and validity of perceived usefulness as a predictor of intention to use information technology has been tested by Davis et al. (1989). Perceived usefulness is defined as the prospective user's subjective probability that using a specific application system increases his or her job performance within an organisational context (Davis et al. 1989). Perceived usefulness is considered the main construct in the original version of TAM and in the modified models of TAM. This construct has been employed to predict different factors, such as system acceptance, predicting user intentions, and measuring web and wireless site usability (Venkatesh et al. 2003; Alrafi 2007). These studies have proven that perceived usefulness is a valid and reliable construct to predict intention to use information systems in both types of usage: voluntary and mandatory. The ultimate goal of using a social media is that the system increases a user's satisfaction by facilitating interaction between community members through perceived usefulness. This study would expect that perceived usefulness would have a positive influence on behavioural intention to use social media.

H2: Perceived usefulness of SMT influences intention to use SMT.

3.3.4 **Perceived ease of use (PEOU)**

Perceived ease of use (PEOU) has also been theorised as the direct determinant of perceived usefulness and behaviour intention in a number of theories and models, including TAM, TAM2, and TPB. Perceived ease of use is defined as the degree to which the prospective user expects the target system to be free of effort (Davis et al. 1989). In the Unified Theory of Acceptance and Use of Technology (UTAUT) Venkatesh et al. (2003) regarded PEOU as similar to effort expectancy. PEOU is analogous to the complexity of the perceived characteristics of Rogers' Innovations

Diffusion Theory, although in the opposite direction (Venkatesh et al. 2003). Like many technologies and information systems, the model's included perceived ease of use seems to have good predictive validity for the use of social media. Based on a range of models and previous research, perceived ease of use is justified as an important determinant to influence usefulness and behaviour intention in the research model for this study. This study would therefore expect that perceived ease of use has positive influences on perceived usefulness and usage of social media.

H3: Perceived ease of use of SMT influences intention to use SMT.

H4: Perceived ease of use of SMT influences perceived usefulness.

3.3.5 **Intention to use**

Behavioural intention of use is an immediate antecedent of behaviour (Ajzen 2002). It is a cognitive process of an individual's readiness to perform a specific behaviour, where behaviour is an observable action performed by individuals on their experience, or mediated by some vicarious observations to a given target (LaRose & Eastin 2004). In order to enhance understandings of how users come to accept and use a technology, TAM proposes that when users are presented with a new technology, two factors, namely perceived usefulness and perceived ease of use, influence whether they use it. In relation to the use and intention by citizens to use SM, as a relatively new technology in local government, their use would have been affected firstly by their perceptions of its usefulness, and secondly by the ease of use. Consistent with the underlying theory for all of the intention models (Theory of Reasoned Action, Theory of Planned Behaviour, TAM, and TAM2), it is expected that behavioural intention would have a significant positive influence on technology usage. Behaviour intention to use is the strongest predictor of actual use (usage behaviour) (Venkatesh et al. 2003). Based on the previous studies and the model of this study, intention to use SM is likely to have a significant influence on usage behaviour.

H5: Intention to use SM directly affects usage behaviour.

3.3.6 **Usage behaviour**

The concept of behavioural usage has been employed in the information systems literature since the 1980s. Usage behaviour is an observable act performed by an

individual based on their experience, or mediated by some vicarious observations on a given target/level (LaRose & Eastin 2004). Achieving the value of using information technology is believed to be the main purpose of investment in information technology. Information technology is deemed to be a core source of generating organisational value (Tzeng et al. 2008). The impacts of information technology are not restricted to individual and organisational values, but are expanded to include the productivity of the economy as a whole (Gammelgård & Ekstedt 2006). The use of social media technologies has contributed to the paradigmatic change in the way users interact online with businesses and other organisations (Kim et al. 2009; McAfee 2009; Wattal et al. 2010b). Such new forms of interaction enable the co-creation of value in both the private and public sectors (Mancini 2012). This study expects that usage behaviour of SM has positive influences on the public value of social media.

H6: Usage behaviour of SM directly affects perceived public value of SM.

3.3.7 **Types of user participation**

In the current 'citizen-focused' era, the ability to personalise and customise the user experience of internet-based systems, particularly those using social media technologies, leads to varying perceptions of value among user groups and individuals (Petter et al. 2012). Accounting for this variation is critical, as not only may one stakeholder group view the system as a success while others may view it as a failure, but also the functionality used by one user may vary considerably to that experienced by others (Myers 1995; Bartis & Mitev 2008; Petter et al. 2012). (For more information see chapter two, section 2.5.3).

Recent studies indicate that social media are an effective means for governments to attract the public's participation (Linders 2012; Mossberger et al. 2013). Bonsón et al. (2016b) found no relationship between the level of government activity in social media and citizen engagement, and they suggested that an increase in the number of government posts in channels such as Facebook and Twitter does not necessarily produce higher levels of citizen engagement. Fostering participation in SM platforms is an issue that continues to present challenges for researchers and practitioners alike. In an era where the scope and role of local government are constantly being scrutinized and where levels of citizen engagement are low, municipalities need to actively use

SM to involve citizens properly in all aspects of local governance (Lee & Kwak 2012; Al-Debei et al. 2013; Ellison & Hardey 2014). In this regard, this study applies constructs from Teo et al. (1997) and Scott et al. (2016) to measure user types, participants' levels of experience, and interaction with local councils' social media activities in order to assess user participation type as passive, active or participatory.

H7: Type of user participation (passive, active, and participator) has a moderating influence on the relationships between usage behaviour (BU) and public value (PV) of SMT.

3.4 Study model

The framework proposed for this study is based on the theoretical perspectives discussed in Chapter 2 and incorporates two main concepts: public value and social media. The framework indicators are derived from the Technology Acceptance Model (Davis et al. 1989), the Technology Acceptance Model (TAM2), (Venkatesh & Davis 2000), public value theory (Moore 1995), and the Public Value Net Benefits model (Scott et al. 2016). Table 3.1 outlines previous studies that support the hypotheses and study model.

Table 3.1 List of studies that support the proposed model and hypotheses.

Constructs	References
Demographic factors	Chen (2011), Correa et al. (2010), Zhang et al. (2009), Hargittai and Hinnant (2008), Morris et al. (2005), Wang et al. (2009), Bimber (2000), Porter and Donthu (2006), Venkatesh and Morris (2000), and Rogers (2010).
Perceived usefulness (PU)	Davis (1989), Venkatesh and Davis (2000), Burton-Jones and Straub Jr (2006), Alrafi (2007), Venkatesh et al. (2003), Byrd et al. (2006), Landrum et al. (2007) Venkatesh and Bala (2008), Larsen et al. (2009), Steyn et al. (2010), Hossain and de Silva (2009), Kwon and Wen (2010), and Casaló et al. (2010).
Perceived ease of use (PEOU)	Davis (1989), Venkatesh and Davis (2000), Venkatesh et al. (2003), Venkatesh and Bala (2008), Taylor and Todd (1995), Steyn et al. (2010), Hossain and de Silva (2009), and Kwon and Wen (2010).
Intention to use	Ajzen (2002), LaRose and Eastin (2004), Venkatesh et al. (2003), Venkatesh and Davis (2000), Hossain and de Silva (2009), and Casaló et al. (2010).
Usage behaviour	Venkatesh and Davis (2000), LaRose and Eastin (2004), Tzeng et al. (2008), Kim et al. (2009), McAfee (2009), Wattal et al. (2010a), and Hossain and de Silva (2009).

Types of users	Bartis and Mitev (2008), Linders (2012), Myers (1995), Petter et al. (2012), Bernoff and Li (2011), Fredericks and Foth (2013), Tsui et al. (2010), Scott et al. (2016), and Teo et al. (1997).
Types of public value	Alford and O'Flynn (2009), Kelly et al. (2002), Jorgensen and Bozeman (2007), Alam and Lucas (2011), Kernaghan (2003), AGIMO (2004), Grimsley and Meehan (2007), Karunasena and Deng (2010c), Kearns (2004), Omar et al. (2014), and Scott et al. (2016).

The list of question items to measure each of the constructs and their references is provided in Chapter 4 section 4.4.3 and Appendix C.

A conceptual framework is developed that incorporates the factors affecting the perceived public value of SM users in evaluating the public value of social media, as shown in the proposed theoretical framework Figure 3.2.

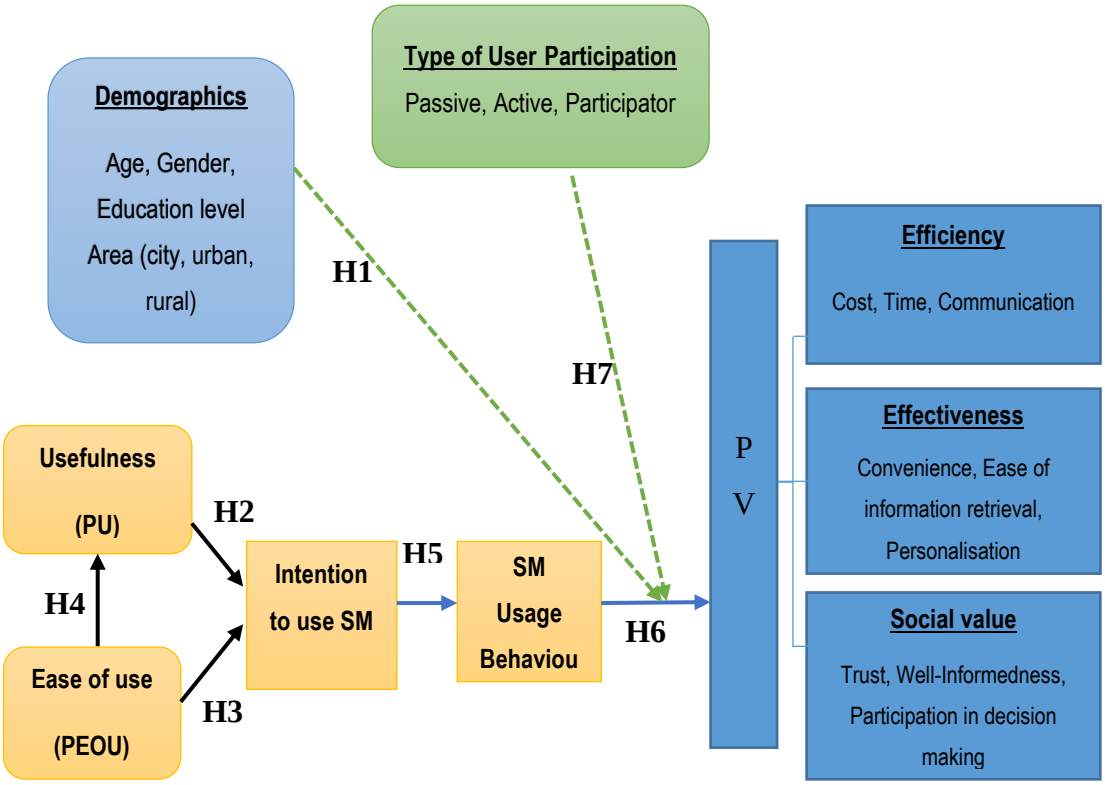


Figure 3.2: Conceptual framework to evaluate citizen perspectives on the public value of SM (based on Davis 1989; Moore 1995; Teo et al. 1997; Scott et al. 2016).

3.5 Chapter summary

Chapter three has presented the study model and defined the constructs selected to establish this model. Seven constructs were selected for the model: demographic factors, perceived usefulness, and perceived ease of use, intention to use, usage behaviour, and types of users, which together affect the public value of SM. The conceptual model defines three public value clusters: efficiency, effectiveness, and social value. The selection of these constructs was based on the literature in the

information systems, social media and public value field. Section 3.2 discussed the theories associated with this study model. In section 3.3 the research hypotheses were constructed. Section 3.4 presented the research model used for this study. The next chapter highlights and provides details of the research methodology, which is used to collect and analyse data, and to provide answers to the research questions discussed in this thesis.

CHAPTER 4: RESEARCH METHODOLOGY

The purpose of this chapter is to describe and justify the overall research methodology used. In the previous chapter a conceptual model to define the factors that affect the perceived public value of social media in Queensland's local councils was developed. This chapter focuses on different research methodologies to ascertain the most suitable methodology to validate this study's proposed conceptual model. The chapter consists of nine sections.

Section 4.1 provides a description of different research philosophies and the justification for choosing a positivist philosophical approach. Section 4.2 provides an overview of the research design in the form of a diagram that explains the overall plan to achieve the main aims and objectives of this study. Section 4.3 highlights the main research approach and provides justification for choosing a quantitative approach for the study. Section 4.4 defines the research strategy for this study and outlines the significance of the measurement instrument and its suitability for this research project. Section 4.5 provides details about the sampling techniques and sample size. Section 4.6 outlines the data collection method and online survey implementation. Section 4.7 discusses the data analysis techniques suitable to validate the proposed conceptual model. Section 4.8 outlines the ethical considerations for the collection of the data through surveys. Lastly, Section 4.9 briefly summarises the chapter.

4.1 Research philosophy

Within any research area, it is imperative that researchers are explicit about their own views and assumptions (Schuh & Barab 2007). A study's philosophy or paradigm is a crucial requirement in conducting research and eliciting valid results. Research philosophy is concerned with addressing the assumptions that underpin the research strategy and the methods selected as part of a research paradigm. The paradigm is defined as the 'basic belief system or worldview that guides the investigator' (Guba & Lincoln 1994, p. 105). A paradigm consists of a number of components: the nature of reality (ontology), beliefs about how knowledge is acquired (epistemology), and the nature of how and why particular methods are used (methodology) (Guba & Lincoln 1994; Schuh & Barab 2007; Scotland 2012). Although the paradigm is the grounding that researchers work from, the researcher needs to critically comprehend, make clear

choices about, and be able to communicate their worldview to the reader (Schuh & Barab 2007).

Ontology

Ontology is the investigation of a state of being, becoming, continuation, or reality, including the primary types of being and their relationships (Perry et al. 1999). It is applicable to four paradigms: positivism, realism, critical theory, and constructivism (Guba & Lincoln 1994, p. 105). The positivism paradigm proposes that the behavior or the nature of reality can be captured through an objective examination of a theory or by developing a conceptual model. This model, once developed, can be generalised to an overall population (Guba & Lincoln 1994, p. 105). Withen realism reality is seen as albeit imperfectly apprehendable (Guba & Lincoln 1994, p. 105). The essential elements that are part of realism, besides reality analysis, are: (1) the world is seen as an independent entity; (2) the main responsibility of science is to seek real knowledge regarding the world. However, that knowledge can never be authentic; and (3) the knowledge put forward should be critically analysed. That knowledge should be tested to evaluate the consistency of the knowledge as either representative of the world or not (Hunt 1991). Critical theory suggests that the nature of reality is formed internally with the passage of time. This formation takes place inside an individual's mind and is affected by various factors, including economic, social, political, gender, ethnic, and cultural factors. This process helps in the transformation of reality, which then contains new mental and social form. This type of reality is a historical or virtual reality. Within constructivism it is argued that the characteristics of reality are anticipated in the form of multiple inner mental structures that are communally experienced (Guba & Lincoln 1994).

Epistemology

Epistemology is about enquiring into the meaning of knowledge; how it can be obtained as well as the level to which it applies to any given topic (Krauss 2005). Epistemology can healp to explain how a researcher can gain knowledge about a field of study (Krauss 2005). The epistemology of each paradigm varies somewhat (Guba & Lincoln, 1994). Within positivism the connection between the researcher and reality is described as 'dualist and objectivist.' Positivism means that the researcher has the ability to do research without being subjectively affected by what is being discovered in the area of the research. The outcome of the research is assumed to be a true representation of reality and it can be defined objectively (Hunt 1991). In the realist

paradigm, the relationship between the reality of the research area and the researcher is a modified dualist and objectivist relationship (Perry et al. 1999). Research uses objective methods of investigation to arrive at findings that contribute to a better understanding of reality but does not capture actual reality.

In the critical theory it is proposed that the association between reality and the researcher should be subjective. Guba and Lincoln (1994) pointed out that the research objectives and the research are interactively connected with the researcher's principles, which ultimately influence the inquiry. In other words, the researcher was defined in this context as a 'transformative intellectual' (Guba & Lincoln 1994, p. 112). The constructive paradigm is subjective, whereby the researcher and the research objectives are thought to be connected interactively such that the results are actually developed while the study proceeds. This paradigm combines a division between ontology and epistemology similar to the way in which the researcher is turned into a 'passionate participant' in critical theory (Guba & Lincoln 1994, p. 112).

Research methodology is a philosophical position or worldview that underpins and informs the research style (Sapsford & Jupp 2006). Research methodology is 'concerned with why, what, from where, when and how data is collected and analysed' (Scotland 2012, p. 9). There are four philosophical worldviews, including post-positivism, social-constructivism, transformative practice, and pragmatism, which determine the adoption of quantitative, qualitative and mixed-methods approaches, respectively, in research (Creswell 2013). Guba and Lincoln (1994) classified philosophical worldviews into four: positivism, post-positivism, critical theory and constructivism. Saunders et al. (2016) state that no particular recommendations resolve a proper research philosophy; it depends on the research questions and methods. The next sections provide details of the relevant research philosophical paradigms in relation to positivism, critical theory, and interpretivism, and discuss selection of positivism as the appropriate epistemology. Appendix F includes ontology, epistemology, and methodology to compares positivism, realism, critical theory, and constructivism paradigms.

4.1.1 **Positivism as paradigm**

The positivist paradigm of research assumes that reality can be described objectively and by measurable properties, and that it is independent of the researcher's instruments (Collis & Hussey 2013). Positivist studies primarily attempt to test theory to increase

predictive understandings of particular 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 & Baroudi 1991, p. 5). Positivism uses quantitative, scientific, and experimentalist methods to collect and analyse data, based on the statistical analysis of quantitative research data (Collis & Hussey 2013; Saunders et al. 2016). The positivist paradigm has some advantages; for instance, it is fast, economical, and a range of situations can be covered (Easterby-Smith et al. 2008). Typical methods for studies that use the positivist philosophy include deductive large samples, and measurement (Saunders et al. 2016) Positivist philosophy may be a suitable for this study.

4.1.2 Critical paradigm

Critical researchers tend to critically evaluate and transform the social reality under investigation. A critical paradigm view is concerned with critiquing existing social systems and identifying and explaining the conflicts that may exist within their structure (Orlikowski & Baroudi 1991). The critical perspective assumes that social reality is produced and reproduced by people. Although people 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 & Baroudi 1991). This paradigm is not suitable for this study because critical research depends on the analysis of social and historical practices and tends to be longitudinal. It is characterised by the belief that 'a phenomenon can only be understood historically, [and that] this analysis leads to research outcomes that differ from positivist research' (Orlikowski & Baroudi 1991, p. 20). For this reason, a critical approach is not a suitable option for this study. Another reason is that the purpose of this research was to gather evidence in a quantitative manner, which critical epistemology does not facilitate.

4.1.3 Interpretive paradigm

The interpretive 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 & Bell 2011). The interpretive approach can be used if there are no predefined dependent or independent variables and the knowledge of reality is gained via social constructions (Klein & Myers 1999). The aim of these researchers is to understand phenomena

through accessing the meanings that participants assign to them (Orlikowski & Baroudi 1991). Interpretivist researchers claim to use qualitative methods of analysis to understand social phenomena. There are some difficulties in conducting interpretive research; for instance, the stage of data collection requires sufficient resources and time, or there may be difficulties in analysing and interpretation the data, and in managing the research pace, progress, and end-points (Easterby-Smith et al. 2008; Saunders et al. 2016). An interpretive approach is not relevant to this study as it emphasises the exploration of the complexity of social phenomena with a view to achieving an interpretive understanding, as opposed to a positivist approach, which focuses on measuring social phenomena (Collis & Hussey 2013). The interpretive approach is not a valid option for this study because this study is focused on measuring a social phenomenon, that is, to empirically validate a conceptual model.

4.1.4 Selection of positivism as the appropriate epistemology

A research methodology is an overall approach to address a research problem, from the theoretical underpinning of the research to the collection, analysis and interpretation of the data (Hussey & Hussey 1997). The selection of an appropriate research approach is the critical task in the research design process (Walsham 1995). Selecting a research approach is not as simple as just choosing a research environment to accomplish the research objectives (Creswell 2009). Therefore, selections must be made carefully. Selecting an appropriate research methodology to a research project very much depends on the nature of the research (Srivastava & Thomson 2009). After considering philosophical worldviews, research methodology determines the adoption of quantitative, qualitative and mixed-methods approaches respectively in research (Creswell 2013). Based on the previous review of the differences between research paradigms, it can be argued that the current research is focused on factors that affect the public value of social media in Queensland local government councils, in order to determine whether local governments are using these technologies to increase engagement, collaboration and opening a real dialog with citizens to ultimately create public value. Positivism was selected as being most relevant for this study.

Positivism is used to help identify factors that affect the public value of social media and to evaluate public value through citizens' engagement. To this end, this study has developed a conceptual model along with seven measurable hypotheses, based on previous literature. The selection of a positivist approach is based on the nature of the

problem addressed and previous literature about a similar domain. In brief, this approach mostly involves: 1) the formulation of hypotheses, models, or causal relationships within constructs, and 2) the probable use of quantitative methods to test relationships (Chen & Hirschheim 2004). The main justifications for adopting this paradigm are that it enables the study to test the proposed theoretical model, explains the causal relationships between the constructs of the suggested model, and enables the study to collect a wide range of quantitative data to test the suggested model. In addition, it considers various stakeholder views about the effect of various factors in creating public value. The positivist paradigm has some advantages, including that it is fast, economical, and that it covers a range of situations (Easterby-Smith et al. 2008).

4.2 Research design

Research design is defined as the general plan of how a researcher endeavours to answer the chosen research question (Saunders 2011). The plan may include: setting a clear objective derived from the research questions, specifying the data sources , analysing the data, and fixing ethical issues (Saunders 2011; Zikmund, William G et al. 2013). Three main issues essential to the design of research were addressed by Creswell (2003, p. 5): firstly, what knowledge claims are being made; secondly, what strategies of enquiry might be used; and lastly, what methods of collecting data and analysis will be employed. The plan of this study involves three stages: research design, data collection, and data analysis. In the research design phase, the researcher has conducted a detailed literature review on public value and social media. Thereafter, a conceptual model was developed whereby seven hypotheses were proposed. The research strategy for this study was based on primary data, which was collected through a questionnaire.

In addition, this study has also considered some secondary data related to social media apps, number of citizens, number of users, and postcodes for all Queensland's local councils. There is a lack of published statistics on the actual use of social media initiatives, and the actual percentage of use of these initiatives in Queensland's local councils. The second stage of this study was the data collection phase during which a pilot study was carried out and the reliability and validity of the questionnaire checked. Then, the researcher amended the questionnaire accordingly and presented the final questionnaire. The main data collection was conducted and a total of 313 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 was that it enabled this research to achieve the aims and objectives set out in chapter one. Figure 4.1 shows the research design, including the selected research methodology for answering the research question.

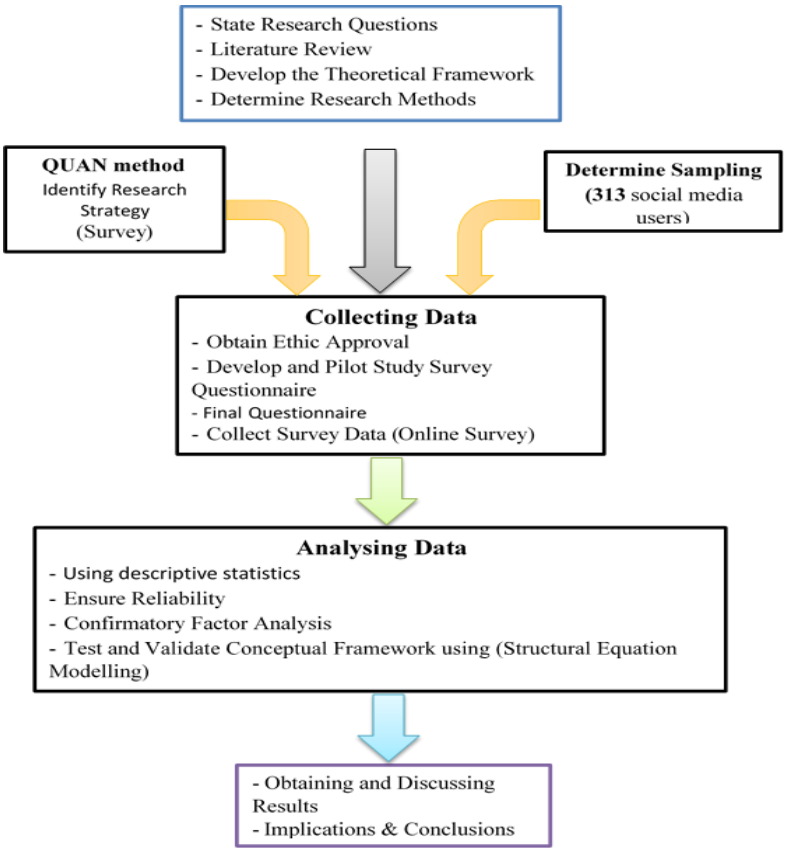


Figure 4.1: Research design

4.3 Research method and justifications

Selecting an appropriate research methodology for a research project very much depends on the nature of the research (Srivastava & Thomson 2009). The principal aim of conducting the quantitative study was thus to achieve the research objective of this study. This research project aims to investigate the factors perceived to affect the public value of social media in local councils in Queensland Australia. It is confirmatory in nature. Sekaran and Bougie (2016) has argued that the purpose of research can be classified into three categories: exploratory, descriptive, and explanatory research (hypothesis testing). This research is confirmatory in the sense that it aims to investigate the public value of social media in local councils in Queensland Australia by testing the hypotheses derived from the conceptual framework presented (Onwuegbuzie & Leech 2005). Using a theoretical framework

that drives the research is a prevalent feature of confirmatory research (Christ 2009). Testing the theoretical framework with the use of survey data is essential to identify the factors that can evaluate the public value of social media in local councils in Queensland Australia. The research is an explanation of the nature of certain relationships. Hypothesis testing provides an understanding of the relationships that exist between variables. Adopting a quantitative approach is necessary in this case to fulfil the confirmatory objectives developed in the research. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell 2013).

This study uses a quantitative approach for several reasons. Firstly, quantitative research in business and management has become increasingly accurate and flexible (Zikmund, William G et al. 2013). The study is based on mature theories of public value and information system success. The quantitative positivist paradigm is best aligned with the aims of this research, as it is seeking to confirm the factors that affect the public value of social media.

Secondly, a quantitative approach is associated with positivism, which primarily attempts to test theory to increase the predictive understanding of particular phenomena (Saunders 2012; Creswell 2013). Quantitative research emphasises quantification in the collection and analysis of the data, and it provides a set of powerful, objective, and replicable statistical methods to analyse numerical data to examine theories, by estimating hypothesized coefficients and assessing their significance (Bryman & Bell 2011). The quantitative positivist paradigm seeks generalisable results through the hypothetic-deductive testability of theories, which in turn supports the research objective of gaining valid, reliable and generalisable results (Bryman & Bell 2011). Quantitative research incorporates a deductive approach whereby the theory guides the research. Quantitative studies generally entail experimental and survey-based research strategies and methods (Collis & Hussey 2013). The decision has been made to adopt a quantitative positivist paradigm, considering the desire to involve a large number of citizens Queensland-wide in this study, which would be unachievable with a qualitative interpretive paradigm.

4.4 Data collection strategy

A research strategy is defined as a plan of how a researcher should go about answering a research question. In order to achieve its aims, this study has used two strategies sequentially. First, preliminary research was conducted involving website analysis of the availability of SM tools. Second, online survey research collected data through standardized questionnaires. Questionnaires capture responses from respondents through a series of questions. The results are evaluated by implementing statistical methods to test pre-determined hypotheses regarding the relationships between specific variables (Creswell 2013).

4.4.1 Preliminary research

Preliminary research was conducted based on pre-analysis of websites of 78 councils (as listed in Appendix B) and feedback from 10 unofficial interviews with officers' communication in some Queensland local councils (see more details in section 6.3 and table 6.1 in chapter six). This study has focused on the most common social media used by Queensland local councils and citizens. Evaluations were performed from March 2016 to May 2016 for all Queensland council websites. This preliminary research then helped the researcher to select local councils that had applied SM initiatives. After this analysis, the researcher selected 20 city, urban and rural local councils that had the most experience in SM for interaction with citizens, and which also had a large number of SM users for inclusion in this study (see more details table 5.1 in chapter five).

4.4.2 Online survey research

There are different research strategies in the information systems field. For example, Williamson (2000) defined eight research methods: survey, case study, experimental design, systems development in information systems research, action research, ethnography, historical research, and the Delphi method. Quantitative research is an empirical and systematic method, which includes data in the form of measurements or numbers. In this study, a quantitative approach has been followed, using online surveys as the key data collection tool. Online surveys can collect a wide range of data about different variables in a relatively short timeframe. This method involves asking the participants a set of pre-formulated questions (Zulu 2007).

Surveys can be administered in many ways, one of which is to conduct online surveys (Bhattacherjee 2012). Online surveys are a form of survey research that is administered over the internet. Respondents are usually invited to participate through emails with a link to the designated online website that displays a set of questions. Responses from participants are recorded directly in an online database, which saves time. By using website technology, questions are presented interactively and they follow a certain logical flow. 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. 20012).

In this case, an online survey is suitable for many reasons:

1- This research has chosen a quantitative approach to examine a set of eight hypotheses; hence it would require a large amount of quantitative data collection and statistical analysis. An electronic survey is considered the most appropriate methodology as it is low-cost, flexible, and has a shorter time for transmitting and entering data (Fan & Yan 2010; Zikmund, William G. et al. 2013).

2 - This study aims to investigate the perceived public value of the most common web-based technologies (SMT). Users of SMT already use the internet to facilitate their online presence and interactions, and are familiar with using computers, which makes the task of completing of the questionnaire straight forward.

3- The use of an online survey tool was chosen to allow for easy survey distribution via the internet, and it allowed the respondents to remain anonymous.

4- In this study, due to temporal and financial constraints, it is difficult to collect the data face-to-face from the sample, because the councils are spread widely across the state of Queensland.

The survey has also collected key demographic data including the highest level of education, age, gender of respondents, and region. It also collects data on perceived usefulness, perceived ease of use, and intention to use social media technology.

Table 4.1 includes justifications for why some data collection techniques are not applicable to current research.

Table 4.1 Techniques that are not applicable to the current research.

Data collection techniques	Justifications why some techniques are not applicable to current research.
Case study	The case study can be a single organisation; a single location; a person; or a single event. This study has not adopted the case study method because the results of the case study research is difficult to be generalised. This objective cannot be achieved by adopting a case study method.
System development	The system development method is related to theories of information systems design (Jones & Gregor 2006). The main objective of this study was to investigate the factors affecting the public value of social media in local councils in Queensland, not the development of these types of systems.
Ethnography method	The ethnography method can be useful 'when a certain culture is comprised of individuals who cannot verbalise their thoughts and feelings' (Zikmund et al. 2009, p. 139). The proposed study does not consider culture as a determinant to public value of social media. The ethnography method does not fit with the study approach and objectives.
Historical research	Historical research is defined as 'an effort to reconstruct or interpret historical events through the gathering and interpretation of relevant historical documents' (Leedy & Ormrod 2010, p. 108). The adoption of SM in local councils and the public sector is an emerging phenomenon. Without a long history of events related to these systems, this method was deemed impractical for this study.

The survey questionnaire has been distributed widely to residents of these local councils by a third party organisation (My Opinions Pty Ltd), which selects potential participants based on criteria provided. My Opinions is a market research company that offers online paid surveys. My Opinions is a part of Survey Sampling International (https://www.surveysampling.com), an Australian data solutions and technology provider that operates worldwide, and counts more than 2,500 companies as its clients. Electronic surveys benefitted this research because of potential access to large samples. This research has chosen electronic questionnaires, as opposed to data collection techniques and interviews, because it could be sent to hundreds or even

thousands of respondents at little cost. Furthermore, interviews are harder to conduct, as it difficult to find a convenient time to meet the respondents, and difficult to collect the data face-to-face from the sample, because the councils are spread widely across the state of Queensland.

4.4.3 Questionnaire administration

Primary data are collected for specific research objectives by a researcher using tools such as interviews and surveys (Koranteng 2014). Questionnaires were selected as an instrument to collect the primary data for this study. Questionnaires are a suitable instruments to collect primary data in a research setting that requires consistent information about the subjects being investigated. This study used questionnaires to achieve many benefits: encouraging participants to answer honestly; eliminating interview bias; eliminating variation in the questioning process; facilitating collection and analysis of data; collecting a large amount of data in a short timeframe; and it is economical to manage (Connaway & Powell 2010). In this study, the items comprising the questionnaire were adopted from previous studies. Administration of questionnaires contains four steps: initial design for the questionnaire and scale of measurement; a pre-test to verify the appropriateness of each survey question; a pilot test; and a finalised questionnaire provided prior to link distribution.

Step 1. Initial design for the questionnaire.

The questionnaire was designed based on previous studies in the information systems and public value field. The number of items in the first draft was 52, as shown in Appendix C. Part one of the questionnaire included the key demographic information of participants: age, gender, highest level of education of respondents, and region.

Part two of the questionnaire included participants' levels of experience and interaction with various social media activities, in order to assess user types: passive, active, or participatory. This study used measurements from Teo et al. (1997) and Scott et al. (2016) to measure user types and to answer research question two. Questions were included to clarify the level of experience and interaction with various social media activities, as shown in Appendix C.

Part three of the questionnaire included 13 questions (see Appendix C), which were adopted from the studies of Davis (1989), Venkatesh and Davis (2000), and Kwon and Wen (2010), in order to measure the individual's feelings towards their acceptance

intention of social media technologies, and to answer research question two. The first four questions (30 to 33) were related to the perception of usefulness (PU), and were intended to explore whether citizens believed that using social media would increase their interaction with their local council. The second three questions (34 to 37) were related to the perception of ease of use (PEOU), and were intended to explore whether citizens believed that using the social media was effort-free and easy to understand. Questions 38 and 39 were related to the intention to use (IU) social media with local councils, and questions (40 to 42) were related to the usage behaviour of social media with local councils.

Part four recognized several models for public value measurement, based on an extensive review of relevant literature. The majority of studies have used models from Jorgensen and Bozeman (2007) and Moore (1995) to measure the PV. This study has adopted the existing 29 item PV survey instrument from Scott et al. (2016) within the context of social media technology, to answer its first research question. The model includes three clusters: efficiency, effectiveness, and social value; and nine dimensions: cost, time, convenience, personalisation, communication, information retrieval, trust, well-informedness and participation. This study used the conceptual framework of public value theory to construct a public value measure centred on the perspective of the citizen. The model proposed by Scott et al. (2016) has examined the public value of e-government services from a citizen's perspective. There are several reasons for using this survey instrument for this study. Firstly, the validity and the reliability has been tested in Scott et al. (2016) study. Second, it is a concise survey instrument that is appropriate for the research sample population. All questions in part four are listed in Appendix C.

Step 2. Scale of measurement

Likert scales are widely used in survey instruments due to their simplicity and ease of use (Neuman 2007). Zikmund et al. (2009) define Likert scale as ‘a measure of attitude to allow respondents to rate how strongly they agree or disagree with carefully constructed statements, ranging from very positive to very negative attitudes toward some object’ (p. 318). A Likert scale is based on a continuum, with numbers assigned to indicate differences in the degree of aspects or characteristics from a higher to a lower order (Rao & Perry 2002). A Likert scale was suitable for this study because its main purpose was to evaluate the perceived public value of social media in

Queensland's local councils. A majority of empirical research confirms that using a 5-point scale improves reliability and validity (Dawes 2008). A 5-point Likert scale was used in the questionnaire of the study with a scale of: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. One additional choice ('Not applicable') was provided to give respondents more alternatives in selecting the most suitable option. 'Not applicable' is selected to describe when the item cannot be applied to the phenomenon under study (Krosnick et al. 2002).

Step 3. A pre-test and pilot study to verify the appropriateness of each survey question.

After the survey instrument was developed, a pre-test was carried out in one particular site to examine all the processes and instruments and identify required improvements in the survey (Wholey et al. 2004). The questionnaire was pre-tested by USQ academic staff members and a number of PhD students. This helped to obtain feedback on the appropriateness of the questions and enhanced the validity of the survey before the actual survey was conducted. Based on the suggestion by Bell and Waters (2014), participants were asked to give comments about the issues they encountered with the survey, the duration required for completion of the survey, the clarity of the instructions provided, if there were indistinct or uncertain questions, and if they had any additional remarks.

The interview method and an email with a URL link to the online survey were adopted in this research for the pre-test study to identify and solve problems in the instrument. A group of 20 USQ academic staff members and a number of PhD students were invited to provide their thoughts and suggestions on the survey. These participants had prior experience with the use of information technology and networks. The average time to complete the pre-test was between 13 and 20 minutes. Feedback from the pre-test participants improved the validity of the survey, format, the wording of the questions, clarity issues and question sequencing, grammar and punctuation, and survey length. The feedback was analysed and used to improve and refine the questionnaire prior to conducting the actual survey.

The experts comments were very helpful, and minor changes in the wording of some items were incorporated to finalize the research questionnaire for data collection, as

shown in Table 4.2. The details of the final research questionnaire used for this study are presented in Appendix D.

Table 4.2 Summary of a pre-test study

Parts	Number of items in draft	Reworded questions	Eliminated questions	Added questions	Number of items in final question naire
Demographic information	5	3	0	1	6
Measure user types	5	5	0	0	5
TAM factors	13	8	2	1	12
Public value	29	14	2	0	27

The pilot study was conducted on a small group of persons from the population the researcher intended to sample (Pallant 2011). The purpose of conducting pilot studies is to obtain feedback from individuals who are similar to the targeted survey population on the clarity of the questions in the survey instrument.

A pilot study offers some advantages in developing the final survey instrument:

1- The pre-test aims to uncover ambiguity, lack of clarity or biases in the wording of questions (Bhattacherjee 2012);
2- A pilot study assists in ensuring that the instructions, questions, and items in the questionnaire are clear. In addition, identifying additional contaminating factors that could impact the results is another essential function of the pilot study (Pallant 2011);
3- A pilot study assures that the research instructions can be understood by the participants, the allows for the possibility of changing procedure settings, and it assures the nature of questions which should not be confusing (Cozby & Bates 2012);
4- The main aim of a pilot test is to refine the questionnaire and enable the researcher to assess the validity and reliability of the questions (Saunders et al. 20012).

A pilot study for this research was conducted to increase the accuracy of the survey instrument. The pilot study samples in this research were similar to those that were to be involved in the final sample. A pilot study size of 12-30 is suggested (Hunt et al. 1982). The pilot study was executed with 46 Queensland citizens who may have used SMT with local councils. The feedback was analysed and used to improve the questionnaire. Then, the reliability of the items was tested using Cronbach's α. Cronbach's alpha was used to evaluate the reliability of the research instrument items (Field 2009). Cronbach's α is the most frequently used method to measure reliability and provide the standard for all feasible split-half reliability coefficients (Cozby & Bates 2012). As a rule of thumb for Cronbach's, the 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 (George & Mallery 2016). This study used Cronbach's α to test the pilot study and achieve high reliability. Table 4.3 demonstrates the value of Cronbach's (α) for all the survey instrument constructs.

Table 4.3 Cronbach's α coefficients of the scale items.

Construct	Cronbach's alpha	No of items
Perceived usefulness	0.960	3 items
Perceived ease of use	0.963	3 items
Intention to use	0.959	3 items
Usage behaviour	0.963	3 items
Cost	0.863	3 items
Time	0.898	3 items
Communication	0.939	3 items
Convenience	0.936	3 items
Easy of information	0.845	3 items
Personalisation	0.921	3 items
Trust	0.973	3 items
Well-informedness	0.925	3 items
Participation diction making	0.926	3 items
Total		42 items

4.5 Scope and sample of the study

After selecting the most appropriate process for the research, the next step is to design an approach for selecting a target sample. Generally, the word 'sample' within research is defined as a selected segment of the population, which is carefully chosen to draw conclusions that are generalizable to the overall targeted population (Cooper 2003; Bryman & Bell 2011). Zikmund (2013) recommends a series of sequential decisions that need to be made before a sample is obtained.

Firstly, the targeted population needs to be specified. Thus, the sample targeted in the present study was Queensland citizens who may have been using SMT with local councils, in order to evaluate citizen's perspectives on the public value of social media technology. Queensland has a total population of almost 5 million people (QG 2015). There are 78 local council areas with 43 of these areas making up the urban region, and 35 the rural region (QG 2014).

Secondly, there is a lack of published statistics on actual use of SMT initiatives, and on the actual percentage of use of these initiatives in Queensland's local councils. Preliminary research was conducted that involved website analysis of the availability of SM tools. Evaluations were performed from March 2016 to May 2016 on all Queensland council websites.

This process empirically examined the social media usage level of Queensland local councils. The main objective of this process was to provide a clear vision of the use of social media by Queensland's local governments, and to select the appropriate councils based on the usage levels achieved, including their implementation levels of social media initiatives. The preliminary research helped the researcher to select local council areas that had applied SM initiatives. After this analysis, the researcher selected 20 city, urban and rural local councils that had the most experience in SM for interaction with citizens and that also had a large number of SM users for inclusion in this study, as listed in Table 4.4.

The use of social media by Australians is growing rapidly. The growth of social media use in Australia is changing the way people communicate and interact with each other, as well as with private and public sector organizations including local governments (Howard 2012). Consequently, an increasing number of Queensland local government organizations, ranging from metropolitan to rural and remote, have recognized the growing trend of social media use and the advantages they offer in terms of

engagement with the public by using them in different ways. This includes promoting events and activities, providing clarification on issues, issuing alerts, gaining community input, and engaging with youth (Howard 2012). However, substantial discrepancies exist between the digital practices and social media use of rural and urban local governments. This discrepancy was examined through the views of urban and rural citizens in relation to the public value of social media use. There is some concern about the extent to which citizens in rural, remote and isolated communities, and people in positions of socio-economic disadvantage, have been able to fully incorporate the digital environment, whether they can access web-enabled services in their lives, and particularly about the public value of social media.

Thirdly, before starting to collect data it is essential to recognise the importance of the respondents and the information they provide, so that all the relevant data for the targeted objective is achieved. There are two main types of sampling methods: the probability and non-probability sampling methods (Bryman & Bell 2011; Zikmund, William G. et al. 2013). In this study, a probability sampling method was chosen to collect the data. Stratified random sampling is a variety of probability sampling, which facilitates the research in deriving the sample on the basis of some specific characteristics. The stratified random sampling technique allows the researcher to divide the population into sub-populations, and to take a sample of each sub-population, for example city, urban, and rural populations (Zikmund, William G. et al. 2013). Random sampling is an optimal technique to avoid a biased selection procedure (Saunders et al. 2016). The sample participants in the present study were Queensland citizens who may have been using SMT with local councils, in order to evaluate citizen perspectives on the public value of social media technologies. Stratified random sampling techniques were used in the study, based on the justification provided by Zikmund, William G et al. (2013). Twenty proposed strata of Queensland councils in this research included: five councils located in city areas, eight councils in urban areas, and seven rural councils. The residents were selected randomly from each council area. Due to temporal and financial constraints, it was difficult to collect data from the entire population, because the councils are spread widely across the state of Queensland. The present study was based on the calculation 0.1% of social media users for each council, to set the minimum sample size of 313 SM users, to avoid bias, and to ensure representativeness, as listed in Table 4.4.

Table 4.4 The selection criteria for stratified sampling in the current study

Council Type	Council Name	Number of SM users	Target number of responses	Year SM adopted
City	Brisbane City Council	75,402	75	2009
	Gold Coast City Council	62,231	62	2011
	Ipswich City Council	23,907	23	2011
	Logan City Council	16,895	17	2010
	Redland City Council	12,246	12	2009
Urban	Bundaberg Regional Council	12,581	13	2011
	Cairns Regional Council	10,317	10	2011
	Gladstone Regional Council	8,069	8	2011
	Mackay Regional Council	11,358	11	2009
	Moreton Bay Regional Council	19,672	20	2009
	Rockhampton Regional Council	12,385	13	2010
	Sunshine Coast Regional Council	15,249	15	2011
	Toowoomba Regional Council	12,003	12	2009
Rural	Banana Shire Council	2,900	3	2011
	Central Highlands Regional Council	4,556	5	2011
	Cook Shire Council	1,943	2	2010
	Maranoa Regional Council	1,596	2	2010
	North Burnett Regional Council	2,542	3	2010
	Somerset Regional Council	4,601	5	2012
	Whitsunday Regional Council	1,679	2	2014
	Total of 20 councils	312,134	313	

The minimum sample size is a very important consideration in data analysis. The data analysis method in the current study was based on requirements for using structural equation modelling (SEM). There is empirical evidence that the required sample size for structural equation modelling in the quantitative research should be equal or greater than 200 respondents to be considered adequate (Siddiqui et al. 2015; Byrne 2016; Igundunasse 2016). Sample sizes that exceed 200 cases could be considered 'large' in SEM analysis (Byrne & van De Vijver 2010). Sample sizes are based on model complexity and characteristics of the measurement model, and a minimum sample size of 300 is suitable for models that contain seven or fewer constructs (Hair et al. 2010). The present study aimed to examine six constructs with 44 items within the basic model; therefore, the minimum required sample size needed was 300 responses. In

this study, due to temporal and financial constraints, it was difficult to collect data from all populations, because the councils are spread widely across the state of Queensland. The present study was based on the calculation 0.1% of social media users for each council located, in order to set the minimum sample size of 313 SM users, to avoid bias, and to ensure representativeness. Accordingly, the big or small councils, in terms of SM users, contribute equally to examining the paths proposed in the study model.

As well as, the researcher considered some website statistical facts (http://www.danielsoper.com/statcalc/calculator.aspx?id=89) to help calculate the required sample size for SEM based on the following: effect size, Mizutani et al. (2015) draw on the work of Cohen (1988) who suggested an effect size 0.1-0.3 is small, 0.3-0.5 moderate, and above 0.5 is large. Accordingly, this research has used an effect of 0.3 as moderate; statistical power, determining statistical power is important for SEM because 'it concerns the ability of a test to differentiate between good and bad models (McQuitty 2004, p. 175). There is empirical evidence advising that statistical power for using SEM in business research should be at least 0.8 (McQuitty 2004). Cohen (1988) also recommended that the statistical power should be at 0.8, and 0.05 for the significance level in social management studies; number of latent variables of a study; number of items of a study; and probability level.

In this data set, the present study aimed to examine six constructs underlying 14 latent variables with 44 observed items. Utilising 0.8 power and 0.3 effects size, with a level of significance of 0.05, a minimum sample size of 208 for the model structure was needed as shows in Figure 4.2. The sample size of this research was 313 respondents

who could be progressed utilising statistical techniques within SPSS 25 and AMOS 25 software to achieve the research objectives.

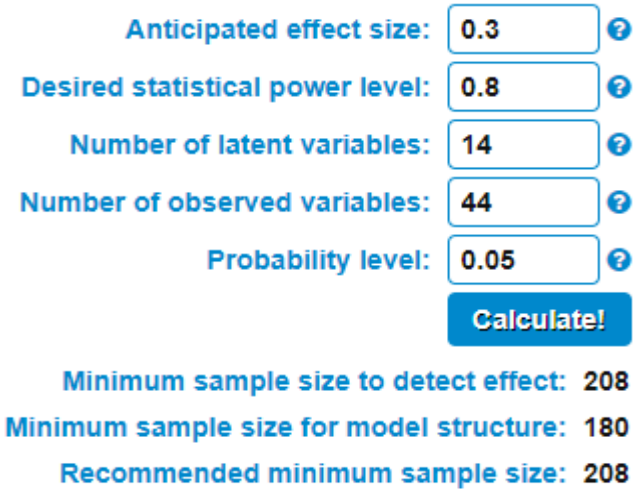


Figure 4.2: Calculate the required sample size for SEM

4.6 Online survey implementation

The online survey was conducted between 19 July and10 August 2017 by a third party organisation (My Opinions Pty Ltd), a market research company that offers online paid surveys. My Opinions is part of Survey Sampling International (https://www.surveysampling.com), an Australian data solutions and technology provider that operates worldwide, and counts more than 2,500 companies as its clients. My Opinions has an active panel of 400,000 verified respondents across Australia, 20% of whom are in Queensland. My Opinions claims to conform to applicable laws, codes, and regulations, and follows the codes of standards of applicable market and opinion survey research associations, including, without limitation, Committee of Australian Sport and Recreation Officials (CASRO) and the European Society for Opinion and Marketing Research (ESOMAR).

My Opinions offers services for designing questionnaires that are not available in traditional paper based formats (Gray 2014). Electronic surveys were considered to benefit this research in terms of gaining access to large samples. This research chose the electronic questionnaire, as opposed to other data collection techniques and interviews, because it could be sent to hundreds or even thousands of respondents at little cost. Furthermore, interviews would have been harder to conduct, as it can be difficult to find a convenient time to meet the respondents, and difficult to collect the

data face-to-face from the sample, as councils are spread widely across the state of Queensland.

My Opinions use their technology to deliver the survey to the respondents in the form of an invitation email with a URL link to the online survey, and via messaging on My Opinions panel community sites. My Opinions offer rewards (cash or points or prizes) to increase the response rate of the target population.

The researcher provided finalised questionnaires to My Opinions. My Opinions then constructed the online survey and created a link to the survey via mechanisms they regularly use. These mechanisms allowed My Opinions to monitor the quota of surveys completed, and check for skimming or flat lining. They were also able to provide the survey to more respondents in order to meet the guaranteed responses in a way that was representative of the distribution of the population.

Participants were members of an online panel set up by an agency specializing in the recruitment of survey participants in Australia (MyOpinions.com.au). My Opinions invited participants to complete a questionnaire, who met the following criteria: minimum age 18 years, active user of computers, and live in the postcode areas listed in Table 4.4. My Opinions matched the required profile of respondents targeted and invited respondents by email with a URL link to the online survey. My Opinions conducted a pilot launch with 46 participants and sent a package of the data for the researcher to check. Finally, My Opinions invited respondents to the fully launched online survey, and they were then able to guarantee a minimum number of responses. The required number of 313 responses were thus obtained and the final package of data was sent to researcher on 10 August 2017.

The security of the survey tool provided by My Opinions, given it was an online survey, was also very good, as it:

- Provided version control of the surveys being developed, tested and changed based on feedback;
- Facilitated sharing of the survey with the researcher's supervisor;
- Facilitated ease of distribution by providing a unique URL link to the survey; and
- Provided excellent tools for retrieving the survey results for analysis.

Table 4.5 below provides a summary of the steps involved in the online survey implementation through My Opinions:

Table 4.5 Steps of online survey implementation through My Opinions

Stage	Task
Commission	Confirmation of project details Quota requirements Provide finalised questionnaire Decide upon definition of invalid respondents Survey URL Fieldwork timings
Set up and review	Confirm ballpark pricing/feasibility based upon commissioning information Assign project manager Test link and passbacks Check sample (demographics and number) Load sample Authorise pilot launch
Pilot	19 July 2017 Pilot Launch (approx 10% sample) Check pilot data 31 July 2017 Authorise Full launch Full launch
Post fieldwork	Confirm close fieldwork 10 August 2017 close fieldwork Send through completes and termination file Confirm final specs and costs Generate invoicing and debrief / feedback

A response rate is the percentage of participants of a sample who return or complete a questionnaire (Zikmund, William G et al. 2013). A sufficient response rate is critical to any quantitative research (Contreras 2016). The questionnaire was sent to My Opinions, My Opinions invited 780 respondents by email with a URL link to the fully launched online survey. The data from the study sample was collected between 19 July 2017 and 10 August 2017. Hart (1987) suggested that the common response rate in a business population is between 18 and 27 percent. Rao and Perry (2002) confirmed that response rates in a range of studies relevant to customers who participate in

Internet surveys is between 6 percent and 22 percent. 313 respondents were received correctly completed and utilised for further analysis. Thus, the overall response rate of this study is about 40.13 percent. This rate is considered satisfactory because it exceeds the reasonable level for online surveys, it meets the minimum required sample size for SEM (208).

4.7 Data analysis techniques

A number of statistical tools were used to analyse the primary data for this study. Descriptive statistics were used to provide valuable information regarding respondents and their demographics in addition to information related to research variables of the survey. Structural Equation Modelling (SEM) was employed as a key technique to test the structural model and examine the hypotheses and to check the measurement model, using the data that was collected from citizens in Queensland Australia. SEM allowed the research to use Confirmatory Factor Analysis (CFA). CFA was mainly used to examine the validity and reliability of the theoretical model and hypothesis.

4.7.1 Descriptive statistics

Descriptive statistics provided a general description of sets of quantitative data for interpretation and comparison purposes (Cavana et al. 2001). In descriptive statistics, individual data items, or a summary of a single variable, are usually presented in a combination of text and tables. In this study, descriptive statistics were used to present the demographics of the participants involved in the online survey. IBM SPSS 25 was used to descriptively analyse the data.

4.7.2 Structural Equation Modelling (SEM)

In recent years, the popularity of SEM has risen greatly among social science researchers and it is used as a tool for testing theories with both experimental and non-experimental data (Bentler & Dudgeon 1996; Fan et al. 1999). SEM is a common multivariate method used in the social sciences, the use of which has increased, particularly in management disciplines such as management information systems (Gefen et al. 2000), strategic management (Shook et al. 2004), and marketing management (Hair et al. 2012). In this regard Hair et al. (2012) state that ‘SEM is particularly useful for the process of developing and testing theories and has become a quasi-standard in research’ (p. 312).

Hair et al. (2010) define SEM as a 'multivariate technique combining aspects of factor analysis and multiple regression that enables the researcher to simultaneously examine a series of interrelated dependence relationships among the measured variables and latent constructs (variates) as well as between several latent constructs' (p. 634). SEM is used to replace many conventional analytical tools, such as factor analysis, path analysis and regression analysis (Holmes-Smith 2011b). SEM was considered for this study since it fitted the purpose of testing the hypotheses, which involved a multiple regression analysis among a group of dependent and independent variables (Ullman & Bentler 2007). SEM examines a theoretical model through the relationships of its observable variables (directly measured variables) and latent variables (variables that are not directly observed) (Schumacker & Lomax 2004; Byrne 2013).

SEM was selected in this study for several reasons:

1- This study has adopted the positivist paradigm so the use of the SEM statistical technique is considered an appropriate data analysis technique (Urbach & Ahlemann 2010).

2- The availability of user-friendly software packages such as AMOS and SPSS, which simplify the complexity of SEM, was another motivation for using SEM in this research (Schumacker & Lomax 2004). AMOS software is the most widely available and used among other applications and programs of structural equation modelling packages (Byrne 2016).

3- SEM is widely accepted as one of the most powerful statistical approaches available in quantitative data analysis. It allows researchers to obtain answers to interrelated research questions at three levels: single, systematic, and comprehensive analysis (Gefen et al. 2000).

4- SEM enables testing of the whole model fit, and provides comprehensive statistical indicators for assessing and modifying the models (Anderson & Gerbing 1988).

5- SEM can deal with large numbers of independent and dependent variables in one model (Hair et al. 2010; Lau et al. 2016).

SEM can broadly be classified into two forms: covariance-based SEM (CB-SEM) and partial least square SEM (PLS-SEM) (Chin 1998; Hair et al. 2016). CB-SEM aims to minimize the differences between the covariance of the sample and those estimated by the theoretical model, using a maximum-likelihood function (Schumacker & Lomax 2004; Byrne 2013). Therefore, CB-SEM examines the extent to which the hypothesized model is supported by the sample data (Byrne 2013). If the sample data

do not conform to the theoretical model, then hypotheses can be rejected. Researchers have used CB-SEM to conduct theory testing and confirmation when prior theory was strong (Schumacker & Lomax 2004). CB-SEM is particularly well suited for large samples, ideally based on power analysis of a specific model; minimal recommendations range from 200 to 800 (Chin & Newsted 1999).

PLS is a component (variance) based approach to modelling, developed by Wold (1975) as an alternative to covariance-based estimation methods. PLS-SEM employs an ordinary least square (OLS) regression-based method, which is similar to multiple regression analysis (Hair et al. 2011). PLS-SEM uses the observed data to estimate the path relationships that minimize the errors of the dependent variables (Hair et al. 2011). In other words, PLS-SEM estimates path coefficients that maximize the explained variance of the dependent variables (Chin & Newsted 1999). PLS is particularly well suited for small samples, with power analysis based on the portion of the model with the largest number of predictors. Minimal recommendations range from 30 to 100 cases (Chin & Newsted 1999; Hulland et al. 2010). Researchers use PLS-SEM when their research is predictive (Chin & Newsted 1999; Hair et al. 2016). In this study CB-SEM was chosen because of a large sample size, and small to moderate model complexity (Chin & Newsted 1999). The selection of CB-SEM or PLSSEM in a study should be based on the aims of the study (Chin & Newsted 1999; Hair et al. 2016). When a study aims to conduct confirmatory research, researchers select CB-SEM (Chin & Newsted 1999; Schumacker & Lomax 2004). To achieve the aims of this study, namely to conduct confirmatory research, CB-SEM was chosen for data analysis (Chin & Newsted 1999; Hair et al. 2016)

4.7.2.1 Components of SEM

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). Hair et al. (1998) define the measurement model as a 'sub-model in SEM that (1) specifies the indicators for each construct, and (2) assesses the reliability of each construct for estimating the causal relationships' (p. 581). The measurement model defines the relationships between observed variables and latent variables (Hair et al. 2010). Here, an observed variable refers to a variable that can be measured directly through a value obtained from respondents, in response to a particular survey question (Hair et al. 2010; Byrne 2016). A latent variable refers to a variable that cannot be directly

measured and therefore is measured through a set of observed variables associated with such a latent variable (Schumacker & Lomax 2004; Hair et al. 2010). The measurement model is represented by using Confirmatory Factor Analysis (CFA) (Byrne 2016). CFA is commonly used to establish and test the measurement models that are employed to study specific phenomena. According to (Marsh 1985), there are three reasons why CFA is considered superior to exploratory factor analysis. First, CFA enables researchers to design models that are to be examined, whereas in exploratory factor analysis the control of researchers over the model is limited. Second, 'CFA parameter estimates are unique so long as the hypothesised model is identified' (Marsh 1985, p. 432). Third, goodness-of-fit indicators, such as Chi-Square, Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), and Root Mean Square Error of Approximation (RMSEA), are provided by CFA. Doll et al. (1994) state that 'confirmatory factor analysis involves the specification and estimation of one or more putative models of factor structure, each of which proposes a set of latent variables (factors) to account for covariance among a set of observed variables' (p. 454).

The structural model confirms the relationships between the factors, as hypothesized to represent the hypotheses that are formulated in studies adopting SEM (Kline 2011). Hair et al. (1998) define the structural model as a 'set of one or more dependence relationships linking the hypothesised model's constructs' (p. 583). The direct and indirect relationships between the constructs demonstrated via a structural model, and the amount of explained and unexplained variance, are described in the model.

4.7.2.2 Indicators of assessing Goodness-of-fit

The model fit shows the ability of the estimated model to predict the actual or observed input matrix (covariances or correlations) (Hair et al. 1998). Barrett (2007) espoused that 'model fit is adjudged according to how well a model predicts or explains that which is designed to predict or explain' (p. 817).

Different indicators have been developed to assess goodness-of-fit, including: Chi-square ($\chi 2$), which is a hypothesis assessment centred on a comparison of the proposed and alternate model; goodness of fit index (GFI), which assesses the ratio of variance and covariance of the projected model; the root mean square error of approximation (RMSEA), which assesses the error between the original and reproduced matrices (Hair et al. 2006); the root mean square residual (RMSR) and standardised root mean

residual (SRMR), which assess the average difference between the dataset and indirect correlations (Hair et al. 2006); and the normed Chi-square ($\chi 2$/df) (Cunningham 2008). The normed Chi-square (x2/df) is frequently used to assess models. Schumacker and Lomax (2004) have suggested 1 to 5 as an acceptable level of normed Chi-square, and values less than 1 point to be a poor fit, which reflects a need for improvement. The acceptable level of normed Chi-square, according to Hair et al. (2010), is 1 to 3.

Root Mean Square Error of Approximation (RMSEA) shows as a measure to assess model fit. (Byrne 2010) has pointed out that there are three reasons behind some authors' recommendation to adopt RMSEA: 'It would appear adequately sensitive to model misspecification; commonly used interpretative guidelines would appear to yield appropriate conclusions regarding model quality; and it is possible to build confidence intervals around RMSEA values' (p. 81). The acceptable level of RMSEA, recommended by Steiger (2007) as a stringent criterion, is 0.07. Bagozzi and Yi (2012) agreed with Steiger (2007) that 0.07 or less is a suitable level of RMSEA. Hair et al. (2006) state that 'the question of what is a "good" RMSEA value is debatable but typically values are below 0.10 for most acceptable models' (p. 784).

Two measures are used to assess the model fit based on the residual: Root Mean square Residual (RMR), and Standardised RMR (SRMR)(Holmes-Smith 2011b). RMR is used to calculate the average difference between the variance-covariance matrix for the hypothesised model and the variance-covariance of the sample (Byrne 2010). SRMR has been defined as 'a measure of the mean absolute correlation residual, the overall difference between the observed and predicted correlations' (Kline 2011, p. 209). Hu and Bentler (1998) suggested a cut-off value of SRMR of less than 0.08.

The Goodness-of-Fit Index (GFI) is proposed as an indicator to measure the discrepancy. The cut-off of GFI is 0.90, and Shevlin and Miles (1998) recommended that an acceptable level of GFI should be ≥ 0.95. The adjusted Goodness-of-Fit Index (AGFI) is a similar indicator to GFI but AGFI considers the degree of freedom in the specified model (Holmes-Smith 2011b). The values of GFI and AGFI range from 0.0 to 1.0 and, theoretically, their value negative (Byrne 2010). Hair et al. (2006) has claimed that 'no statistical test is associated with either GFI or AGFI, only guidelines to fit' (p. 747). Bagozzi and Yi (2012) agree with Hair et al. (2006) that there are no commonly-accepted cut-offs for GFI and AGFI.

Normed Fit Index (NFI) is an indicator of incremental fit proposed by Bentler and Bonett (1980). The main limitation of NFI is that 'NFI may underestimate the fit of

the model in good-fitting models with small samples' (Tabachnick & Fidell 2007, p. 761). Non-Normed Fit Index (NNFI) has been proposed to solve the issue of sample size via considering the degrees of freedom (Bentler & Bonett 1980). The value of incremental indices is between zero (0.0) and one (1.0), where zero points to the fitted model being better than the null model, and 1.0 points to the model being a perfect fit (Holmes-Smith 2011b). To solve problems in the NFI indicator, Bentler (1990) proposed a new measure, namely the Comparative Fit Index (CFI). Hair et al. (2006) claim that CFI is a commonly used indicator because it is insensitive to model complexity. The cut-off level of more than 0.90 is still acceptable to assess the models (Hair et al. 2006).

Hair et al. (2006) affirmed that there is no agreement about which indices should be used or what the acceptable cut-off values are for fit indices. In respect of this issue, Hooper et al. (2008) have stated that 'with regards to which indices should be reported, it is not necessary or realistic to include every index included in the program's output as it burden both a reader and a reviewer. Given the plethora of fit indices, it becomes a temptation to choose those fit indices that indicate the best fit' (Hooper et al. 2008, p. 56). With regards to selecting the indices for model fit, this decision is considered difficult because models are different in many aspects, for instance sample size, estimation procedures, model complexity, and/or violation of assumptions (Byrne 2010).

Hair et al. (2010) have suggested that at least four test of model fits should be used for CFA and the 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 the structural model. Bagozzi and Yi (2012) have conducted research in the management field, and their suggested cut-off levels of indices were based on studies conducted in the information systems area. The suggested cut-off levels are RMSEA $\leq$.08, NNFI$\geq$.92, and CFI $\geq$.93. The selection of these indicators for this study was based on the recommendations of original studies in SEM and empirical studies in the information systems field. Table 4.6 summarises the model fit indices and the cut-off levels adopted in this study.

Table 4.6 Goodness-of-fit cut-off values

Index GOF	Abbreviation	Recommended value	Reference
Normed Chi-Square	$\chi 2/df$	1-3	(Hair et al. 2010)
Root Mean Square Error of Approximation	RMSEA	≤0.08	(Bagozzi & Yi 2012)
P of Close Fit	PCLOSE	≥0.05	(Hair et al. 2010; Bagozzi & Yi 2012)
Root Mean Square Residual	RMR	Between 0 and 1	(Hair et al. 2006; Byrne 2016)
Goodness-of-Fit Index	GFI	Close to ≥.90	(Shevlin & Miles 1998)
Adjusted Goodness-of-Fit Index	AGFI	Close to ≥.90	(Shevlin & Miles 1998; Hair et al. 2010)
Non-Normed Fit Index	NNFI	≥0.90	(Bagozzi & Yi 2012)
Incremental Fit Index	IFI	≥0.90	(Byrne 2010, 2016)
Tuckler- Lewis Index	TLI	≥0.90	(Hair et al. 1998; Byrne 2016)
Comparative Fit Index	CFI	≥0.90	(Bagozzi & Yi 2012; Byrne 2016)

4.7.3 **Reliability and validity**

Reliability and validity are two vital elements of research instruments. The importance of validity and reliability comes from the effects of those two characteristics on the quality of data collected by researchers (Pallant 2011). The reliability of the research instrument refers to the absence of errors in measurement. It enables the same research instrument to be used to reproduce the same results again (Hair et al. 2010). Reliability

is defined as the consistency of a measure of concept (Bryman & Bell 2011). Four tests are employed to assess the reliability of the proposed model: Cronbach's Alpha (Hair et al. 2006); Construct Reliability (Field 2009); Average variance extracted (AVE) (Hair et al. 2010); and Squared Multiple Correlation (SMC) (Holmes-Smith 2011b):

Squared Multiple Correlation (SMC): SMC points to the amount of variance explained by the independent observed variables (Schumacker & Lomax 2004). Squared multiple correlations are used to measure the reliability of each item (Bagozzi & Yi 2012). SMC exceeding 0.50 indicates that the observed variable has a good reliability, and 0.30 highlights an acceptable level of item reliability.

Cronbach's Alpha: the best way of testing internal reliability is Cronbach's alpha, which is used to evaluate a questionnaire's internal consistency based on the average inter-item correlation. It is the most common measure to test internal consistency (Van Zyl et al. 2000). As a rule of thumb figure for Cronbach's alpha, ≥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). George and Mallery (2012) have suggested the recommended level of Cronbach's alpha as > 0.9 being excellent, $\alpha > 0.8$ good, $\alpha > 0.7$ acceptable, $\alpha > 0.6$ questionable, $\alpha > 0.5$ poor, and $\alpha < 0.5$ – unacceptable.

Average Variance Extracted (AVE): AVE was also used to test the reliability of constructs. An AVE measures the amount of variance that is captured by a latent factor in relation to the amount of variance due to the measurement error (Chau 1997, p. 324). The recommended level of AVE is 0.50 or higher for each latent factor (Hair et al., 2010).

Construct Reliability (composite reliability): construct reliability focuses on the evaluation of the reliability or dependability of each construct. The acceptable level of the construct reliability is 0.70 (Field 2009; Stafford & Turan 2011). The key purpose of calculating construct reliability is to test the internal consistency of the measures (Holmes-Smith, 2011).

Validity is important to validate the CFA results through construct validity (Hair et al. 2010). Validity is defined by Zikmund et al. (2009) as 'the accuracy of a measure or the extent to which a score truthfully represents a concept' (p. 307). Validity is the extent to which measurement of the constructs accurately represents the concept of interest. In the context of SEM, the measurement model is considered to be the first

step in establishing and testing structural models. Thus, testing validity should be conducted before testing the structural model, to ensure that the indicators used to measure the constructs are valid. Testing the measurement model provides indicators to evaluate convergent and discriminant validity, and the structural model is used to indicate nomological validity (Schumacker & Lomax 2004). The most widely accepted forms of validity are convergent validity, construct validity and discriminant validity, all of which were used in this research.

The convergent validity is 'a measure of the magnitude of the direct structural relationship between an observed variable and latent construct' (Holmes-Smith 2011b, p. 9). This type of validity evaluates relationships between the observed variables and the constructs (Schumacker & Lomax 2004). Convergent assessment involves evaluating the correlations between variables within the same construct (Kline, 2005). The loading is the measure to assess the convergent validity, and this type of validity is achieved when the value of factor loading is significantly different from zero (Holmes-Smith 2011b). The statistical significance of factor loading is evaluated by the t-value. Each item loads in the construct and should exceed 0.50 to achieve convergent validity (Hair et al. 2006; Holmes-Smith 2011b).

Construct validity is a comprehensive measure of validity. Two types of validity, namely convergent validity and discriminant validity, were used in this research to assess the construct validity of the theoretical constructs (Vogt 2007; Hair et al. 2010). Bagozzi and Yi (2012) have defined construct validity as 'the extent to which indicators of a construct measure what they are purported to measure' (p. 18). Goodness-of-fit is used to evaluate the construct validity. In other words, if the model achieves a good fit, it means that it has construct validity (Holmes-Smith 2011b).

Discriminant validity is used to measure the extent to which the constructs within the model truly differ, by assessing the correlation between latent variables (Hair et al. 2006). Discriminant validity is considered a key measure to test the instrument because 'without it researchers cannot be certain whether results confirming hypothesized structural paths are real or whether they are a result of statistical discrepancies' (Farrell 2010, p. 324). There are several methods to assess discriminant validity. A better technique for testing discriminant validity is to compare the average variance extracted (AVE) for any two constructs with the square correlation between the two constructs (Hair et al. 2006).

The Statistical Package for Social Sciences (SPSS) software application, and the Analysis of Moment Structures (AMOS) can be used to conduct the SEM analysis. SPSS software, combined with AMOS, allows the researcher to conduct the dataset normality test, detect outliers, kurtosis and skewness, and generate descriptive statistics. The software package SPSS is utilized to process the data and conduct the appropriate statistical tests to test the hypotheses, as well as to answer the main research questions in this study. All statistical techniques for this study are listed in Table 4.7.

Table 4.7 Research statistical tools

Required analysis	Analytical method	Software used	Purpose for use
Missing data examination	Expectation maximization (EM) with Little's MCAR test	SPSS	Examine missing data and its possible treatment.
Detect outliers	Descriptive statistics (Minimum & Maximum) P Box	SPSS	Detect and treat outliers
Data normality test	Descriptive statistics (Histogram, Normality curve, Skewness and kurtoses)	SPSS	Examine items normality
Demographics	Descriptive statistics (Mean, Standard Deviation, Percentages). Multi group analysis(MGA)	SPSS SEM/AMOS	Describe the profile of respondents, multiple layer relationship among the multiple independent and dependent variables simultaneously
Check the measurement model	Structural Equation Modelling (SEM) Confirmatory Factor Analysis (CFA), Cronbach's α, Average Variance Extracted (AVE), Squared multiple correlation (SMC), Construct reliability.	SPSS/AMOS	Check items and constructs for reliability, convergent validity, discriminant validity
Test the structural model	Structural Equation Modelling (SEM)	SPSS/AMOS	Examine the relationship between dependent and independent variable

4.8 Ethical considerations

Ethical issues need to be considered in social science research when a study aims to examine human behaviour. Ethics is defined as 'the process of evaluating and addressing whether a particular action is right or wrong, good or bad' (Malhotra et al. 2002, p. 27). Conducting research ethically requires researchers to balance the value of advancing knowledge with non-interference in the lives of others (Neuman 2007).

Due to the involvement of human beings in this research, a confirmation letter was submitted to the Human Research Ethics Committees (HREC) at USQ before initiating this research, and USQ's procedures for conducting ethical research were followed. In pursuance of these procedures, all information collected in the survey will be kept strictly confidential and is stored securely. Ethics approval for this study was obtained from USQ's Human Research Ethics Committee before data collection commenced. Accordingly, the researcher and his supervision team were responsible for ensuring this study was conducted in an ethical and trustworthy manner. The ethics approval number to this research is H 17REA032 (refer to Appendix A). Three key ethical considerations are highlighted in this research in relation to compliance with ethical requirements, namely benefit and risk, informed consent forms, and respondent rights and protections (Cooper & Schindler 2011).

Respondent consent is a form to help a participant understand what an investigator wants him/her to do, and allow them to consent to the research project in an informed manner (Zikmund, William G et al. 2013). The invitation letters and participant information sheets for research purposes were sent to participants around Queensland councils, via My Opinions Pty Ltd, after getting the approval from HREC at USQ. It was also clarified that participation would be voluntary. The participants had the liberty to withdraw from being part of research at any time and they were asked to contact the researcher and the supervision team if they had any questions of their own (Patton, 2002). My Opinions Pty Ltd distributed a consent form among participants to get their approval and their willingness to participate in this research. All participants were given full opportunity to read the details and the purpose of the research before agreeing to become a participant in research.

4.9 Summary

This chapter has outlined the research design of the study. Different research philosophies were examined and it was found that a positivist philosophical approach was most relevant for this study. Furthermore, this chapter has made the distinctions between different research approaches clear and explained why a quantitative approach was selected as opposed to qualitative. Quantitative research is a means of testing objective theories by examining the relationship among variables (Creswell 2013). This chapter then highlighted different research strategies and selected a survey strategy to conduct the study. The survey instrument was considered as the most appropriate methodology for this research due to its different benefits over other tools. Surveys are cost effective, fast, and allow for easy collection of data from a large amount of participants. This chapter has further explained the range of sampling techniques, the sample size, and the study's data collection method in the form of its survey strategy.

Next, this chapter discussed the data analysis methods. The Structural Equation Modelling (SEM) technique in Analysis of Moment Structures (AMOS) was chosen to validate the hypotheses and the performance of the proposed conceptual model. Finally, this chapter has also explained the relevant ethical issues for data collection purposes. The next chapter will present the results of the collected data, using SEM.

CHAPTER 5: DATA ANALYSIS

5.1 Introduction

Citizens are considered one of the major stakeholder groups to interact with local councils and they support a wide range of activities, including community engagement, communication, policy development, and urban planning. Thus, their opinions can inform an evaluation of perceived public value of social media in local councils. The purpose of this chapter is to present the analyses of data collected from the preliminary research on website analysis and the surveys. Section 5.2 presents the results of the secondary data from the preliminary research. Section 5.3 presents the results of the descriptive statistics for the survey data. Section 5.4 presents the results of Structural Equation Modelling (SEM) to test the study model and hypotheses. Lastly, section 5.5 briefly summarises the chapter.

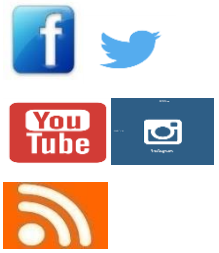
5.2 The preliminary research: website analysis

The primary aim of this phase was to provide a clear vision of the use of social media by Queensland's local councils and to select the appropriate councils. Preliminary research was conducted based on the pre-analysis of websites of 78 councils and advice received in 10 informal interviews with officers of some of Queensland's local councils (see more details in section 6.3 and table 6.1 in chapter six). This study focused on the most common social media used by Queensland's local councils and citizens. The researcher analysed all 78 of Queensland's local council websites (as listed in Appendix B) to select those that appeared to have the greatest use of social media. Evaluations were performed from March 2016 to May 2016 on all of Queensland's council websites. The preliminary research helped the researcher to select local council areas that had applied SM initiatives. After this analysis, the researcher selected 20 city, urban and rural local councils that had the most experience around SM for interaction with citizens, and which also had a large number of SM users for inclusion in this study, as listed in Table 5.1. The twenty Queensland councils were identified from three strata: five councils were located in city areas, eight councils in urban areas, and there were seven rural councils. The residents were selected randomly from each council area. Due to temporal and financial constraints, it was difficult to collect data from the entire population, because the councils are spread widely across the state of Queensland. The researcher found that Facebook was the most widely adopted SMT by councils (65 out of 78 councils). In Queensland, 25

councils used Twitter, while 20 had a presence on YouTube, nine used Instagram, seven used LinkedIn, and six councils used RSS. Only 13 councils did not have a social media presence, as listed in Appendix B.

Table 5.1 Twenty Queensland councils were identified for this study.

No	**Council name**	**Category**	**Social media tools**	**Number of SM users**
1	Banana Shire Council	Rural, Agricultural, Very large		2,900
2	Brisbane City Council	Urban, Capital city		75,402
3	Bundaberg Regional Council	Urban, Regional, Medium		12,581
4	Cairns Regional Council	Urban, Regional, Very large		9,317
5	Central Highlands Regional Council	Rural, Agricultural, Large		4,556
6	Cook Shire Council	Rural, Remote, Large		1,943
7	Gladstone Regional Council	Urban, Regional, Small		8,069

8	Gold Coast City Council	Urban, Regional, Very large		61,231
9	Ipswich City Council	Urban, Fringe, Very large		23,907
10	Logan City Council	Urban, Development, Very large		16,895
11	Mackay Regional Council	Urban, Regional, Large		11,358
12	Maranoa Regional Council	Rural, Remote, Large		1,596
13	Moreton Bay Regional Council	Urban, Development, Very large		19,672
14	North Burnett Regional Council	Rural, Remote, Large		
15	Redland City Council	Urban, Fringe, Large		12,246
16	Rockhampton Regional Council	Urban, Regional, Medium		2,542

17	Somerset Regional Council	Rural, Remote, Large		4,601
18	Sunshine Coast Regional Council	Urban, Development, Very large		15,249
19	Toowoomba Regional Council	Urban, Regional, Large		12,003
20	Whitsunday Regional Council	Rural, Significant growth		1,679

5.3 Descriptive statistics

Descriptive statistics show quantitative data sets for interpretation and comparison purposes (Cavana et al. 2001). Descriptive statistics is a necessary stage in statistical analysis procedures. Zikmund et al. (2009) define descriptive statistics as 'statistics which summarize and describe the data in a simple and understandable manner' (p. 413). In this study, descriptive statistics are used to present the descriptive statistics and provide a general overview of the data and demographics of the participants involved in the online survey. The online survey ran from 15 July 2017 and closed on 11 August 2017. It was administered by My Opinions Pty Ltd and access was provided via a URL. My Opinions used their technology to deliver the survey to the respondents, which involved an invitation email with a URL link to the online survey, and messages on My Opinions' panel community sites. This study collected data from the users of social media in Queensland's local councils using online surveys, and 313 questionnaires were collected.

A 5-point Likert scale was used in the questionnaire of the study with a scale of: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. One additional choice was provided to give respondents more alternatives in selecting the

most suitable option: 'Not applicable'. 'Not applicable' could be selected if the item could not be applied to the area under study (Krosnick et al. 2002).

Statistical indicators were used to describe the data: mean and standard deviation. The number and percentages of 'Not applicable' responses are considered in this section to identify the non-attitude responses. Tests of the normality of data distribution were conducted using two statistics indicators: skewness and kurtosis. After the cleaning stage, all questionnaires were considered to be complete or consistent. Thus, this study considered 313 questionnaires for further analysis.

As this study had decided to use SEM to analyse the proposed theoretical framework, this would require an appropriately-sized sample (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 & Lee 2013). Based on this argument the sample size of this study was good as 313 surveys were collected.

5.3.1 **Treatment of missing data, outliers, and normality**

This step aimed to check the data file generated from the received questionnaires. These techniques include dealing with missing data (Kaplan 2009), normal distribution of the dataset (Byrne 2010), and managing outliers, kurtosis, and skewness (Schumacker & Lomax 2004). This step is highly recommended by some authoritative data analysis text books (e.g. Hair et al. (2006); Field (2009); Pallant 2011). Missing data occurs because respondents do not fill in a particular item, or they fill it in incorrectly. Missing data is one of the most common problems in the data analysis process (Tabachnick & Fidell 2007). Reducing sample size because of missing data reduces statistical power, which in turn implies that estimations calculated can be biased in terms of generalisations (Cordeiro et al. 2010).

Hair et al. (2006) classified missing data into two types: 'ignorable and not-ignorable'. Ignorable missing data can be part of a research survey instrument and do not require any remedy. Not-ignorable missing data are a type of data that are a result of either the researcher's procedural errors, for example a failure to enter all the entries during the data entry process, or it might be a result of a refusal by participants to answer some items within the survey instrument.

In the current study, the researcher did include the 'Not applicable' scale in the survey instrument, which required a description of the respondents with non-opinions about

certain items. The responses of 'Not applicable' were treated as missing data. The missing data in the sample, including 'Not applicable', were overall under 10 percent, so there was no chance of ignorable missing data occurrences. There was also no chance of 'not ignorable' missing data because the data was downloaded directly from the online database and was not entered manually. In spite of that, the missing data were checked via an imputation regression method to estimate the missing data in the sample. The results showed that 313 surveys were completed accurately and did not have any missing data, as shown in Figure 5.1.

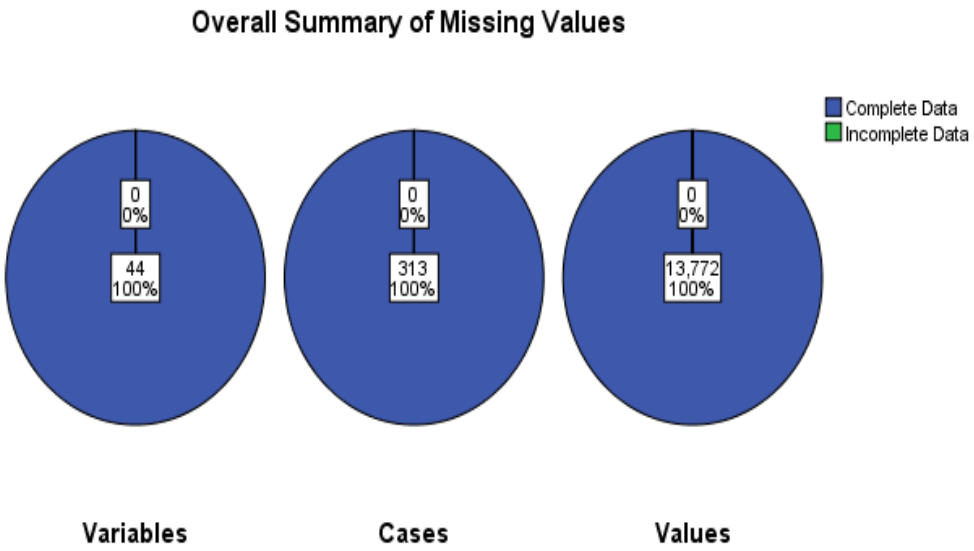


Figure 5.1: Summary of missing data

Outlier values should be the next stage of a data set after missing data. Outliers are 'cases with values well above or well below the majority of other cases' (Pallant 2011, p. 64). There are two approaches to identify outliers. The first approach is identifying the outliers through the frequency distribution of each item, and the minimum and maximum values. The values outside of this range can be considered outlier values. The second approach is identifying the outliers by the histogram distribution of each variable (Holmes-Smith 2011b). In the current study, outliers did not occur because the data was not coded manually but downloaded directly from an online survey (My Opinions) into SPSS. In spite of that, the outliers were checked via frequency distributions and the values confirmed the 5-point Likert scale (1-5) with an additional value of 6 for 'Not applicable', as shown in Table 5.2.

The normality is considered to be a fundamental assumption in multivariate analysis (Hair et al. 2006). Hair et al. (2006) have pointed out that 'if the variation from the normal distribution is sufficiently large, all resulting statistical tests are invalid, because normality is required to use the F and t statistics'(p. 79). The method used to identify the shape of distribution is skewness and kurtosis (Pallant 2011). While skewness portrays the symmetry of distribution, kurtosis refers to the 'peakedness' or the 'flatness' of distribution, compared to a normal distribution (Hair et al. 2006; Field 2009). The perfect values for skewness and kurtosis that reflect a good indication of normal distribution are (+3,-3). Pallant (2011) has suggested that skewness and kurtosis are considered acceptable if they are lower than three (<3). Peat and Barton (2005) have further stated that 'any values above +3 or below -3 are a good indication that the variables are not normally distributed' (p. 31). In this study, as presented in Table 5.2, all the items were within the normal range of skewness and kurtosis. Therefore, there were no actions required to treat the data and these data were accurate and ready for the next stage of analysis, as well as for testing the study model.

Table 5.2 The shape of data distribution based on Outliers and Normality.

Code	N	Minimum	Maximum	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic
MUT_1	313	1	5	-.099	-.863
MUT_2	313	1	5	-.115	-1.138
MUT_3	313	1	5	.034	-1.026
MUT_4	313	1	5	.146	-.888
MUT_5	313	1	5	.083	-.938
PU_1	313	1	6	-.078	1.038
PU_2	313	1	6	-.278	1.043
PU_3	313	1	6	-.055	.403
PEOU_1	313	1	5	-.784	.475
PEOU_2	313	1	5	-.839	.608
PEOU_3	313	1	5	-.519	.364
ITU_1	313	1	6	-.486	.893
ITU_2	313	1	6	-.148	.620
ITU_3	313	1	6	-.055	.403
UB_1	313	1	6	-.067	-.057
UB_2	313	1	6	.041	-.084
UB_3	313	1	6	-.486	.893
PVC_1	313	1	6	.514	.322

PVC_2	313	1	6	.313	.077
PVC_3	313	1	6	.383	.423
PVT_1	313	1	6	-.104	.275
PVT_2	313	1	6	-.171	.025
PVT_3	313	1	6	.037	.007
PVCom_1	313	1	6	-.367	.654
PVCom_2	313	1	6	-.380	.725
PVCom_3	313	1	6	-.263	.607
PVConv_1	313	1	6	.064	-.016
PVConv_2	313	1	6	-.402	.463
PVConv_3	313	1	6	-.207	.614
PVEI_1	313	1	6	-.110	.600
PVEI_2	313	1	6	-.103	.429
PVEI_3	313	1	6	.038	.490
PVP_1	313	1	6	.619	.484
PVP_2	313	1	6	.389	.330
PVP_3	313	1	6	.416	.369
PVTr_1	313	1	6	.230	1.094
PVTr_2	313	1	6	.041	.537
PVTr_3	313	1	6	.328	.173
PVWI_1	313	1	6	.076	.649
PVWI_2	313	1	6	.028	.588
PVWI_3	313	1	6	.082	.309
PVPDM_1	313	1	6	.076	.774
PVPDM_2	313	1	6	.153	.643
PVPDM_3	313	1	6	.302	.154

Standard error of Skewness is 0.138; Standard error of Kurtosis is 0.275

5.3.2 **Descriptive statistics of the measurement model**

The descriptive statistics of the responses to questions related to the constructs of this study are presented in Table 5.3–Table 5.8. Statistical indicators were used to describe the data: mean and standard deviation. The number and percentages of 'Not applicable' responses are considered in this section to identify the non-attitude responses.

5.3.2.1 Types of user participation

Perceptions of types of user participation were measured using five items. The descriptive indicators for types of user participation are shown in Table 5.3. The means of the types of user participation items ranged between 2.62 for TOP4 and 2.88 for

TOP2. These means indicate that the items were accepted by the respondents. The indicators of descriptive statistics showed the positive attitudes of citizens in relation to measuring types of user participation that support and enhance participants' levels of experience and interaction with local councils via social media activities. No missing data related to this construct was found.

Table 5.3 Descriptive statistics for Type of Participants.

Types of users participation			
Code	**Items**	**Mean**	**S.D.**
MUT1	Browsing local council's social media for information.	2.78	1.095
MUT2	Downloading documents, for example forms, pictures, and videos, from local council via social media	2.88	1.224
MUT3	Transacting with local council via social media, for example for a service or to pay a bill.	2.82	1.208
MUT4	Posting opinions to the local council via social media.	2.62	1.135
MUT5	Interacting with local councils via social media, for example by submitting comments.	2.69	1.131

S.D.: Standard Deviation

5.3.2.2 Perceived usefulness

Three items in Table 5.4 were utilised to survey citizens' opinions about the role of social media technologies for enhancing their interaction with local councils, and to achieve perceived usefulness. Citizens tend to agree about the perceived usefulness of social media technologies, such as enabling acquisition of more information, improving efficiency in sharing information and connecting with others, and providing a useful service for interaction with local councils. The means of perceived usefulness items were between 3.63 for PU3 and 3.72 for PU1. These means indicate that the items were accepted by the respondents. No missing data related to this construct was found. The percentage of citizens who selected the 'Not applicable' choice was extremely low, and this percentage can be viewed as normal because some citizens

may not have sufficient experience to make such a decision. The percentages of 'Not applicable' for items were between 3.2 and 5.8 percent, as shown in Table 5.4.

Table 5.4 Descriptive statistics for perceived usefulness.

Perceived Usefulness					
Code	**Items**	**Mean**	**S.D.**	**N.A.**	
				N	**%**
PU1	Using social media with local council enables me to acquire more information.	3.72	.986	18	5.8
PU2	Using social media with local council would improve my efficiency in sharing information and connecting with others.	3.64	.947	10	3.2
PU3	I find social media to be a useful service for interaction with local council.	3.62	1.07	17	5.4

S.D.: Standard Deviation, N.A.: Not Applicable

5.3.2.3 Perceived ease of use

Perceived ease of use is considered an essential indicator in TAM, and in the model of this study, to measure citizens' opinions about the role of social media technologies in improving their interaction with local councils. Three items were used to measure this construct and the means of these items ranged between 3.52 for PEOU3 and 3.96 for PEOU1. These means indicate that citizens were satisfied with how easy it was to learn and use social media technologies, viewing them as clear and understandable, and considering them flexible in their interactions with local councils. No missing data related to this construct were found. The percentage of citizens who selected the 'Not applicable' choice was 0.0, and this percentage can be viewed as citizens who may have had sufficient experience regarding perceived ease of use of social media, as shown in Table 5.5.

Table 5.5 Descriptive statistics for perceived ease of use.

Perceived Ease of Use					
Code	**Items**	**Mean**	**S.D.**	**N.A.**	
				N	**%**
PEOU1	Learning to use social media technology is easy for me.	3.96	.885	-	-
PEOU2	The process of using social media technology is clear and understandable.	3.86	.913	-	-
PEOU3	I find social media to be flexible for interacting with the local council.	3.52	.899	-	-

S.D.: Standard Deviation, N.A.: Not Applicable

5.3.2.4 Intention to use

Three items were employed to measure the intention to use, focusing on enhancing a citizen's ability and access to their local council's social media, and whether they continue to use their local council's social media to interact with them. The means of intention to use items were between 3.54 for ITU1 and 3.62 for ITU2. No missing data related to this construct were found. The percentage of citizens who selected the 'Not applicable' choice was low, and this percentage can be viewed as normal because some citizens may not have sufficient experience to make such a decision. The percentages of 'Not applicable' for ITU items were between 2.6 and 5.8 percent, as shown in Table 5.6.

Table 5.6 Descriptive statistics for intention to use.

Intention to use					
Code	**Items**	**Mean**	**S.D.**	**N.A.**	
				N	**%**
ITU1	Assuming I have access to the local council's social media, I intend to use it.	3.54	.977	8	2.6
ITU2	I intend to use the local council's social media to communicate with them.	3.62	1.070	12	5.4
ITU3	My intention is to continue using my local council's social media to interact with them.	3.57	1.090	18	5.8

S.D.: Standard Deviation, N.A.: Not Applicable

5.3.2.5 Usage behaviour

Usage behaviour was selected as a central construct in the proposed model. Usage behaviour is considered an important indicator in the model of this study in measuring citizens' opinions about their usage behaviour around social media technologies with regards to improving their interaction with local councils. Three items were used to measure this construct and the means of these items ranged between 3.06 for UB2 and 3.54 for UB3. These means indicate that citizens were satisfied with using local council's social media frequently, that they spent a lot of time using the local council's social media, and that they exerted themselves in order to use the local council's social media. No missing data related to this construct were found. The percentage of citizens who selected the 'Not applicable' choice was low, and this percentage can be viewed as normal because some citizens may not have sufficient experience to make such a decision. The percentages of 'Not applicable' for items were between 2.6 and 3.8 percent, as shown in Table 5.7.

Table 5.7 Descriptive statistics for usage behaviour.

Usage Behaviour					
Code	**Items**	**Mean**	**S.D.**	**N.A.**	
				N	**%**
UB1	I tend to use the local council's social media frequently.	3.26	1.144	12	3.8
UB2	I spend a lot of time on the local council's social media.	3.06	1.129	9	2.9
UB3	I exert myself to use the local council's social media	3.54	.977	8	2.6

S.D.: Standard Deviation, N.A.: Not Applicable

5.3.2.6 Public value of social media

Public value was selected as a dependent construct in the proposed model. Twenty seven items were used to measure this construct. These items were distributed across three clusters: efficiency; effectiveness; and social value; and each of these included three sub-dimensions: cost (3 items); time (3 items); communication (3 items); convenience (3 items); personalisation (3 items); ease of information retrieval (3 items); trust (3 items); well-informedness (3 items); and participation in decision-

making (3 items). The means of items ranged between 3.13 for PVC1 and 3.82 for PVEI1, as shown in Table 5.8. These means indicate that citizens agreed on the public value of using social media with local councils. No missing data related to this construct were found. The percentage of citizens who selected the 'Not applicable' choice was low, which can be viewed as normal because some citizens may not have sufficient experience to make such a decision. The percentages of 'Not applicable' for items were between 4.2 and 8.9 percent, as shown in Table 5.8. Responses of citizens towards the items of public value show that citizens agreed on efficiency, effectiveness, social value, and all sub-dimensions of public value.

Table 5.8 Descriptive statistics for public value.

Public value of social media						
Code	**Items**		**Mean**	**S.D.**	**N.A.**	
					N	**%**
PVC1	Using social media with the local council saves me money.	Cost	3.13	1.199	20	6.4
PVC2	Using social media with the local council reduces the cost of accessing the service.		3.26	1.169	18	5.8
PVC3	I value the cost savings from using social media with the local council.		3.44	1.145	25	8.0
PVT1	Using social media with the local council saves me time.	Time	3.71	1.119	23	7.3
PVT1	Social media provide a quicker response to a question or request than other means (e.g. offline interaction).		3.61	1.138	17	5.4

PVT1	I can accomplish things more quickly because of using social media with the local council.		3.54	1.155	20	6.4
PVCOM1	Using social media is an efficient way of communicating with the local council.	Communication	3.72	1.068	16	5.1
PVCOM2	Using social media is a valuable way of communicating with the local council.		3.71	1.041	14	4.5
PVCOM3	Using social media is an effective way of communicating with the local council.		3.64	1.065	15	4.8
PVCONV1	It is important that I can use social media with the local council around the clock.	Convenience	3.42	1.065	16	5.1
PVCONV2	It is important that I can access these social media from a number of different locations (e.g. home, work, library, smartphone, post office).		3.73	1.043	13	4.2
PVCONV3	Social media allow me to interact with the local council at any time.		3.79	1.179	20	6.4

PVP1	I am able to personalise the services offered by the local council's social media.	Personalisation	3.33	1.132	28	8.9
PVP2	I value the personalised services offered by the local council's social media.		3.46	1.068	27	8.6
PVP3	I value the personalised aspects of local council's social media.		3.47	1.041	26	8.3
PVEI1	Local council's social media contain a lot of useful information about their services.	Ease of information retrieval	3.82	.983	17	5.4
PVEI2	Local council's social media help me to understand more about government services.		3.62	1.077	17	5.4
PVEI3	Local council's social media answer any queries I might have about government services.		3.51	1.089	18	5.8
PVTR1	I feel that my local council's social media act in the citizens' best interests.	Trust	3.51	.974	15	4.8
PVTR2	I feel comfortable interacting with my local council's social		3.56	1.076	19	6.1

	media since they generally fulfil their duties efficiently.					
PVTR3	I always feel confident that I can rely on my local council's social media to do their part when I interact with them.		3.44	1.128	20	6.4
PVWI1	My local council's social media increase my understanding of issues.	Well-informedness	3.58	.997	15	4.8
PVWI2	My local council's social media enable me to build up knowledge about issues that are important to me.		3.66	.996	16	5.1
PVWI3	Because of using my local council's social media, I am better informed in general.		3.66	1.069	21	6.7
PVPDM1	My local council's social media allow me to have my say about things that matter to me.	Participate in decision-making	3.70	1.035	23	7.3
PVPDM2	My local council's social media enhance my feeling of being part of an active democracy.		3.57	1.048	20	6.4

PVPDM3	My local council's social media make me feel that I am being consulted about important issues.		3.42	1.144	21	6.7

S.D.: Standard Deviation, N.A.: Not Applicable

5.3.3 Overall demographics of the participants

The overall demographic features of the participants involved in the online survey are presented. The variables discussed are gender, age, education and location for participants. This study collected data from citizens who use information technology and social media, and live in Queensland, as designated in the postcodes targeted. This study collected a total of 313 responses. The demographic profiles of these 313 respondents are detailed below and presented in

Table 5.9.

Questionnaires were collected online, which was believed to minimise gender bias; however, there were more female (64.5%) than male (35.5%) respondents. The largest age groups were between 51-60 years (23%, n=72) followed by 61 years or over (22.1%, n=69), then 18-30 and 3-40 years (20.4%, n=64 for each), while the smallest group was age 41-50 years (14.1%, n=44). The category educational level indicated that most of the respondents held Diploma/Certificate level qualifications (38.3%, n=120) followed by High school (32.9%, n=101) and then Bachelor's degree (21.1%, n=66), with fewer having a Master's degree (5.1%, n=16) and a Doctorate degree (1.6%, n=5), while a small percentage (1.6%, n=5) had only Primary school education.

Table 5.9 Demographics of participants.

Variable	Item	Frequencies	Percentage %
Gender	Male	111	35.5
	Female	202	64.5
Age groups	18- 30	64	20.4
	31-40	64	20.4
	41-50	44	14.1
	51-60	72	23.0
	61 and over	69	22.0
Educational level	Primary school	5	1.6
	High school	101	32.9
	Diploma/Certificate	120	38.3
	Bachelors	66	21.1
	Masters	16	5.1
	Doctorate	5	1.6

Table 5.10 shows SM used by the respondents, which included Facebook (95.2%, n=298) followed by YouTube users (54.0%, n=169), then Instagram users (34.2%, n=107) followed by Pinterest users (27.5%, n=86), while 21.1% of respondents used LinkedIn (21.1%, n=66) and fewer used Twitter (17.6%, n=55), with the lowest respondents being those who used Video conference and RSS feeds (3.2% ,n= 10, 2.2%, n=7).

Table 5.10 Demographics social media use.

Variable	Item	Frequencies	Percentage %
Social media	Facebook	298	95.2
	Twitter	55	17.6
	YouTube	169	54.0
	LinkedIn	66	21.1
	Pinterest	86	27.5
	Instagram	107	34.2
	RSS feed	7	2.2
	Video conference	10	3.2
	Others		
	Reddit	1	0.3
	Skype	2	0.6
	Snap chat	6	1.6
	Viber	2	0.6
	Xbox one live	1	0.3

In terms of the research sample as related to the citizens' living areas, the results revealed that 60.8% of the total respondents lived in city council areas, 32.1% lived in urban areas, and finally, 7.1% lived in rural areas. The largest response rate was achieved from the Brisbane City Council area (24%, n=75), while the lowest response rates were received from Cook Shire Council, Maranoa Regional Council and Whitsunday Regional Council (0.6%, n=2 for each).

Table 5.11 illustrates the size classification of the research sample, according to citizen numbers who were participants, from across 20 local councils in the state of Queensland.

Table 5.11 Demographics location of participants.

Councils	Suburb			Council	
	Postcode	N	%	N	%
City Councils					
Brisbane City Council	4000	8	2.6	75	24.0
	4005	1	0.3		
	4006	2	0.6		
	4007	2	0.6		
	4008	1	0.3		
	4011	5	1.6		
	4012	6	1.9		
	4013	1	0.3		
	4014	1	0.3		
	4017	4	1.3		
	4018	3	1.0		
	4019	4	1.3		
	4020	6	1.6		
	4021	2	0.6		
	4022	1	0.3		
	4059	1	0.3		
	4060	1	0.3		
	4061	2	0.6		
	4066	3	1.0		
	4067	1	0.3		
	4130	1	0.3		
	4151	3	1.0		
	4159	2	0.6		
	4169	1	0.3		
	4173	1	0.3		
	4207	8	2.6		
	4208	4	1.3		
Gold Coast City Council	4209	8	2.6	62	19.8
	4210	1	0.3		
	4211	9	2.9		
	4212	4	1.3		
	4213	6	1.9		
	4214	2	0.6		
	4215	6	1.9		
	4216	4	1.3		
	4217	1	0.3		
	4218	7	2.2		
	4220	2	0.6		
	4221	1	0.3		
	4222	1	0.3		
	4223	2	0.6		
	4225	1	0.3		
	4226	7	2.2		
Ipswich City Council	4300	9	2.9	23	7.3
	4301	2	0.6		
	4304	6	1.9		
	4305	5	1.6		
	4307	1	0.3		

Logan City Council	4114	3	1.0	17	5.4
	4115	2	0.6		
	4118	3	1.0		
	4121	1	0.3		
	4122	3	1.0		
	4123	1	0.3		
	4124	1	0.3		
	4127	3	1.0		
Redland City Council	4157	4	1.3	12	3.8
	4160	1	0.3		
	4161	1	0.3		
	4163	1	0.3		
	4164	1	0.3		
	4165	3	1.0		
	4184	1	0.3		
Urban Councils					
Bundaberg Regional Council	4659	1	0.3	13	4.2
	4660	2	0.6		
	4670	7	2.2		
	4671	3	1.0		
Cairns Regional Council	4870	7	2.2	10	3.2
	4879	3	1.0		
Gladstone Regional Council	4674	1	0.3	8	2.6
	4680	7	2.2		
Mackay Regional Council	4737	1	0.3	11	3.5
	4739	1	0.3		
	4740	8	2.6		
	4741	1	0.3		
Moreton Bay Regional Council	4500	3	1.0	20	6.4
	4503	2	0.6		
	4505	1	0.3		
	4506	2	0.6		
	4507	2	0.6		
	4508	1	0.3		
	4509	4	1.3		
	4510	5	1.9		
Rockhampton Regional Council	4700	1	0.3	13	4.2
	4701	5	1.6		
	4703	7	2.2		
Sunshine Coast Regional Council	4557	1	0.3	15	4.8
	4561	1	0.3		
	4563	2	0.6		
	4565	1	0.3		
	4566	2	0.6		
	4567	1	0.3		
	4570	5	1.6		
	4571	2	0.6		
Toowoomba Regional Council	4350	10	3.2	12	3.8
	4352	2	0.6		
Rural Councils					
Banana Shire Council	4702	1	0.3	3	1.0
	4717	1	0.3		
	4719	1	0.3		

Central Highlands Regional Council	4720	5	1.6	5	1.6
Cook Shire Council	4873	2	0.6	2	0.6
Maranoa Regional Council	4455	2	0.6	2	0.6
North Burnett Regional Council	4621	1	0.3	3	1.0
	4625	1	0.3		
	4630	1	0.3		
Somerset Regional Council	4306	4	1.3	5	1.6
	4311	1	0.3		
Whitsunday Regional Council	4802	2	0.6	2	0.6
Total				313	100%

5.3.4 Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) Test and Bartlett's Test of Sphericity

Before conducting Structural Equation Modelling (SEM) and Confirmatory Factor Analysis (CFA), it is important to complete a test for sampling adequacy and sphericity. These two tests check whether it is worth proceeding with confirmatory factor analysis (Hinton et al. 2004). A Kaiser-Meyer-Olkin (KMO) test was used to test whether the variables in a given sample are acceptable to correlate, and the KMO was assessed using correlations and partial correlations. According to Hinton et al (2004), a KMO value of 0.5 is poor, 0.6 is acceptable and a value closer to 1 is better. The results shown in Table 5.12 (KMO = 0.930) confirm that the KMO test supports the sampling adequacy and conducting confirmatory factor analysis was therefore recommended.

Table 5.12 KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.930
Bartlett's Test of Sphericity	Approx. Chi-Square	12801.231
	DF	946.212
	Sig	.000

5.4 Structural Equation Modelling (SEM) analysis.

Citizens are considered key stakeholders of using social media in this study. Structural equation modelling is employed in this study as an essential statistical technique to analyse the data. Two types of SEM are known: the first type is measurement models, and the second one is structural models. Measurement models specify the relationships

between the observed variables and latent variables. Structural models are to test the relationships between constructs, as hypothesised in the proposed model, and the measurement model is transformed to a structural model by assigning the relationships between constructs based on theory (Hair et al. 2010). This research employed both types of SEM for evaluating the proposed model. CFA was basically employed to assess a suggested theory. CFA had suppositions and prospects that were established in prior theory with regards to the number of factors, and which factor theories or models were more appropriate (Swisher et al. 2004). Six steps were undertaken to analyse SEM for citizens' data in this study.

5.4.1 Stage one: One-factor congeneric measurement model

The one-factor congeneric measurement model was undertaken using confirmatory factor analysis. There are three types of measurement models, as indicated and used by Dragovic (2004): parallel; tau-equivalent; and congeneric. The results highlighted that the congeneric model was superior compared with the other two models. One-factor congeneric measurement was conducted with each construct separately. CFA was used to conduct the one-factor congeneric measurement model to test the model fit of each construct. The initial measurement models for each construct measure are discussed first.

5.4.1.1 Types of users participation CFA findings

Five items were used to measure the types of users' participation construct. The indicators of the initial one-factor congeneric measurement model were a poor fit to the data because the cut-off range of several fit indices were not at acceptable levels - see Table 5.13. These results highlighted that the model did not fit and needed modification to improve and reach the best fit. AMOS provides two types of information that can be helpful in detecting model misspecification, standardized residuals and modification indices (Joreskog & Sorbom 1993). Standardized residual covariance and modification indices (MI) were used to obtain a better model fit. The researcher found that the main reason of the poor fit of the types of users' participation construct was the high standardised residual covariance between MUT1, MUT2 and MUT3. As a result, the researcher made three iterations covering error variance terms of items (MUT1, MUT2 and MUT3). The results of these iterations confirmed that the model achieved acceptable levels and a good fit. Figure 5.2 and Figure 5.3 depict the

CFA model at the first and the final iteration. Table 5.13 shows details of the three iterations and the model fit indices in each one.

Table 5.13 CFA findings for types of users' participation.

Items	Items wording	Initial Standardised Loadings	Final Standardised Loadings
MUT1	Browsing local council's social media for information.	.69	.64
MUT2	Downloading documents, for example forms, pictures, videos from local council via social media.	.68	.63
MUT3	Transacting with local council via social media, for example for a service or to pay a bill.	.64	.60
MUT4	Posting opinions to the local council via social media.	.89	.90
MUT5	Interacting with local councils via social media, for example by submitting comments.	.90	.91

CFA Goodness-of-fit indicators of the MUT									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA Initial	10.883	.178	.927	.782	.941	.075	.935	.881	.941
Iteration 1	5.133	.115	.974	.903	.980	.059	.976	.950	.980
Iteration2	4.109	.100	.984	.922	.989	.040	.985	.963	.989
Iteration 3	1.416	.010	.999	.992	1.00	.005	.999	1.01	1.00

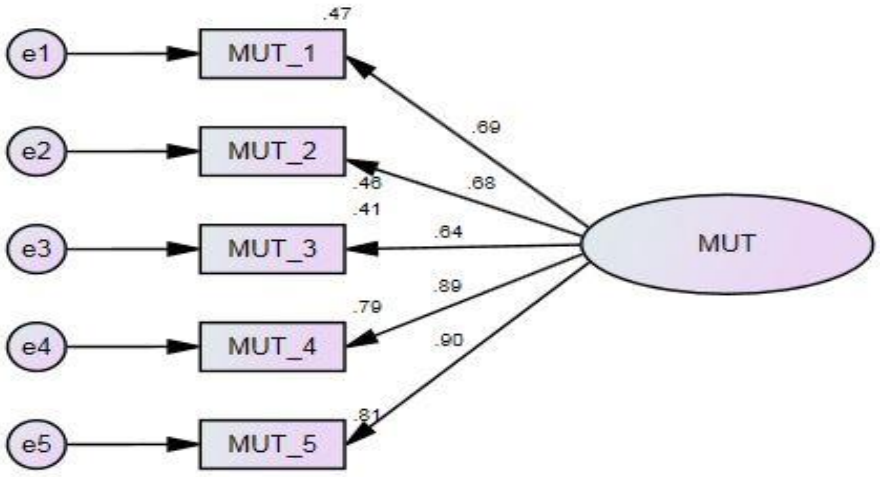


Figure 5.2: CFA measurement model MUT (Initial iteration)

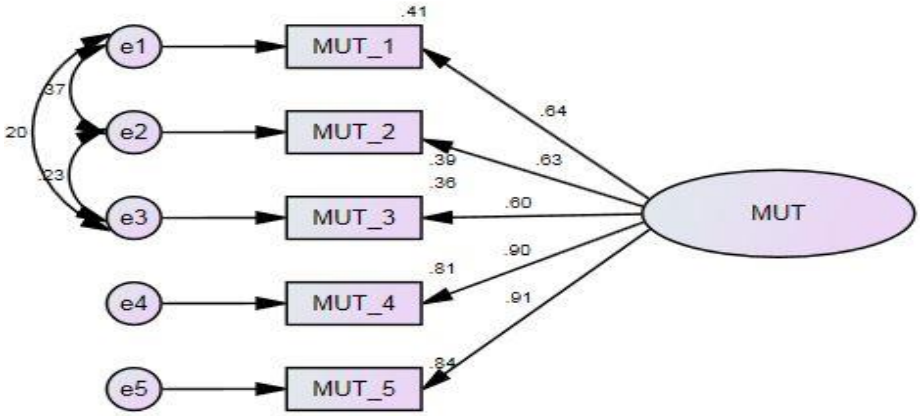


Figure 5.3: CFA measurement model MUT (Final iteration)

As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the lowest value equalling 0.60. The t value should be at least 1.96 with a P-value of not more than 0.05 (Byrne 2016). All the critical ratios (t-value) were significant above the verge of ± 1.96 ($p < 0.001$). More details are provided in Appendix E, Table E.1.

5.4.1.2 Public value CFA findings

The public value construct comprised 27 items and represented three clusters. Each cluster represented three sub-dimensions: efficiency (cost, time, communication); effectiveness (convenience, ease of information retrieval, personalisation); and social value (trust, well-informedness, participation). CFA was conducted for each cluster. The indicators of the initial one-factor congeneric measurement model for efficiency confirmed that the model achieved acceptable levels and a good fit, and that all the different indicators reported in this research met the recommended levels. Figure 5.4

depicts the CFA model at the first and the final iteration. Table 5.14 shows details of the model fit indices for efficiency.

Table 5.14 CFA findings for Public value- efficiency

Items	Items wording	Initial and Final Standardised Loadings
PVC1	Using social media with the local council saves me money.	.85
PVC2	Using social media with the local council reduces the cost of accessing the service.	.91
PVC3	I value the cost savings from using social media with the local council.	.79
PVT1	Using social media with the local council saves me time.	.82
PVT2	Social media provides a quicker response to a question or request than other means (e.g. offline interaction).	.83
PVT3	I can accomplish things more quickly because of using social media with the local council.	.90
PVCOM1	Using social media is an efficient way of communicating with the local council.	.90
PVCOM2	Using social media is a valuable way of communicating with the local council.	.90
PVCOM3	Using social media is an effective way of communicating with the local council.	.94

CFA Goodness-of-fit indicators of the efficiency									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA Initial and Final	2.620	.072	.961	.926	.983	.037	.973	.974	.983

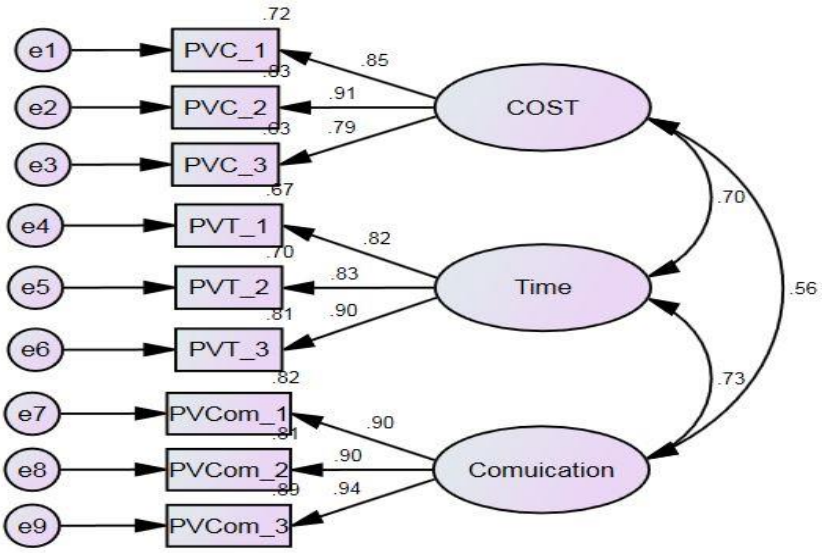


Figure 5.4: CFA measurement model of efficiency

The indicators of the initial one-factor congeneric measurement model for effectiveness confirmed that the model achieved acceptable levels and a good fit, and all the different indicators that were reported in this research met the recommended levels. Figure 5.5 depicts the CFA model at the first and final iteration. Table 5.15 shows details of the model fit indices for effectiveness.

Table 5.15 CFA findings for Public value-effectiveness

Items	Items wording	Initial and Final Standardised Loadings
PVCONV1	It is important that I can use social media with the local council around the clock.	.76
PVCONV2	It is important that I can access this social media from a number of different locations (e.g. home, work, library, smartphone, post office).	.78
PVCONV3	Social media allows me to interact with the local council at any time.	.83
PVP1	I am able to personalise the services offered by the local council's social media.	.82
PVP2	I value the personalised services offered by the local council's social media.	.87
PVP3	I value the personalised aspects of the local council's social media.	.85
PVEI1	Local council's social media contain a lot of useful information about their services.	.81
PVEI2	Local council's social media help me to understand more about government services.	.94
PVEI3	Local council's social media answer any queries I might have about government services.	.94

CFA Goodness-of-fit indicators of the effectiveness									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA Initial and Final	3.202	.084	.948	.902	.974	.046	.963	.961	.974

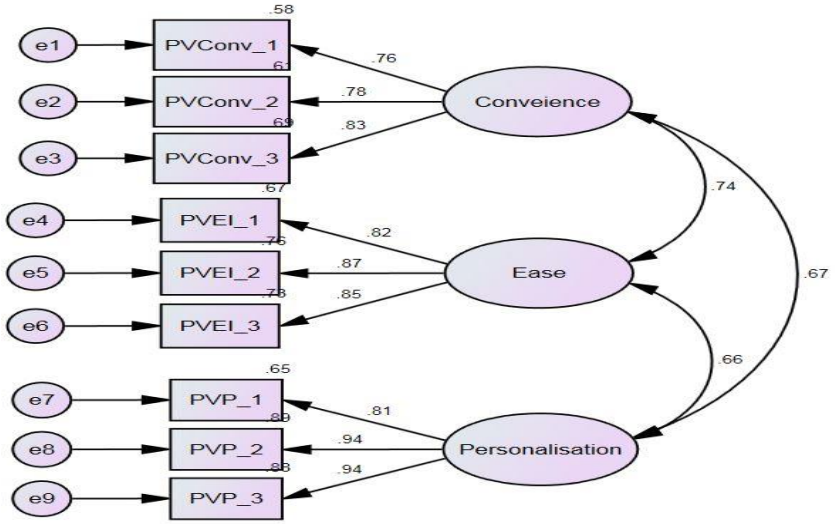


Figure 5.5: CFA measurement model of effectiveness

The indicators of the initial one-factor congeneric measurement model for social value confirmed that the model realized acceptable levels and good fit, and all the different indicators that were reported in this research met the recommended levels. Figure 5.6 depicts the CFA model at the first and the final iteration. Table 5.16 shows details of the model fit indices for social value.

Table 5.16 CFA findings for Public value- social value

Items	Items wording	Initial and Final Standardised Loadings
PVTR1	I feel that my local council's social media act in the citizens' best interests.	.70
PVTR2	I feel comfortable interacting with my local council's social media since they generally fulfil their duties efficiently.	.92
PVTR3	I always feel confident that I can rely on my local council's social media to do their part when I interact with them.	.90
PVWI1	My local council's social media increase my understanding of issues.	.88

PVWI2	My local council's social media enable me to build up knowledge about issues that are important to me.	.90
PVWI3	Because of using my local council's social media, I am better informed in general.	.88
PVPDM1	My local council's social media allow me to have my say about things that matter to me.	.80
PVPDM2	My local council's social media enhance my feeling of being part of an active democracy.	.95
PVPDM3	My local council's social media make me feel that I am being consulted about important issues.	.89

CFA Goodness-of-fit indicators of the social value									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA Initial and Final	1.920	.054	.969	.914	.991	.035	.981	.986	.991

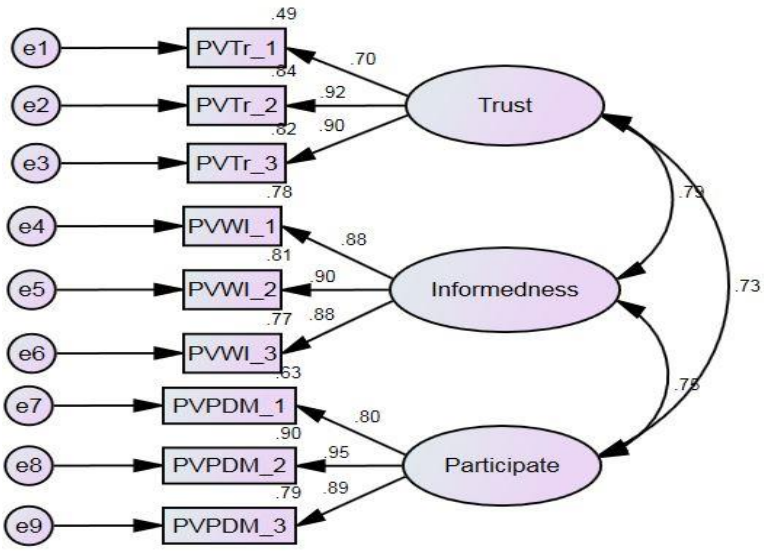


Figure 5.6: CFA measurement model of social value

The overall public value construct comprised 27 items and represented nine sub-dimensions: cost; time; communication; convenience; ease of information retrieval; personalisation; trust; well-informedness; and participation. The indicators of the initial one-factor congeneric measurement model for the overall public value construct achieved acceptable levels and a good fit, and all the different indicators that were

reported in this research met the recommended acceptability levels (see Table 5.17). Figure 5.7 depicts the CFA model at the first and the final iteration.

Table 5.17 CFA findings for Public value

CFA Goodness-of-fit indicators of public value									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA Initial and Final	2.132	.065	.864	.822	.952	.045	.919	.941	.952

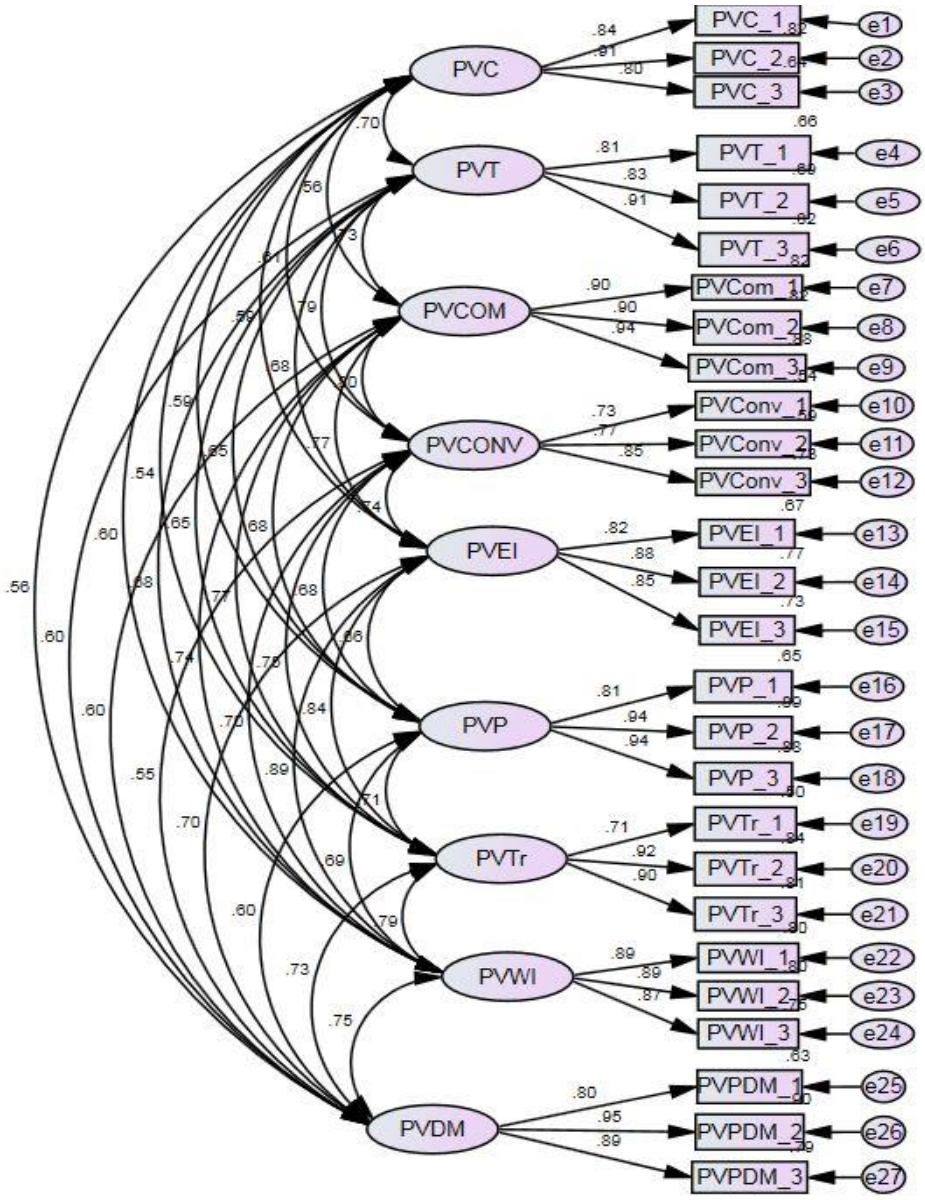


Figure 5.7: CFA measurement model of public value

As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the lowest value equalling 0.71. The t value should be at least 1.96 with a P-value of not more than 0.05 (Byrne 2016). All the critical ratios (t-value) were significant above the verge of ± 1.96 ($p < 0.001$). More details are provided in Appendix E, Table E.2.

5.4.1.3 Perceived usefulness, Perceived ease of use, Intention to use, and Usage Behaviour CFA Findings

At the first iteration of conducting a one factor congeneric measurement, three items were used to measure perceived usefulness: perceived ease of use, intention to use,

and usage behaviour. These results showed that CFA findings for items of each factor achieved high standardised loadings, as shown in Table 5.18. However, AMOS outputs did not find any values regarding indicators to properly measure the model fit. RMSEA was more than one, which was higher than 0.08, the satisfactory level of the model-fit indices. AMOS does not provide any suggestions to use the modification indices technique to improve fit model, because the number of items per factor were three items. One factor congeneric measurement requires at least four items to obtain indicators and measure the model fit. In this regard, Raubenheimer (2004), states that 'if a scale were to measure only one factor, it would require at least four items to be properly identified' (p. 60). This means that AMOS does not separately provide any fit indices outputs for one-factor scale that contain three items. To resolve this problem, those variables were included within CFA for exogenous and endogenous factors in stage two. Figure 5.8, Figure 5.9, Figure 5.10, and Figure 5.11depict the CFA model at the first and the final iteration.

Table 5.18 CFA findings for Perceived usefulness, Perceived ease of use, Intention to use, and Usage Behaviour.

Items	Items wording	Initial and Final Standardised Loadings
PU1	Using social media with my local council enables me to acquire more information.	.85
PU2	Using social media with my local council would improve my efficiency in sharing information and connecting with others.	.82
PU3	I find social media to be a useful service for interaction with my local council.	.79
PEOU1	Learning to use social media technology is easy for me.	.83
PEOU2	The process of using social media technology is clear and understandable.	.89
PEOU3	I find social media to be flexible to interact with local council.	.62
ITU1	Assuming I have access to my local council's social media, I intend to use it.	.59
ITU2	I intend to use my local council's social media to communicate with them.	.60
ITU3	My intention is to continue using my local council's social media to interact with them.	.73
UB1	I tend to use the local council's social media frequently.	.91
UB2	I spend a lot of time with the local council's social media.	.88
UB3	I exert myself to use the local council's social media.	.68

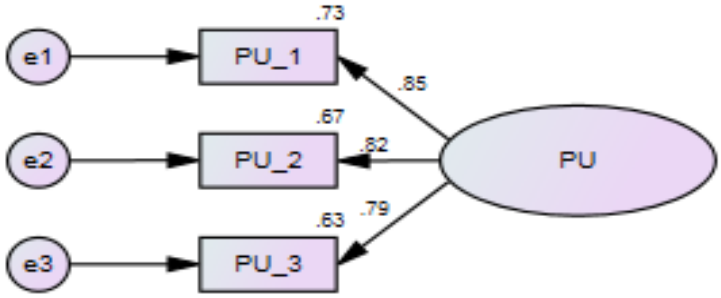


Figure 5.8: CFA measurement model of PU

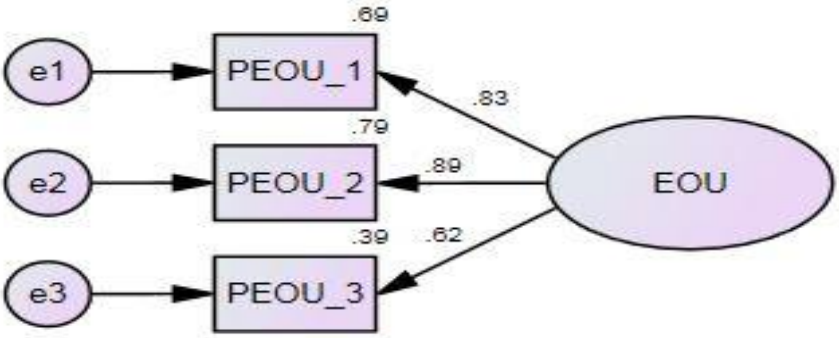


Figure 5.9: CFA measurement model of PEOU.

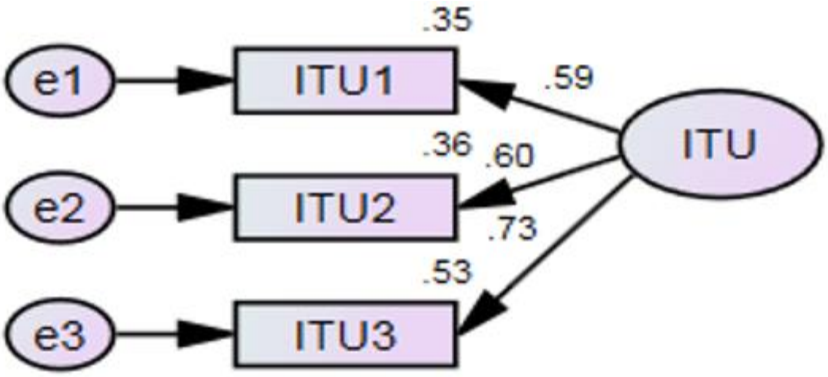


Figure 5.10: CFA measurement model of ITU.

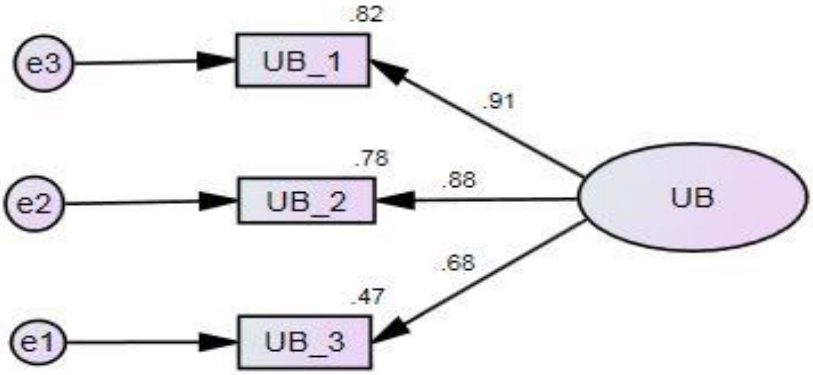


Figure 5.11: CFA measurement model of UB.

As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the lowest value equalling 0.59. The t value should be at least 1.96 with a P-value of not more than 0.05 (Byrne 2016). All the critical ratios (t-value) were significant above the verge of ± 1.96 ($p < 0.001$). More details are provided in Appendix E, Tables E.3-E.6.

5.4.2 Stage two: CFA for exogenous and endogenous factors

The second step includes: (1) confirmatory factor analysis (CFA) which was conducted for constructs related measures exogenous factors (Types of users participation, Perceived usefulness, Perceived ease of use); and (2) the same procedure was subsequently undertaken with endogenous factors (Intention to use, Usage behaviour, and Public value). The empirical evidence informs us of ample benefits of using this type of CFA to improve the model fit. Holmes-Smith and Rowe (1994) used this method to eliminate any cross-loading across constructs. Other studies used this type of CFA to enhance their model fit (e.g. Vivek 2009; Ghandour 2010; AL-Sabawy 2013).

5.4.2.1 Exogenous factors

Two constructs were considered as exogenous factors: perceived usefulness, and perceived ease of use. These constructs were deemed to be essential requirements in social media use for citizens, to enhance intention to use and usage behaviour, and to achieve public value of social media for the stakeholders. The indicators of the initial measurement model for exogenous constructs showed that the model realized acceptable levels and a good fit as listed in Table 5.19. These results confirm that the model had been significantly improved, and the measurement model of exogenous

factors presented a goodness-of-fit. Figure 5.12 depicts the CFA of exogenous constructs. As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the one lowest value for PEOU3 still equalling 0.50.

Table 5.19 CFA findings for exogenous constructs.

Items	Items wording	Final Standardised Loadings
PU1	Using social media with my local council enables me to acquire more information.	.85
PU2	Using social media with my local council would improve my efficiency in sharing information and connecting with others.	.82
PU3	I find social media to be a useful service for interaction with my local council.	.79
PEOU1	Learning to use social media technology is easy for me.	.80
PEOU2	The process of using social media technology is clear and understandable.	.92
PEOU3	I find social media to be flexible in interacting with my local council.	.50

CFA Goodness-of-fit indicators of the effectiveness									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA 1 and final	1.642	.045	.988	.964	.995	.017	.986	.988	.995

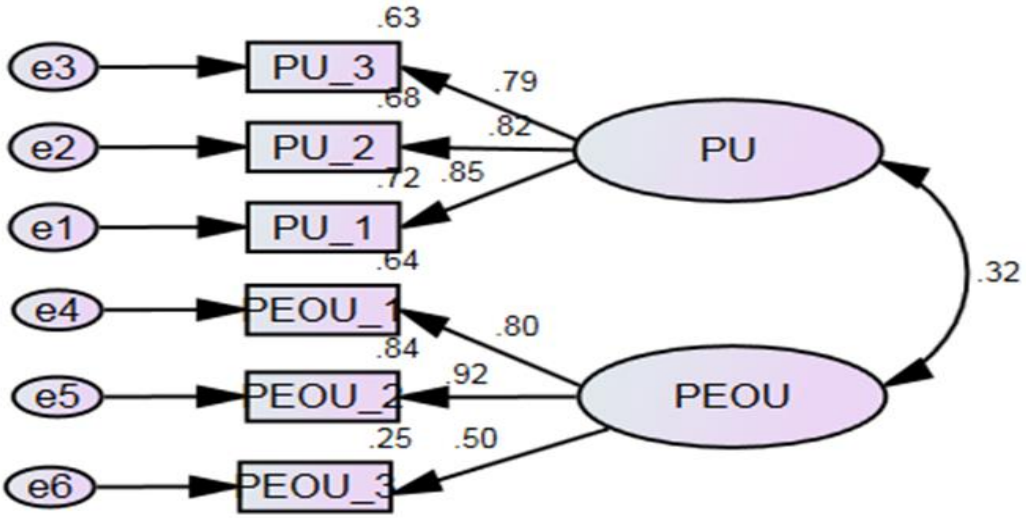


Figure 5.12: CFA measurement model of exogenous constructs

5.4.2.2 Endogenous factors

The three remaining constructs considered were endogenous factors: Intention to use; Usage behaviour; and Public value. Those three constructs were treated as results and output of the endogenous factors. Confirmatory factor analysis (CFA) was conducted for those three constructs. Thirty three items were inputted for this procedure: intention to use (3); usage behaviour (3); and (27) items for public value clusters. The indicators of the initial measurement model for endogenous constructs were a poor fit to the data, because the cut-off range of several fit indices were not at acceptable levels (see Table 5.20). These results showed that the model did not fit and that the problems should be identified so that a modification to improve towards the best fit could be conducted. To improve the mode fit the first iteration was done. In this iteration the researcher examined the items loading, which indicated that the regression weight of ITU1 was the lowest with 0.48 among the other items. Based on that, ITU1 was eliminated. However, the result showed that the model still did not achieve a good fit. AMOS provide two types of information that can be helpful in detecting model misspecification: the standardized residuals, and the modification indices (Joreskog & Sorbom 1993). Standardized residual covariance and modification indices (MI) were therefore used to obtain a better model fit. The modification indices showed that item PVP2 had a high residual covariation with PVP3 was 185.778. The indicators of model fit, after doing an iteration covering error variance, showed that the model did not fit.

The researcher then did six iterations covering error variance among items, the results of which confirmed that the model had been significantly improved, and that the measurement model of endogenous factors finally presented a goodness-of-fit. Figure 5.13 and Figure 5.14 depict the CFA of exogenous constructs.

Table 5.20 CFA findings for endogenous constructs.

CFA Goodness-of-fit indicators of the effectiveness									
Iteration	CMIN/DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA 1	5.702	.123	.614	.553	.754	.083	.718	.732	.755
CFA 2	5.069	.114	.648	.592	.783	.081	.744	.763	.784
CFA 3	4.712	.109	.664	.609	.802	.080	.763	.784	.804
CFA 4	4.393	.104	.685	633	.821	.081	.783	.803	.822
CFA 5	3.955	.097	.710	.661	.841	.081	.799	.825	.842
CFA 6	3.763	.094	.725	.677	.852	.086	.809	.836	.852
CFA 7	3.609	.091	.831	.784	.860	.086	.817	.845	.861
CFA Final	3.496	.080	.975	.931	.966	.085	.923	.952	.967

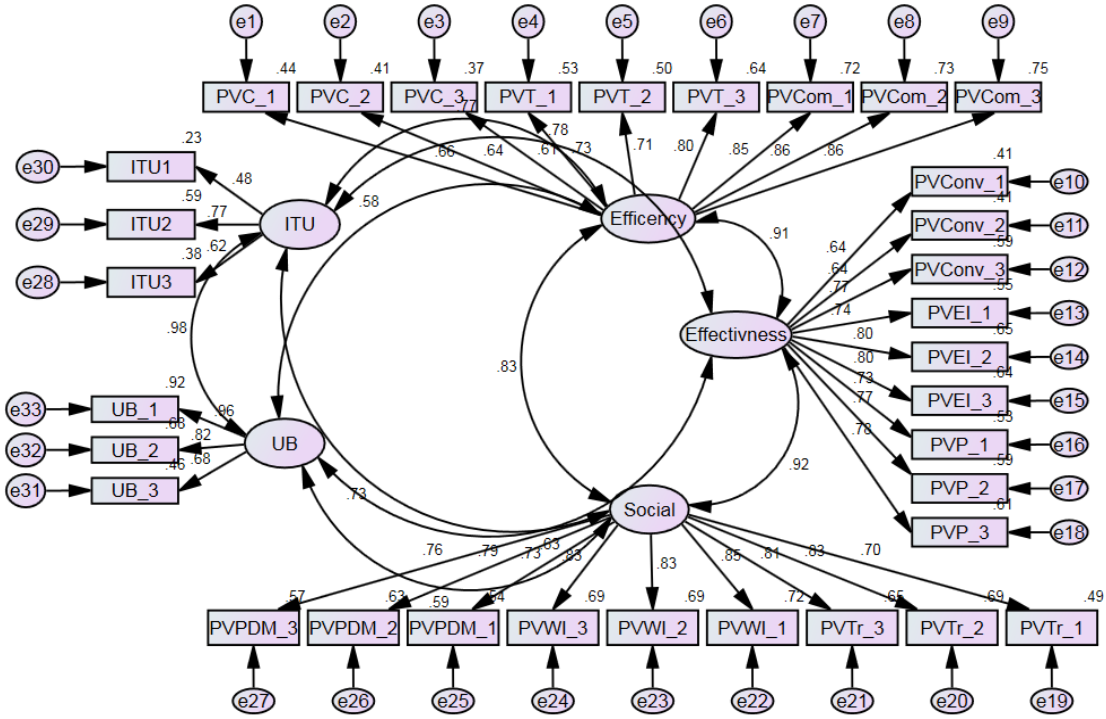


Figure 5.13: CFA measurement model of endogenous constructs (First iteration)

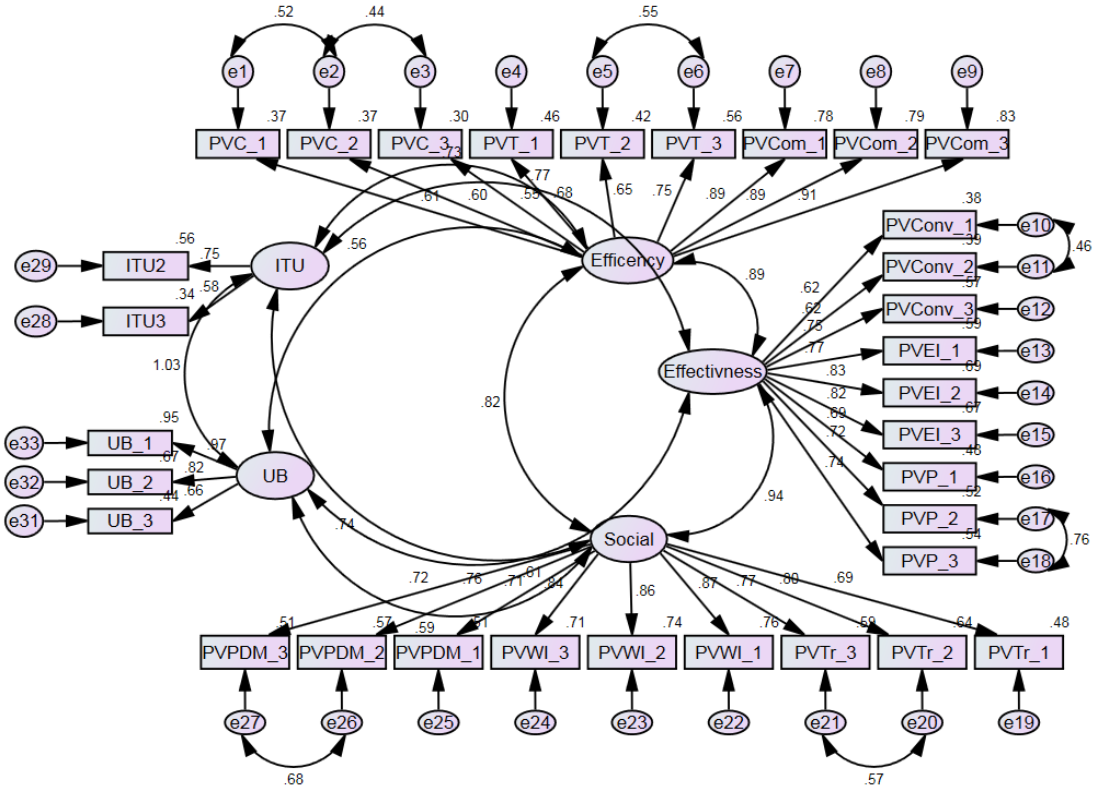


Figure 5.14: CFA measurement model of endogenous constructs (Final iteration)

As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the lowest value equalling 0.58. The t value should be at least 1.96 with a P-value of not more than 0.05 (Byrne 2016). All the critical ratios (t-value) were significant above the verge of ± 1.96 ($p < 0.001$).

A summary of conducting stages one and two reported that all constructs presented in this study's proposed model had been subjected to evaluation. All constructs were tested separately, using the CFA One-factor congeneric measurement model achieved in stage one. The second step confirmatory factor analysis (CFA) was conducted for constructs related to measures of exogenous and endogenous factors. At this stage of the analysis two types of CFA exogenous construct and endogenous construct were considered. The main purpose of conducting this analysis was to eliminate the cross loading between the constructs, and improve the model fit. The CFA One-factor congeneric measurement model findings for some factors did not find indicators to properly measure the model fit, because the number of items per factor were three items.

Table 5.21 Summary of conducting the stages one and two measurement model.

Constructs	No. items in put	No. items out put	Eliminated items
Perceived usefulness	3	3	----
Perceived ease of use	3	3	----
Intention to use	3	2	ITU1
Usage behaviour	3	3	----
Public value	27	27	----

5.4.3 Stage three CFA for Overall Measurement Model Fit

All constructs that are presented in this study's proposed model have been subjected to evaluation with respect to individual measurement model fit. In this process one item was removed from the individual models, as illustrated in Table 5.21. The objective was to achieve a fit model. The measurement model can be represented using CFA by combining the Exogenous and Endogenous models in one model. An overall

measurement model fit was established with the intention of evaluating the competence of the measurement model, which tested the covariance structures for all constructs.

The indicators of the initial CFA to test the measurement model showed that the model was not an appropriate fit because the cut-off ranges for the AGFI and GFI fit indices were not at an acceptable level. The reason behind the small gap between the measurement model and the cut-off ranges may be due to the complexity of the measurement model. In this regard, Jais (2007) claims that GFI and AGFI can be affected by model complexity, and model complexity can contribute to reducing the value of those two indices.

Based on the results of the overall measurement model fit presented in Table 5.22 and Figure 5.15, the researcher made alterations to improve the overall measurement model fit. AMOS provides two types of information that can be helpful in detecting model misspecification, standardized residuals and modification indices (Joreskog & Sorbom 1993). Standardized residual covariance and modification indices (MI) were used to obtain a better model fit. The researcher found that there was a high standardised residual covariance between (UB1 and UB2). As a result, the researcher created covering error variance terms between items. The results confirmed that the model had been significantly improved, and the overall measurement model fit achieved goodness-of-fit, while all the different indicators reported on in this research met the recommended level, as listed in Table 5.22 and Figure 5.16.

Table 5.22 CFA findings for Overall Measurement Model constructs.

CFA Goodness-of-fit indicators of the effectiveness									
Iteration	CMIN /DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
CFA 1	2.479	.069	.803	.752	.916	.080	.867	.899	.916
CFA Final	2.185	.062	.867	.816	.924	.079	.893	.908	.925

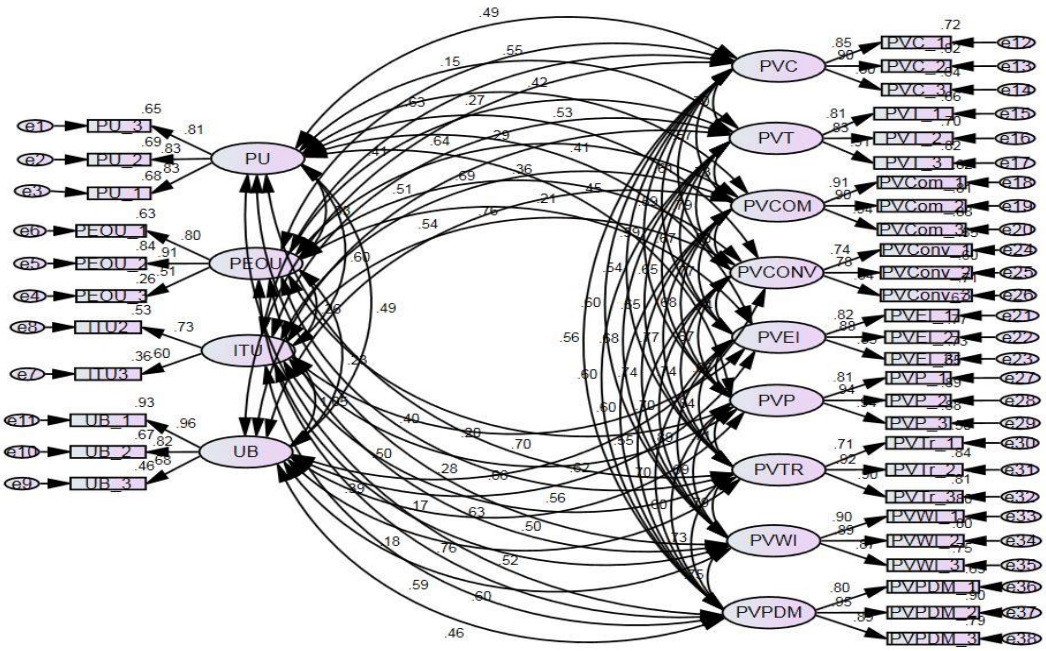


Figure 5.15: CFA measurement model of overall model (First iteration)

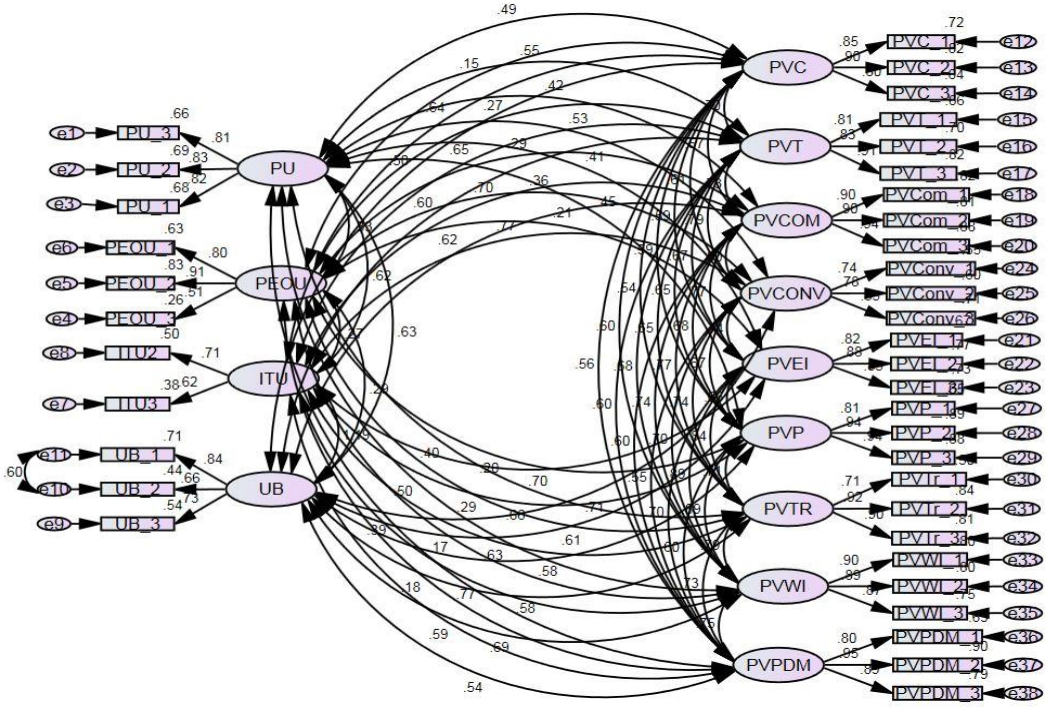


Figure 5.16: CFA measurement model of overall model (Final iteration)

As a rule, the significant factor loading should not be less than 0.5. The results indicate that all the standardised loading estimates were higher than 0.5, with the lowest value equalling 0.51. The t value should be at least 1.96 with a P-value of not more than 0.05

(Byrne 2016). All the critical ratios (t-value) were significant above the verge of ± 1.96 ($p < 0.001$). More details are provided Table 5.23 and Appendix E, Tables E.7.

5.4.4 Stage four: testing the reliability and validity

Testing validity and reliability is an essential stage of investigating the measurement model. Any negative effects caused by low values of the reliability of the measurement instrument or validity will affect the quality of data that will be used in the next stages of the analysis process. In this regard, it is important to go through the reliability and validity of the measurement model. The results that were established from the testing of the overall measurement model were employed as the input to assess the reliability and validity of the proposed model. Table 5.23 demonstrates the results of performing CFA to test the overall measurement model.

Table 5.23 Results of CFA measurement model.

Items	Factors		Estimate (β)	S.E.	C.R. (t)	*** P-value	SRW ≥ 0.50	SMC ≥ 0.30
Perceived usefulness (PU)								
PU1	<---	PU	.937	.059	15.343	0.001	.825	.680
PU2	<---	PU	.907	.061	15.442	0.001	.831	.690
PU3	<---	PU	1.000				.811	.657
Perceived ease of use								
PEOU1	<---	PEOU	1.539	.175	8.788	0.001	.796	.633
PEOU2	<---	PEOU	1.825	.213	8.558	0.001	.915	.837
PEOU3	<---	PEOU	1.000				.509	.259
Intention to use								
ITU2	<---	ITU	1.303	.111	11.731	0.001	.725	.526
ITU3	<---	ITU	1.000				.603	.364
Usage Behaviour								
UB1	<---	UB	1.502	.094	16.055	0.001	.912	.831
UB2	<---	UB	1.405	.097	14.416	0.001	.846	.746
UB3	<---	UB	1.000				.711	.505
Public Value								
PVC1	<---	Cost	1.000				.850	.722
PVC2	<---	Cost	1.037	.053	19.635	0.001	.904	.817

PVC3	<---	Cost	.897	.054	16.682	0.001	.798	.637
PVT1	<---	Time	1.000				.814	.663
PVT2	<---	Time	1.042	.061	16.965	0.001	.834	.696
PVT3	<---	Time	1.147	.061	18.846	0.001	.905	.820
PVCOM1	<---	Communication	1.000				.905	.819
PVCOM2	<---	Communication	.971	.039	25.127	0.001	.902	.814
PVCOM3	<---	Communication	1.036	.037	27.800	0.001	.939	.882
PVCONV1	<---	Convenience	1.000				.741	.549
PVCONV2	<---	Convenience	.968	.072	13.404	0.001	.776	.602
PVCONV3	<---	Convenience	1.033	.71	14.595	0.001	.845	.715
PVEI1	<---	Easy Information	1.000				.822	.676
PVEI2	<---	Easy Information	1.168	.062	18.773	0.001	.876	.769
PVEI3	<---	Easy Information	1.159	.064	18.221	0.001	.855	.731
PVP1	<---	Personalisation	1.000				.806	.650
PVP2	<---	Personalisation	1.150	.056	20.654	0.001	.942	.888
PVP3	<---	Personalisation	1.117	.054	20.540	0.001	.938	.880
PVTR1	<---	Trust	1.000				.708	.502
PVTR2	<---	Trust	1.432	.093	15.449	0.001	.918	.843

PVTR3	<---	Trust	1.468	.097	15.161	0.001	.898	.806
PVWI1	<---	Well-Informedness	1.000				.894	.799
PVWI2	<---	Well-Informedness	.999	.043	23.359	0.001	.893	.798
PVWI3	<---	Well-Informedness	1.040	.047	21.930	0.001	.868	.753
PVPDM1	<---	Participation	1.000				.798	.636
PVPDM2	<---	Participation	1.204	.060	19.954	0.001	.948	.898
PVPDM3	<---	Participation	1.232	.066	18.629	0.001	.890	.793

*** A p value is statistically significant at the 0.001 level

5.4.4.1 Reliability test

Four tests were employed to assess the reliability of the proposed model: Cronbach's Alpha (Hair et al. 2006); Construct Reliability (Field 2009); Average variance extracted (AVE) (Hair et al. 2010); and Squared Multiple Correlation (SMC) (Holmes-Smith 2011b).

Cronbach's Alpha

Cronbach's Alpha is a commonly used measure for reliability and a helpful test to evaluate the dependability of the internal consistency (Hair et al. 2006). The recommended acceptable level of this indicator is 0.70 (Hair et al. 2006; Stafford & Turan 2011). As demonstrated in Table 5.24, all the constructs in this study's proposed model exceeded the acceptable level in the range between 0.968 and 0.759.

Construct Reliability (CR) (composite reliability)

Construct reliability focuses on the evaluation of the reliability or dependability of each construct. The acceptable level of the construct reliability is 0.70 (Field 2009;

Stafford & Turan 2011). The results of the construct reliability value of each construct in this study's proposed model are presented in Table 5.24. The results show that construct reliability ranged between 0.941 and 0.722. These values were all above the acceptable level which confirms a high level of reliability. CR was calculated following the standard set in the composite reliability calculator (http://www.thestatisticalmind.com/calculators/comprel/composite_reliability.htm).

$$CR = \frac{\left(\sum_{i=1}^{i} \lambda i\right)^2}{\left(\sum_{i=1}^{i} \lambda i\right)^2 + \sum_{i=1}^{i} (1 - \lambda i^2)}$$

Average variance extracted (AVE)

Average Variance Extracted was also used to test the reliability of constructs. An AVE measures the amount of variance that is captured by a latent factor, in relation to the amount of variance, due to the measurement error (Chau 1997, p. 324). The recommended level of AVE is 0.50 or higher for each latent factor (Hair et al., 2010). The results in Table 5.24 show that all the constructs and sub-dimensions of PV exceeded the acceptable level of 0.50 range between 0. 838 and 0.577, except ITU, which at 0.446 was very close to the acceptable level of 0.50. AVE was calculated by using the following equation (Hair et al. 2010, p. 709).

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

Squared Multiple Correlation (SMC)

Squared Multiple Correlation (SMC) was considered a major indicator for measuring the reliability of each item (observed variable) in this study's proposed model. The recommended level of SMC is > 0.30 (Holmes-Smith 2011b). As demonstrated in, Table 5.23 concerning the SMC for each item, thirty six items out of 38 exceeded 0.50, which represents 94.7 percent of all the items. Only one item was less than 0.4 ITU3

(0.364). However, the SMC of PEOU3 was 0.259, which was very close to the acceptable level. The value of SMC presented in Table 5.23 illustrates that all the items used to measure the constructs of the model were reliable.

Table 5.24 Reliability indicators.

Construct	Cronbach's alpha ≥ 0.70	C R ≥ 0.70	AVE ≥ 0.50
Perceived usefulness	0.860	0.863	0.676
Perceived ease of use	0.763	0.795	0.577
Intention to use	0.759	0.722	0.446
Usage behaviour	0.863	0.871	0.694
Public value	0.968	0.988	0.747
Cost	0.883	0.888	0.724
Time	0.888	0.888	0.724
Communication	0.939	0.940	0.838
Convenience	0.836	0.831	0.621
Easy of information	0.885	0.888	0.724
Personalisation	0.921	0.925	0.805
Trust	0.873	0.882	0.716
Well-informedness	0.915	0.915	0.783
Participation diction making	0.906	0.912	0.776

5.4.4.2 Validity test

Validity is related to the accuracy of measures (Sekaran & Bougie 2016). Validity is defined by Zikmund, William G et al. (2013) as 'the ability of a scale to measure what it intended to be measured' (p. 331). Related to the measurement of validity, three tests were used to assess the validity of this study's proposed model: Convergent validity (Hair et al. 2006); Construct validity (Cunningham 2008); and Discriminant validity.

Convergent validity

Convergent validity helps in evaluating the validity of measurement. Convergent validity focuses on testing relationships between the construct and the observed variables. This type of validity refers to the factor loading (SRW) of each item, which should be statistically significant and the value of the factor loading should have an

approximated value of 0.50 or more (Hair et al. 2006; Holmes-Smith 2011b). In this research, the loading values of the factors were between 0.509 and 0.948, as presented in Table 5.23. This range confirmed the validity of the constructs. In addition, the critical ratio (CR) of the proposed research model items presented in Table 5.23 were between 8.558 and 27.800. These indicators were greater than 1.96 showing that the proposed research model retained significant regression validity.

Construct validity

Construct validity is used to test the validity of indicators to measure their constructs. The indices of goodness-of-fit measures point to construct validity (Holmes-Smith et al. 2006; Cunningham 2008). The results of the one-factor congeneric measurement model in stage one (5.4.1) has provided evidence of the validity of these constructs.

Discriminant validity

Discriminant validity is used to measure the extent to which the constructs within the model truly differ, by assessing the correlation between latent variables (Hair et al. 2006; Malhotra & Birks 2007). These highly correlated variables seem to measure the same rather than different constructs (Hair et al. 2006). There are several methods to assess discriminant validity but the key method to measure discriminant validity depends on the rule of thumb that the square root of average variance, extracted (√ AVE) from each construct, should be more than its correlation with other constructs (Chin 1998; Liang et al. 2007). Table 5.25 shows the results of conducting this method and it achieved a satisfactory level of discriminant validity.

Table 5.25 Analysis of discriminant validity.

	AVE	√ AVE	PU	PEOU	ITU	UB	PV
Perceived usefulness	0.676	**0.822**	**.750**				
Perceived ease of use	0.577	**0.759**	.130	**.209**			
Intention to use	0.446	**0.667**	.335	.073	**.434**		
Usage Behaviour	0.694	**0.833**	.324	.077	.516	**.480**	
Public Value	0.747	**0.864**	.351	.119	.379	.301	**.779**

The summary of conducting stage four of the analysis of the participants' sample data focused on testing the reliability and validity of the measurement model used in this study. Four tests were used to evaluate the reliability: Cronbach's alpha; Construct

Reliability (composite reliability); Average Variance Extracted (AVE); and Squared Multiple Correlation (SMC) item reliability. The results of these tests confirm the reliability of the instrument used in this study. Furthermore, three types of validity were employed to test the measurement: convergent validity; construct validity; and discriminant validity. The findings of these types of validity test indicate that the measurement was valid to measure the constructs of the public value of social media.

5.4.5 **Stage five: Structural Model Test**

The proposed model was designed to achieve factors affecting the perceived public value of social media in Queensland's local councils. In this regard, four constructs were chosen to test factors affecting the public value of social media from the citizens' point of view. Byrne (2013) has explained the structural model as the approach employed to identify those variables that have a direct or indirect effect on the values of other latent variables. The model can be considered complex because it includes: 13 latent variables and 43 observed variables, and there are different paths among the constructs. The aim of the structure model in this research is to assess the links via major paths between latent variables, as well as to test the fundamental hypothesis for the research problems highlighted in Chapter 1.

The first test is on the initial model. The relationships between the model constructs are tested and the model fit indices are provided. Figure 5.17 illustrates the result of testing the study model.

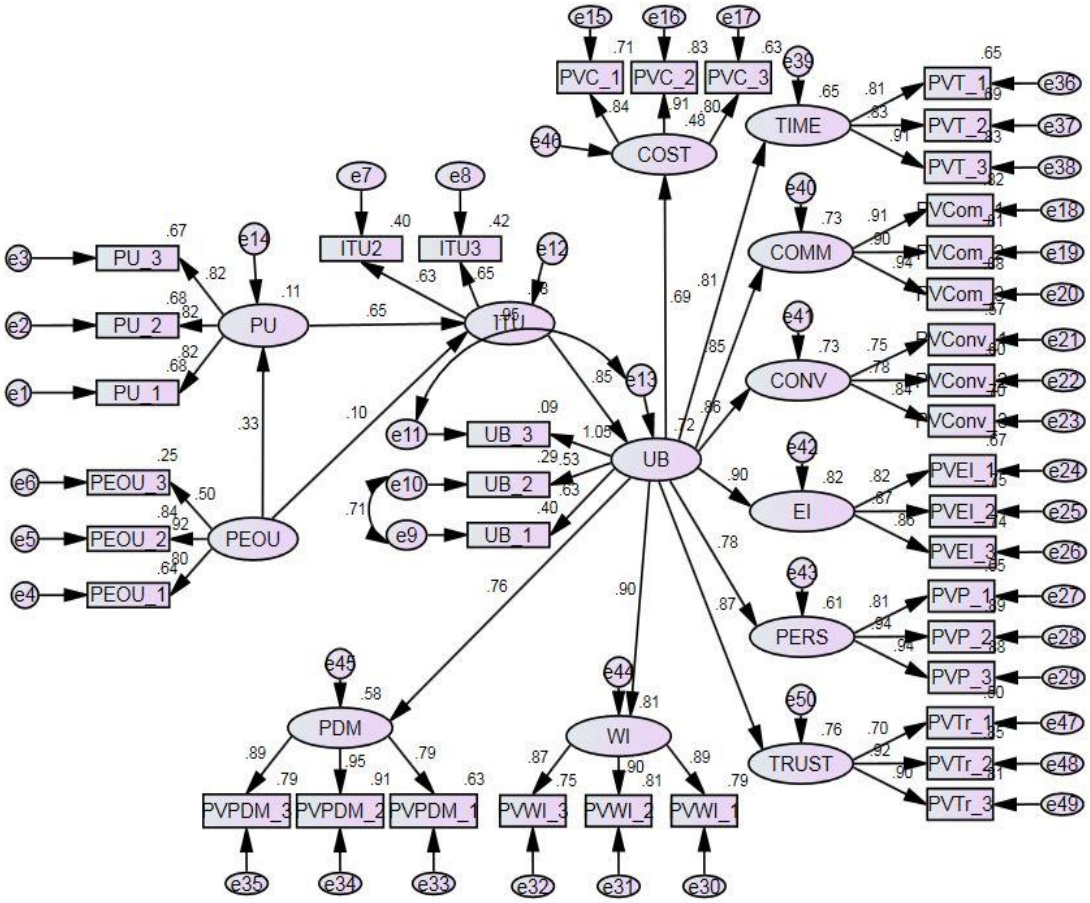


Figure 5.17: Research structural model testing

The model fit indicators of testing those constructs in one model are shown in Table 5.26. A similar set of fit indices used to examine the measurement model was used to examine the structural model. The results of the structural model indicated and confirmed a fit, but GFI (with .727), AGFI (with .690), and TLI (with .847), as shown in Table 5.26, were less than the acceptable level, which is ≥.90. These results of GFI and TLI appeared to be due to the large sample of this research and to the complexity of the research model (Jais 2007). AMOS provides two types of information that can be helpful in detecting model misspecification: the standardized residuals and the modification indices (Joreskog & Sorbom 1993). Standardized residual covariance and modification indices (MI) were used to obtain a better model fit. As a result of that, the researcher created covering error variance terms among some items (UB_1, UB_2) and (UB_3, UB), as shown in Figure 5.17. The results confirmed that the model had been significantly improved, and the overall structural model fit achieved goodness-of-fit and all the different indicators reported in this research met the recommended

levels, as listed in Table 5.26. Table 5.27 shows the fit indices for both measurement and structural models.

Table 5.26 Structural model fit results.

CFA Goodness-of-fit indicators of the structural model									
Iteration	CMIN/ DF	RMSEA	GFI	AGFI	CFI	RMR	NFI	TLI	IFI
Test 1	3.237	0.085	.727	.690	.858	.097	.808	.847	.859
Final test	2.513	0.070	.882	.851	.905	.075	.852	.896	.905

Table 5.27 Fit indices for measurement and structural models.

Fit indices	Recommended Value	Measurement Model	Structural Model	Conclusion
CMIN/DF	≤ 5.00	2.185	2.513	Good
RMSEA	≤ 0.08	0.062	0.070	Good
GFI	≥ .90	.867	.882	Acceptable
AGFI	≥ .80	.816	.851	Good
CFI	≥ .90	.924	.905	Good
RMR	Between 0-1	.079	.075	Good
NFI	≥ .90	.893	.852	Acceptable
TLI	≥ .90	.908	.896	Good
IFI	≥ .90	.925	.905	Good

Table 5.28 illustrates the results of regression analysis among the constructs of the research structural model.

Table 5.28 Results of regression analysis of the model.

Path			Hypotheses	Standardised (β)	S.E.	C.R.(t)	P-value	Finding
Intention to use	←	Perceived usefulness	H2	.377	.075	5.013	0.001	Supported
Intention to use	←	Perceived ease of use	H3	.109	.056	1.978	0.053	Supported
Perceived usefulness	←	Perceived ease of use	H4	.602	.073	8.245	0.001	Supported
Usage behaviour	←	Intention to use	H5	.811	.097	8.374	0.001	Supported
Public value cost	←	Usage behaviour	H6a	.969	.101	9.576	0.001	Supported
Public value time	←	Usage behaviour	H6b	.746	.097	10.424	0.001	Supported
Public value communication	←	Usage behaviour	H6c	.347	.098	11.714	0.001	Supported
Public value convenience	←	Usage behaviour	H6d	.930	.101	10.222	0.001	Supported
Public value ease of information	←	Usage behaviour	H6e	1.009	.089	11.133	0.001	Supported
Public value personalisation	←	Usage behaviour	H6f	1.031	.099	10.360	0.001	Supported

Public value trust	←	Usage behaviour	H6g	.831	.083	10.043	0.001	Supported
Public value well-informedness	←	Usage behaviour	H6h	1.101	.092	11.908	0.001	Supported
Public value participation diction making	←	Usage behaviour	H6i	.867	.086	10.050	0.001	Supported

The second step in model estimation is to examine the path significance of each hypothesis. The model was defined by 38 measurement items that identified the thirteen latent variables. Using the path estimates and CR values, all constructs for causal paths estimates' t-values were above the 1.96 critical values at ($p \leq .0.001$). According to the study model, the results of the regression tests, presented in

Table 5.28, indicated and confirmed that all constructs in the research structural model were significant.

5.4.5.1 Results of hypotheses tests

The research structural model and hypotheses were developed in chapter 3. In this chapter, the testing of the study model indicated the study model and hypotheses, which were evaluated by employing the results of the SEM, as shown in

Table 5.28. The reliability and validity of the model was examined and confirmed. The model achieved a good fit and all the indicators were accepted.

Hypothesis 2 (H2): *Perceived usefulness of SMT influences on intention to use SMT*. The results of the regression test confirmed that perceived usefulness was strongly significant and directly affected the intention to use SMT. The standardised regression coefficient (β) was 0.377 with critical ratio (t-value) 5.013, and p value 0.001. This result supported hypothesis H2. Thus, perceived usefulness of SMT has a positive influence on the intention to use a local council's social media.

Hypothesis 3 and 4 (H3, H4): Perceived ease of use of SMT influences intention to use SMT and perceived usefulness. The regression results were (β 0.109, t-value 1.978, P 0.053), and (β 0.602, t-value 8.245, P 0.001) respectively. These results supported two hypotheses: (H3) *Perceived ease of use of SMT influences intention to use SMT*; and (H4) *Perceived ease of use of SMT influences perceived usefulness*. Thus, these results supported hypotheses H3 and H4. Therefore, perceived ease of use of SMT has a positive influence on the intention to use, and on perceived usefulness of, a local council's social media.

Hypothesis 5 (H5): *Intention to use SMT directly affects usage behaviour*. The results of the regression test confirmed that perceived usefulness was strongly significant and directly affected usage behaviour related to SMT. The standardised regression coefficient (β) was 0.811 with critical ratio (t-value) 8.374, and p value 0.001. This result supported hypothesis H5. Thus, intention to use SMT has a direct influence on the usage behaviour of a local council's social media.

Hypothesis 6 (H6a-i): *Usage behaviour of SMT directly affects perceived public value of SMT*. This hypothesis included nine sub-hypotheses. The results of the regression test confirmed that usage behaviour of SMT was strongly significant and directly affected perceived public value (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness and participation) of SMT. The regression results were (β 0.909, t-value 9.576, P 0.001), (β 0.746, t-value 10.424, P 0.001), (β 0.347, t-value 11.714, P 0.001), (β 0.930, t-value 10.222, P 0.001), (β 1.009, t-value 11.133, P 0.001), (β 1.031, t-value 10.360, P 0.001), (β 0.831, t-value 10.043, P 0.001), (β 1.101, t-value 11.908, P 0.001), and (β 0.867, t-value 10.050, P 0.001) respectively. These results supported nine sub-hypotheses: (H6a) *Usage*

behaviour of SMT directly affects perceived public value cost of SMT; (H6b) *Usage behaviour of SMT directly affects perceived public value time of SMT*; (H6c) *Usage behaviour of SMT directly affects perceived public value communication of SMT*; (H6d) *Usage behaviour of SMT directly affects perceived public value convenience of SMT*; (H6e) *Usage behaviour of SMT directly affects perceived public value ease of information retrieval of SMT*; (H6f) *Usage behaviour of SMT directly affects perceived public value personalisation of SMT*; (H6g) *Usage behaviour of SMT directly affects perceived public value trust of SMT*; (H6h) *Usage behaviour of SMT directly affects perceived public value well-informedness of SMT*; and (H6i) *Usage behaviour of SMT directly affects perceived public value participation of SMT*. Thus, these results supported hypotheses H6 and nine sub-hypotheses. Therefore, usage behaviour of SMT has a positive and direct effect on the perceived public value of a local council's social media.

These results were the outcome of testing the whole model without consideration of the moderator role. The next stage was allocated to testing the moderator hypotheses.

5.4.6 **Stage six: Testing moderating impact**

After testing the direct path relationships within the core model, the next step was to test the moderating effect of the four demographic variables: age, gender, educational level, and location of participants, as well as three types of user participation: passive, active, and participatory. According to Baron and Kenny (1986), a moderator can be a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable, which affects the direction and/or strength of a relation between an independent and dependent, or criterion, variable. In order to find out about the impact of moderators on the paths between usage behaviour and public value, AMOS' multiple group analysis was used (MGA). This approach is widely suggested if either independent or moderator variable are categorical in nature (Henseler & Fassott 2010). The main purpose of a multiple group analysis is to provide a test for the significance of any differences found among groups and to find out the extent to which groups differ (Arbuckle 2005):

1) Whether the groups all have the same path diagram with the same parameter values;

2) Whether the groups have the same path diagram but with different parameter values for different groups;

3) Whether each group needs a different path diagram.

Usually MGA is widely accepted into CBSEM methods to check the moderating effect (Joreskog 1971), and recently it is also gaining interest from researchers within the PLS environment (e.g. Chin 2000; Keil et al. 2000; Eberl 2010). A moderating hypothesis can be tested using multiple-group analysis. In multiple-group analysis, a model is estimated in two or more groups simultaneously. Three steps in multiple-group analysis are (Holmes-Smith et al. 2006):

1- In the first step, the parameter estimates are computed separately for both groups;

2- The second step is to estimate the paths in the model for both groups simultaneously. The resulting model is referred to as the baseline model (unconstrained model), as the estimates of the direct paths are allowed to differ across the two sub-groups;

3- The third step is to constrain the parameter estimates in both groups to be equal. The resulting model is referred to as the constrained model (Structural Weights Model). The parameter estimates across both groups are specified as invariant.

5.4.6.1 Demographic characteristics of the participants of the sample.

This section reports on the results of the moderating impact of the demographic variables: gender, age, educational level, and location for participants, and on the relationships between usage behaviour (BU) and public value (PV) within the model.

5.4.6.1.1 Gender

The gender variable was non-metric (categorical) in nature, so there was no need to refine the division of the groups within the sample (Hair et al. 2010). Out of the 313 respondents in the survey, there were 111 males and 202 females. It was essential to test whether each group achieved an adequate fit for the data separately before proceeding with testing the effect of moderators on the relationship between constructs within the model (Hair et al. 2010).

H1a: *The influence of usage behaviour toward public value is moderated by gender.*

In other words, the direct paths between usage behaviour and public value differ between males (111 cases) and females (202 cases).

The first run of the model revealed the following results for the unconstrained model that was generated, indicating that the model fitted the data for both groups very well and also supported the goodness of fit of the model to the data: (CMIN/DF =2.366, RMSEA = 0.066, TLI = 0.925, CFI = 0.938, NFI = 0.951, GFI = 0.864, AGFI = 0.818). It consequently indicated that males and females use the same path diagram but possibly different estimates, as shown in

Table 5.29 and Table 5.30.

Table 5.29 The Regression Weights for the Baseline Model (Unconstrained Model), for Male.

			Male Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	1.014	.136	7.467	***	Significant
PVT	←	UB	.884	.118	7.473	***	Significant
PVCOM	←	UB	1.211	.126	9.620	***	Significant
PVCONV	←	UB	.889	.126	7.042	***	Significant
PVEI	←	UB	1.039	.114	9.124	***	Significant
PVP	←	UB	.959	.120	8.006	***	Significant
PVTR	←	UB	.721	.106	6.782	***	Significant
PVWI	←	UB	1.028	.104	9.883	***	Significant
PVPDM	←	UB	.881	.114	7.702	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.30 The Regression Weights for the Baseline Model (Unconstrained Model), for Female.

			Female Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.899	.141	6.369	***	Significant
PVT	←	UB	1.076	.148	7.267	***	Significant
PVCOM	←	UB	1.045	.135	7.743	***	Significant
PVCONV	←	UB	1.097	.152	7.213	***	Significant
PVEI	←	UB	.986	.128	7.556	***	Significant
PVP	←	UB	1.048	.152	7.138	***	Significant
PVTR	←	UB	.917	.126	7.279	***	Significant
PVWI	←	UB	1.177	.146	8.043	***	Significant
PVPDM	←	UB	.835	.122	6.846	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

The structural weights model fitted the data for both groups very well, with the goodness of fit of the model to the data showing the following: (CMIN/DF =2.354, RMSEA = 0.066, TLI = 0.927, CFI = 0.935, NFI = 0.946, GFI = 0.858, AGFI = 0.821). The structural weights estimates for males and females were found to be equal, which was shown on the structural weight models, as shown in Table 5.31. Both males and

females had the same path diagram and also had significant differences in relation to structural weights estimates, with a goodness of fit of the model to the data for both groups. In other words, both groups had the same regression weights.

Table 5.31 Regression Weights (Structural Weights Model) for Male and Female.

			Estimate	S.E	C.R.(t)	P value	Finding
PVC	←	UB	.952	.094	10.138	***	Significant
PVT	←	UB	.974	.089	10.928	***	Significant
PVCOM	←	UB	1.140	.090	12.698	***	Significant
PVCONV	←	UB	.994	.093	10.675	***	Significant
PVEI	←	UB	1.000	.081	12.334	***	Significant
PVP	←	UB	1.003	.090	11.132	***	Significant
PVTR	←	UB	.828	.077	10.785	***	Significant
PVWI	←	UB	1.087	.082	13.205	***	Significant
PVPDM	←	UB	.847	.080	10.627	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Thus, it could be concluded that the (H1a) moderating hypothesis was accepted. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ across males and females.

5.4.6.1.2 Age

The sample was separated into two groups: younger and older participants. There were 128 younger citizens respondents (ages between18-40 years) who may have been more familiar with social media technologies than the other group. The older group had 185 older citizens respondents (ages 41 years up) who may not have been as familiar with social media technologies as the previous group because social media technologies just started around 15 years ago.

The examination of whether the influence on usage behaviour on public value was moderated by age through testing the hypothesis which states that:

H1b: *The influence of usage behaviour toward public value is moderated by age.*

In other words, the direct paths between usage behaviour and public value differ between younger and older participants.

From the multiple-group analysis, the baseline model (unconstrained model) for younger and older citizens was generated. The results indicated that the model fitted the data for both groups very well and also supported the goodness of fit of the model to the data: (CMIN/DF =2.348, RMSEA = 0.068, TLI = 0.926, CFI = 0.939, NFI = 0.952, GFI = 0.865, AGFI = 0.818). It consequently indicated that younger and older groups used the same path diagram but possibly different estimates. Unconstrained estimates for the younger group are presented in Table 5.32 and unconstrained estimates for the older group are presented in

Table 5.33.

Table 5.32 The Regression Weights for the Baseline Model (Unconstrained Model), for the younger group.

			Younger Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.938	.232	4.042	***	Significant
PVT	←	UB	1.111	.231	4.809	***	Significant
PVCOM	←	UB	1.295	.245	5.293	***	Significant
PVCONV	←	UB	1.441	.280	5.149	***	Significant
PVEI	←	UB	1.407	.264	5.341	***	Significant
PVP	←	UB	1.340	.267	5.018	***	Significant
PVTR	←	UB	1.159	.223	5.205	***	Significant
PVWI	←	UB	1.319	.251	5.245	***	Significant
PVPDM	←	UB	.747	.174	4.498	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.33 The Regression Weights for the Baseline Model (Unconstrained Model), for the older group.

			Older Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.988	.113	8.773	***	Significant
PVT	←	UB	.980	.108	9.053	***	Significant
PVCOM	←	UB	1.108	.106	10.404	***	Significant
PVCONV	←	UB	.880	.107	8.241	***	Significant
PVEI	←	UB	.913	.092	9.916	***	Significant
PVP	←	UB	.961	.108	8.919	***	Significant
PVTR	←	UB	.724	.091	7.986	***	Significant
PVWI	←	UB	1.078	.097	11.095	***	Significant
PVPDM	←	UB	.951	.101	9.425	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

The structural weights model fitted the data for both groups very well, with the goodness of fit of the model to the data beings as follows: (CMIN/DF =2.333, RMSEA = 0.065, TLI = 0.928, CFI = 0.937 NFI = 0.947, GFI = 0.859, AGFI = 0.822). The structural weights estimates for younger and older were found to be equal and were shown on the structural weight models in Table 5.34. Both younger and older groups had the same path diagram and also had significant differences in relation to structural weights estimates with goodness of fits of the model to the data for both groups. In other words, both groups had the same regression weights.

Table 5.34 Regression Weights (Structural Weights Model) for younger and older groups.

			Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.984	.103	9.568	***	Significant
PVT	←	UB	.997	.097	10.304	***	Significant
PVCOM	←	UB	1.148	.098	11.701	***	Significant
PVCONV	←	UB	1.139	.101	10.236	***	Significant
PVEI	←	UB	1.044	.091	11.500	***	Significant
PVP	←	UB	1.058	.101	10.456	***	Significant
PVTR	←	UB	.848	.083	10.200	***	Significant
PVWI	←	UB	1.142	.094	12.153	***	Significant
PVPDM	←	UB	.915	.089	10.236	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Thus it can be concluded that the (H1b) moderating hypothesis was accepted. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ significantly across younger and older groups.

5.4.6.1.3 Education level

The three educational levels of participants were primary school (5 respondents), high school (101 respondents), diploma or certificate (120 respondents), and higher degree (87 respondents: 66 bachelors, 16 master's degree, and 5 doctoral degree). In multiple-groups analysis, the primary school group was not integrated into the analysis because the sample size was too small (5 respondents).

The examination of whether the influence of usage behaviour on public value was moderated by educational levels happened through testing the hypothesis which states that:

H1c: *The influence of usage behaviour toward public value is moderated by educational levels.*

In other words, the direct paths between usage behaviour and public value differed between educational levels of participants.

From multiple-group analysis, the baseline model (unconstrained model) for educational levels of participants was generated. The results indicated that the model fitted the data for three groups very well and also supported the goodness of fit of the model to the data as follows: (CMIN/DF =2.237, RMSEA = 0.064, TLI = 0.875, CFI = 0.892 NFI = 0.881, GFI = 0.785, AGFI = 0.727). It consequently indicated that different educational levels of participants used the same path diagram but possibly different estimates across groups. Unconstrained estimates for the high school group are presented in

Table 5.35, unconstrained estimates for the diploma or certificate group are presented in Table 5.36, and unconstrained estimates for the higher degree group are presented in Table 5.37.

Table 5.35 The Regression Weights for the Baseline Model (Unconstrained Model), for High School.

			H.School Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.973	.183	5.312	***	Significant
PVT	←	UB	.924	.167	5.551	***	Significant
PVCOM	←	UB	1.043	.158	6.584	***	Significant
PVCONV	←	UB	1.172	.189	6.213	***	Significant
PVEI	←	UB	1.013	.156	6.501	***	Significant
PVP	←	UB	1.029	.177	5.801	***	Significant
PVTR	←	UB	.987	.162	6.108	***	Significant
PVWI	←	UB	1.093	.159	6.861	***	Significant
PVPDM	←	UB	1.074	.164	6.545	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.36 The Regression Weights for the Baseline Model (Unconstrained Model), for Diploma.

			Diploma Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	1.088	.179	6.066	***	Significant
PVT	←	UB	.975	.160	6.102	***	Significant
PVCOM	←	UB	1.189	.173	6.855	***	Significant
PVCONV	←	UB	1.012	.176	5.740	***	Significant
PVEI	←	UB	1.051	.153	6.866	***	Significant
PVP	←	UB	1.095	.173	6.314	***	Significant
PVTR	←	UB	.614	.123	4.994	***	Significant
PVWI	←	UB	1.117	.153	7.305	***	Significant
PVPDM	←	UB	.761	.136	5.580	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.37 The Regression Weights for the Baseline Model (Unconstrained Model), for University degree.

			University degree Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.971	.201	4.837	***	Significant
PVT	←	UB	1.256	.221	5.684	***	Significant
PVCOM	←	UB	1.309	.220	5.945	***	Significant
PVCONV	←	UB	.935	.185	5.047	***	Significant
PVEI	←	UB	.969	.184	5.277	***	Significant
PVP	←	UB	1.112	.211	5.284	***	Significant
PVTR	←	UB	.989	.177	5.599	***	Significant
PVWI	←	UB	1.182	.206	5.727	***	Significant
PVPDM	←	UB	.842	.181	4.646	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

The structural weights model fitted the data for all three groups very well, with the goodness of fit of the model to the data being as follows: (CMIN/DF =2.177, RMSEA = 0.062, TLI = 0.886, CFI = 0.894 NFI = 0.781, GFI = 0.780, AGFI = 0.739). The structural weights estimates across groups were found to be equal, which are shown on the structural weight models in

Table 5.38. The three groups had the same path diagram and also had significant differences in relation to structural weights estimates with goodness of fits of the model to the data for all three groups. In other words, all groups had the same regression weights.

Table 5.38 Regression Weights (Structural Weights Model) for High School, Diploma, and University degree.

			Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	1.011	.103	9.863	***	Significant
PVT	←	UB	1.027	.097	10.580	***	Significant
PVCOM	←	UB	1.158	.099	11.739	***	Significant
PVCONV	←	UB	1.022	.100	10.228	***	Significant
PVEI	←	UB	1.005	.087	11.487	***	Significant
PVP	←	UB	1.082	.101	10.676	***	Significant
PVTR	←	UB	.858	.084	10.258	***	Significant
PVWI	←	UB	1.107	.091	12.118	***	Significant
PVPDM	←	UB	.926	.088	10.519	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

It can be concluded that the (H1c) moderating hypothesis was accepted. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ significantly across three groups of educational levels.

5.4.6.1.4 Local government councils

Local government councils were divided into the three areas: city, urban, and rural local councils. The participants of city local councils were (189 respondents), participants of urban local councils (102 respondents), and participants of rural local councils (22 respondents). In multiple-groups analysis, the rural local councils group was not integrated into the analysis because the sample size was too small (22 respondents). It thus required caution to generalise this finding to the population. It was recommended that the small sample size could not ensure a stable Maximum Likelihood Estimation (MLE) solution (Hair et al. 2006).

The analysis of whether the influence usage behaviour on public value was moderated by local government councils through testing hypothesis states that:

H1d: *The influence of usage behaviour toward public value is moderated by local government councils*.

In other words, the direct paths between usage behaviour and public value differed between participants of city, urban, and rural local government councils.

From multiple-group analysis, the baseline model (unconstrained model) for participants of city and urban local government councils was generated. The results indicated that the model fitted the data for both groups very well and also supported the goodness of fit of the model to the data as follows: (CMIN/DF =2.541, RMSEA = 0.073, TLI = 0.892, CFI = 0.907 NFI = 0.820, GFI = 0.818, AGFI = 0.766). This consequently indicated that different participants of city and rural local government councils used the same path diagram but possibly with different estimates across both groups. Unconstrained estimates for participants of city local government councils group are presented in Table 5.39 and unconstrained estimates for participants of urban local government councils group are presented in

Table 5.40.

Table 5.39 The Regression Weights for the Baseline Model (Unconstrained Model), for City-Local councils.

			City-LCs Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.798	.106	7.540	***	Significant
PVT	←	UB	.875	.102	8.611	***	Significant
PVCOM	←	UB	1.012	.103	9.808	***	Significant
PVCONV	←	UB	.928	.105	8.811	***	Significant
PVEI	←	UB	.871	.094	9.296	***	Significant
PVP	←	UB	.823	.101	8.130	***	Significant
PVTR	←	UB	.737	.088	8.415	***	Significant
PVWI	←	UB	.927	.092	10.124	***	Significant
PVPDM	←	UB	.757	.090	8.353	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.40 The Regression Weights for the Baseline Model (Unconstrained Model), for Urban-Local councils.

			Urban-LCs Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	1.009	.162	6.243	***	Significant
PVT	←	UB	.909	.145	6.256	***	Significant
PVCOM	←	UB	1.042	.140	7.436	***	Significant
PVCONV	←	UB	.931	.161	5.772	***	Significant
PVEI	←	UB	0.949	.133	7.120	***	Significant
PVP	←	UB	1.209	.168	7.185	***	Significant
PVTR	←	UB	.776	.131	5.934	***	Significant
PVWI	←	UB	1.147	.150	7.651	***	Significant
PVPDM	←	UB	.746	.130	5.730	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

The structural weights model fitted the data for both groups very well, with the goodness of fit of the model to the data as follows: (CMIN/DF =2.537, RMSEA = 0.073, TLI = 0.892, CFI = 0.902 NFI = 0.812, GFI = 0.815, AGFI = 0.775). The structural weights estimated across both groups were found to be equal and are shown on the structural weight models in Table 5.41. Both groups had the same path diagram and also had significant differences in relation to structural weights estimates with goodness of fits of the model to the data for both groups. In other words, both groups had the same regression weights.

Table 5.41 Regression Weights (Structural Weights Model) for City and Urban local councils.

			Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.884	.088	10.032	***	Significant
PVT	←	UB	.887	.082	10.834	***	Significant
PVCOM	←	UB	1.000	.080	12.553	***	Significant
PVCONV	←	UB	.942	.088	10.686	***	Significant
PVEI	←	UB	.901	.075	12.018	***	Significant
PVP	←	UB	.986	.087	11.272	***	Significant

PVTR	←	UB	.751	.071	10.547	***	Significant
PVWI	←	UB	1.010	.078	12.924	***	Significant
PVPDM	←	UB	.755	.074	10.234	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

It can be concluded that the (H1d) moderating hypothesis was accepted. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ significantly across participants of city and urban local government councils.

5.4.6.1.5 Type of participation.

Type of users' participation in this study were citizens who had already had social media experience. The sample was separated into three groups of experience in using social media. The first group was a group of citizens who were assessed as a passive group (114 respondents). The second group was a group of citizens who were assessed as an active group (109 respondents). The third group was a group of citizens who were assessed as a participant group (90 respondents).

In order to investigate whether differences in experience in using social media would moderate the influence of usage behaviour on public value the hypothesis was tested which states that:

H7: *The influence of usage behaviour toward public value is moderated by type of user's participation*.

In other words, the direct paths between usage behaviour and public value differed between types of user participation.

From multiple-group analysis, the baseline model (unconstrained model) for types of user's participation was generated. The results indicated that the model fitted the data for all three groups very well and also supported the goodness of fit of the model to the data as follows: (CMIN/DF =2.161, RMSEA = 0.061, TLI = 0.878, CFI = 0.894 NFI = 0.878, GFI = 0.795, AGFI = 0.740). It consequently indicated that different types of user's participant groups used the same path diagram but possibly different estimates across three groups. Unconstrained estimates for the passive group are presented in Table 5.42. Unconstrained estimates for the active group are presented in

Table 5.43, and unconstrained estimates for the participant group are presented in Table 5.44.

Table 5.42 The Regression Weights for the Baseline Model (Unconstrained Model), for Passive group.

			Passive Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.887	.159	5.585	***	Significant
PVT	←	UB	1.009	.159	6.331	***	Significant
PVCOM	←	UB	1.123	.153	7.352	***	Significant
PVCONV	←	UB	.930	.148	6.267	***	Significant
PVEI	←	UB	1.069	.150	7.135	***	Significant
PVP	←	UB	1.052	.166	3.323	***	Significant
PVTR	←	UB	.681	.155	7.308	***	Significant
PVWI	←	UB	1.134	.120	5.686	***	Significant
PVPDM	←	UB	.855	.144	5.940	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.43 The Regression Weights for the Baseline Model (Unconstrained Model), for Active group.

			Active Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.734	.143	5.122	***	Significant
PVT	←	UB	.570	.120	4.796	***	Significant
PVCOM	←	UB	.879	.133	6.600	***	Significant
PVCONV	←	UB	.864	.148	5.830	***	Significant
PVEI	←	UB	.606	.106	5.729	***	Significant
PVP	←	UB	.765	.129	5.926	***	Significant
PVTR	←	UB	.768	.129	5.949	***	Significant
PVWI	←	UB	.829	.116	7.167	***	Significant
PVPDM	←	UB	.598	.105	5.673	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

Table 5.44 The Regression Weights for the Baseline Model (Unconstrained Model), for Participant group.

			Participant Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	1.030	.156	6.618	***	Significant
PVT	←	UB	1.115	.136	8.177	***	Significant
PVCOM	←	UB	1.066	.135	7.917	***	Significant
PVCONV	←	UB	1.072	.154	6.967	***	Significant
PVEI	←	UB	.997	.125	8.004	***	Significant
PVP	←	UB	1.012	.141	7.167	***	Significant
PVTR	←	UB	.935	.122	7.655	***	Significant
PVWI	←	UB	.966	.116	8.296	***	Significant
PVPDM	←	UB	.946	.129	7.313	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

The structural weights model fitted the data for three types of user participant groups very well, with the goodness of fit of the model to the data as follows: (CMIN/DF =2.144, RMSEA = 0.061, TLI = 0.881, CFI = 0.889, NFI = 0.868, GFI = 0.787, AGFI = 0.748). The structural weights estimates across three groups were found to be equal and are shown on the structural weight models in

Table 5.45. The three groups had the same path diagram and also had significant differences in relation to structural weights estimates with goodness of fits of the model to the data for three types of user participant groups. In other words, all groups had the same regression weights.

Table 5.45 Regression Weights (Structural Weights Model) for Passive, Active, and Participant groups.

			Estimate	S.E.	C.R.(t)	P value	Finding
PVC	←	UB	.939	.090	10.484	***	Significant
PVT	←	UB	.963	.083	11.642	***	Significant
PVCOM	←	UB	1.046	.081	12.907	***	Significant
PVCONV	←	UB	.959	.086	11.100	***	Significant
PVEI	←	UB	.928	.075	12.409	***	Significant
PVP	←	UB	.953	.084	11.310	***	Significant
PVTR	←	UB	.805	.073	11.021	***	Significant
PVWI	←	UB	.981	.075	13.028	***	Significant
PVPDM	←	UB	.826	.075	10.987	***	Significant

*** A p value is statistically significant at the 0.001 level (two-tailed)

It can be concluded that the (H7) moderating hypothesis was accepted. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ significantly across three types of user participant groups.

5.4.6.2 Results of moderating hypotheses tests

Two main moderating hypotheses were formulated to examine the moderator role of demographic characteristics and types of user participation groups on usage behaviour toward public value. This test was to explore the difference between segments of respondents in terms of the relationship between usage behaviour and public value of social media. Hypothesis one (H1) reported the results of the moderating impact of the demographic characteristics: gender, age, educational level, and location for participants, on the relationships between usage behaviour (BU) and public value (PV) within the model.

H1a: *(BU) X Gender PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

H1b: *(BU) X Age PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

H1c: *(BU) X Educational level PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

H1d: *(BU) X Location for participants PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

Hypothesis Seven (H7) stated the moderating impact of the types of participation groups (passive, active, and participator) on the relationships between usage behaviour (BU) and public value (PV) within the model.

H7a: *(BU) X Passive PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

H7b: *(BU) X Active PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

H7c: *(BU) X Personalisation PV (cost, time, communication, convenience, ease of information retrieval, personalisation, trust, well-informedness, and participation).*

The results of the moderation test showed that demographic characteristics and types of user participation produced a significant moderating impact on the relationships between usage behaviour (BU) and public value (PV) of social media within the model. These results supported hypotheses H1, H7, and all sub-hypotheses.

The researcher will discuss and provide more details regarding the hypotheses and results in chapter six.

5.5 Summary

This chapter has represented the findings of the analysis of the sample data. The first part focused on presenting the results regarding secondary data of the preliminary research. The second part presented the descriptive analysis for the sample study. Furthermore, the means and standard deviations of each item used in the study's questionnaire were discussed, and the response rate was described, including with regards to missing data, normality, and outliers. The third part examined the measurement model and tested the study model and hypotheses, which were evaluated using SEM. SEM included six steps: one-factor congeneric measurement model, Exogenous and Endogenous, measurement model, testing the validity and reliability,

testing study model hypotheses, and testing moderating hypotheses. All hypotheses were examined and found to be significant and they had a positive impact on the structural model with path coefficient relationships. Moreover, the results of examining the model, with 313 responses from the sample, confirmed the validity and reliability of the items and constructs for the proposed model. Following this, chapter six discusses and provides details of the research results and hypotheses, to provide answers to the research problem discussed in this thesis.

CHAPTER 6: DISCUSSION OF RESULTS

6.1 Introduction

This study has proposed a model to measure factors affecting the perceived public value of social media for Queensland's local councils from the citizen's perspective. The model was tested with three different groups of Queensland citizens: those who live in urban local council areas; city local council areas; and rural local council areas with details of the results of the examination of the model provided in chapter 5. Further details about testing the models and hypotheses, and the overall contribution of the study are provided in this chapter. This chapter discuss the results obtained in chapter 5. Section 6.2 provides an overview of this research. Section 6.3 discusses the preliminary research for local councils' website analyses. In section 6.4 the results of measurement models are discussed. Discussion of structural models and testing of the hypotheses is reported on in section 6.5 of this chapter, while section 6.6 briefly summarises this chapter.

6.2 Overview of this research

The purpose of this research was to examine factors affecting the perceived public value of social media, or the public value of social media from the perspective of citizens who live in the state of Queensland. This thesis has proposed and empirically tested a hypothesised model for understanding the factors that influence citizens' use of social media. The main objectives of the research were to investigate the factors affecting the public value of social media, to measure the public value of social media as perceived by citizens in local councils in Queensland Australia, and to test the hypothesised model for validating it. As described in chapter three, the research model in the present study included: perceived usefulness (PU); perceived ease of use (PEOU); intention to use (IU); usage behaviour (UB); public value (PV), which included three clusters, each representing three sub-dimensions: efficiency (cost, time, communication), effectiveness (convenience, ease of information retrieval, personalisation), and social value (trust, well-informedness, participation); and two moderating variables: demographics (age, gender, educational level, and location for participants), and type of user participation (passive, active, and participator).

Phase 1, the preliminary research for local council's website analysis, was conducted to provide a clear vision of the use of social media by Queensland's local councils and to select the appropriate councils.

In phase 2, this study employed a quantitative approach by using an online survey to collect primary data. A questionnaire was developed from the published literature by adapting exiting measurement scales reported by previous research studies. A pre-test and a pilot study were conducted. The purpose of the pre-test and pilot study was to detect any errors and ambiguities in the measurement instrument in order to avoid confusion and misinterpretation.

Analysis of the data and collating of the results required sound methodological procedures to achieve these stages of the study. The current study dealt with 313 Queenslander citizens. Structural equation modelling (SEM) was employed to analyse the data. A covariance-based structural equation modelling (CBSEM) approach using AMOS software was adopted to analyse the data from the sample study and to test the proposed model. This approach was based on two steps in SEM. The first step, the measurement model, using the CFA method, was tested to examine and assess the reliability and validity of the constructs used in the model. In the second step, a hypothesised structural was assessed using the path analysis technique to test the hypotheses among the constructs proposed in the research model. Furthermore, the moderation hypothesis was tested in order to gain an in-depth understanding of the impact of demographic and types of users' participation moderators on the paths between usage behaviour and public value. The findings from the examination of the SEM analysis results are discussed in next sections.

6.3 Discussion of the preliminary research: local councils' website analysis

This phase was to provide a clear vision of the use of social media by Queensland's local councils and to select the appropriate councils. During the first stage, the researcher received positive feedback and advice from 10 informal interviews with officers at different levels and positions in some of Queensland's local councils. The selected interviewees were considered to be those who had a knowledge about online services and who had also been involved in the implementation process of social media

in their local councils. That enabled them to provide rich ideas and appropriate answers for this phase, as described in Table 6.1.

Table 6.1 Participants' characteristics and roles in some of Queensland's local councils

No	local councils	Officers positions
1	Toowoomba Regional Council	Coordinator Communication Stakeholder Engagement and Communication
2	Gladstone Regional Council	Manager Social| Media and Communications
3	Cairns Regional Council	Manager Social| Media and Communications
4	Isaac Regional Council	Manager Brand, Media and Communications
5	Cassowary Coast Regional Council	Manager Social Media and Communications
6	Mackay Regional Council	Communications Coordinator Community & Client Services
7	Cook Shire Council	Manager Social Media and Communications
8	Moreton Bay Regional Council	Executive Services
9	Charters Towers Regional Council	Governance Compliance Officer
10	Logan City Council	Digital Marketing Coordinator

6.3.1 **Participants' views**

When participants were asked about their knowledge and experience of the council's implementation of social media initiatives, most of their answers were positive:

Q1 - Does the council have a policy on the use of social media technology to deliver services more effectively and enable their staff to work in new ways and improve interaction with citizens?

- We do have a social media policy, guidelines and strategy that inform how Council uses social media to interact with the community. (Toowoomba Regional Council)
- Council has significantly increased its social media presence and through targeted messaging has improved the sentiment and engagement of our community with Council. (Logan City Council)
- We started 'Facebook Live Chats' that allowed key members of Council's team to be available to answer questions and hear concerns of the public in a social media space. (Toowoomba Regional Council)
- Social media, such as Facebook, is considered one of many tools that allow Council to interact with its community. (Cairns Regional Council)
- Mackay council was one of the first local governments to have a presence on Facebook back in 2009 and really ramped up its use after Cyclone Ului threatened Mackay in early 2010.(Mackay Regional Council)
- Council uses Facebook, Twitter, Instagram and Linked-in as communication tools. (Mackay Regional Council)
- Social media channels (Facebook) encourage the public to interact with council and are recognised as official contact channels for council. (Cook Shire Council)

Q2. Are your social media a one-way communication tool or do they have the capacity for citizen interaction with the council?

- Social media are definitely a two-way conversation and encourage our community to let us know their thoughts and feelings on a range of Council initiatives. (Toowoomba Regional Council)
- All of Council's social media platforms allow for two-way communication. This provides Council will a more effective way to engage with its audience.
- Social media, particularly Facebook, are definitely used as a two-way communication channel by Mackay Regional Council.
- All of Council's social media platforms allow for two-way communication. This provides Council will a more effective way to engage with its audience. (Gladstone Regional Council)
- We encourage and engage two-way conversations using our social media channel – Facebook (Isaac Regional Council)

Q3. Are social media important for your communications with the public? If so why?

- Social media are extremely important to our communication channel management strategy as they allow us to reach our audience in real-time and keep our finger on the pulse of what is affecting our community as it happens. It also helps us with crisis communication. In the unlikely event of a disaster, social media are the quickest way for us to communicate with our residents and visitors. (Toowoomba Regional Council)
- Social media were quite effective as Live Chats are a cost-effective way for us to communicate with our community and deliver services more effectively. (Logan City Council)
- Council has seen over 600% growth in our social media followers in the past year and from this number alone, people are looking to Council's social media to remain connected to our community. (Toowoomba Regional Council)
- Social media are important to Council's external communications strategy. Social media allow the organisation to reach a wider audience than that of traditional media. (Gladstone Regional Council)
- We acknowledge that it is the primary mode of communication for a growing proportion of the community and it is important to meet the needs of those who use social media on a daily basis. (Cairns Regional Council)
- Social media are important because they allow contact with members of the public who may not use tradition communication methods. (Cassowary Coast Regional Council)
- Social media are an important tool for communication. They enable Council to reach a large audience quickly. They also provide feedback on council decisions and initiatives. (Mackay Regional Council)
- Social media are important for a number of reasons, including the sheer number of people you reach through it, as well as reaching different demographics such as younger people. (Cook Shire Council)
- It is an inexpensive method of communication, with a huge uptake. (Charters Towers Regional Council)

Q4. What are the motivation factors to use social media technologies with your public?

- As a Council, it's important for us to remain relevant and use the technology and communication channels available to us to reach our audience in the

channels they are using. Let's be honest, unless people have a Council-related issue, they are unlikely to seek out Council information; however, we utilise social media not only to tell Council's story, but also to build a collective sense of pride and community as we share the stories of people around the region. (Toowoomba Regional Council)

- Social media are used as a platform to share what's great about our region and to share information people are unlikely to gain from any other platform. (Toowoomba Regional Council)
- The motivation is that there is a ready-made engaged audience. (Mackay Regional Council)
- The ability to reach those in far flung places (our Shire is the biggest local government area in Qld and one of the most remote). (Cook Shire Council)
- The social media channels form a component of Council's overall communication and engagement strategy. They provide new opportunities, for example timeliness and the ability to engage with target demographics, when compared to other traditional forms of media. (Moreton Bay Regional Council)

Q5. Has the council implemented a policy on the role of social media in the creation of public value for citizens?

- We share content to social media to allow our community to have their say on the platform they feel most comfortable with. (Toowoomba Regional Council)
- We have a dedicated customer service team who are available to respond to social media enquiries and our response time is usually within 30 minutes. (Toowoomba Regional Council)
- The guidelines allow Council to moderate the platform and make sure it is a friendly and welcoming platform for all. (Gladstone Regional Council)
- The role of social media in providing valuable content for the public is covered in Council's marketing and communications strategy, the low cost, the ease of use and the move towards digital technologies by many organisations and individuals. (Cook Shire Council)

Q6. How do you evaluate the value of your use of social media?

- Council reviews its effectiveness on social media daily as part of a 'wrap up' report to inform the executive team of the content produced, as well as key information to be aware of. (Toowoomba Regional Council)

- The communications team report monthly on engagement, growth and overall return on investment of our social media portfolio. (Toowoomba Regional Council)
- We evaluate the value of social media by the post-reach and engagement. This can range from as little as 7,000 to 35,000 people per week. (Gladstone Regional Council)
- Its value as a tool to rapidly disseminate information to the public was highlighted. (Mackay Regional Council)
- Ability to communicate quickly. (Moreton Bay Regional Council)

Q7. What are the factors for evaluating the public value of the use of social media technologies?

- Council look at sentiment and growth of our social media channels to ensure that the community value the content we produce. (Toowoomba Regional Council)
- Social media are an ever-changing landscape and it's important that as communicators we are nimble to changes and continually evaluate processes and effectiveness. (Toowoomba Regional Council)
- We monitor interaction as our main mode of evaluation. (Cairns Regional Council)

6.3.2 **Pre-analysis of websites of 78 councils**

The second stage of the preliminary research was conducted based on pre-analysis of the websites of 78 councils. The researcher has analysed all 78 Queensland local council websites (as listed in Appendix B) to select those that appeared to have the greatest use of social media. This study focused on the most common social media used by Queensland local councils and citizens. Evaluations were performed from March 2016 to May 2016 on all Queensland council websites. The preliminary research in stages one and two subsequently helped the researcher to select local council areas that had applied SM initiatives. After this analysis, the researcher selected 20 city, urban and rural local councils that had the most experience in SMTs for interaction with citizens and that also had a large number of SMT users for inclusion in this study, as listed in Table 5.1. The researcher found that Facebook was the preferred platform used by citizens. Thus, the recommendation is to invest more in council staff's involvement on Facebook without ignoring the importance of other

platforms. Facebook was the most widely adopted SMT by councils (65 out of 78 councils). In Queensland, 25 councils use Twitter, while 20 have a presence on YouTube, nine use Instagram, seven use LinkedIn, and six councils use RSS. Only 13 councils did not have a social media presence, as listed in Appendix B.

6.4 Measurement model

The measurement model shows how each observed variable relates to its construct (Guo et al. 2011). The recommended validity to be examined in this research includes constructs confirmatory factor analysis, convergent validity, construct validity, and discriminant validity. The convergent validity for this study was assessed by examining: factor loadings, which relate all significant indicators to their respective constructs; all the absolute values of critical ratios (C.R.) of all the indicators, which should be greater than 1.96, at the 0.05 level of significance; and standardized regression coefficients, which should be greater than 0.50 (see Table 5.23 in chapter five). The construct validity was assessed to test the validity of indicators to measure their constructs. The indices of goodness-of-fit measures point to construct validity. The results of the one-factor congeneric measurement model provided evidence of the validity of these constructs (see section 5.4.1 in chapter five). Discriminant validity was assessed by the square root of average variance extracted ($\sqrt{}$ AVE) from each construct, which should be more than its correlation with other constructs. The square root of average variance extracted for each construct was compared with its correlation with other constructs (see Table 5.24 in chapter five) and found to be following the conditions of discriminant validity.

The Cronbach's alpha (α) for all the constructs was evaluated to see the internal consistency among the multiple-item constructs. The value obtained for Cronbach's alpha (α) of all the constructs was found to be more than 0.70. The construct reliability (CR) was assessed, based on the evaluation of the reliability or dependability of each construct. The value obtained for construct reliability of all the constructs was found to be above the acceptable level, thus confirming a high level of reliability. Average Variance Extracted (AVE) was also used to test the reliability of constructs. The results obtained for construct reliability of all the constructs were found to exceed the acceptable level of 0.50, except ITU, which at 0.446 was very close to the acceptable level of 0.50 (see Table 5.24 in chapter five).

Finally, Squared Multiple Correlation (SMC) was considered a major indicator to measure the reliability of each item (observed variable) in the proposed model in the research. The recommended level of SMC is > 0.30 (Holmes-Smith 2011a). Thirty six items out of 38 exceeded 0.50, which represents 94.7 percent of all the items. Only one item was less than 0.4 ITU3 (0.364). However, the SMC of PEOU3 was 0.259, which was very close to the acceptable level (see Table 5.23 in chapter five) indicating a strong reliability for all the constructs. Therefore, analysing all required validity tests, this research concludes that its measurement model works satisfactorily, which in turn suggests that measures of this study demonstrate an appropriate level of internal consistency. The findings from the examination of the measurement model of the SEM analysis results have been discussed in this section.

6.4.1 **Perceived usefulness**

Perceived usefulness was adopted in the current study as a factor that affects the perceived public value of social media, as perceived by citizens in local councils. Perceived usefulness was measured using three aspects: enabling the acquisition of more information; improving efficiency in sharing information; and being a useful service for interaction. The measurement model indicates that perceived usefulness is a valid and reliable construct to measure the perceived public value by citizens of social media use by local councils. Three items used to measure this construct were significant and no items were deleted. The findings confirm that these three aspects significantly represented the construct of perceived usefulness based on the perceptions of participants.

The validity and reliability of perceived usefulness as an indicator to measure social media use were confirmed by previous studies (Hsu & Lin 2008; Hossain & de Silva 2009; Casaló et al. 2010; Kwon & Wen 2010; Steyn et al. 2010; Casaló et al. 2011; Rauniar et al. 2014; Wirtz & Göttel 2016a; Bailey et al. 2018).

6.4.2 **Ease of use**

Based on the study results it was found that PEOU was characterised by statistically distinct dimensions. Perceived ease of use was measured using three aspects: learning to use social media technology is easy; process of using social media technology is clear and understandable; and social media are flexible in interacting with local councils. The measurement model indicates that perceived ease of use is a valid and

reliable construct to measure the perceived public value by citizens of social media use by local councils. The three items used to measure this construct were significant and no items were deleted. The findings confirmed that these three aspects significantly represented the construct of perceived ease of use in the case of social media, based on the perceptions of participants.

This finding confirms the validations and reliability of perceived ease of use as an indicator to measure social media use, in line with other studies (Hsu & Lin 2008; Hossain & de Silva 2009; Casaló et al. 2010; Kwon & Wen 2010; Rauniar et al. 2014; Wirtz & Göttel 2016a; Bailey et al. 2018).

6.4.3 Intention to use

Intention to use was examined in the current study as a factor affecting the public value of social media, as perceived by citizens in relation to local councils. The items were used to measure the intention to use social media reflected three aspects: access to local council's social media, and intention to use it; intention to use local councils' social media to communicate with them; and continuing to use local councils' social media to interact with them. However, one item was not significant in measuring the intention to use: access to local council's social media, and intention to use it.

The results from the measurement model regarding these two aspects confirmed the validity and reliability of this construct. These findings were consistent with the results of other studies (Hsu & Lin 2008; Hossain & de Silva 2009; Casaló et al. 2010; Rauniar et al. 2014; Bailey et al. 2018), which thus confirms that intention to use was a significant construct to measure intention to use in the case of social media, based on the perceptions of participants.

6.4.4 Usage behaviour

The study assumed that usage behaviour was a key factor to examine in terms of its effect on the perceived public value of social media, as perceived by citizens in local councils. Three items significantly represented the usage behaviour related to social media: tend to use the local council's social media frequently; spend a lot of time on the local council's social media; and expect to use the local council's social media. The three items used to measure this construct were significant and no items were deleted.

The results from the measurement model regarding these three aspects confirmed the validity and reliability of this construct. These findings were consistent with the results

of other studies (Hossain & de Silva 2009; Casaló et al. 2010; Rauniar et al. 2014; Bailey et al. 2018), which confirms that usage behaviour was a significant construct to measure usage behaviour in the case of social media, based on the perceptions of participants.

6.4.5 Public value

Public value was the dependent factor in the proposed model. This study hypothesized that public value was a key measure of social media as perceived by citizens in local councils. The public value construct comprised 27 items and represented three clusters, each cluster representing three sub-dimensions: efficiency (cost, time, communication); effectiveness (convenience, ease of information retrieval, personalisation); and social value (trust, well-informedness, participation) (see 5.4.1.2 in chapter five). All items used to measure this construct were significant and no items were deleted.

The results from the measurement model regarding public value confirmed the validity and reliability of those constructs to measure public value of social media, as perceived by citizens in local councils. These findings were consistent with the results of studies by Karunasena and Deng (2012a), Omar et al. (2014), Bannister and Connolly (2014), and Scott et al. (2016).

6.5 The structural model and hypotheses

The structural model focused on testing the relationships between the constructs, based on the proposed model and seven main hypotheses formulated to investigate these relationships. In the extended model without the moderation effect, initially a total of 5 hypotheses with 13 path were proposed, and 2 moderation hypotheses by demographic and type of user participation in relation to the usage behaviour contributing towards public value. A model to measure the perceived public value of social media by local councils, as perceived by citizens, was suggested in this study. The same set of hypotheses proposed in this study was examined with the data of the sample. The discussion of the relationships among the constructs of the proposed model was based on the hypotheses formulated in this study. The discussion of hypotheses was based on the relationships between all the key constructs in the model. The structural model was used to test the relationships between constructs as hypothesised in the proposed model, while the measurement model was transformed

to a structural model by assigning the relationships between constructs based on theory (Hair et al. 2010).

TAM constructs, consisting of PU, PEOU, ITU, and UB, were included in the study's theoretical model.

6.5.1 TAM factors

For achieving objective one, which was 'to investigate the factors affecting the public value of social media in local councils in Queensland Australia', TAM constructs, consisting of PU, PEOU, ITU, and UB, were proposed in the study's theoretical model. Four path relations with four hypotheses were proposed:

H2: PU→ ITU; H3: PEOU →ITU; PEOU →PU; and ITU→UB.

6.5.1.1 Perceived usefulness hypotheses

H2: Perceived usefulness of SMT influences intention to use SMT.

The SEM results in

Table 5.28 provided empirical evidence that hypothesis H2 was significant and supported by the research findings. PU had a positive and strong total effect on ITU toward the use of social media in local councils. In accordance with the TAM (Davis 1989; Venkatesh & Davis 2000) and with previous literature (e.g., Hossain & de Silva 2009; Casaló et al. 2010; Rauniar et al. 2014; Bailey et al. 2018) it was found that the total effect of PU on ITU was significant. These findings were relevant to the context of the current study, and suggested that the participants had the intention to use social media on the basis of their usefulness.

6.5.1.2 Perceived ease of use hypotheses

Two hypotheses were formulated to test the effect of ease of use on intention to use and perceived usefulness, which is discussed next.

Hypothesis (H3): Perceived ease of use of SMT influences intention to use SMT.

The results of the study supported hypothesis (H3).

Table 5.28T indicated that PEOU had a strong direct significance for ITU (H3). This result suggested that PEOU increased the perception around intention to use social media technologies. In accordance with the TAM (Davis 1989; Venkatesh & Davis 2000) and with previous literature (e.g., Hossain & de Silva 2009; Casaló et al. 2010; Rauniar et al. 2014; Bailey et al. 2018) it was found that the total effect of PEOU on ITU was significant. These findings were relevant for the context of the current study, and suggested that the participants had the intention to use social media on the basis of their ease of use, as well as the participants' ability to derive fun from using the technologies, and the lack of complexity of the technologies.

Hypothesis (H4): Perceived ease of use of SMT influences perceived usefulness SMT.

The results of the study supported hypothesis (H4).

Table 5.28 indicated that PEOU had a strong direct significance on PU. The findings regarding the relationships among perceived ease of use and perceived usefulness of social media were consistent with earlier findings in different domains, including recent findings by Natarajan et al. (2017), Hossain and de Silva (2009), Casaló et al. (2010), Rauniar et al. (2014), and Bailey et al. (2018). Perceived ease of use had a significant impact on perceived usefulness of social media, and perceived ease of use worked to ensure favourable perceptions of the usefulness of social media. These findings were relevant to the context of the current study, and they indicated relationships among perceived ease of use and perceived usefulness of social media.

6.5.1.3 Intention to use towards usage behaviour hypotheses

Hypothesis H5: Intention to use SMT directly affects Usage Behaviour.

Hypothesis (H5) emphasized the significant influence of intention to use on usage behaviour. The findings of the study showed that this hypothesis was supported. ITU had a positive and strong total effect on UB toward the use of social media in local councils. In accordance with the TAM (Davis 1989; Venkatesh & Davis 2000), and consistent with earlier findings in different domains, including recent findings by Natarajan et al. (2017), Hossain and de Silva (2009), Casaló et al. (2010), Rauniar et al. (2014), and Bailey et al. (2018), it was found that the total effect of PU on ITU was significant. These findings were relevant to the context of the current study. As was expected, intention to use social media had a strong positive impact on engagement in active social media and on usage behaviour. This means that participants who had more favourable impressions of social media would use these media more often to indulge in activities that could prove beneficial to their local councils.

6.5.1.4 Usage behaviour towards public value hypotheses

The aim of the discussion here is to provide a clear picture of what the public value is that citizens believe they derive from using social media technologies with local councils in Queensland Australia. During this stage, citizens who used these social media initiatives were surveyed to identify locally relevant public values, as perceived by Queensland citizens as a result of their use of SMT services. The second objective of the study was to measure the public value of social media, as perceived by citizens, in relation to local councils in Queensland Australia. The hypothesis investigated was:

Hypothesis H6: Usage behaviour of SMT directly affects perceived public value of SMTs.

Hypothesis 6 included nine sub-hypotheses that were formulated to test the effect of usage behaviour on the perceived public value of SMTs. Discussion of the results of these sub-hypotheses follows.

H6a: Usage behaviour (UB) → public value cost (PVC); H6B: Usage behaviour (UB) → public value time (PVT); and H6c: Usage behaviour (UB) → public value communication (PVCom).

The results of the study supported hypotheses (H6a, b, c).

Table 5.28 provided empirical evidence that hypotheses H6a, b, c were significant and were supported by the research findings. Usage behaviour (UB) had a positive and strong total effect on perceived public value efficiency (PVC, PVT, PVCom) of using social media with local councils.

Findings from this research have implications for users of local councils' social media that are designed to encourage citizens' interaction and participation. Citizens' interaction with social media has become increasingly functional. There are increasing opportunities for citizens to participate in initiatives. This study demonstrates that uses of social media contribute to getting value for citizens; some uses result in basic benefits such as reduction of the cost of accessing the service, or cost savings in requesting a service. The public value of time can be seen through citizens' perception of social media platforms as providing a quicker response to a question or request than other means, and the use of these social media tools have saved citizens time and effort. The public value of citizen communication through social media tools can be seen through citizens' perception as providing a valuable and efficient way of communicating with the local council, and helping citizens to have more discussion and a better understanding of their local councils.

There is a lack of studies that provide an in-depth investigation related to usage behaviour in term of the use of social media services to provide public value. The researcher could not find any studies that directly listed usage behaviour as being related to the use of social media services to provide public value. As a particular contribution of this research, the findings have shown that using social media in local councils provides public value for users. These findings are consistent with previous literature, including recent findings by Scott et al. (2016), Omar (2015a), Karunasena and Deng (2011a), Kearns (2004), Ku and Leroy (2014), Tolbert and Mossberger (2006), and Bekkers et al. (2013).

H6d: Usage behaviour (UB) → public value convenience (PVConv); H6e: Usage behaviour (UB) → public value ease of information (PVEI); and H6f: Usage behaviour (UB) → public value personalisation (PVP).

The results of the study supported hypotheses (H6 d, e, and f). Table 5.28 provided empirical evidence that hypotheses H6d, e, f were significant and were supported by the research findings. Usage behaviour (UB) had a positive and strong total effect on

the perceived public value of effectiveness (PVConv, PVEI, PVP) of using social media with local councils.

Effectiveness is the second dimension of the public value construct of the framework. The public value of effectiveness of local government councils in their use of social media is reflected by the values of convenience, ease of information, and personalisation. The findings derived from this research have shown that using social media in local councils provides citizens with public values such as convenience, ease of information, and personalisation. These public values, as reflected in the use of social media technologies, provide citizens and local councils with interactions that can lead to value through ease of accessibility to such technologies from a number of different locations (e.g. home, work, library, smartphone, post office), availability and provision of information, which allows citizens to interact with the local council at any time, understand more about government services, answer any queries about local councils services, value the personalised services offered by the local council's social media, be empowered by citizen dialogues with local councils, and they allow individuals to personalise their abilities, skills, and knowledge.

Social media technologies can be considered the main contributor to public value produced by local government councils. The findings derived from this research have shown that using social media in local councils provides public value for citizens. These findings are consistent with previous literature, including recent findings by Scott et al. (2016), Chan et al. (2011), Reddick and Norris (2013), Karunasena and Deng (2012a), Kearns (2004), Ku and Leroy (2014), Tolbert and Mossberger (2006), Kernaghan (2013), Sadeghi et al. (2012), Yen (2007), Jorgensen and Bozeman (2007), and Savolainen and Kari (2004).

H6g: Usage behaviour (UB) → public value trust (PVTr); H6h: Usage behaviour (UB) → public value well-informedness (PVWI); and H6i: Usage behaviour (UB) → public value participation diction making (PVPDM).

The results of this study supported hypotheses (H6g, h, i).

Table 5.28 provided empirical evidence that hypotheses H6g, h, i were significant and supported by the research findings. Usage behaviour (UB) had a positive and strong total effect on perceived social value (PVTr, PVWI, PVPDM) of social media use by local councils.

The social value is the third dimension of the public value construct of the framework. The social value of local government council via social media as a public value is reflected by the values of trust, well-informedness, and participation diction making. The findings derived from this research have shown that using social media in local councils provides citizens with public value. Citizens value improved trust and confidentiality through the use of the local council's social media. Trustworthy local council's procedures, credible information dissemination and services through social media, and maintaining electronic transactions are essential to ensure public trust through social media. Queensland citizens' trust in their local council's social media is reflected in feeling confident that the local council's social media do their part when citizens interact with local councils, and feeling that local council's social media acts in the citizens' best interests.

Public values through social media technologies provide citizens and local councils with well-informedness. The ability of local councils' social media tools to facilitate citizens' dialogue with their local councils can provide the opportunity for citizens to be better informed, increase their understanding, and build up their knowledge about issues of importance to citizens.

Participation decision making was the other value that encouraged citizens' involvement with their local council's social media platforms. They were interested to see their input incorporated in the decision-making process and outcomes. Thus, local governments played an active role through social media platforms in demonstrating to their residents that they were listening to them on the local council's social media platforms, and that their opinions were taken into account to make them feel their input was valued. This further enhanced their feeling of being part of an active democracy, and make citizens feel that they were being consulted about important issues.

The findings also showed that citizens' usage of these initiatives leads them to play a significant role in obtaining most of the perceived public values. Misuraca (2012a) argument is that public value can be generated by citizens through the replacement of

government tasks in the form of bottom-up, user driven innovation using social media tools. The findings derived from this research have shown that using social media in local councils provides public value for citizens. Jorgensen and Bozeman (2007) argue that "public value is not governmental" (p. 372). These findings are consistent with previous literature, including recent findings by Scott et al. (2016), Teo et al. (2008), Tolbert and Mossberger (2006), Belanche et al. (2014), Misuraca (2012a), Grimsley and Meehan (2007), Kolsaker and Lee-Kelley (2008), Lee and Rao (2012), Karunasena and Deng (2011a), Medaglia (2012).

6.5.2 **Discussion of the results: moderators**

This section discuss the results of the moderating impact of demographic variables and types of users' participation on the relationships between usage behaviour (BU) and public value (PV) within the model. The second objective of the study was to measure the public value of social media as perceived by citizens in local councils in Queensland Australia. This stage aimed to examine the difference between segments of respondents of citizens towards perceived public value of social media on the basis of their demographic characteristics: age; gender; educational level; and location for participants, and three types of user's participation: passive; active; and participator. As outlined in the findings in chapter 5, the researcher examined seven moderating variables using the multiple-group analysis (MGA) method. Each examination required splitting the sample into the desired group; differences between paths' parameters were scrutinised on the basis of t-statistics. What follows is a discussion of the results of these moderating hypotheses.

6.5.2.1 Gender

The demographic variable gender was investigated to examine the following hypotheses:

H1.a: The influence of usage behaviour toward public value is moderated by gender

H1.a: Usage Behaviour (UB) X Gender →Public Value (PV)

The gender variable was non-metric (categorical) in nature, so there was no need to refine the division of the groups within the sample (Hair et al. 2010). Out of the 313 respondents in the survey, there were 111 males and 202 females.

Section (5.4.6.1.1) presented the results obtained during the MGA of moderating variable gender. My research findings indicated that the model fitting for both group males and females confirmed that gender shows a moderating effect at path UB →PV between males and females. The findings of the study thus supported hypothesis (H1a). The research findings in Tables 5.29 and 5.30 confirmed that males were more positive toward the public value of social media use. Results revealed that the estimated values of the structural relations for the male group sample produced slightly different results from the female group sample. The highest significant path in the male group was between UB→PVWI, and the lowest significant path was between UB→PVTR. In the results of the model female group sample, the highest significant path was between UB→PVWI, and lowest significant path was between UB→PVC. The results revealed that there were significant differences in terms of eight paths (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PBWI, and PVPDM) between males compared to females. Only PVTR was significantly higher for females compared to males. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differ across males and females. In relation to gender, it is evident that gender plays an important moderating role in influencing usage behaviour on public value of social media.

While citizens' perceived level of public value varied from value to value by gender, well-informedness, communication, and ease of information retrieval were found to be a significant values for citizens of both group as well as interaction with their local government council. Thus, well-informedness, communication, and ease of information retrieval values were considered significant dominating values to provide other than the values shown in Table 6.2.

Table 6.2 The public values variation from value to value by gender

Gender	Males (111)	Females (202)
Perceived Public values	Personalisation Participation diction making Time Cost Convenience Trust	Trust Time Convenience Personalisation Participation diction making Cost

6.5.2.2 Age

The demographic variable age was investigated to examine the following hypotheses:

H1.b: The influence of usage behaviour toward public value is moderated by age

H1.b: Usage Behaviour (UB) X age →Public Value (PV)

The sample was separated into two groups: younger and older participants. There were 128 younger citizen respondents (ages between 18-40 years) who may have been more familiar with social media technologies than the other group. The older group has 185 older citizens respondents (ages 41 years up)

Section (5.4.6.1.2) presented the results obtained during the MGA of moderating variable age. My research findings confirmed, with the model fitting for both younger and older group, that age had a moderating effect at path UB →PV between the younger and older group. The findings of the study thus supported hypothesis (H1b). The research findings in Tables 5.32 and 5.33 confirmed that the older group was more positive toward the public value of social media use. Results revealed that estimated values of the structural relations for the older group sample produced slightly different results from the younger group sample. The highest significant path in the older group was between UB→PVWI, and lowest significant path was between UB→PVTR. In the model younger group sample of results, the highest significant path was between UB→PVEI and lowest significant path was between UB→PVC. The results revealed that there were significant differences in terms of nine paths (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) between older compared to younger. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differed across both younger and older groups. In relation to age, it was evident that age played an important moderating role in influencing usage behaviour in terms of the public value of social media.

While the citizens' perceived level of public value varied from value to value by age, well-informedness was found to be a significant value for citizens of younger group as well as interaction with their local government council. Ease of information retrieval was found to be a significant value for citizens of the older group as well as interaction with their local government council. Thus, it can be argued that well-informedness and

ease of information retrieval values could be considered a significant dominating value as part of providing other values, as shown in Table 6.3.

Table 6.3 The public value variations from value to value by age

Age	Younger (128)	Older (185)
Perceived Public values	PVCOM PVWI PVTR PVCONV PVP PVT PVPDM PVC	PVCOM PVEI PVPDM PVT PVP PVC PVCONV PVTR

6.5.2.3 Education level

The demographic variable education level was investigated to examine the following hypotheses:

H1.c: The influence of usage behaviour toward public value is moderated by education level

H1.c: Usage Behaviour (UB) X education level →Public Value (PV)

The three educational levels of participants were primary school (5 respondents), high school (101 respondents), diploma or certificate (120 respondents), and higher degree (87 respondents: 66 bachelors; 16 master degree; and 5 doctoral degree). In the multiple-groups analysis, the primary school group was not integrated into the analysis because the sample size was too small (5 respondents).

Section (5.4.6.1.3) presented the results obtained during the MGA of moderating variable education level. My research findings indicated that the model fitting for the three groups, high school, diploma, and university degree, confirmed that education level shows a moderating effect at path UB →PV among high school, diploma, and university degree of the participant groups. The findings of the study thus supported hypothesis (H1c). The research findings in Tables 5.35, 5.36, and 5.37 confirmed that high school and diploma group were more positive than the university degree group

towards the public value of social media use. Results revealed that different estimated values of the structural relations for the high school group sample produced slightly different results from the diploma and university degree group samples. The highest significant path within both groups (high school and diploma) was between UB→PVWI. By contrast, the lowest significant path in the high school group was between UB→PVC, and in the diploma group sample it was between UB→PVPOM. In the model university degree group sample results, the highest significant path was between UB→PVCOM and the lowest significant path was between UB→PVPOM. The results revealed that there were significant differences in terms of nine paths (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) between high school compared to diploma, and compared to university degree within the participants group. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differed across and amongst the three groups. It was evident then that education levels played important moderating roles in influencing usage behaviour, thus impacting on the public value of social media.

While citizens' perceived levels of public value varied from value to value as related to education level, well-informedness was also found to be a significant value for citizens of both the high school and diploma groups in relation to interaction with their local government councils. Furthermore, communication was found to be a significant value for citizens of the university degree group in terms of interaction with their local government councils. Thus, the well-informedness and communication values could be considered significant dominating values feeding into other values, as shown in Table 6.4.

Table 6.4 The public value variations from value to value by education level

Education level	High school (101)	Diploma (120)	University degree (87)
Perceived Public values	PVCOM PVPDM PVEI PVCONV PVTR PVP PVT PVC	PVEI PVCOM PVP PVT PVC PVCONV PVPDM PVTR	PVWI PVT PVTR PVP PVEI PVCONV PVC PVPDM

6.5.2.4 Local government councils

The demographic variable education level was investigated to examine the following hypotheses:

H1.d: The influence of usage behaviour toward public value is moderated by local government councils

H1.d: Usage Behaviour (UB) X local government councils →Public Value (PV)

Local government councils were divided into three areas: city, urban, and rural local councils. The participants of city local councils consisted of 189 respondents, participants of urban local councils of 102 respondents, and participants of rural local councils of 22 respondents). In the multiple-groups analysis, the rural local councils group was not integrated into the analysis because the sample size was too small (22 respondents). Caution is therefore required with generalising this finding to the overall population. It is recommended that the small sample size cannot ensure a stable maximum likelihood estimation (MLE) solution (Hair et al. 2006).

Section (5.4.6.1.4) presented the results obtained during the MGA of the moderating variable local government councils. My research findings indicated that the model fitting for both the participants of city local councils and the participants of urban local councils groups confirmed that the local government council showed a moderating effect at path UB →PV between the participants of the city local councils and participants of the urban local councils groups. The findings of the study thus supported hypothesis (H1d). The research findings in Tables 5.39 and 5.40 confirmed that participants of city local councils were more positive than participants of urban local councils towards the public value of social media use. Results revealed that estimated values of the structural relations for participants of the city local council group sample produced slightly different results than participants of the urban local council group sample. The highest significant path in both groups was between UB→PVWI. However, the lowest significant path for the participants of the city local council group was between UB→PVC, and for the participants of urban local council group sample it was between UB→PVPOM. The results revealed significant differences in terms of nine paths (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) between the participants of the city local council group compared to the participants of the urban local council group. Consequently, the direct

paths from usage behaviour towards public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differed across both groups. In relation to local government councils, it was evident that local government councils played important moderating roles in influencing usage behaviour towards the public value of social media.

While citizens' perceived levels of public value varied from value to value by local government councils, well-informedness was found to be a significant value for citizens of both groups (the participants of urban local councils and participants of city local councils) in terms of their interactions with their local government councils. Thus, well-informedness value could be considered a significant dominating value to feed into other values, as shown in

Table 6.5.

Table 6.5 The public value variations from value to value by local government councils

Local government councils	Participants of city local councils (189)	Participants of urban local councils (102)
Perceived Public values	PVCOM PVEI PVCONV PVT PVTR PVPDM PVP PVC	PVCOM PVP PVEI PVT PVC PVTR PVCONV PVPDM

6.5.2.5 Type of participation

Types of users' participation in this study were citizens who already had social media experience. The sample was separated into three groups of experience in using social media. The first group was a group of citizens who were assessed as passive group (114 respondents). The second group was a group of citizens who were assessed as an active group (109 respondents). The third was a group of citizens who were assessed as a participant group (90 respondents).

The types of users' participation variables, passive, active, and participator, were investigated to examine the following hypotheses:

H7: The influence of usage behaviour toward public value is moderated by type of user's participation.

H7.a: Usage Behaviour (UB) X passive →Public Value (PV)

H7.b: Usage Behaviour (UB) X active →Public Value (PV)

H7.c: Usage Behaviour (UB) X participator →Public Value (PV)

Section (5.4.6.2) presented the results obtained during the MGA of moderating variable type of users' participation. Our research findings indicated that the model fitting for three groups (passive, active, and participator) confirmed that the type of user's participation showed a moderating effect at path UB →PV among the three

groups of participants. The findings of the study thus supported hypothesis (H7a.b.c). The research findings in tables 5.42, 5.43, and 5.44 confirmed that participator and active groups were more positive than the passive group towards the public value of social media use. Results revealed that different estimated values of the structural relations for participator groups in the sample produced slightly different results between the passive and active group samples. The highest significant path within both (participator and active groups) was between UB→PVWI. However, the lowest significant path in the participator group was between UB→PVC, and in the active group sample it was between UB→PVT. In the model passive group sample of results, the highest significant path was between UB→PVCOM and lowest significant path was between UB→PVP. The results revealed that there were significant differences in terms of nine paths (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) among the three groups. Consequently, the direct paths from usage behaviour toward public value (PVC, PVT, PVCOM, PVCONV, PVEI, PVP, PVTR, PBWI, and PVPDM) differed across and amongst the three groups. In relation to type of users' participation, it was evident that type of users' participation played an important moderating role in influencing usage behaviour towards the public value of social media. These findings were consistent with previous literature, including recent findings by Scott et al. (2016) and Teo et al. (1997).

While citizens' perceived levels of public value varied from value to value by type of users' participation, well-informedness was also found to be a significant value for citizens of both (participator and active) groups and their interaction with their local government councils. Communication was found to be a significant value for citizens of the passive group in relation to interaction with their local government councils. Thus, well-informedness and trust values could be considered significant dominating values feeding into other values, as shown in

Table 6.6.

Table 6.6 The public value variations from value to value by types of users' participation

Types of users' participation	Passive (114)	Active (109)	Participator (90)
Perceived public values	PVTR PVEI PVT PVCONV PVPDM PVWI PVC PVP	PVCOM PVTR PVP PVCONV PVEI PVPDM PVC PVT	PVT PVEI PVCOM PVTR PVPDM PVP PVCONV PVC

Table 6.7 Summary of the Moderating Influence of the demographic variables and types of users' participation on (BU) toward (PV)

*MH No	Exogenous Latent Construct	Endogenous Latent Construct	Moderator	Hypothesis' result	Explanation
H1.a	Usage Behaviour	Public Value	Gender	Accepted	Gender significantly moderated the influence
H1.b	Usage Behaviour	Public Value	Age	Accepted	Age significantly moderated the influence
H1.c	Usage Behaviour	Public Value	Education level	Accepted	Education level significantly moderated the influence
H1.d	Usage Behaviour	Public Value	Local government councils	Accepted	Local government councils significantly

					moderated the influence
H7.a	Usage Behaviour	Public Value	Passive	Accepted	Passive significantly moderated the influence
H7.b	Usage Behaviour	Public Value	Active	Accepted	Active significantly moderated the influence
H7.c	Usage Behaviour	Public Value	Participator	Accepted	Participator significantly moderated the influence

*Moderating Hypotheses

6.6 Summary of the chapter.

This chapter has discussed the results of this study. The results were discussed in four sections. The first section presented an overview of this research. The second section discussed the preliminary research findings for the local council's website analysis. The third section discussed the results of measurement models. The study adopted Structural Equation Modelling, and testing the measurement model was the first stage in this process. The results confirmed that the constructs selected in the study model were valid and reliable in measuring the proposed model for this study. The fourth section was related to the SEM, which examined the structural model and tested the hypotheses. The results of testing each hypothesis were discussed and compared with the related literature.

CHAPTER 7: CONCLUSION, LIMITATION, AND FUTURE RESEARCH

7.1 Introduction

Social media technologies are relatively recent applications in local government councils. There are many issues confronting individual users and local government councils in relation to these initiatives. This research aimed to address issues and problems regarding social media practice in local government. One of the most relevant issues was measuring the public value of social media; there was little recognition and understanding about the public value of social media and their potential to improve local councils' interactions with citizens. Previous studies that investigated social media have ignored the issue of evaluation of the public value whereby social media tools are employed in local government councils' service delivery and interactions with citizens.

This study was therefore conducted to fill the current research gap. The previous chapters were allocated to introducing the study background and problems in (chapter 1), reviewing the literature (chapter 2), establishing the framework proposed for this study (chapter 3), the research methodology adopted for the study in (chapter 4), data analysis, providing details of the empirical study (chapter 5), and discussion of the results (chapter 6). Chapter seven presents the conclusions of the study and provides a detailed summary of the previous six chapters.

7.2 Research objectives

The objectives of this research were to investigate and to establish a model to investigate the factors affecting the public value of social media in local councils. The research utilised a combination of the Technology Acceptance Model (TAM2) (Venkatesh & Davis 2000), Public Value theory (Moore 1995), and the Public Value Net Benefits Model (Scott et al. 2016) for the theoretical validation of the proposed model. The research intended to answer two main research questions: what is the public value that citizens believe they derive from using social media technology in local councils in Queensland Australia; and what are the factors affecting the perceived public value of social media in local councils in Queensland Australia?. This research study outlined two objectives in section 1.5, including (a) to investigate the factors affecting the public value of social media in local councils in Queensland Australia,

and (b) to measure the public value of social media as perceived by citizens in local councils in Queensland Australia. This study has achieved these objectives based on several stages of work.

The first stage involved the preliminary research for local councils' website analysis, and informal interviews with officers were conducted to provide a clear vision of the use of social media by Queensland local councils and to select the appropriate councils. It was found that Queensland's local councils use social media to interact with their citizens but they do not have a direct aim in terms of its public value in particular. However, Queensland local councils focused on some public values. These values included ability to engage citizens, listening to public opinion, timeliness, friendliness, accountability, cost, ability to communicate quickly, user democracy, and effectiveness.

The second stage involved an extensive literature review around the public value of social media. Based on that, the research model was developed to explain public value through social media use. The research model comprised seven constructs that were selected to assess the public value of SM: demographic factors, perceived usefulness, perceived ease of use, intention to use, usage behaviour, types of user participation and types of public value. As mentioned previously, the selection of these constructs was based on the literature on information systems, as shown in chapter two and chapter three (Section 3.2).

The third stage included the model constructs and established the relationships between them. Establishing the relationships among these constructs in the proposed model was achieved by formulating the hypotheses between these constructs. Seven main hypotheses were proposed to represent the relationships among the constructs of the model. Each hypothesis was supported by the literature and by previous empirical research that had examined the suggested relationships, as discussed in chapter three (Sections 3.3, 3.4).

Stage four involved the online survey questionnaire that was conducted with citizens and processed by a third party organisation (My Opinions Pty Ltd). The measurement model was tested using SEM. Confirmatory factor analysis was employed to examine the measurement model of the sample to identify the reliability and validity of each construct in the study model. The measurement model was supported by the indicators

and validity, in the form of Cronbach's alpha, construct reliability, average variance extracted (AVE), squared multiple correlation of reliability, convergent validity construct validity and discriminant validity. The results of the measurement model confirmed that the items, constructs, and the study model were valid and reliable.

Stage five focused on the whole model, and the indicators of model fit were used to assess the validity of the model. The results of testing the measurement and structural model showed that the indicators of fit model met the cut-off level of these indicators and confirmed the validity of the model, as shown in chapter five (Section 5.4.3- 5.4.5).

Stage six involved testing the structural model for the proposed model. The study hypotheses among the constructs of the study model were tested using SEM. Five main hypotheses were formulated to examine direct relationships. Two main hypotheses were formulated to examine moderation relationships by using MGA.

Based on the statistical analysis of the data obtained by this research, there were five hypotheses that show positive and significant impact to examine direct effect relationships:

1) Perceived usefulness of SMTs has a significant influence on intention to use SMT.

2) Perceived ease of use of SMTs has a significant influence on intention to use SMT.

3) Perceived ease of use of SMTs has a significant influence on perceived usefulness of SMT.

4) Intention to use SMTs has a significant direct effect on Usage Behaviour.

5) Usage behaviour around SMTs has a significant direct impact on perceived public value of SMT.

Based on the statistical analysis of the data obtained by this research, there were two main moderation hypotheses that show significant differences in examining moderation relationships:

a) Differences in demographic factors such as age, gender, education, and rural/urban location have a moderating influence on the relationships between usage behaviour (BU) and public value (PV) of SMTs.

b) Type of user participation (passive, active, and participator) has a moderating influence on the relationships between usage behaviour (BU) and public value (PV) of SMTs.

Based on the results of the empirical study for the six stages above:

1- The first objective was to investigate the factors affecting the public value of social media in local councils in Queensland Australia and to place them in a holistic model. This objective was achieved based on the theoretical framework from the information systems, social media, and public value fields, and it was supported by the empirical test undertaken based on the data collected from the sample of the study. The measurement model and structural model were tested using SEM –AMOS for the constructs and proposed model. The results of testing the measurement and structural model showed that the model fit met the cut-off level of indicators and confirmed the validity and reliability of the model, as shown in chapter five (Section 5.4.3-5.4.5).

2- The second objective was formulated after the values were proposed from the literature through the initial theoretical framework in Chapter 3. The citizens' perception of 27 public values proposed in the framework fell under the areas of efficiency, effectiveness, and social value. These were examined using SEM in the quantitative phase of this study in chapter 5, within the context of social media use by Queensland's local councils. This resulted in confirming all 27 public values that could be used to evaluate the public value of social media for local government councils, as discussed in section 6.3.2. A quantitative examination revealed that well-informedness, communication, easy of information, time, participation diction making, and convenience were the public values most perceived and valued by citizens. The findings also showed that cost, trust, and personalisation were the public values least perceived.

7.3 Main findings of the study

This research project has found that most Queensland local councils' use of social media initiatives relate to interaction with their citizens, while some of Queensland's local councils do not have a clear aim in using SMTs. The way of using social media by Queensland local councils provided unintentional public value for citizens who used these initiatives.

The study also found that citizens were the main contributors to public value related to social media technologies. Social media technologies were considered the main contributors to public value for citizens in local government councils. These technologies provided citizens with public values such as well-informedness, communication, easy of information, time, participation diction making, convenience, cost, trust, and personalisation. These public values provided by SMTs increased interactions and involvement between both citizens and government.

7.4 Research contributions

The findings of this research contribute to the fields of information system (IS), open government, and public administration research from both theoretical and practical perspectives. This section is therefore divided into two parts: the first part reflects theoretical contributions, mainly related to factors from TAM, the public value, and social media. The next part highlights the practical contributions of this study in the public sector, mainly in relation to local government councils.

7.4.1 Theoretical contributions

First, the theoretical contribution of this study relates to the area of IS, and is characterised by an investigation of the modified to reflect factors of TAM for social media users on public value. The framework was developed using the factors of TAM by Bailey et al. (2018), Casaló et al. (2010), Hossain and de Silva (2009), Hsu and Lin (2008), Kwon and Wen (2010), Rauniar et al. (2014), and Wirtz and Göttel (2016b). Public value was considered as determined by Moore (1995), Kelly et al. (2002), Scott et al. (2016), and Jorgensen and Bozeman (2007). After developing this framework, this study validated the use of factors of TAM to evaluate the contribution of SMT use towards public value.

Second, this study contributes to the information systems literature by examining the public value of social media use in local government councils. The information systems literature provides a considerable number of frameworks that have been established to help the public sector evaluate its efforts in implementing e-government initiatives using the public value approach (Kearns 2004; Golubeva 2007; Grimsley & Meehan 2007; Karunasena & Deng 2011b; Omar et al. 2011; Scott et al. 2016) Although, a few frameworks are available for measuring public value through social media networks in the public sector, previous frameworks did not incorporate the

factors of TAM for social media users in relation to public value, and previous frameworks also may not have reflected on social media in terms of how citizens can contribute significantly towards public value in their local governments.

Third, the framework for this study addresses the flaws of previous frameworks in the form of evaluating the public value of social media whereby social media tools are employed in government service delivery activity and government-citizen interaction. To the best of my knowledge, this study is the first to integrate the factors of TAM with a public value approach to assess public value through the use of social media. The study has identified perceptions of Queensland citizens in terms of public values that can be used as indicators for evaluating citizens' perceptions of public value through using their local councils' social media initiatives. The framework can also be useful for evaluating the public value of social media across all local governments in Australia that have employed the same initiatives.

7.4.2 **Practical contributions**

The findings of this research make a practical contribution to local government councils and citizens by providing a framework to examine public value through social media use. This study also provides feedback for local councils in relation to social media use to interact with their citizens. The important practical contributions identified from this study are:

First, the results of the preliminary research provide a clear vision about policies related to social media use by Queensland's local councils. The preliminary research shows local council areas that have applied SM initiatives, have the most experience in SMTs for interactions with their citizens, and which also have a large number of SMT users. The results also found Facebook was the most widely adopted SMT by councils. Thus, it is recommended to invest more in council staff involvement on Facebook without ignoring the importance of other platforms.

Second, the results of the survey research have produced significant contributions and understanding around the research topic. The evaluation of the public value of social media may assist Queensland local government councils and citizens in many ways:

1- This evaluation will empower Queensland local councils to understand what they have achieved with their use of social media technologies.

2- The results of the research have identified that Queensland citizens perceive each of the public values they have obtained by using social media technologies.

3- The study's findings provide local government councils with a clear picture on what their citizens think about the interactions with the local council's social media. Understanding how citizens think about social media will help local councils steer interactions more effectively towards public value for their citizens.

4- Social media use by local government is expected to be the advanced phase of the e-government in their future activities.

5- This research could be a support for Queensland's local governments to justify their investments in social media. The investments in social media also help local councils' improvements of the public services effectively and efficiently, particularly with their citizens.

7.5 Limitations and future research

Despite the important contributions of this study to the IS and open government research, this study has several limitations:

First, this research was limited in that the sample of the study consisted of 20 Queensland local councils. There is a requirement for further empirical investigations in different local councils and states across Australia. This research was limited to a number of citizens who live in those 20 Queensland local councils. There may be differences in many areas such as the capacity of the local government councils, staff capability, infrastructure, and the effectiveness of the local councils to interact with the public. Based on that, future research on increasing the number of participants (citizens and staff members) from different local councils may provide a better representation, especially in rural areas. Also, future studies are required to examine the role of the public value of social media in different environments and states.

Second, this study considered preliminary research and survey questionnaire techniques of data collection to achieve the research objectives, due to the limited time of the research. It is possible to use other techniques such as interviews, focus groups for understanding and evaluating SMT issues such as new technologies in public sector. Based on that, future research on the public value of social media can be

conducted with quantitative and qualitative methods, which can focus on other levels of government and different industries.

Third, in multiple-groups analysis, the sample of the rural local councils group is not integrated into the analysis because the sample size was too small (22 respondents). Caution is thus required in generalising these findings to the overall population. It is recognised that a small sample size cannot ensure a stable maximum likelihood estimation (MLE) solution (Hair et al. 2006). Future study is required to examine a better representation of the public value of social media of citizens in rural areas.

Fourth, this research was limited to investigating of the factors of TAM impact public value through the use of social media. The model used in this research is the first study that integrates the factors of TAM with a public value approach to assess public value through the use of social media. Further research is required to investigate other factors that may affect public value through the use of social media. Moreover, the need for retesting and revalidating the framework is required for future research.

Fifth, this research has utilised this conceptual framework to construct a public value measure centred on the perspective of the citizen. This study has focused on the public value of e-Government services, based on the model proposed by Scott et al. (2016). It is worthwhile considering that public values are diverse from one society to another, or even between countries (Jorgensen & Bozeman 2007). The public values used in this study framework may not be useful to evaluate other stakeholders' perspectives in local councils. Future research is required to investigate other public values that were not adopted in the current study.

Finally, the public values of citizens who do not use social media in their day-to-day life is another limitation of the study. The sample for the survey represents only the citizens who have used social media with their local councils. Future research is needed to give adequate opportunities to different stakeholders and citizens to express their values as related to social media.

These limitations can be avoided by researchers in the future by adding further contributions to the body of knowledge related to IS, social media, and local government.

7.6 Concluding remarks.

This thesis has investigated a contemporary issue in the form of the public value of social media in Queensland's local government councils. The main objectives of this study were to investigate the factors affecting the public value of social media in local councils, and to measure the perceived public value of social media from the perspective of citizens in local councils. This research has used a combination of TAM framework, PV theory, and the public value of the model proposed by Scott et al. (2016) which was based on the literature related to IS. The research has built up a conceptual research model for providing answers to its objectives. A research model was developed and empirically examined with 313 citizens of 20 Queensland local government councils. The proposed model was assessed, based on SEM analysis. The results confirmed that the model was valid and reliable to measure the public value of social media in local councils.

This research has contributed to both theoretical and practical fields. The theoretical contribution has provided a clear picture of the factors affecting the public value of social media, and public value of social media from the perspective of citizens in local councils. Also, the role of the demographic variables and types of users' participation as moderator factors were investigated and confirmed in relation to the public value of social media.

Practical contributions of the implementation and use of social media initiatives by the local government councils highly contributes to interaction with citizens. These interactions on these platforms result in empowering Queensland local councils to understand what they have achieved from their use of social media, and help to justify their investments in social media to improve the public services effectively and efficiently, particularly with their citizens.

The results obtained from this research can be used as a foundation for future research in the area of the public value of social media. This thesis responds to demanding and contemporary challenges of understanding how digital transformation initiatives can contribute to the public sector in Australia and globally.

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APPENDICES

Appendix A: Ethics approval letter of USQ

OFFICE OF RESEARCH
Human Research Ethics Committee
PHONE +61 7 4687 5703| FAX +61 7 4631 5555
EMAIL human.ethics@usq.edu.au

UNIVERSITY OF SOUTHERN QUEENSLAND AUSTRALIA

28 February 2017

Mr Ahmed Attiya

Dear Ahmed

The USQ Human Research Ethics Committee has recently reviewed your responses to the conditions placed upon the ethical approval for the project outlined below. Your proposal is now deemed to meet the requirements of the *National Statement on Ethical Conduct in Human Research (2007)* and full ethical approval has been granted.

Approval No.	**H17REA032**
Project Title	Factors affecting the perceived public value of social media in Queensland local councils
Approval date	28 February 2017
Expiry date	28 February 2020
HREC Decision	**Approved**

The standard conditions of this approval are:

(a) Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
(b) Advise (email: human.ethics@usq.edu.au) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
(c) Make submission for approval of amendments to the approved project before implementing such changes
(d) Provide a 'progress report' for every year of approval
(e) Provide a 'final report' when the project is complete
(f) Advise in writing if the project has been discontinued, using a 'final report'

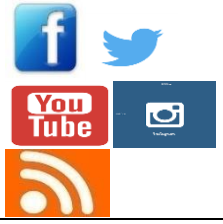
For (c) to (f) forms are available on the USQ ethics website:
http://www.usq.edu.au/research/support-development/research-services/research-integrity-ethics/human/forms

University of Southern Queensland usq.edu.au

Samantha Davis
Ethics Officer

Appendix B: Analysis of websites of 78 councils in Queensland by the researcher (March-May 2016)

No	Council	Category	Social Media Tools
1	Aurukun Shire Council	Urban Regional Small	
2	Balonne Shire Council	Rural Agricultural Medium	
3	Banana Shire Council	Rural Agricultural Very Large	
4	Barcaldine Regional Council	Rural Remote Medium	
5	Barcoo Shire Council	Rural Remote Small	_
6	Blackall-Tambo Regional Council	Rural Remote Medium	_
7	Boulia Shire Council	Rural Remote Small	
8	Brisbane City Council	Urban Capital City	
9	Bulloo Shire Council	Rural Remote Small	
10	Bundaberg Regional Council	Urban Regional Medium	
11	Burdekin Shire Council	Rural Agricultural Very Large	
12	Burke Shire Council	Rural Remote Small	_
13	Cairns Regional Council	Urban Regional Very Large	
14	Carpentaria Shire Council	Rural Remote Medium	

15	Cassowary Coast Regional Council	Rural Agricultural Large	
16	Central Highlands Regional Council	Rural Agricultural Large	
17	Charters Towers Regional Council	Urban Regional Small	
18	Cherbourg Aboriginal Shire Council	Urban Regional Small	
19	Cloncurry Shire Council	Rural Remote Large	
20	Cook Shire Council	Rural Remote Large	
21	Croydon Shire Council	Rural Remote Extra Small	
22	Diamantina Shire Council	Rural Remote Extra Small	
23	Doomadgee Aboriginal Shire Council	Urban Regional Small	_
24	Douglas Shire Council	RSG	
25	Etheridge Shire Council	Rural Remote Medium	_
26	Flinders Shire Council	Rural Remote Medium	
27	Fraser Coast Regional Council	Urban Regional Large	
28	Gladstone Regional Council	Urban Regional Small	
29	Gold Coast City Council	Urban Regional Very Large	

30	Goondiwindi Regional Council	Urban Regional Small	
31	Gympie Regional Council	Urban Regional Medium	
32	Hinchinbrook Shire Council	Rural Agricultural Very Large	
33	Hope Vale Aboriginal Shire Council	Urban Regional Small	
34	Ipswich City Council	Urban Fringe Very Large	
35	Isaac Regional Council	Urban Regional Small	
36	Kowanyama Aboriginal Shire Council	Urban Regional Small	_
37	Livingstone Shire Council	Urban Fringe Small	
38	Lockhart River Aboriginal Shire Council	Urban Regional Small	_
39	Lockyer Valley Regional Council	Urban Regional Medium	
40	Logan City Council	Urban Development Very Large	
41	Longreach Regional Council	Rural Remote Large	
42	Mackay Regional Council	Urban Regional Large	
43	Mapoon Aboriginal Shire Council	Urban Regional Small	
44	Maranoa Regional Council	Rural Remote Large	

45	Mareeba Shire Council	Rural Agricultural Very Large	
46	McKinlay Shire Council	Rural Remote Medium	
47	Moreton Bay Regional Council	Urban Development Very Large	
48	Mornington Shire Council	Urban Regional Small	
49	Mount Isa City Council	Urban Regional Small	
50	Murweh Shire Council	Rural Remote Large	
51	Napranum Aboriginal Shire Council	Urban Regional Small	-
52	Noosa Shire Council	Urban Fringe Medium	
53	North Burnett Regional Council	Rural Remote Large	
54	Northern Peninsula Area Regional Council	Rural Remote Medium	-
55	Palm Island Aboriginal Shire Council	Urban Regional Small	
56	Paroo Shire Council	Rural Remote Medium	-
57	Pormpuraaw Aboriginal Shire Council	Urban Regional Small	
58	Quilpie Shire Council	Rural Remote Medium	
59	Redland City Council	Urban Fringe Large	
60	Richmond Shire Council	Rural Remote Medium	

61	Rockhampton Regional Council	Urban Regional Medium	
62	Scenic Rim Regional Council	Urban Development Medium	
63	Somerset Regional Council	Rural Remote Large	
64	South Burnett Regional Council	Urban Regional Medium	
65	Southern Downs Regional Council	Urban Development Small	
66	Sunshine Coast Regional Council	Urban Development Very Large	
67	Tablelands Regional Council	Urban Regional Medium	
68	Toowoomba Regional Council	Urban Regional Large	
69	Torres Shire Council	Urban Regional Small	
70	Torres Strait Island Regional Council	Rural Agricultural Large	
71	Townsville City Council	Urban Regional Large	
72	Weipa Town Council	Rural Remote Small	
73	Western Downs Regional Council	Urban Regional Small	
74	Whitsunday Regional Council	Rural Significant Growth	

75	Winton Shire Council	Rural Remote Medium	
76	Woorabinda Aboriginal Shire Council	Urban Regional Small	-
77	Wujal Aboriginal Shire Council	Urban Regional Small	
78	Yarrabah Aboriginal Shire Council	Urban Regional Small	-

Appendix C: Outline of the research questionnaire before pre-test

Part 1 Demographic information
1- What is your gender? Male Female 2- Which of these age groups are you in? 18-30 31-40 41-50 51- 60 60yrs and over 3- What is your educational level? Undergraduate Postgraduate Other please specify_____ 4- What is your postcode? Please put your postcode area in the brackets ( ) 5- Do you use any of the following social media? Please tick all that apply Face book Twitter YouTube LinkedIn Pinterest Instagram RSS feed Video conference Other social media technology ……..

Part 2	Questions 6-to-10 are related to measuring user types: please rate the extent to which you agree with each statement (mark [ ] only one option) 1= Very inexperienced, 2= Inexperienced, 3= Neutral, 4=Experienced, 5 =Very experienced.					
Items		1	2	3	4	5
6- Have you ever browsed council's social media for information? 7- Have you ever downloaded documents, for example, forms, pictures, videos from council via social media? 8- Have you ever transacted with local council via social media?						

9- Have you ever posted opinions to the council via social media? 10- Have you ever interacted with local councils via social media? submitting comments						

Part 3	Questions 11-to-23 are related with Perceived Usefulness, Perceived Ease of Use and Intention to use: please rate the extent to which you agree with each statement (mark [ ] only one option) 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree 6=Not Applicable.						
Category	Items	1	2	3	4	5	6
Perceived usefulness (PU)	11- Using the social media with local government council enables me to acquire more information. 12-Using the social media with local government council would improve my efficiency in sharing information and connecting with others. 13- Using the social media makes my activities with local government council easier to me. 14- The social media is a useful service for interaction with local government council.						
Perceived ease of use (PEOU)	15- Learning to use the social media technology is easy for me. 16- The process of using the social media technology is clear and understandable 17- I find the social media technology easy to use with local government council. 18- I find the social media to be flexible to interact with local government council.						
Intention to use (IU)	19- I have access to the local government council's social media, I intend to use it. 20- My intention is to continue using the social media means to interaction with the local government council.						
Usage Behaviour (UB)	21- I tend to use the local government council's social media frequently. 22- I spend a lot of time on the local government council's social media.						

	23- I exerted myself to use the local government council's social media.						

Part 4	Questions 24-to-51 are related to the public value: please rate the extent to which you agree with each statement (mark [ ] only one option) 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree 6=Not Applicable.						
Clusters	Dimensions and items	1	2	3	4	5	6
Efficiency	Cost 24. Using social media with council saves me money. 25. Using social media with council reduces the cost of providing the service. 26. I value the cost savings from using social media with the council. Time 27. Using the social media with council saves me time. 28. Social media provides a quicker response to a question or request than other means (e.g. offline interaction). 29. I can accomplish things more quickly because of using social media with the council. Convenience 30. It is important that I can use social media with council around the clock. 31. It is important that I can access this social media from a number of different locations (e.g. home, work, library, post office). 32. Social media allows me to interact at any time.						
Effectiveness	Personalisation 33. I am able to personalise the services offered by council's social media.						

	34. I value the personalised services offered by council's social media. 35. I value the personalised aspects of council's social media. Communication 36. Using social media is an efficient way of communicating with local government council. 37. Using social media is a valuable way of communicating with local government council. 38. Using social media is an effective way of communicating with local government council. Ease of information retrieval 39. Council's social media contains a lot of useful information about government services. 40. Council's social media helps me to understand more about government services. 41. Council's social media answers any queries I might have about government services.						
Social value	Trust 42. I feel that this social media acts in citizens' best interests. 43. I feel comfortable interacting with council's social media since it generally fulfils its duties efficiently. 44. I always feel confident that I can rely on council's social media to do its part when I interact with it. 45. I am comfortable relying on social media to meet its obligation. Well-informedness 46. Council's social media increases my understanding of issues. 47. Council's social media enables me to build up knowledge about issues that are important to me.						

	48. Because of using council's social media, I am better informed in general. Participate in decision-making 49. Council's social media allows me to have my say about things that matter to me. 50. Council's social media enhances my feeling of being part of an active democracy. 51. Council's social media makes me feel that decision-makers listen to me. 52. Council's social media makes me feel that I am being consulted about important issues.						

Appendix D: The final version of the survey questionnaire

Survey on social media in Queensland local Councils.

Dear Sir/Madam

I would like to invite you to participate in this survey, which will make an important contribution to research on "Factors affecting the perceived public value of social media in Queensland local Councils", which I am undertaking for my PhD.

This survey has ethics approval USQ (H17REA032), but if you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Manager of Research Integrity and Ethics on +61 7 4631 2214 or email research integrity@usq.edu.au. The Manager of Research Integrity and Ethics is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

The data collected will be used primarily for my thesis, and in generating publications for journal or conferences in relevant fields. In addition, data will also be shared in a collaborative research project if any opportunity arises.

There will be a time imposition in that completing the survey is expected to take around 15 minutes. Participation is entirely voluntary, there are no consequences for non-participation, no personally-identifying data will be captured, data will be anonymised, you can withdraw at any time and if so then data captured up to that point will be securely deleted and there are no consequences for withdrawing from the research. Please be assured that your responses will be treated as strictly confidential and you will not be individually identified.

If you have any queries at all please do not hesitate to contact me.

Thank you for taking the time to respond.

Student: Ahmed Attiya
Phone No. 07 4631 5598
Email: U1051198@umail.usq.edu.au

Supervisor: Professor Jeffrey Soar
Phone No. 07 4631 1255
Email: Jeffrey.Soar@usq.edu.au

1. Demographic information

1.1 What is your gender? SR
1. Male
2. Female

1.2 Which of these age groups are you in? SR
1. 18-30
2. 31-40
3. 41-50
4. 51- 60
5. 61 and over

1.3 What is your postcode? .....
1.4 What is your highest educational level? SR
1. Primary school or lower
2. High school
3. Diploma
4. Bachelors
5. Masters
6. Doctorate

1.5 Do you use any of the following social media? 'Please select all that apply' (you can choose multiple response)
1. Facebook
2. Twitter
3. YouTube
4. LinkedIn
5. Pinterest
6. Instagram
7. RSS feed
8. Video conference
9. Other social media technology please add.....

1.6 As the focus of the study is social media, please exit this survey if you do not use any social media. SR
1. Exit - Terminate
2. Continue

2. Measuring user types
Please rate your experience of using local council social media for the following activities. For each please choose the best answer (only a single response) following the answer keys shown below:

Answer Code:

Very inexperienced	Inexperienced	Neutral	Experienced	Very experienced
1	2	3	4	5

2.1 Browsing local council's social media for information. SR
1. Very inexperienced
2. Inexperienced
3. Neutral
4. Experienced
5. Very experienced

2.2 Downloading documents, for example, forms, pictures, videos from local council via social media. SR
1. Very inexperienced
2. Inexperienced
3. Neutral
4. Experienced
5. Very experienced

2.3 Transacting with local council via social media, for example, for a service or to pay a bill. SR

1. Very inexperienced
2. Inexperienced
3. Neutral
4. Experienced
5. Very experienced

2.4 Posting opinions to the local council via social media. SR
1. Very inexperienced
2. Inexperienced
3. Neutral
4. Experienced
5. Very experienced

2.5 Interacting with local councils via social media, for example, submitting comments. SR
1. Very inexperienced
2. Inexperienced
3. Neutral
4. Experienced
5. Very experienced

3. Perceived Usefulness
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

* Not applicable means you have not used social media for this purpose.

3.1 Using social media with local council enables me to acquire more information. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

3.2 Using social media with local council would improve my efficiency in sharing information and connecting with others. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

3.3 I find social media to be a useful service for interaction with local council.SR
1. Strongly Disagree

2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

4. Perceived Ease of Use

Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:

Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

* Not applicable means you have not used social media for this purpose.

4.1 Learning to use social media technology is easy for me. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

4.2 The process of using social media technology is clear and understandable. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

4.3 I find social media to be flexible to interact with local council. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

5. Intention to use

Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:

Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don’t use council’s social media.

5.1 Assuming I have access to local council's social media, I intend to use it. SR
1. Strongly Disagree

2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

5.2 I intend to use local council's social media to communicate with them. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

5.3 My intention is to continue using my local council's social media to interact with them. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

6. Usage Behaviour
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

6.1 I tend to use the local council's social media frequently. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

6.2 I spend a lot of time on the local council's social media. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

6.3 I exerted myself to use the local council's social media.SR
1. Strongly Disagree

2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

7. The public value of social media- Cost.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

7.1 Using social media with the local council saves me money. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

7.2 Using social media with the local council reduces the cost of accessing the service. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

7.3 I value the cost savings from using social media with the local council. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

8. The public value of social media- Time.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

8.1 Using social media with the local council saves me time. SR

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

8.2 Social media provides a quicker response to a question or request than other means (e.g. offline interaction). SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

8.3 I can accomplish things more quickly because of using social media with the local council. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

9. The public value of social media- Communication.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

9.1 Using social media is an efficient way of communicating with the local council. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

9.2 Using social media is a valuable way of communicating with the local council. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

6. Not Applicable

9.3 Using social media is an effective way of communicating with the local council. SR

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

10. The public value of social media- Convenience.

Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:

Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

10.1 It is important that I can use social media with the local council around the clock. SR

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

10.2 It is important that I can access this social media from a number of different locations (e.g. home, work, library, smartphone, post office). SR

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

10.3 Social media allows me to interact with the local council at any time. SR

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

11. The public value of social media- Ease of information retrieval.

Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:

Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

11.1 Local council's social media contains a lot of useful information about their services. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

11.2 Local council's social media helps me to understand more about government services. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

11.3 Local council's social media answers any queries I might have about government services. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

12. The public value of social media- Personalisation.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

121 I am able to personalise the services offered by the local council's social media. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

12.2 I value the personalised services offered by the local council's social media. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

12.3 I value the personalised aspects of local council's social media. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

13. The public value of social media- Trust.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

13.1 I feel that my local council's social media acts in the citizens' best interests. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

13.2 I feel comfortable interacting with my local council's social media since it generally fulfils its duties efficiently. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

13.3 I always feel confident that I can rely on my local council's social media to do its part when I interact with it. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

14. The public value of social media- Well-Informedness.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

14.1 My local council's social media increases my understanding of issues. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

14.2 My local council's social media enables me to build up knowledge about issues that are important to me. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

14.3 Because of using my local council's social media, I am better informed in general. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

15. The public value of social media- Participate in decision-making.
Please rate the extent to which you agree with each statement. For each please choose the best answer (only a single response) following the answer keys shown below:
Answer Code:

Strongly Disagree	Disagree	Neutral	Agree	Strongly agree	*Not Applicable
1	2	3	4	5	6

*Not Applicable means you don't use council's social media.

15.1 My local council's social media allows me to have my say about things that matter to me. SR
1. Strongly Disagree
2. Disagree
3. Neutral

4. Agree
5. Strongly agree
6. Not Applicable

15.2 My local council's social media enhances my feeling of being part of an active democracy. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

15.3 My local council's social media makes me feel that I am being consulted about important issues. SR
1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
6. Not Applicable

That completes the survey, thank you for taking the time to respond.

Appendix E: AMOS/ CFA actual outputs for the one factor

Table E1: CFA actual outputs for the MUT measures

Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments	15
Number of distinct parameters to be estimated	13
Degrees of freedom (15 - 13)	2

Result (Default model)
Minimum was achieved
Chi-square = .832
Degrees of freedom = 2
Probability level = .660

Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
MUT_5	<---	MUT	1.000			
MUT_4	<---	MUT	.985	.049	19.904	***
MUT_3	<---	MUT	.701	.060	11.609	***
MUT_1	<---	MUT	.677	.053	12.664	***
MUT_2	<---	MUT	.743	.060	12.333	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
MUT_5	<---	MUT	.915
MUT_4	<---	MUT	.898
MUT_3	<---	MUT	.600
MUT_1	<---	MUT	.640
MUT_2	<---	MUT	.628

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
e2	<-->	e1	.293	.053	5.561	***
e3	<-->	e2	.215	.058	3.731	***
e3	<-->	e1	.164	.051	3.233	.001

Correlations: (Group number 1 - Default model)

			Estimate
e2	<-->	e1	.367
e3	<-->	e2	.235
e3	<-->	e1	.203

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
MUT	1.067	.108	9.908	***
e5	.208	.042	4.999	***
e4	.250	.042	5.942	***
e3	.930	.079	11.751	***
e2	.904	.078	11.641	***
e1	.705	.061	11.587	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
MUT_1	.410
MUT_2	.394
MUT_3	.360
MUT_4	.806
MUT_5	.837

Table E2: CFA actual outputs for the PV measures

Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments	378
Number of distinct parameters to be estimated	90
Degrees of freedom (378 - 90)	288

Result (Default model)
Minimum was achieved
Chi-square = 665.976
Degrees of freedom = 288
Probability level = .000

Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
PVC_1	<---	PVC	1.000			
PVC_2	<---	PVC	1.046	.054	19.416	***
PVC_3	<---	PVC	.905	.054	16.634	***
PVT_1	<---	PVT	1.000			
PVT_2	<---	PVT	1.040	.062	16.873	***
PVT_3	<---	PVT	1.151	.061	18.828	***
PVCom_1	<---	PVCOM	1.000			
PVCom_2	<---	PVCOM	.975	.039	25.125	***
PVCom_3	<---	PVCOM	1.037	.038	27.647	***
PVConv_1	<---	PVCONV	1.000			
PVConv_2	<---	PVCONV	.967	.074	13.076	***
PVEI_1	<---	PVEI	1.000			
PVEI_2	<---	PVEI	1.175	.064	18.467	***
PVEI_3	<---	PVEI	1.161	.065	17.845	***

			Estimate	S.E.	C.R.	P
PVP_1	<---	PVP	1.000			
PVP_2	<---	PVP	1.149	.056	20.634	***
PVP_3	<---	PVP	1.118	.054	20.559	***
PVTr_1	<---	PVTr	1.000			
PVTr_2	<---	PVTr	1.427	.093	15.420	***
PVTr_3	<---	PVTr	1.471	.097	15.200	***
PVWI_1	<---	PVWI	1.000			
PVWI_2	<---	PVWI	.998	.043	23.201	***
PVWI_3	<---	PVWI	1.042	.048	21.898	***
PVPDM_1	<---	PVDM	1.000			
PVPDM_2	<---	PVDM	1.210	.061	19.824	***
PVPDM_3	<---	PVDM	1.237	.067	18.447	***
PVConv_3	<---	PVCONV	1.052	.073	14.440	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PVC_1	<---	PVC	.845
PVC_2	<---	PVC	.907
PVC_3	<---	PVC	.801
PVT_1	<---	PVT	.813
PVT_2	<---	PVT	.832
PVT_3	<---	PVT	.908
PVCom_1	<---	PVCOM	.904
PVCom_2	<---	PVCOM	.903
PVCom_3	<---	PVCOM	.939
PVConv_1	<---	PVCONV	.734
PVConv_2	<---	PVCONV	.769
PVEI_1	<---	PVEI	.816
PVEI_2	<---	PVEI	.875
PVEI_3	<---	PVEI	.855
PVP_1	<---	PVP	.807
PVP_2	<---	PVP	.941
PVP_3	<---	PVP	.939
PVTr_1	<---	PVTr	.709
PVTr_2	<---	PVTr	.916
PVTr_3	<---	PVTr	.900
PVWI_1	<---	PVWI	.894
PVWI_2	<---	PVWI	.893
PVWI_3	<---	PVWI	.869
PVPDM_1	<---	PVDM	.796
PVPDM_2	<---	PVDM	.950
PVPDM_3	<---	PVDM	.890
PVConv_3	<---	PVCONV	.854

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
PVC	<-->	PVDM	.464	.063	7.364	***	par_18
PVT	<-->	PVDM	.445	.058	7.611	***	par_19
PVCOM	<-->	PVDM	.473	.059	7.956	***	par_20
PVCONV	<-->	PVDM	.381	.055	6.884	***	par_21
PVEI	<-->	PVDM	.464	.055	8.407	***	par_22
PVP	<-->	PVDM	.472	.061	7.761	***	par_23
PVTr	<-->	PVDM	.414	.051	8.112	***	par_24
PVWI	<-->	PVDM	.552	.061	9.060	***	par_25
PVTr	<-->	PVWI	.487	.056	8.766	***	par_26
PVP	<-->	PVWI	.581	.067	8.680	***	par_27
PVEI	<-->	PVWI	.633	.064	9.934	***	par_28
PVCONV	<-->	PVWI	.527	.064	8.222	***	par_29
PVCOM	<-->	PVWI	.630	.067	9.431	***	par_30
PVT	<-->	PVWI	.546	.064	8.501	***	par_31
PVC	<-->	PVWI	.538	.068	7.941	***	par_32
PVP	<-->	PVTr	.463	.057	8.052	***	par_33
PVEI	<-->	PVTr	.465	.054	8.677	***	par_34
PVCONV	<-->	PVTr	.435	.056	7.813	***	par_35
PVCOM	<-->	PVTr	.509	.059	8.677	***	par_36
PVT	<-->	PVTr	.408	.053	7.660	***	par_37
PVC	<-->	PVTr	.373	.054	6.875	***	par_38
PVEI	<-->	PVP	.504	.062	8.191	***	par_39
PVCONV	<-->	PVP	.543	.069	7.855	***	par_40
PVCOM	<-->	PVP	.618	.071	8.664	***	par_41
PVT	<-->	PVP	.557	.069	8.052	***	par_42
PVC	<-->	PVP	.566	.074	7.692	***	par_43
PVCONV	<-->	PVEI	.504	.061	8.208	***	par_44
PVCOM	<-->	PVEI	.598	.064	9.318	***	par_45
PVT	<-->	PVEI	.492	.060	8.202	***	par_46
PVC	<-->	PVEI	.481	.063	7.639	***	par_47
PVCOM	<-->	PVCONV	.653	.073	8.901	***	par_48
PVT	<-->	PVCOM	.640	.071	8.987	***	par_49
PVC	<-->	PVCOM	.550	.071	7.703	***	par_50
PVC	<-->	PVT	.640	.076	8.429	***	par_51
PVC	<-->	PVCONV	.519	.070	7.366	***	par_52
PVT	<-->	PVCONV	.605	.072	8.424	***	par_53

Correlations: (Group number 1 - Default model)

			Estimate
PVC	<-->	PVDM	.558
PVT	<-->	PVDM	.596
PVCOM	<-->	PVDM	.597
PVCONV	<-->	PVDM	.549

			Estimate
PVEI	<-->	PVDM	.704
PVP	<-->	PVDM	.604
PVTr	<-->	PVDM	.731
PVWI	<-->	PVDM	.754
PVTr	<-->	PVWI	.794
PVP	<-->	PVWI	.688
PVEI	<-->	PVWI	.888
PVCONV	<-->	PVWI	.702
PVCOM	<-->	PVWI	.735
PVT	<-->	PVWI	.675
PVC	<-->	PVWI	.598
PVP	<-->	PVTr	.707
PVEI	<-->	PVTr	.841
PVCONV	<-->	PVTr	.747
PVCOM	<-->	PVTr	.766
PVT	<-->	PVTr	.652
PVC	<-->	PVTr	.535
PVEI	<-->	PVP	.663
PVCONV	<-->	PVP	.677
PVCOM	<-->	PVP	.676
PVT	<-->	PVP	.646
PVC	<-->	PVP	.590
PVCONV	<-->	PVEI	.745
PVCOM	<-->	PVEI	.775
PVT	<-->	PVEI	.675
PVC	<-->	PVEI	.593
PVCOM	<-->	PVCONV	.802
PVT	<-->	PVCOM	.731
PVC	<-->	PVCOM	.564
PVC	<-->	PVT	.696
PVC	<-->	PVCONV	.607
PVT	<-->	PVCONV	.788

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
PVC	1.023	.114	8.940	***
PVT	.826	.097	8.500	***
PVCOM	.928	.091	10.239	***
PVCONV	.714	.099	7.227	***
PVEI	.642	.075	8.597	***
PVP	.901	.106	8.528	***
PVTr	.475	.068	7.042	***
PVWI	.792	.079	9.990	***
PVDM	.676	.081	8.319	***

	Estimate	S.E.	C.R.	P
e1	.410	.046	8.968	***
e2	.243	.038	6.304	***
e3	.469	.047	10.069	***
e4	.423	.042	10.152	***
e5	.397	.041	9.767	***
e6	.234	.034	6.901	***
e7	.208	.022	9.321	***
e8	.199	.021	9.339	***
e9	.133	.018	7.223	***
e10	.610	.057	10.642	***
e11	.463	.045	10.188	***
e13	.321	.031	10.423	***
e14	.271	.030	9.009	***
e15	.319	.033	9.640	***
e16	.484	.043	11.185	***
e17	.152	.024	6.295	***
e18	.152	.023	6.539	***
e19	.471	.041	11.560	***
e20	.186	.025	7.391	***
e21	.241	.029	8.262	***
e22	.199	.022	8.982	***
e23	.201	.022	9.019	***
e24	.279	.029	9.793	***
e25	.392	.035	11.043	***
e26	.106	.022	4.868	***
e27	.271	.031	8.800	***
e12	.294	.037	8.053	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
PVConv_3	.729
PVPDM_3	.792
PVPDM_2	.903
PVPDM_1	.633
PVWI_3	.755
PVWI_2	.797
PVWI_1	.799
PVTr_3	.810
PVTr_2	.839
PVTr_1	.502
PVP_3	.881
PVP_2	.886
PVP_1	.651
PVEI_3	.731

	Estimate
PVEI_2	.766
PVEI_1	.666
PVConv_2	.591
PVConv_1	.539
PVCom_3	.882
PVCom_2	.816
PVCom_1	.817
PVT_3	.824
PVT_2	.692
PVT_1	.661
PVC_3	.641
PVC_2	.822
PVC_1	.714

Table E3: CFA for the PEOU measures

Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments	6
Number of distinct parameters to be estimated	6
Degrees of freedom (6 - 6)	0

Result (Default model)
Minimum was achieved
Chi-square = .000
Degrees of freedom = 0
Probability level cannot be computed

Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
PEOU_3	<---	EOU	1.000			
PEOU_2	<---	EOU	1.303	.120	10.832	***
PEOU_1	<---	EOU	1.178	.106	11.061	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PEOU_3	<---	EOU	.624
PEOU_2	<---	EOU	.890
PEOU_1	<---	EOU	.830

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
EOU	.388	.068	5.726	***
e3	.608	.054	11.164	***
e1	.243	.039	6.228	***

	Estimate	S.E.	C.R.	P
e2	.172	.044	3.937	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
PEOU_1	.688
PEOU_2	.793
PEOU_3	.389

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	6	.000	0		
Saturated model	6	.000	0		
Independence model	3	372.955	3	.000	124.318

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.000	1.000		
Saturated model	.000	1.000		
Independence model	.369	.572	.144	.286

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.629	.576	.683	.000

Table E4: CFA for the PU measures

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments	6
Number of distinct parameters to be estimated	6
Degrees of freedom (6 - 6)	0

Result (Default model)

Minimum was achieved

Chi-square = .000

Degrees of freedom = 0

Probability level cannot be computed

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
PU_3	<---	PU	1.000			
PU_2	<---	PU	.913	.063	14.514	***
PU_1	<---	PU	.989	.067	14.749	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PU_3	<---	PU	.794
PU_2	<---	PU	.819
PU_1	<---	PU	.852

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
PU	.720	.091	7.869	***
e3	.422	.048	8.821	***
e2	.294	.037	7.989	***
e1	.265	.039	6.729	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
PU_1	.727
PU_2	.671
PU_3	.630

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	6	.000	0		
Saturated model	6	.000	0		
Independence model	3	437.583	3	.000	145.861

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.000	1.000		
Saturated model	.000	1.000		
Independence model	.476	.523	.046	.261

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.681	.628	.736	.000

Table E5: CFA for the ITU measures

Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments	6
Number of distinct parameters to be estimated	6
Degrees of freedom (6 - 6)	0

Result (Default model)
Minimum was achieved
Chi-square = .000
Degrees of freedom = 0
Probability level cannot be computed

Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
ITU_3 <--- ITU	1.000			
ITU_2 <--- ITU	1.112	.113	9.869	***
ITU_1 <--- ITU	1.250	.133	9.409	***

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
ITU_3 <--- ITU	.641
ITU_2 <--- ITU	.700
ITU_1 <--- ITU	.878

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
ITU	.470	.084	5.600	***
e3	.673	.067	10.062	***
e2	.603	.069	8.766	***
e1	.218	.064	3.385	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
ITU_1	.771
ITU_2	.491
ITU_3	.411

Model Fit Summary
CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	12	.000	0		

Model	NPAR	CMIN	DF	P	CMIN/DF
Saturated model	12	.000	0		
Independence model	6	550.358	6	.000	91.726

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.000	1.000		
Saturated model	.000	1.000		
Independence model	.417	.626	.251	.313

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.381	.355	.409	.000

Table E6: CFA for the UB measures

Notes for Model (Default model)
Computation of degrees of freedom (Default model)

Number of distinct sample moments	6
Number of distinct parameters to be estimated	6
Degrees of freedom (6 - 6)	0

Result (Default model)
Minimum was achieved
Chi-square = .000
Degrees of freedom = 0
Probability level cannot be computed

Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
UB_3	<---	UB	1.000			
UB_2	<---	UB	1.494	.111	13.443	***
UB_1	<---	UB	1.555	.116	13.405	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
UB_3	<---	UB	.683
UB_2	<---	UB	.883
UB_1	<---	UB	.908

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
UB	.444	.067	6.587	***
e1	.507	.045	11.216	***
e2	.280	.050	5.624	***
e3	.229	.051	4.450	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
UB_1	.824
UB_2	.780
UB_3	.467

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	6	.000	0		
Saturated model	6	.000	0		
Independence model	3	489.430	3	.000	163.143

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.000	1.000		
Saturated model	.000	1.000		
Independence model	.575	.519	.037	.259

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.721	.668	.775	.000

Table E7: CFA for the whole measurement model measures

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments	741
Number of distinct parameters to be estimated	155
Degrees of freedom (741 - 155)	586

Result (Default model)

Minimum was achieved
Chi-square = 1411.487
Degrees of freedom = 586
Probability level = .000
Maximum Likelihood Estimates
Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
PU_3	<---	PU	1.000			
PU_2	<---	PU	.904	.058	15.493	***
PU_1	<---	PU	.933	.061	15.378	***
PEOU_3	<---	PEOU	1.000			
PEOU_2	<---	PEOU	1.818	.212	8.581	***
PEOU_1	<---	PEOU	1.538	.175	8.802	***
ITU3	<---	ITU	1.000			
ITU2	<---	ITU	1.252	.107	11.681	***
UB_3	<---	UB	1.000			
UB_2	<---	UB	1.045	.090	11.642	***
UB_1	<---	UB	1.344	.089	15.063	***
PVC_1	<---	PVC	1.000			
PVC_2	<---	PVC	1.037	.053	19.607	***
PVC_3	<---	PVC	.898	.054	16.700	***
PVT_1	<---	PVT	1.000			
PVT_2	<---	PVT	1.042	.061	16.968	***
PVT_3	<---	PVT	1.147	.061	18.838	***
PVCom_1	<---	PVCOM	1.000			
PVCom_2	<---	PVCOM	.972	.039	25.146	***
PVCom_3	<---	PVCOM	1.036	.037	27.753	***
PVEI_1	<---	PVEI	1.000			
PVEI_2	<---	PVEI	1.176	.063	18.552	***
PVEI_3	<---	PVEI	1.157	.065	17.826	***
PVConv_1	<---	PVCONV	1.000			
PVConv_2	<---	PVCONV	.969	.072	13.421	***
PVConv_3	<---	PVCONV	1.033	.071	14.602	***
PVP_1	<---	PVP	1.000			
PVP_2	<---	PVP	1.149	.056	20.631	***
PVP_3	<---	PVP	1.118	.054	20.543	***
PVTr_1	<---	PVTR	1.000			
PVTr_2	<---	PVTR	1.429	.092	15.467	***
PVTr_3	<---	PVTR	1.467	.097	15.188	***
PVWI_1	<---	PVWI	1.000			
PVWI_2	<---	PVWI	.997	.043	23.426	***
PVWI_3	<---	PVWI	1.037	.047	21.940	***
PVPDM_1	<---	PVPDM	1.000			
PVPDM_2	<---	PVPDM	1.208	.061	19.810	***
PVPDM_3	<---	PVPDM	1.238	.067	18.473	***

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
PU_3	<---	PU	.812
PU_2	<---	PU	.830
PU_1	<---	PU	.823
PEOU_3	<---	PEOU	.510
PEOU_2	<---	PEOU	.914
PEOU_1	<---	PEOU	.797
ITU3	<---	ITU	.615
ITU2	<---	ITU	.710
UB_3	<---	UB	.732
UB_2	<---	UB	.662
UB_1	<---	UB	.841
PVC_1	<---	PVC	.850
PVC_2	<---	PVC	.903
PVC_3	<---	PVC	.799
PVT_1	<---	PVT	.814
PVT_2	<---	PVT	.834
PVT_3	<---	PVT	.905
PVCom_1	<---	PVCOM	.905
PVCom_2	<---	PVCOM	.903
PVCom_3	<---	PVCOM	.939
PVEI_1	<---	PVEI	.817
PVEI_2	<---	PVEI	.877
PVEI_3	<---	PVEI	.853
PVConv_1	<---	PVCONV	.740
PVConv_2	<---	PVCONV	.777
PVConv_3	<---	PVCONV	.845
PVP_1	<---	PVP	.806
PVP_2	<---	PVP	.942
PVP_3	<---	PVP	.938
PVTr_1	<---	PVTR	.709
PVTr_2	<---	PVTR	.918
PVTr_3	<---	PVTR	.898
PVWI_1	<---	PVWI	.895
PVWI_2	<---	PVWI	.893
PVWI_3	<---	PVWI	.866
PVPDM_1	<---	PVPDM	.796
PVPDM_2	<---	PVPDM	.949
PVPDM_3	<---	PVPDM	.891

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P
PVC	<-->	PVPDM	.468	.063	7.388	***
PVT	<-->	PVPDM	.446	.059	7.617	***

			Estimate	S.E.	C.R.	P
PVCOM	<-->	PVPDM	.474	.060	7.964	***
PVCONV	<-->	PVPDM	.383	.056	6.896	***
PVEI	<-->	PVPDM	.464	.055	8.412	***
PVP	<-->	PVPDM	.472	.061	7.762	***
PVTR	<-->	PVPDM	.415	.051	8.116	***
PVWI	<-->	PVPDM	.553	.061	9.071	***
PVC	<-->	PVWI	.542	.068	7.965	***
PVT	<-->	PVWI	.548	.064	8.513	***
PVCOM	<-->	PVWI	.632	.067	9.447	***
PVCONV	<-->	PVWI	.533	.064	8.268	***
PVEI	<-->	PVWI	.635	.064	9.952	***
PVP	<-->	PVWI	.582	.067	8.685	***
PVTR	<-->	PVWI	.488	.056	8.777	***
PVC	<-->	PVTR	.377	.055	6.899	***
PVT	<-->	PVTR	.409	.053	7.661	***
PVCOM	<-->	PVTR	.510	.059	8.683	***
PVCONV	<-->	PVTR	.437	.056	7.832	***
PVEI	<-->	PVTR	.465	.054	8.684	***
PVP	<-->	PVTR	.463	.057	8.052	***
PVC	<-->	PVP	.570	.074	7.712	***
PVT	<-->	PVP	.557	.069	8.051	***
PVCONV	<-->	PVP	.545	.069	7.875	***
PVEI	<-->	PVP	.504	.062	8.193	***
PVC	<-->	PVEI	.485	.063	7.667	***
PVT	<-->	PVEI	.492	.060	8.204	***
PVEI	<-->	PVCONV	.507	.062	8.242	***
PVC	<-->	PVCONV	.527	.071	7.414	***
PVT	<-->	PVCONV	.610	.072	8.466	***
PVCOM	<-->	PVCONV	.659	.074	8.955	***
PVC	<-->	PVCOM	.555	.072	7.734	***
PVT	<-->	PVCOM	.641	.071	8.996	***
PVC	<-->	PVT	.646	.076	8.466	***
PU	<-->	UB	.389	.053	7.290	***
PU	<-->	ITU	.360	.055	6.541	***
PU	<-->	PEOU	.131	.031	4.274	***
PEOU	<-->	ITU	.082	.026	3.155	.002
PEOU	<-->	UB	.095	.025	3.737	***
ITU	<-->	UB	.568	.064	8.837	***
PVCOM	<-->	PVEI	.599	.064	9.325	***
PVCOM	<-->	PVP	.619	.071	8.668	***
PU	<-->	PVC	.432	.066	6.577	***
PU	<-->	PVT	.433	.061	7.072	***
PU	<-->	PVCOM	.355	.059	6.059	***
PU	<-->	PVCONV	.389	.059	6.577	***

			Estimate	S.E.	C.R.	P
PEOU	<-->	PVC	.069	.031	2.223	.026
PEOU	<-->	PVT	.113	.030	3.759	***
PEOU	<-->	PVCOM	.130	.032	4.093	***
PEOU	<-->	PVEI	.076	.025	2.999	.003
PEOU	<-->	PVCONV	.141	.032	4.484	***
PEOU	<-->	PVP	.086	.029	2.966	.003
ITU	<-->	PVEI	.378	.052	7.211	***
ITU	<-->	PVCONV	.438	.060	7.258	***
ITU	<-->	PVP	.423	.060	7.047	***
ITU	<-->	PVTR	.291	.045	6.510	***
UB	<-->	PVEI	.349	.048	7.258	***
UB	<-->	PVCONV	.433	.057	7.611	***
UB	<-->	PVP	.390	.055	7.078	***
UB	<-->	PVTR	.285	.042	6.783	***
UB	<-->	PVWI	.437	.054	8.089	***
UB	<-->	PVPDM	.319	.047	6.763	***
PU	<-->	PVP	.372	.060	6.244	***
PU	<-->	PVEI	.284	.050	5.669	***
UB	<-->	PVCOM	.429	.056	7.668	***
UB	<-->	PVT	.389	.054	7.165	***
UB	<-->	PVC	.364	.057	6.385	***
PU	<-->	PVTR	.239	.044	5.476	***
PU	<-->	PVWI	.384	.057	6.777	***
PU	<-->	PVPDM	.282	.050	5.585	***
ITU	<-->	PVC	.439	.064	6.879	***
ITU	<-->	PVT	.398	.058	6.876	***
ITU	<-->	PVCOM	.451	.060	7.453	***
PEOU	<-->	PVPDM	.067	.025	2.665	.008
PEOU	<-->	PVWI	.068	.027	2.512	.012
PEOU	<-->	PVTR	.090	.023	3.876	***
ITU	<-->	PVPDM	.327	.050	6.502	***
ITU	<-->	PVWI	.460	.059	7.852	***
e10	<-->	e11	.316	.045	6.979	***

Correlations: (Group number 1 - Default model)

			Estimate
PVC	<-->	PVPDM	.559
PVT	<-->	PVPDM	.596
PVCOM	<-->	PVPDM	.598
PVCONV	<-->	PVPDM	.547
PVEI	<-->	PVPDM	.705
PVP	<-->	PVPDM	.605
PVTR	<-->	PVPDM	.731
PVWI	<-->	PVPDM	.755

			Estimate
PVC	<-->	PVWI	.598
PVT	<-->	PVWI	.675
PVCOM	<-->	PVWI	.735
PVCONV	<-->	PVWI	.701
PVEI	<-->	PVWI	.889
PVP	<-->	PVWI	.688
PVTR	<-->	PVWI	.794
PVC	<-->	PVTR	.537
PVT	<-->	PVTR	.651
PVCOM	<-->	PVTR	.766
PVCONV	<-->	PVTR	.743
PVEI	<-->	PVTR	.841
PVP	<-->	PVTR	.707
PVC	<-->	PVP	.590
PVT	<-->	PVP	.645
PVCONV	<-->	PVP	.675
PVEI	<-->	PVP	.663
PVC	<-->	PVEI	.595
PVT	<-->	PVEI	.675
PVEI	<-->	PVCONV	.743
PVC	<-->	PVCONV	.608
PVT	<-->	PVCONV	.787
PVCOM	<-->	PVCONV	.802
PVC	<-->	PVCOM	.566
PVT	<-->	PVCOM	.731
PVC	<-->	PVT	.698
PU	<-->	UB	.628
PU	<-->	ITU	.617
PU	<-->	PEOU	.329
PEOU	<-->	ITU	.266
PEOU	<-->	UB	.291
ITU	<-->	UB	1.185
PVCOM	<-->	PVEI	.775
PVCOM	<-->	PVP	.676
PU	<-->	PVC	.489
PU	<-->	PVT	.548
PU	<-->	PVCOM	.424
PU	<-->	PVCONV	.526
PEOU	<-->	PVC	.147
PEOU	<-->	PVT	.272
PEOU	<-->	PVCOM	.294
PEOU	<-->	PVEI	.207
PEOU	<-->	PVCONV	.362
PEOU	<-->	PVP	.199

			Estimate
ITU	<-->	PVEI	.702
ITU	<-->	PVCONV	.766
ITU	<-->	PVP	.664
ITU	<-->	PVTR	.628
UB	<-->	PVEI	.610
UB	<-->	PVCONV	.711
UB	<-->	PVP	.576
UB	<-->	PVTR	.579
UB	<-->	PVWI	.687
UB	<-->	PVPDM	.544
PU	<-->	PVP	.452
PU	<-->	PVEI	.409
UB	<-->	PVCOM	.623
UB	<-->	PVT	.598
UB	<-->	PVC	.501
PU	<-->	PVTR	.400
PU	<-->	PVWI	.496
PU	<-->	PVPDM	.394
ITU	<-->	PVC	.643
ITU	<-->	PVT	.651
ITU	<-->	PVCOM	.696
PEOU	<-->	PVPDM	.177
PEOU	<-->	PVWI	.167
PEOU	<-->	PVTR	.285
ITU	<-->	PVPDM	.592
ITU	<-->	PVWI	.768
e10	<-->	e11	.604

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
PU	.754	.091	8.245	***
PEOU	.210	.047	4.507	***
ITU	.451	.080	5.629	***
UB	.510	.070	7.264	***
PVC	1.034	.115	9.025	***
PVT	.828	.097	8.516	***
PVCOM	.931	.091	10.261	***
PVEI	.643	.075	8.611	***
PVCONV	.726	.099	7.333	***
PVP	.900	.106	8.523	***
PVTR	.476	.068	7.048	***
PVWI	.794	.079	10.032	***
PVPDM	.676	.081	8.322	***
e1	.388	.044	8.830	***

	Estimate	S.E.	C.R.	P
e2	.278	.033	8.310	***
e3	.312	.037	8.518	***
e4	.596	.051	11.785	***
e5	.137	.048	2.868	.004
e6	.285	.041	7.029	***
e7	.741	.066	11.233	***
e8	.694	.072	9.693	***
e9	.441	.040	10.941	***
e10	.714	.063	11.349	***
e11	.382	.047	8.196	***
e12	.398	.045	8.883	***
e13	.251	.038	6.580	***
e14	.473	.047	10.136	***
e15	.421	.041	10.157	***
e16	.393	.040	9.742	***
e17	.240	.034	7.081	***
e18	.206	.022	9.289	***
e19	.200	.021	9.389	***
e20	.134	.018	7.257	***
e21	.320	.031	10.428	***
e22	.268	.030	8.989	***
e23	.323	.033	9.713	***
e24	.598	.056	10.669	***
e25	.449	.044	10.182	***
e26	.310	.036	8.546	***
e27	.485	.043	11.193	***
e28	.152	.024	6.291	***
e29	.153	.023	6.575	***
e30	.471	.041	11.567	***
e31	.182	.025	7.320	***
e32	.246	.029	8.411	***
e33	.196	.022	9.052	***
e34	.200	.022	9.144	***
e35	.284	.029	9.957	***
e36	.392	.035	11.036	***
e37	.108	.022	4.962	***
e38	.269	.031	8.759	***

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
PVPDM_3	.794
PVPDM_2	.901
PVPDM_1	.633
PVWI_3	.751

	Estimate
PVWI_2	.798
PVWI_1	.802
PVTr_3	.806
PVTr_2	.842
PVTr_1	.503
PVP_3	.881
PVP_2	.887
PVP_1	.650
PVConv_3	.714
PVConv_2	.603
PVConv_1	.548
PVEI_3	.727
PVEI_2	.768
PVEI_1	.668
PVCom_3	.882
PVCom_2	.815
PVCom_1	.819
PVT_3	.820
PVT_2	.696
PVT_1	.663
PVC_3	.638
PVC_2	.816
PVC_1	.722
UB_1	.707
UB_2	.438
UB_3	.536
ITU2	.504
ITU3	.378
PEOU_1	.635
PEOU_2	.835
PEOU_3	.260
PU_1	.678
PU_2	.689
PU_3	.660

Appendix F: Comparison of different approaches

Philosophical assumption	**Positivism**	**Post-positivism**	**Critical theory**	**Constructivism**
Ontology	Native realism: real reality exists	Critical realism: real reality but	Historical realism: virtual reality shaped by	Relativism: local and specific

	but is apprehend able. It is conventionally summed up in time and context-free generalisations, and is based on cause effect laws.	only imperfectly and probabilistically apprehend able.	social, political, cultural, economic, ethnic, and gender values; crystallised over time.	constructed realities
Epistemology	Dualist/objectivist; finding true	Modified dualist/ objectivist; critical tradition / community; findings probably true.	Transactional / subjectivist; value mediated findings.	Transactional / subjectivist; created findings.
Methodology	Experimental/ manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/ manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods.	Dialogic/dialectical	Hermeneutical/ dialectical

Source: (Guba & Lincoln 1994)**.**